

ABSTRACT

Information Leaks and Information Systems

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While the rise of WikiLeaks and other leak-related organizations has been reflected in the research in international relations, it has received limited focus within the field of information systems. This study surveyed current college students in order to understand what factors may play a role in encouraging students to show a degree of concern in regards to information leaks. Factors such as concernment about the national security of the United States and demographics have been analyzed against the degree of concern about information leaks reported by the students in the survey. The paper concludes with calls for further research within the field of information systems in regards to the impacts of information leaks and other leak-related organizations.

Information Leaks and Information Systems

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CHAPTER ONE

Introduction

Mark Zuckerberg, the founder of the social network Facebook, and Julian Assange, the founder of the “leak”¹ organization WikiLeaks, have often been compared to one another for their apparent similarities. The two individuals are perhaps both best known for their roles in facilitating the spread of information online, although the two have done so through remarkably different methods. When Zuckerberg was selected in 2010 as Time Magazine’s “Person of the Year,” Richard Stengel wrote:

Like two of our runners-up this year, Julian Assange and the Tea Party, Mark Zuckerberg doesn't have a whole lot of veneration for traditional authority. In a sense, Zuckerberg and Assange are two sides of the same coin. Both express a desire for openness and transparency. While Assange attacks big institutions and governments through involuntary transparency with the goal of disempowering them, Zuckerberg enables individuals to voluntarily share information with the idea of empowering them. Assange sees the world as filled with real and imagined enemies; Zuckerberg sees the world as filled with potential friends. Both have a certain disdain for privacy: in Assange's case because he feels it allows malevolence to flourish; in Zuckerberg's case because he sees it as a cultural anachronism, an impediment to a more efficient and open connection between people.²

Assange and Zuckerberg have been frequently compared for their similarities, but little has been made about the impact that the two have had on information systems as

¹ “Leak” is a term that will have different meanings throughout this thesis, but it will be defined in context as necessary. Generally, a leak is an unauthorized release of information to a third party.

² Stengel, Richard. "Only Connect - Person of the Year 2010 - TIME." Breaking News, Analysis, Politics, Blogs, News Photos, Video, Tech Reviews - TIME.com. December 15, 2010. Accessed December 05, 2011. http://www.time.com/time/specials/packages/article/0,28804,2036683_2037181_2037179,00.html.

both a field of study and as a profession. If anything, while some studies have been done exploring the impact that social networks have had on information systems professionals, such as Peter Mika's "Ontologies Are Us: A Unified Model of Social Networks and Semantics"³ and "Trust and Privacy Concern Within Social Networking Sites: A Comparison of Facebook and MySpace" by Catherine Dwyer, Starr Hiltz, and Katia Passerini⁴, no notable studies have been done to answer what appears to be a prudent question: how have "megaleak"⁵ organizations like WikiLeaks and individuals like Julian Assange changed the way that information systems professionals and students view their field? For something as interconnected as information systems and leak organizations are, little academic research has been done to explore the impact that leak organizations have had on the field and professionals working in it, despite clear evidence that leak-related organizations are indeed having an impact on individuals in the field. The transparency movement is clearly affecting information systems professionals, as evidenced by the fact that individuals in the federal government are looking to tighten security in response to WikiLeaks.⁶

³ Mika, Peter. "CiteSeer" Ontologies Are Us: A Unified Model of Social Networks and Semantics." CiteSeer" Ontologies Are Us: A Unified Model of Social Networks and Semantics. 2005. Accessed June 18, 2012. <http://citeseer.ist.psu.edu/viewdoc/summary?doi=10.1.1.142.7750>.

⁴ Dwyer, Catherine, Starr Hiltz, and Katia Passerini. "AIS Electronic Library (AISeL)." "Trust and Privacy Concern Within Social Networking Sites: A Comparison" by Catherine Dwyer, Starr Hiltz Et Al. 2007. Accessed June 18, 2012. <http://aisel.aisnet.org/amcis2007/339/>.

⁵ "Megaleak" is a term used to describe a massive release of information by a third party without authorization by the creators of the information in question.

A desire for increased transparency of information has roots in almost every era of human history, elements of what led to the modern transparency movement were undoubtedly present at the time of the English Reformation, if not even earlier in history⁷. The modern movement may have been inadvertently shaped by the Reformation, which was arguably the first such movement to truly challenge Papal authority and to question the idea that any Papal action was just. If not any action taken by leadership was just or appropriate, then it seemed reasonable to ask for explanations as to why certain actions were taken over others. Thomas Cromwell, a chief minister for Henry VIII, played a major role in this rebellion against the authority of the Catholic church.⁸

Recently, there have been great efforts on the part of transparency activists to make governments more transparent and it is at this intersection that information systems and the transparency movement first meet. Sen. John McCain (R-Arizona), during his 2008 campaign for the presidency, made transparency a major part of his campaign platform, saying, "My administration will set a new standard for transparency and accountability" if he was to be elected.⁹ His opponent, then Sen. Barack Obama (D-Illinois), who was, of course, later elected to the presidency, made similar promises.

⁶ McCullagh, Declan. "Stung by WikiLeaks Breach, Feds Look to Tighten Security Systems." CBSNews. November 30, 2010. Accessed June 18, 2012. http://www.cbsnews.com/8301-501465_162-20024081-501465.html.

⁷ Lobsien, Verena Olejniczak. *Transparency and Dissimulation: Configurations of Neoplatonism in Early Modern English Literature*. Berlin: De Gruyter, 2010. Pg. 2.

⁸ Leithead, Howard (2009). *Cromwell, Thomas, Earl of Essex (b. in or before 1485, d. 1540)*. Oxford Dictionary of National Biography.

⁹ Meckler, Laura. "McCain Promises Transparency, Accountability - Washington Wire - WSJ." WSJ Blogs - WSJ. May 15, 2008. Accessed December 05, 2011.

Although such promises are a frequent part of campaign platforms for American politicians, one could reasonably argue that the most major push towards more transparency in government has not come from politicians, but from leak organizations such as WikiLeaks. WikiLeaks released more than 250,000 classified State Department cables in 2010, a move that was, somewhat ironically, criticized by the Obama administration.¹⁰ The author of the article, Ben Birnbaum, explains further, writing:

The document release follows similar large-scale disclosures on the wars in Afghanistan and Iraq. Posted were 243,270 cables from U.S. embassies to the State Department, offering details of secret meetings and often unflattering assessments of host country leaders, as well as 8,017 directives sent by the State Department to its emissaries around the globe. They are as recent as February of this year, and about 90 percent of them are dated 2004 or after¹¹.

As the responsibility for keeping these classified cables secure undoubtedly belonged, at least partially, with information systems professionals, there can be little doubt that by 2010, the transparency movement had truly begun to affect the information systems field.

This is a connection that the Obama administration has already begun to acknowledge. Declan McCullagh, writing for CBS News, explained that the Obama administration responded to the leaks “by tightening computer security. A one-page memo...from the White House's Office of Management and Budget this week orders

<http://blogs.wsj.com/washwire/2008/05/15/mccain-promises-transparency-accountability/>.

¹⁰ Birnbaum, Ben. "WikiLeaks Releases State Department Cables - Washington Times." Washington Times - Politics, Breaking News, US and World News. November 28, 2010. Accessed December 05, 2011. <http://www.washingtontimes.com/news/2010/nov/28/wikileaks-releases-state-reports/?page=all>.

¹¹ Ibid.

federal agencies to ‘ensure that users do not have broader access than is necessary to do their jobs effectively.’”¹²

Clearly it is information systems professionals that will be playing a major role in these security changes. In fact, McCullagh reports that “the leaked files apparently originated from the U.S. Defense Department's SIPRNET (Secret Internet Protocol Router Network), which is used for exchanging information up to the secret level, and is jointly administered by the NSA, the Defense Intelligence Agency, and the Defense Information Systems Agency.”¹³ Obviously anything that has an effect on the Defense Information Systems Agency (DISA) is likely to have an impact on the entire information systems field.

This line of ethical reasoning being used to justify the existence of leak organizations — that all powers should be more open in their dealings with each other as well as their internal decisions, as leak-organization operators would advocate — which was first applied to religious institutions and then later to governments, has only recently been applied to corporations. Corporations enjoy a wide variety of protections as related to information and information security, not the least of which involve trade secrets. U.S. federal law goes to great lengths to define and protect trade secrets, explaining in one section of U.S. code (Title 18) that:

(3) the term “trade secret” means all forms and types of financial, business, scientific, technical, economic, or engineering information, including patterns, plans, compilations, program devices, formulas,

¹² McCullagh, Declan. "Stung by WikiLeaks Breach, Feds Look to Tighten Security Systems." *Stung by WikiLeaks Breach, Feds Look to Tighten Security Systems - Tech Talk - CBS News*. November 30, 2010. Accessed December 5, 2011. http://www.cbsnews.com/8301-501465_162-20024081-501465.html.

¹³ *Ibid.*

designs, prototypes, methods, techniques, processes, procedures, programs, or codes, whether tangible or intangible, and whether or how stored, compiled, or memorialized physically, electronically, graphically, photographically, or in writing if—

(A) the owner thereof has taken reasonable measures to keep such information secret; and

(B) the information derives independent economic value, actual or potential, from not being generally known to, and not being readily ascertainable through proper means by, the public...¹⁴

Although trade secrets are just one of many information-related elements of corporatism that are protected in the United States, one can easily see by reading the legal definition that the term is wide in scope and encompasses a large number of elements that are considered protected under U.S. law. This, unlike the religious secrecy of the Catholic Church before the English Reformation, is largely still both in effect and unquestioned by authorities.

The movement that WikiLeaks has inspired, with libertarian leanings and ties to hacker collectives like Anonymous and LulzSec¹⁵, is arguably the first widespread movement attempting to erode the information-related protections enjoyed by American corporations. This means that, arguably for the first time in history, the transparency movement is affecting American corporations and employees, yet little academic effort has been made to understand why this is happening and how individual employees are reacting.

¹⁴ "United States Code: Title 18,1839 Definitions | LII / Legal Information Institute." Accessed December 5, 2011. <http://www.law.cornell.edu/uscode/18/1839.html>.

¹⁵ Zetter, Kim. "Researchers: Anonymous and LulzSec Need to Focus Their Chaos | Threat Level | Wired.com." Wired.com. August 6, 2011. Accessed December 05, 2011. <http://www.wired.com/threatlevel/2011/08/defcon-anonymous-panel/>.

WikiLeaks has publicly stated that they wish to begin targeting American corporations like Bank of America more than they have in the past. In a November 30, 2010 article for *The New York Times* titled, “WikiLeaks’ Next Target: Bank of America?” reporter Michael J. De La Merced writes:

In an October 2009 interview with Computerworld, Mr. Assange said that he had obtained copious amounts of data from a Bank of America executive’s hard drive.

From the Computerworld piece:

At the moment, for example, we are sitting on 5GB from Bank of America, one of the executive’s hard drives,” he said. “Now how do we present that? It’s a difficult problem. We could just dump it all into one giant Zip file, but we know for a fact that has limited impact. To have impact, it needs to be easy for people to dive in and search it and get something out of it.¹⁶

De Le Merced goes onto explain that Bank of America spokesman Scott Silvestri revealed a relative lack of concern on the part of Bank of America, saying, “More than a year ago WikiLeaks claimed to have the computer hard drive of a Bank of America executive. Aside from the claims themselves we have no evidence that supports this assertion. We are unaware of any new claims by WikiLeaks that pertain specifically to Bank of America.”¹⁷

In a separate article for *The New York Times* that will be more thoroughly analyzed in the “Literature Review” section of this paper, journalist Michael J. Schwartz writes “that Mr. Assange might shift his attention to a private company — especially one

¹⁶ De La Merced, Michael J. "WikiLeaks' Next Target: Bank of America? - NYTimes.com." Mergers, Acquisitions, Venture Capital, Hedge Funds - DealBook - NYTimes.com. November 30, 2010. Accessed December 05, 2011. <http://dealbook.nytimes.com/2010/11/30/wikileaks-next-target-bank-of-america/>.

¹⁷ Ibid.

as politically unpopular as Bank of America or any of its rivals, which have been stained by taxpayer-financed bailouts and the revelation of improper foreclosure practices — [and that] raises a new kind of corporate threat, combining elements of law, technology, public policy, politics and public relations.”¹⁸

As of the time of this study, WikiLeaks has not yet released any information on Bank of America, but their public statements would seem to indicate that they will be placing a greater focus on corporations — not just government activity — in the future with their leaks and other leak-related organizations, such as OpenLeaks, are likely to follow their lead. Information systems professionals working for companies like Bank of America will likely be the employees most affected by these changes, although how many of these employees are showing active concern about the issue is something that has been largely ignored in academic research.

This paper seeks to shed light on the issue by asking whether or not individuals with ties to the information systems profession (academics, students and professionals) care more about WikiLeaks and other megaleak organizations than the general populace. Both possible results have potentially widespread impacts for both the profession and future studies. If information systems denizens¹⁹ are less concerned about WikiLeaks and other leak-related organizations than the general populace, this means that they are likely not taking major steps to combat the release of classified information, something

¹⁸ Schwartz, Nelson D. "Facing Threat From WikiLeaks, Bank Plays Defense." Facing Threat From WikiLeaks, Bank Plays Defense - NYTimes.com. January 2, 2011. Accessed December 5, 2011. <http://www.nytimes.com/2011/01/03/business/03wikileaks-bank.html?pagewanted=all>.

¹⁹ Due to the variety of individuals analyzed in this study, I use the all-encompassing term “information systems denizens” to refer to those who are “inhabiting” information systems as a profession or field of study.

that has potentially profound impacts for a wide variety of individuals.²⁰ If information systems denizens are more concerned with WikiLeaks and other leak-related organizations, this also has implications for future studies that will be explored throughout this paper.

I personally wish to test the hypothesis that information systems denizens are, in fact, more concerned with WikiLeaks and other leak-related organizations than the general populace. Although no study has explored this in-depth enough for me to have any real scientific basis for this hypothesis, it seems likely given the close ties that the field has to such organizations. As both are primarily concerned with the flow and access of information, it seems likely the information denizens would care more than the general populace about who is releasing classified information.

To assume otherwise would require one to disregard the intrinsic similarities that information systems denizens and the operators of leak organizations have. In fact, depending on what the individual operators of leak organizations do as an occupation or studied in higher education, they themselves might actually be classified as information systems denizens for the purpose of this paper.²¹

Indeed, as I will elaborate on further in the “Literature Review” section of this paper, Daniel Domscheit-Berg — one of the co-founders of WikiLeaks as well as OpenLeaks, its major rival organization — would undoubtedly be considered an information system denizen. Domscheit-Berg worked in information technology before

²⁰ This will be discussed more in-depth in the “Conclusions” section of this paper.

²¹ This is a connection that will be explored throughout the paper, particularly in the sections on methodology and on an analysis of professionals in information systems.

beginning to work for WikiLeaks full time and still plays a major role in working with information technology as part of his responsibilities as a founder of OpenLeaks.²²

Even Julian Assange, arguably the most important leak organization operator known for his role as the founder and leader of WikiLeaks, could be classified as an information systems denizen by the definitions of this study. Assange was widely known in the hacker community before ever starting WikiLeaks, having hacked the U.S. Air Force, amongst other targets²³. Assange is a skilled programmer, having played a major role in contributing to the PostgreSQL project (an object-relational database management system²⁴), amongst others²⁵. Ironically, Assange even played a technical role in helping Australian police catch and prosecute purveyors of child pornography.²⁶ As someone educated in information technology and having worked in fields related to information

²² Domscheit-Berg, Daniel, Tina Klopp, and Jefferson Chase. *Inside Wikileaks: My Time with Julian Assange at the World's Most Dangerous Website*. New York: Crown Publishers, 2011.

²³ Shears, Richard. "WikiLeaks Boss Assange Fathered a Son with a Girl of 17 - as He Learned the Dark Arts of Computer Hacking in a Rundown Cottage | Mail Online." Home | Mail Online. December 20, 2010. Accessed December 05, 2011. <http://www.dailymail.co.uk/news/article-1340057/WikiLeaks-boss-Assange-fathered-son-girl-17--learned-dark-arts-hacking-rundown-cottage.html>.

²⁴ "What Is PostgreSQL?" PostgreSQL: Documentation: 9.1: What Is PostgreSQL? Accessed July 12, 2012. <http://www.postgresql.org/docs/current/static/intro-what-is.html>.

²⁵ "PostgreSQL: Contributor Profiles." PostgreSQL: Welcome. Accessed December 05, 2011. <http://www.postgresql.org/community/contributors/>.

²⁶ Butcher, Steve. "Assange Helped Our Police Catch Child Pornographers." The Age - Business, World & Breaking News | Melbourne, Australia. February 12, 2011. Accessed December 05, 2011. <http://www.theage.com.au/victoria/assange-helped-our-police-catch-child-pornographers-20110211-1aql.html>.

systems, Assange would certainly meet the requirements to be classified as an information systems denizen in this study.

In order to do this study, I have created a questionnaire that asks respondents to identify certain characteristics about their careers and/or educational background that will allow me to classify them as either information systems denizens or members of the general populations. Respondents will be asked to identify whether or not they have studied or hold a degree in some kind of information systems or information studies-related field and also whether or not they work with information systems as part of their careers. As many of the respondents will be students who are currently not involved in traditional employment, this allows them to be encompassed as information systems denizens alongside those who are already working in information systems. This is important to note, because these students are likely representative of future trends in the information systems profession and therefore they are worth studying.

The term “general populace” will be used to encompass those who do not identify themselves as having any of the characteristics of information systems denizens. These respondents will be used for comparative purposes so that the true impact of WikiLeaks and other leak-related organizations on information systems denizens can be explored. Merely showing that information systems denizens are concerned with the rise of leak-related organizations would not be satisfactory for the purpose of this study; the questionnaire has been created in such a way to hopefully elicit responses that will show whether or not information systems denizens are more or less concerned with the rise of these organizations than the general public.

It is worth noting, however, that this does mean that the group of individuals encompassing the “general populace” will have a wide variety of interests and specialties, which could potentially lead to some mixed results and would also be an area for further study. For example, individuals working in international affairs or students interested in political science are likely going to have more of an interest in leak-related organizations, so the questionnaire has been designed in a way that is information systems-centered in order to focus primarily on the technical aspects of responses to this challenge posed by the rise of leak-related organizations.

CHAPTER TWO

Literature Analysis and Review

Although a great deal of academic literature has been produced concerning WikiLeaks, such as “*Peering into the Fog of War: The Geography of the WikiLeaks Afghanistan War Logs, 2004-2009*,”²⁷ it is primarily produced by academics interested in international affairs. These articles are primarily concerned with analyzing the actual content of the “leaks,” information and official state documents released by leak-related organizations, more than with the actual process of leaking the information.

The documents leaked by WikiLeaks have had a profound impact on academics studying international affairs, to the point where the State Department actually grew concerned over the number of students accessing the documents. After the classified State Department cables were released, the U.S. State Department contacted Columbia University to warn students that the cables were still considered classified and therefore accessing them could harm their potential job prospects. One prominent professor at Columbia, Gary Sick, remarked, “If anyone is a master’s student in international relations and they haven’t heard of WikiLeaks and gone looking for the documents that relate to their area of study, then they don’t deserve to be a graduate student in international

²⁷ O’Loughlin, John, Frank D.W. Witmer, Andrew M. Linke, and Nancy Thorwardson. *Peering into the Fog of War: The Geography of the WikiLeaks Afghanistan War Logs, 2004-2009*. EURASIAN GEOGRAPHY AND ECONOMICS. Peering into the Fog of War: The Geography of the WikiLeaks Afghanistan War Logs, 2004–2009. 2010. Accessed June 18, 2012.

relations.”²⁸ This quote highlights how important many academics believe access to leaked material can be, although it also reveals the fact that most of the academic focus on WikiLeaks and other leak-related organizations is on its impact on international affairs, not in terms of the impact that such organizations have had on the field of information systems.

While this literature is useful for those interested in international affairs, their potential impact for the field of information systems is limited at best. If anything, the focus on the actual content of the information being leaked highlights the need to analyze the process of leaking information and how individuals are responding, thus validating the goals of this paper.

The literature I am primarily interested in is largely non-academic, consisting of books written by those who have been involved in the transparency movement and journalistic accounts of events. Due to the nature of this paper and the topic, a great deal of original research will also be done into gaining insight into responses to leaks by generating empirical evidence through the use of original interviews.²⁹

The most influential books related to the subject of this paper are *Inside WikiLeaks: My Time with Julian Assange at the World's Most Dangerous Website* by Daniel Domscheit-Berg, the co-founder of both WikiLeaks and OpenLeaks, as well as

²⁸ Gustin, Sam. "Columbia University Reverses Anti-WikiLeaks Guidance | Threat Level | Wired.com." Wired.com. December 6, 2010. Accessed December 05, 2011. <http://www.wired.com/threatlevel/2010/12/columbia-wikileaks-policy/>.

²⁹ It is worth noting that the self-selection process inherent in granting an interview will potentially limit the information that can be gained through interviews. Obviously architects behind modern leak prevention strategies will be careful to not reveal information that they believe is still largely secretive and therefore useful in their campaigns against leaks.

WikiLeaks and the Age of Transparency by information transparency activist Micah L. Sifry. While other books have been written about the topic, it is these two books that are the most relevant to the field of information systems.

Domscheit-Berg's book is useful as a historical account of early reactions to leaks by companies, simply because, in his position as a co-founder of WikiLeaks, Domscheit-Berg was in a unique position to witness early events in the modern transparency movement. Although his account is undoubtedly biased because of his personal involvement, his record of some of these events is often the only one available, especially for many of the earliest events in WikiLeaks' history. As the organization gained prominence with each leak, some of the earliest leaks were relatively ignored by journalists as they were not yet aware of the impact that WikiLeaks would later have on international and corporate affairs.³⁰

Also, as noted in the "Introduction" section of this paper, Daniel Domscheit-Berg would, according to the standards of this study, could reasonably be considered an information systems denizen. Domscheit-Berg writes about his time before he worked full-time for WikiLeaks:

Back then, I had a regular job. I was responsible for network design and security for a large American company that did IT work for civilian and military clients and had its German headquarters in the town of Russelsheim. My employer and I had a tacit agreement that I wouldn't have to deal with any weapons companies, so I worked primarily for GM,

³⁰ I will attempt to avoid judging any particular individuals by their lack of foresight into the impact that WikiLeaks would later have, which is why using now-dated journalistic accounts in analyzing the impact that WikiLeaks has had can reveal useful information about the change in responses from information systems professionals.

Opel, and a number of airlines. Anyone who books an overseas flight these days will probably use the technology that I developed.³¹

As Domscheit-Berg worked in information technology, he would, for the purposes of this study, be considered an information systems denizen. This is an archetypical example of how a leak-related organization operator can actually be an information systems denizen his or herself. Such individuals highlight both the connection between leak-related organizations and the information systems profession and also the need for studies such as this one. Domscheit-Berg, as such an individual, who, fortunately for the author of this paper, wrote a book recording many of his responses, has created a useful piece of literature that can be used in comparison with the results of this survey.

WikiLeaks and the Age of Transparency is arguably the single most relevant piece of literature to the topic of this paper because of its focus on the impact of the transparency movement. Sifry, as an information transparency activist, is primarily concerned with how WikiLeaks and other leak-related organizations have impacted the transparency movement³². His book does focus somewhat on information systems denizens and how they have reacted to the rise of WikiLeaks and other leak-related organizations and some of those accounts will be juxtaposed here with the responses generated by this study.

³¹ Domscheit-Berg, Daniel, Tina Klopp, and Jefferson Chase. *Inside Wikileaks: My Time with Julian Assange at the World's Most Dangerous Website*. New York: Crown Publishers, 2011. Pg. 9.

³² Sifry, Micah L. *Wikileaks and the Age of Transparency*. Berkeley, CA: Counterpoint, 2011.

Similarly, since the journalistic coverage of WikiLeaks has been more concerned with topics its impact on field outside of international affairs than academic literature has been, it will often be more relevant to this study than previously produced academic literature. Many journalistic pieces of literature, although perhaps now dated, can still provide a useful insight into the nature of the responses to WikiLeaks and other leak-related organizations. As journalists are not concerned exclusively with information systems denizens (unlike this paper, which is primarily concerned with that group over the general populace), many of these accounts will contain information on the responses from members of the general populace, which can be useful for this paper in so much as that these accounts can provide a second source of comparison to the reported responses from information systems denizens in this study, although such accounts are not the focus of this study.

One could easily argue that journalistic coverage of WikiLeaks might actually be the best resource currently available for researching this topic. *The New York Times* has provided fairly thorough coverage of the issue, highlighting the response of some information systems professionals to WikiLeaks' potential leak of information related to Bank of America. In a January 2, 2011, article titled "Facing Threat From WikiLeaks, Bank Plays Defense," journalist Nelson D. Schwartz analyzes Bank of America's response and mentions the efforts of some information systems denizens, writing:

With Bank of America's share price falling on the widely held suspicion that the hard drive was theirs, the executives on the call concluded it was time to take action...Since then, a team of 15 to 20 top Bank of America officials, led by the chief risk officer, Bruce R. Thompson, has been overseeing a broad internal investigation — scouring thousands of documents in the event that they become public, reviewing every case where a computer has gone missing and hunting for any sign that its systems might have been compromised.

In addition to the internal team drawn from departments like finance, technology, legal and communications, the bank has brought in Booz Allen Hamilton, the consulting firm, to help manage the review. It has also sought advice from several top law firms about legal problems that could arise from a disclosure, including the bank's potential liability if private information was disclosed about clients.³³

As limited as this information is about the specific response of individuals in information systems, it is still significantly more comprehensive than any other literature available. While the references to the internal team containing members from technology departments are cursory at best, Schwartz does at least attempt to acknowledge the connection between information systems professionals and the efforts of leak-related organizations.

Also, an additional source of literature worth mentioning in this paper are the wide variety of posts on Twitter, a micro-blogging website that allows users to post an unlimited number of messages that are 140 characters or less. As most of the organizations discussed in this paper (WikiLeaks, OpenLeaks, LulzSec, etc.) have some presence on the site, the organizations' posts on Twitter can provide a useful insight into the workings of the organizations when it is relevant to this paper. As many of these posters could also be considered information systems denizens – although some of the people in question, like the members of LulzSec, are notably secretive in their dealings

³³ Schwartz, Nelson D. "Facing Threat From WikiLeaks, Bank Plays Defense." Facing Threat From WikiLeaks, Bank Plays Defense - NYTimes.com. January 2, 2011. Accessed December 5, 2011. <http://www.nytimes.com/2011/01/03/business/03wikileaks-bank.html?pagewanted=all>.

with the public due to legal concerns³⁴ – such individuals could provide yet another useful set of responses for comparison with the results of this survey in future studies.

Such posts, however, are hardly academic in their content and have limited usage in terms of academic analysis. The most recent post on LulzSec's Twitter page, for example, from July 27th, 2011, is "PayPal is only accepted everywhere because everyone uses PayPal. It's a shitty system - so let's start using these smaller services. :D³⁵" While interesting in terms of the insight that they provide for some of the operators who will be studied in this paper, the actual content of the posts have limited usage for academics looking to see the impact that these operators have had on the field of information systems.

This, despite the inherent flaws present between the bias and the relatively non-scholarly look at the subject, is still perhaps the ideal scenario in terms of finding information about the topic on Twitter, given that some organizations have limited information or none at all posted on Twitter. Many of the organizations being studied, while present on Twitter, are not active. For example, as of December 5th, 2011, OpenLeaks – arguably the second most important leak-related organization, behind only

³⁴ McMillan, Robert. "With FBI Raid, Law Enforcement Circles LulzSec - Computerworld." Computerworld - IT News, Features, Blogs, Tech Reviews, Career Advice. June 29, 2011. Accessed December 05, 2011. http://www.computerworld.com/s/article/9218040/With_FBI_raid_law_enforcement_circles_LulzSec.

³⁵ "The Lulz Boat (lulzsec) on Twitter." Twitter. July 27, 2011. Accessed December 05, 2011. <http://twitter.com/LulzSec>.

WikiLeaks in terms of its impact — has not published a single post on their page on Twitter.³⁶

Finally, as briefly alluded to in the “Introduction” section of this paper, in certain cases, legal sources and U.S. federal law may be necessary to cite when applicable. As some members of the general populace may have a particular interest in the intersection between legal issues and leak-related organizations, particularly students who have plans to attend law school or those who are working in some form of legal profession. Such examples may be limited in terms of the study, although, particularly in the “Conclusions” section of this paper where I will explore potential areas for future study, I may cite legislation, case law and judicial-related literature as evidence of where future study may be necessary in order to more fully understand this issue.

As shown here, while a traditional literature review may be useful in select circumstances for very specific instances in research on this topic, overall there is simply little for academics to base any kind of study off of, highlighting the need for this study as well as others like it. A full study of how WikiLeaks and other leak-related organizations have affected the field of information systems has simply not taken place. While this paper does not intend to fully explain such organizations’ impacts on the field, it does seek to be a starting point for other similar studies in hopes of being the foundation for a body of literature worthy of the importance of the subject. The literature presented does reveal that leak-related organizations have had an impact on information systems denizens, but to what extent remains largely unresearched.

³⁶ "OpenLeaks (openleaks) on Twitter." Twitter. Accessed December 05, 2011. <http://twitter.com/openleaks>.

CHAPTER THREE

Methodology

Given the needs presented in the review of the literature, it seemed prudent to design a survey to seek out responses from various information systems denizens in order to understand what – if anything – affects the nature of an individual’s feelings towards WikiLeaks and other leak organizations. Because of this, I have (along with the members of the committee for this thesis) designed a survey to gauge the responses of various individuals in order to measure this effect.

Initially I had spoken with several professors (including Prof. Riemenschneider, who sits on this thesis committee) about the possibility of measuring responses while tying in the theory of collective behavior. Due to the limited resources available to me both timewise and in terms of potential subjects, I decided against tying this theory in to this study because I believe that it is beyond the scope of what I am truly looking for. Ultimately, I came to the conclusion that I wanted to focus on laying a foundation for future studies more than doing a comprehensive study here and now. As I personally plan to do future studies within this topic over the course of my academic career, I do not see this as problematic to design this study with the intention of generating information that can be built upon later by myself and other scholars.

I designed a survey with forty-nine questions (divided into 23 blocks of related questions) with questions concerning individuals’ feelings towards leak organizations and how they might be affected towards showing more or less concern about said organizations. The survey was distributed using Qualtrics software to students from

Baylor University in various information systems courses (and a limited number of non-information systems classes or students outside of Baylor University, although these were very much the exception) and results were gathered so that calculations concerning these results could be done online or using other software. We received 173 responses after the survey was distributed to at least 164 students at Baylor University. Because of our inability to track how many students at other universities may have been given the survey, an exact response rate is unknown.

Over the course of this section, I will introduce each question and explain my reasoning for including it in the survey. Notable results and patterns will be studied and analyzed in later sections and, ultimately, in the conclusions section of this paper, I will explain what patterns were most notable and suggest areas for further to study to build upon the groundwork laid out here.

For the first fourteen questions, respondents were asked to rate their level of agreement with a given statement on a scale that included seven options: Disagree Strongly, Disagree, Disagree Slightly, Neutral, Agree Slightly, Agree and Agree Strongly.

The first statement was “I am knowledgeable about information systems.” Such a statement’s purpose in the nature of this study should be relatively clear, but ultimately I felt it was necessary for individuals to rate their own level of knowledge about information systems in order to gauge whether or not he or she considered information systems to be an area of expertise. The question was designed in such a way as to only identify those who wish to be identified as experts about information systems – someone who actually has knowledge about information systems but does not see him/herself as an

expert on the subject needs to be separated out from the larger group and ultimately this question helps for me to do this.

The second statement was “I work with data storage frequently.” This statement was designed to get more specific about the individual’s concern with information systems. If the individual works with data storage frequently, this person might potentially have a larger concern about the role of leak-related organizations like WikiLeaks, particularly if it was someone in a position of importance as related to keeping information secure. I would hypothesize (although this would, again, warrant further study) that someone who works with data storage frequently and understands the difficulty of keeping information secure might have slightly more negative feelings toward leak organizations.

The third statement is “I am concerned about information leak organizations such as WikiLeaks.” This statement, if any, is the heart of this study in that it should directly reveal the respondent’s view of leak organizations. I felt that having individuals identify their own feelings directly and clearly at the beginning of the survey would help for me to get clearer results over the course of the survey and also might play a major role in seeing how much a self-identified view lines up with other views expressed on more minor questions.

The fourth statement is the first that begins to understand what factors really begin to make a measurable difference on how an individual feels about leak-related organizations. The statement reads, “Information leaks and organizations such as WikiLeaks affect my employment or employment goals.” Since this survey was almost exclusively given to students, the latter part of the statement concerning employment

goals is obviously the more important of the two clauses, but this begins to highlight some potential differences between individuals, even amongst individuals who might all identify themselves as knowledgeable about information systems.

The fifth statement is “I will take some sort of action in my place of work because of information leaks.” This statement is designed to understand what effects a concern about information systems might have on an individual and is a way to measure this effect. If someone identifies themselves as both employed and concerned about information leaks at their place of employment, it would make sense that they would be more likely to identify themselves as likely taking action related to information leaks at their place of work in the future. This question, in that sense, helps to identify whether or not the actions will follow the words. If there is a clear disparity between the results on questions four and five, it would be a very meaningful result for this study.

The sixth statement is “The type of information being leaked affects how much I am concerned with information leaks.” This statement helps me to understand if there are differences for a variety of reasons and was subsequently left somewhat vague. Whether the individuals are concerned with their personal information being leaked or if they only want very specific information to be leaked to very specific organizations – for example, a respondent might be for information leaks concerning the government but not concerning private business – is not so much what this question is seeking to understand, but more the idea that some individuals may want simply all information, regardless of its type, to be transparent. In this way, the wording of the question will help for me to identify those who are completely for and completely against transparency in all circumstances.

The seventh statement is “Costs associated with preventing leaks will discourage me from taking action to actually prevent information leaks.” This question is designed to help understand some of the motivations as related to the fifth statement. If an individual says that he or she is extremely concerned with information leaks in their place of employment but then reports themselves as being unlikely to take action concerning these leaks, this question might help to provide some answers as to why the individual might not desire to take that action.

The eighth statement is “I support continued information leaks and organizations such as WikiLeaks.” This statement is designed to seek out positive or negative feelings towards specific leak organizations like WikiLeaks and begins to specify whether or not an individual has positive feelings toward these organizations. While an individual might have positive feelings towards information leaks in general, this individual might have more negative feelings towards specific leak organizations and this question may play a role in identifying these potential differences amongst individuals.

The ninth statement is “I would consider donating to organizations such as WikiLeaks.” This question, although fairly specific, should help to identify individuals with very positive views of WikiLeaks and other leak-related organizations. An individual who identifies him/herself as agreeing strongly with this statement likely has or will soon donate to such an organization, which would indicate very positive feelings towards information leak-related organizations.

The tenth statement is “I am knowledgeable about information leaks and organizations such as WikiLeaks.” Although initially this might seem similar to the first statement on the survey, I expect that it will have radically different results from that

question. An individual concerned primarily with political science or journalism, for example, might have a very strong working knowledge about organizations such as WikiLeaks but may in fact have a very limited knowledge about information systems in general. Hopefully the results from this question will also show the degree of self-identified knowledge about leak organizations amongst those who have identified themselves as being very knowledgeable about information systems.

The eleventh statement is “I am interested in finding out more about information leaks and organizations such as WikiLeaks.” This question was added to the survey due to the fact that WikiLeaks and other organizations are still a relatively new phenomenon. Even scholars in fields profoundly affected by these organizations are still attempting to find out more about these organizations, so this question explores not necessarily one’s working knowledge about the organization but is instead concerned with the desire to potentially find out more. Someone who is completely uninterested or unconcerned with such organizations is likely to disagree strongly with this statement.

The twelfth statement is, in many ways, a step back from the previous one and is designed more with the intention of understanding one’s working knowledge about the subject. It reads, “I am familiar with the differences between WikiLeaks and OpenLeaks.” Someone who is completely unconcerned with WikiLeaks will likely disagree strongly with both questions eleven and twelve, but someone who is concerned may very well still find that they are not familiar with the differences between the two major international leak organizations, despite their wishes to learn more about both of the organizations.

The thirteenth statement is the final one in the first block of questions and states, “I believe the media have been unfair to WikiLeaks.” This question, again, gets into the feelings of the individual respondents. Someone who agrees strongly with this statement will likely have very positive views of organizations like WikiLeaks. However, it is possible that someone might interpret this question as that WikiLeaks has been treated in an unfairly positive way by members of the media, so the results of this question when compared with others designed in the survey may reveal more than just whether or not the individual has positive feelings about leak organizations.

The second block of questions is composed of just one statement: “In your opinion, who is affected more by information leaks?” Respondents are given seven choices: Definitely Corporations, Corporations, Corporations Slightly, Neutral, Government Slightly, Government and Definitely Government. This question, the fourteenth overall, seeks to understand how concern manifests itself. Someone who is completely unconcerned about leak organizations will likely respond that they are neutral on this issue, while others may have strong feelings about the question.

The third block of questions begins with the fifteenth statement: “I believe PayPal was justified in distancing themselves from WikiLeaks.” Like the first fourteen questions, respondents were asked to rate their level of agreement with a given statement on a scale that included seven options: Disagree Strongly, Disagree, Disagree Slightly, Neutral, Agree Slightly, Agree and Agree Strongly. These questions are designed more to understand the feelings that a respondent might hold towards WikiLeaks and other organizations more so than they are designed to understand why an individual feels the

way they do. In this case, by giving respondents a clear and fairly well-publicized example, I hope to get more concrete results.

The sixteenth statement is “I believe journalists should place a higher importance on WikiLeaks and other information organizations when they interact with my place of employment.” This statement is designed to help understand the degree of feeling that a respondent has about WikiLeaks and other information organizations, but not necessarily whether these feelings are positive or negative. An individual might have very positive feelings about WikiLeaks and believe that if it affects their place of employment, it should be covered more thoroughly, so this question is not designed to necessarily highlight negative feelings about the organization.

The seventeenth statement is “I worry about my own personal information being leaked.” This statement is designed to understand whether or not an individual is concerned about their own personal information being leaked, although it is not concerned with a leak organization actually playing a role in that leak. It is necessary, for the purposes of this study, to understand the differences between those who believe that some information is private (like personal information) and those who believe that all information, regardless of its nature, should be either public or hidden.

The eighteenth statement states this more explicitly and reads, “I believe there is a difference between how government / corporate information should be treated as compared to how personal information is treated.” I would suspect that the results to statements seventeen and eighteen will be relatively similar, but if there were differences, further studies might be warranted to attempt to understand why there is a difference

between an individual's overarching beliefs about information transparency as compared to the specific nature of an individual's own private information.

The nineteenth question asks a similar question to some of the questions in the first block and reads, "I believe the American government has been unfair to WikiLeaks." Such a question is necessary because the views that an individual holds about the media may be very different than one holds about the American government in relation to WikiLeaks. Understanding these differences will play a key role in helping to identify whether an individual's views of WikiLeaks are actually positive or if they are limited to believing that a certain group (be it the media or the government) has been unfair in its treatment of WikiLeaks.

Similarly, the twentieth question reads, "I believe that international governments have been unfair to WikiLeaks." This question seeks to understand whether or not individuals see a difference in how the American government is viewed in relation to international governments. A later question asks individuals to identify whether or not they are citizens or permanent residents of the United States, so comparing the results of that question with this one should yield interesting results.

The twenty-first question reads, "I believe that American corporations have been unfair to WikiLeaks." This question is designed to understand whether or not American corporations have been unfair to WikiLeaks in the opinion of the respondents, but not necessarily why. The American government, it seems reasonable to say, has strongly pressured certain companies that worked with WikiLeaks to end their dealings with the organization, and, while this question does not necessarily get into that issue specifically,

notable differentiation on this question from others might be explained by this phenomena.

The twenty-second question helps to highlight these differences by asking respondents their views of international corporations and reads, “I believe that international corporations have been unfair to WikiLeaks.” This question should play a role in identifying the differences between American and international corporations, but it also does something else – it seems likely that an individual who is completely unconcerned with or completely uninformed about WikiLeaks might not have a strong opinion about how international corporations have treated WikiLeaks and will subsequently label themselves as “Neutral” on this question.

The twenty-third statement states, “I believe that international authorities like the United Nations have been unfair to WikiLeaks.” Much like the previous question, it seems likely that an individual who is completely unconcerned with or completely uninformed about WikiLeaks might not have a strong opinion about how international organizations have treated WikiLeaks and will subsequently label themselves as “Neutral” on this question. Purely in my opinion, for example, I believe that the international community’s actions towards WikiLeaks have been minor in comparison to the actions of specific governments and/or corporations, so I think that this lack of clarity will be expressed in a high number of neutral responses on this question.

The twenty-fourth question is another one designed to understand the intensity of the feelings an individual holds concerning WikiLeaks. It states, “I believe that information-leak organizations can sometimes reveal legitimate concerns.” Someone with very negative views of leak organizations may still agree strongly with this statement

because they believe that such organization can actually reveal legitimate concerns, even if they do not agree with the methods used to gain access to the information for philosophical reasons.

To step back from that, the twenty-fifth question deals primarily with whether or not these feelings are positive or negative. It reads, “I believe that information-leak organizations do more harm than good.” This statement is relatively clear to the individual and should allow them to state fairly clearly whether or not, to paraphrase a colloquialism, the world is actually a better place because of the existence of information-leak organizations.

Buried deep within the survey as the twenty-sixth question is what I believe might actually be one of the most important statements included in the survey: “I worry about the national security of the United States.” I would venture that someone who is extremely concerned about the national security of the United States will hold more negative feelings about WikiLeaks than others who are less concerned. I believe that if any factor shows the most impact on an individual’s view of information leak organizations, this factor has the potential to be it.

Because of this, I essentially restated the third question immediately after the twenty-sixth to gauge whether or not a national security-oriented mindset changes the views one has towards WikiLeaks. The twenty-seventh question reads, “Overall, I would say I am concerned about information leaks.” I believe that any differences between the results of this question and the third question can be explained by the fact that the respondent will now be considering the issue from a national security perspective.

The twenty-eighth statement (and final question in this block of questions) reads, “I believe that I care about information leaks more than the average person.” Subsequently, I think this will show whether or not the feelings throughout the block have remained consistent or if there has been some variation due to the nature of the questions. Notice that this question does not actually ask for whether or not the feelings that an individual holds about the leaks are positive; it is simply focused on the fact the intensity of the feelings.

The next two blocks of questions are designed to gauge an individual’s actual knowledge about leak organizations and not their self-identified knowledge. These questions are meant to have very clear answers, and an incorrect answer would indicate that the individual may not be as knowledgeable or concerned about information leaks as they may have claimed in other questions.

The twenty-ninth question asks, “For the next two questions, please do not look up the answer. Who is the current leader of WikiLeaks?” Respondents are given the options of Julian Assange, the founder and current leader of WikiLeaks; Daniel Domscheit-Berg, a co-founder of WikiLeaks who now operates OpenLeaks; Arianna Huffington, founder of the Huffington Post; Stieg Larsson, the author of *The Girl With The Dragon Tattoo* who was added to this list due to his common ties to Sweden with Assange; and Micah Sifry, a transparency advocate who has written a book about WikiLeaks called *WikiLeaks and the Age of Transparency*. Respondents are also given the option “Do Not Know” so that they do not have to put in an answer they are unsure of if they do not wish to do so. Anyone who reports themselves as being very concerned

about leak organizations who fails to correctly identify Assange would provide potentially unique and interesting results for this survey.

The thirtieth question is similar and asks, “Please do not look up the answer. Which of these people is currently awaiting trial for involvement in leaking government documents to WikiLeaks?” For this question, respondents are given the option of Robert Gates, the former Secretary of Defense; Bradley Manning, the correct answer; Mike Mullen, the former Navy Admiral who was Chairman of the Joint Chiefs of Staff when Manning was arrested; David Petraeus, a former Army general who is now head of the Central Intelligence Agency; and Leon Panetta, the current Secretary of Defense.

Again, respondents are also given the option “Do Not Know” so that they do not have to put in an answer they are unsure of if they do not wish to do so and anyone who reports themselves as being very concerned about leak organizations who fails to correctly identify Manning would provide potentially unique and interesting results for this survey. However, I expect that fewer individuals will answer this question correctly than the one concerning Assange given that Assange is arguably a more well-known public figure. I expect that more individuals will answer “Do Not Know” to this question than to the previous one.

The next several question blocks are concerned with demographic information. The thirty-first question simply asks, “How old are you?” The thirty-second asks, “Are you male or female?” The thirty-fourth asks, “How would you describe your racial heritage?” Lastly, the thirty-fifth asks, “Are you a citizen or permanent resident of the United States?”

The thirty-sixth question begins to discuss educational information, which I believe could potentially play a major role in the results of the study. The question asks, “What is the furthest level of education you have achieved?” and gives respondents options ranging from “Did not complete high school” to “Doctorate.” As this survey was almost exclusively presented to students, most of the responses should be “Some college” or “Some graduate school.” I expect a very limited number of results for any of the other categories.

If respondents answered “College graduate” or above, they are brought to question thirty-seven, which asks, “What was your major in college?” This question is a free-form text box and allow respondents to write whatever they wish in the response. My guess is that a majority of the students will write some variation of “Information Systems” as their response. To be clear, however, I then added question thirty-eight, in which respondents are given “Yes” or “No” options to the question, “Would you consider this major to be related to information systems?”

Question thirty-nine, which will show up for all individuals who takes the survey, regardless of their responses, asks, “Are you currently working?” Individuals are given a “Yes” or “No” option. While I am not necessarily concerned with whether or not an individual is employed, I am concerned with whether or not they are employed within the information systems field and this question is necessary to narrow the subjects down to that group of people. However, I decided to ask this question more generally to see if there are any notable differences between those who are employed and those who are not, but I suspect since this survey was given primarily to students, such results will be negligible at best.

If respondents answer yes to question thirty-nine, they are brought to question forty, which asks, “Has your organization been affected by information leaks?” Respondents are given the choice between “Yes” and “No.” If they answer yes, they are brought to question forty-one, which asks them to explain, reading, “Please explain how your organization was affected by information leaks.” Respondents are given a free-form textbox to write their responses in and these responses should provide qualitative data that can be used to explain answers that initially seem to contradict one-another earlier in the survey.

If respondents had previously answered yes to question thirty-nine, they are brought to question forty-two, which asks, “In your current situation, have you ever taken action to prevent information leaks?” and respondents are given the choice, again, between “Yes” and “No” options. If they answer yes, they are shown question forty-three, which asks them to explain their answer, reading, “Please explain how you have taken action to prevent information leaks.” Much like question forty-one, respondents are given a free-form textbox to write their responses in and these responses should provide qualitative data that can be used to explain answers that initially seem to contradict one-another earlier in the survey.

They are also shown question forty-four, which highlights specific, commonly used techniques to prevent information leaks. It reads, “Please select any of the following that you have done to prevent information leaks.” Respondents are given the options of “Yes” or “No” to identify whether they have ever used security upgrades, changed passwords or edited email content with the intention of preventing information leaks.

If the respondent had previously answered yes to question thirty-nine, they are brought to question forty-five as well, which asks, “What is your current vocation?” Again, much like question forty-one, respondents are given a free-form textbox to write their responses in and these responses should provide qualitative data that can be used to explain answers that initially seem to contradict one-another earlier in the survey.

Question forty-six is a similar question, although it is shown regardless of the other answers on previous questions. It reads, “What is your desired vocation? You may enter your current vocation if applicable.” The text entry is similar to question forty-five. This question was added since the survey was mainly directed at students who may or may not be employed. It also may provide interesting qualitative results for those who are not currently working in their desired vocation. If this answer is different than the answer a respondent gave to question forty-five, it might help to put some of the other results in context.

Question forty-seven reads, “Have you ever taken an information systems class?” I believe that this is an important question for students, in particular, to have on the survey so that I might be able to identify whether or not simply having taken information systems class affects an individual’s view of WikiLeaks and other organizations. I would certainly hypothesize that those who answer “Yes” on this question will have higher rates of self-identified knowledge about information systems than those who have not taken such a class.

If respondents answer “Yes” to question forty-seven, then they are shown question forty-eight, which asks, “How many information systems classes have you taken?” Respondents are given choices ranging from “1” to “More than 5.” As everyone

who is seeing this question has taken at least one class, an option for zero was unnecessary. I would venture to guess that those who have taken more information systems classes will be more likely to report higher levels of knowledge concerning information systems, that they will be more likely to have worked with data storage and more likely to be concerned about WikiLeaks.

The forty-ninth and final question is, “How would you describe your political beliefs? Please check any that apply.” Respondents are given the options of “Conservative,” “Liberal,” “Socialist,” “Libertarian,” “Apathetic” and “None of the above.” I expect that the results to this question will show large differences as related to how concerned one is with WikiLeaks and other leak-organizations. I will note, however, that the results of those who are not American citizens or foreign residents may be very different from those who are, although this could still be very useful data, especially when compared with the questions concerning how the international community has reacted to WikiLeaks.

Overall, I believe this survey is fairly comprehensive in its scope and should yield some meaningful data that can be used to justify further study on this topic. I do not believe that this survey – given the limitations of its subjects and the number of responses – can provide truly comprehensive data about the populace as a whole, but in terms of the impact on and viewpoints of students, this is arguably the most comprehensive study on information leaks and leak organizations that has ever been done.

CHAPTER FOUR

Demographics

As mentioned in the previous chapter, the survey included in my survey contained a variety of questions relating to the demographic information from participants. Before analyzing whether or not a concern for national security and other factors played a role in affecting how much a respondent is concerned with leak-related organizations, I felt it was prudent to analyze the demographic information in relation to the results before moving forward.

In terms of the responses to the third question on the survey (“I am concerned about information leak organizations such as WikiLeaks.”) more respondents explained that they were neutral on the issue than any of the other responses. 24.55% of the respondents to the survey explained that they were neutral on the question, far more than any other response. The second most common response was “Agree” with 19.76% of those surveyed responding in this way. “Agree Slightly” and “Disagree” were third and fourth, with 16.77% and 16.17% respectively. In terms of actual responses, this was only a difference of 1 response, with “Agree Slightly” at 28 and “Disagree” at 27.

Some interesting variance in these responses was revealed when one cross-tabulates these results based on the age of respondents. Since this survey was distributed to students, the vast majority of respondents were in the 18 – 22 age group (largely comprised of undergraduate students) and 141 of the 166 responses to this question (84.94%) were in this category. The second most-popular age group was 23 – 35, with 22 responses in this category. Interestingly, the results in this group skewed more towards a greater degree of

concern, with 31.82% of respondents responding “Agree.” None responded “Disagree Slightly,” which is interesting given that of those 18 – 22, 20 of those surveyed responded that they disagreed slightly with the given statement. That number is almost as many as there were in total in the 23 – 35 age group. The second most-popular response was “Disagree” with 22.73% of the respondents placing themselves in this category.

Table 1. Question 3: I am concerned with information leak organizations such as WikiLeaks

Response	Number of Respondents	Percent of Respondents
Strongly Agree	10	5.99%
Agree	33	19.76%
Slightly Agree	28	16.77%
Neutral	41	24.55%
Slightly Disagree	20	11.98%
Disagree	27	16.17%
Strongly Disagree	8	4.79%

The third most-popular response of those aged 23 – 35 was “Agree Strongly,” which is also interesting given that of those in the 18 – 22 age group, this response was exactly tied with “Disagree Strongly” as the least-popular response with only 4.26% of respondents placing themselves in these categories. The pattern seems to be more towards the middle with the 18 – 22 age group, with the mean being at 4.07 (meaning slightly more respondents placed themselves as more than merely “Neutral”) while in the

22 – 35 age group, the mean was 4.73, which would make the average response closer to “Agree Slightly” than to “Neutral.”

Table 2. Crosstabulation of Age with Question 3

Response	Under 18	18-22	23-35	35-45	45-55	Over 55
Strongly	0	6	4	0	0	0
Agree	0%	4.26%	18.18%	0%	0%	0%
Agree	0	25	7	1	0	0
	0%	17.73%	31.82%	100%	0%	0%
Slightly	0	24	3	0	0	1
Agree	0%	17.02%	13.64%	0%	0%	100%
Neutral	0	38	2	0	0	0
	0%	26.95%	9.09%	0%	0%	0%
Slightly	0	20	0	0	0	0
Disagree	0%	14.18%	0%	0%	0%	0%
Disagree	0	22	5	0	0	0
	0%	15.60%	22.73%	0%	0%	0%
Strongly	1	6	1	0	0	0
Disagree	100%	4.26%	4.55%	0%	0%	0%

The other age categories yielded essentially no meaningful results, with only 3 respondents placing themselves in any other the other categories. The one response under the age of 18 was “Disagree Strongly,” the one response between 35 – 45 was

“Agree” and the one response from a participant over the age of 55 was “Agree Slightly.” No responses were received from those between the ages of 45 – 55.

Given that this survey was primarily directed at students, the results would seem to indicate that undergraduate students were slightly less concerned with information leaks than graduate students, although because of the question concerning education, we have the opportunity to cross-tabulate these results as well. I placed the results from the question “What is the furthest level of education you have achieved?” against question three and the results did seem to be similar.

The four most popular responses were, unsurprisingly, “High School Diploma,” “Some college,” “College graduate” and “Some graduate school,” with the overwhelming majority of responses (75.9%) being in the “Some college” category. Of the respondents who placed themselves as having a high school diploma (7.83% of the overall responses, the same amount as those who labeled themselves as college graduates) the mean was 3.85, meaning that slightly more respondents declared themselves as less than neutral than as having been more concerned than merely neutral. Outside of those holding a doctorate (a category for which I only received one response), this was the lowest overall mean and would seem to indicate that as education increases, so does the degree of concern with information leaks.

Of the most popular category — “Some college” — the mean was 4.09, which is almost identical to the mean of 4.07 generated from the college age group (18 – 22) which would seem to indicate that the two factors are strongly correlated. While this

Table 3. Crosstabulation of Education with Question 3

Response	Did not complete high school.	High school diploma	Some college	College graduate	Some graduate school	Graduate degree	Doctorate
Strongly	0	0	8	1	1	0	0
Agree	0%	0%	6.35%	7.69%	10.00%	0%	0%
Agree	0	3	20	5	4	1	0
	0%	23.08%	15.87%	38.46%	40.00%	50.00%	0%
Slightly	1	2	23	1	1	0	0
Agree	100%	15.38%	18.25%	7.69%	10.00%	0%	0%
Neutral	0	3	31	3	3	0	0
	0%	23.08%	24.60%	23.08%	30.00%	0%	0%
Slightly	0	1	18	1	0	0	0
Disagree	0%	7.69%	14.29%	7.69%	0%	0%	0%
Disagree	0	3	20	1	1	1	1
	0%	23.08%	15.87%	7.69%	10.00%	50.00%	100%
Strongly	0	1	6	1	0	0	0
Disagree	0%	7.69%	4.76%	7.69%	0%	0%	0%

questionnaire does show that this age group has a relative apathy towards information leaks, given the similarity in the age group and the education range, it is nearly impossible to tell from the results here whether or not the apathy is a result of the age or education, although given that those with “Some college” have a slightly higher mean result and that those reporting a high school diploma have a slightly lower mean, it would

seem to indicate that education does have a slightly positive correlation with concern for information leaks.

This was furthered by the fact that college graduates (which, notably, had the same number of responses as high school graduates) had a higher mean at 4.62, almost a full point higher than the mean from high school graduates. Those reporting “Some graduate school” were even higher with a mean at exactly 5, meaning that the average response was “Agree Slightly.” Interestingly, though, of the ten responses in the “Some graduate school” category, only one respondent actually labeled himself or herself as agreeing slightly, with the most popular category being “Agree” at 40%.

Although it is a slight tangent from the main research purpose of this paper, I wanted to see how the age and education responses from this survey actually matched up against one another. The results were unsurprising and served as further evidence for the idea that education may have a positive correlation with concern. 92.31% of the high school graduates were in the 18 – 22 age group, with the only response outside of this group placing themselves in the under 18 age group. 93.70% of the responses in the “Some college” group were in the 18 – 22 age group and this was by far the most popular response on this table, with 119 people placing themselves in this category. The remaining 6.3% responses were in the 23 – 35 age group, which seems like a logical pattern for undergraduate students. College graduates were split almost evenly (with 7 in the 18 – 22 range and 6 responses in the 23 – 35 range) and those with some graduate school leaned slightly higher, with 3 responses in the 18 -22 range, 6 in the 23 – 35 range and 1 respondent placing him or herself 35 – 45 range.

Table 4. Crosstabulation of Education with Age

Age	Did not complete high school.	High school diploma	Some college	College graduate	Some graduate school	Graduate degree	Doctorate
Under 18	0	1	0	1	0	0	0
	0%	7.69%	0%	7.69%	0%	0%	0%
18 - 22	0	12	119	7	3	1	0
	0%	92.31%	83.8%	4.93%	2.11%	0.70%	0%
23 - 35	0	0	8	6	6	1	1
	0%	0%	36.36%	27.27%	27.27%	4.55%	4.55%
35 - 45	0	0	0	1	0	0	0
	0%	0%	0%	100%	0%	0%	0%
45 - 55	0	0	0	0	0	0	0
	0%	0%	0%	0%	0%	0%	0%
Over 55	1	0	0	0	0	0	0
	100%	0%	0%	0%	0%	0%	0%

All of these results seem fairly logical and normal, which presents no evidence to suggest that the potentially positive correlation between education and concern about information leaks is inaccurate. Obviously further study into this issue would be warranted to see whether or not there is a truly positive correlation, but there is nothing in the evidence I have collected to suggest that this is not actually the case.

When I cross-tabulated the results based on gender, the results were fairly unremarkable, although the responses in this study were overwhelmingly male, with 63.86% of the respondents being male and 36.14% of the respondents being female. The

means were almost identical, with the male mean being very slightly higher at 4.18 than the mean for females, which was at 4.12. I would say the relative lack of difference between men and women is actually somewhat surprising given that information systems, like most technology-related fields, does skew male, as evidenced partially by results of this survey. Since this survey was primarily directed at information systems students at Baylor University, it is somewhat telling that the majority of the responses were from males.

Interestingly, however, this research did seem to reveal some variance on the basis of race. The majority of respondents on this survey labeled themselves as Caucasian, with 64.46% in that category, 13.25% of respondents labeling themselves as Hispanic, 10.84% identifying as Asian and 4.82% of respondents being African-American. Only 1 response was recorded in Native American or multiracial, but 5.42% of respondents declared that they would prefer not to say.

The mean was highest amongst Asians at 4.33, although this was only slightly higher than amongst Caucasians, where the mean was 4.21, and amongst those who preferred not to say, which was almost identical to the response from Caucasians at 4.22. Hispanics and African-Americans reported a lesser-degree of concern, with Hispanics generating a mean at 3.82 and African-Americans generating a mean of 3.5. The results from African-Americans are particularly notable as this is one of the lowest degrees of concern reported by any group separated out by a common demographic feature. Since only 8 respondents labeled themselves African-American and the percentage (4.82%) was much lower than one would find in a study of the general population, I would suggest that although these results would certainly show a need for future study on the

relationship between race and concern about information leaks, this study itself cannot and should not be used to make any generalized conclusions.

Table 5. Crosstabulation of Race with Concern

Response	African-American	Asian	Caucasian	Hawaiian	Hispanic	Native American	Multiracial	Prefer not to say
Strongly	0	2	6	0	1	1	0	0
Agree	0%	11.11%	5.61%	0%	4.55%	100%	0%	0%
Agree	1	7	20	0	3	0	0	2
	12.50%	38.89%	18.69%	0%	13.64%	0%	0%	22.22%
Slightly	1	0	24	0	1	0	0	2
Agree	12.50%	0%	22.43%	0%	4.55%	0%	0%	22.22%
Neutral	2	2	24	0	8	0	1	3
	25.00%	11.11%	22.43%	0%	36.36%	0%	100%	33.33%
Slightly	1	1	13	0	5	0	0	0
Disagree	12.50%	5.56%	12.15%	0%	22.73%	0%	0%	0%
Disagree	3	5	14	0	3	0	0	2
	37.50%	27.28%	13.08%	0%	13.64%	0%	0%	22.22%
Strongly	0	1	6	0	1	0	0	0
Disagree	0%	5.56%	5.61%	0%	4.55%	0%	0%	0%

That having been said, there is some evidence to suggest that the results in the racial categories may actually be more related to educational factors than an actual correlation between race and concern. In a cross-tabulation between race and education, Asians reported the highest-average level of education, with a mean of 3.44 (3 being “Some college” and 4 being “College graduate”) and Caucasians being second with a mean of 3.15. Hispanics reported the third-highest rates of education at 3.05 and

African-Americans reporting the lowest levels of education, with a mean of 2.63 (2 being “High school diploma”). The fact that these results match up exactly in terms of order with the degree of concern – Asians reporting the highest in terms of both education and concern, Caucasians in second, Hispanics in third and African-Americans in fourth – suggests that more than race itself, education may very well be an important factor amongst those reporting a higher-degree of concern when dealing with information leaks.

Table 6. Crosstabulation of Race with Education

Education	African-American	Asian	Caucasian	Hawaiian	Hispanic	Native American	Multi-racial	Prefer not to say
Did not complete high school	0 0%	0 0%	1 0.93%	0 0%	0 0%	0 0%	0 0%	0 0%
High school diploma	3 37.50%	6 33.33%	3 2.78%	0 0%	1 4.55%	0 0%	0 0%	0 0%
Some college	5 62.50%	6 33.33%	89 82.41%	0 0%	19 86.36%	1 100%	0 0%	7 77.78%
College graduate	0 0%	2 11.11%	9 8.33%	0 0%	2 9.09%	0 0%	0 0%	0 0%
Some graduate school	0 0%	2 11.11%	6 5.56%	0 0%	0 0%	0 0%	1 100%	2 22.22%
Graduate degree	0 0%	1 5.56%	0 0%	0 0%	0 0%	0 0%	0 0%	0 0%
Doctorate	0 0%	1 5.56%	0 0%	0 0%	0 0%	0 0%	0 0%	0 0%

This raises an interesting issue: does more schooling increase the degree of concern that one shows when related to information leaks or is it more related to the knowledge of information systems? As my original hypothesis stated, I believed previous to this study that the more information systems-related knowledge an individual holds, the more concern that the individual would have concerning information leaks. Does this hypothesis hold true when analyzed against the data?

The simple answer appears to be yes, although the data retrieved through this study yields relatively limited information about those who have not ever taken an information systems class. When asked “Have you ever taken an information systems class?”, an overwhelming majority of those who took this survey answered that they had indeed taken such a class, with 157 replying yes (95.73%) and only 7 saying no (4.27% of those surveyed). Obviously there is only so much information that can be extrapolated from a mere seven responses from those who had not ever taken an information systems class, but there was a remarkable difference in the mean of the replies between the two groups. Of those who had taken an information systems class, the mean was 4.2 (meaning slightly above neutral) and of those who had not, the mean was well below neutral at 3.43 (meaning more closely tied to “Slightly Disagree” than any other category).

Table 7. Crosstabulation of Information Systems Class with Concern

Response	Yes	No
Strongly	10	0
Agree	6.37%	0%
Agree	32	1
	20.38%	14.29%
Slightly	27	1
Agree	17.20%	14.29%
Neutral	38	1
	24.20%	14.29%
Slightly	18	2
Disagree	11.46%	28.57%
Disagree	25	1
	15.92%	14.29%
Strongly	7	1
Disagree	4.46%	14.29%

While these results, since they are so limited amongst those who had never taken an information systems class, merely suggest that further study is warranted to see whether or not this effect holds true, it certainly suggested that there may be an impact, so it was prudent to cross-tabulate the results based on the number of information systems classes taken by the respondents.

Table 8. Crosstabulation of Information Systems Classes with Concern

Response	1	2	3	4	5	More than 5
Strongly	1	2	3	0	1	3
Agree	2.04%	4.44%	16.67%	0%	16.67%	9.38%
Agree	6	5	3	1	3	14
	12.24%	11.11%	16.67%	14.29%	50.00%	43.75%
Slightly	10	5	3	2	1	6
Agree	20.41%	11.11%	16.67%	28.57%	16.67%	18.75%
Neutral	13	14	5	0	0	6
	26.53%	31.11%	27.78%	0%	0%	18.75%
Slightly	9	4	3	1	0	1
Disagree	18.37%	8.89%	16.67%	14.29%	0%	3.13%
Disagree	9	12	0	2	1	1
	18.37%	26.67%	0%	28.57%	16.67%	3.13%
Strongly	1	3	1	1	0	1
Disagree	2.04%	6.67%	5.66%	14.29%	0%	3.13%

Amongst this group of 157 individuals who had taken an information systems class, the results appear to be overwhelmingly in support of my hypothesis. When asked how many information systems classes individuals had taken, they were given options ranging from 1 to more than 5. With a few exceptions, the results steadily increased alongside the number of information systems classes taken by the individual.

The mean results of those who had taken 1 or 2 information systems classes were both slightly below 4 at 3.9 and 3.64 respectively, meaning just slightly below neutral

and still higher than those who had never taken an information systems class at all. Amongst those who had taken 3 classes, the mean was 4.67, significantly higher than even the mean result for those who had taken at least one class, seeming to indicate that the degree of concern is positively correlated with the number of classes taken. Amongst those who had taken 5 classes or more than 5 classes, the results were some of the highest degrees of concern reported by anyone in the survey, with means of 5.33 and 5.16. These means were some of the highest reported by any group in the survey and some of the only to suggest that the average amongst any group could be higher than “Slightly Agree.”

The one notable exception to this pattern was amongst those who reported that they had taken 4 information systems classes, with a mean of 3.43. This mean, which was strangely identical to the mean amongst those who reported they had taken no information systems classes at all, definitely appears to be an outlier amongst those who have taken the survey. Even more strangely, only 7 people placed themselves in this category, which is notable for two reasons. Firstly, it is the exact same number of individuals who reported themselves as having never taken an information systems class at all, which is strange given that the results were similar. Secondly, this was a significantly lower number than the total of individuals who reported having taken more than 5 information classes, with 32 participants placing themselves into this category. This seems somewhat illogical given that this survey was distributed to current information systems students, one would expect that the numbers of individuals in each category would decrease steadily as the number of courses taken increased. To put it simply, once you’ve taken more than 5 classes in information systems, you are more

likely to have graduated from college and therefore to not have been included in the survey.

Overall, given the strange circumstances surrounding this category, I think it seems prudent to look at this statistic with a degree of skepticism. I would venture as far as to say that if more students who had taken 4 information systems classes had been surveyed, the mean in this category would be higher. I think this is also an area relatively lacking in clarity that might be improved with future research. Given the degree of effect shown amongst the other categories however, enough of a positive trend is shown to suggest a positive correlation between the degree of information systems knowledge held by an individual and the individual's concern with information leaks.

To conclude this section on demographics, I think it is somewhat clear, with the exception of a few outliers that warrant further investigation, that the degree of concern with information leaks does indeed increase with education and, more specifically, information systems-related knowledge. Gender appears to have almost no effect and race may have some effect, although this may be more rooted in educational factors than a direct effect based on race.

CHAPTER FIVE

National Security and Other Factors

While demographics may provide useful information in showing why a specific individual may care more or less about information leaks than another similar individual, I believe that the political beliefs of the individual (especially the individual's beliefs on national security) are just as impacting on an individual's overall support or distrust of organizations like WikiLeaks. While the previous chapter was concerned with the degree of concern and not with whether or not those feelings were positive or negative towards information leaks, this chapter will focus more on the nature of the feelings held by an individual.

This, for the record, is not because this study is seeking to be a comprehensive study of why people feel one way or another about information leaks. While I think such a study is necessary and would strongly encourage other scholars to look into the possibility of developing such a study, this study simply did not collect enough data from a wide enough variety of individuals to yield any kind of conclusive results on this issue. The reason I am choosing to place any focus on this issue at all in this paper is because I think it is necessary to understand if those with positive feelings towards the organizations are more or less inclined to express concern with such organizations.

Demographic information, specifically information concerning education and knowledge relating to information systems, is almost inarguably the most important part of this study, but how this information is affected by political beliefs may very well also

be correlated with a positive or negative increase in the degree of concern reported by these individuals.

The most obvious factor to look at first is whether or not a concern with the national security of the United States is positively correlated with a concern about information leaks and organizations such as WikiLeaks. I cross-tabulated the results of the statement “I worry about the national security of the United States” with the statement used to test the degree of concern with information leaks and it showed some revealing results.

Firstly, the results showed an overwhelming concern for the national security of the United States. Only 18.79% of those surveyed expressed a degree of concern less than merely neutral, 20.61% of respondents said that they felt neutral on the issue and the remaining 60.61%, the overwhelming majority of those surveyed, expressed a degree of concern at “Agree Slightly” or higher.

Secondly, when one looks at the mean results generated from this cross-tabulation, the results showed an overwhelmingly positive correlation amongst those surveyed. Of those who said that they disagreed strongly with the statement on national security, the mean result was one of the lowest amongst any specific group at just 2.67, meaning that the average was somewhere between “Disagree Slightly” and “Disagree” when asked whether or not they were concerned with information leak organizations such as WikiLeaks.

Table 9. Crosstabulation of National Security with Concern

Response	Disagree Strongly	Disagree	Disagree Slightly	Neutral	Agree Slightly	Agree	Agree Strongly
Strongly	2	0	0	0	0	1	0
Disagree	25.00%	0.00%	0.00%	0%	0%	3.13%	0%
Disagree	1	3	3	2	0	1	0
	12.50%	15.00%	15.00%	5.00%	0%	3.13%	0%
Slightly	0	5	5	5	2	3	0
Disagree	0.00%	25.00%	25.00%	12.50%	7.14%	9.38%	0%
Neutral	1	5	5	11	4	6	0
	12.50%	25.00%	25.00%	27.50%	14.29%	18.75%	0%
Slightly	0	3	3	14	11	8	2
Agree	0.00%	15.00%	15.00%	35.00%	39.29%	25.00%	20.00%
Agree	2	1	1	5	9	9	4
	25.00%	5.00%	5.00%	12.50%	32.14%	28.13%	40.00%
Agree	2	3	3	3	2	4	4
Strongly	25.00%	15.00%	15.00%	7.50%	7.14%	12.50%	40.00%

Amongst those who expressed a degree of concern at or below a level of “Neutral,” the results were also somewhat less than positive, with those reporting they disagreed with the statement on national security, the mean was exactly 3, meaning the average result was “Disagree Slightly” in terms of concern with information leak organizations. The results for “Disagree Slightly” and “Neutral” on the national security statement were similar, with means of 3.83 and 3.82 respectively, meaning that the

average result was relatively close to “Neutral” on the statement concerning information leak organizations.

Amongst those who reported “Agree Slightly,” “Agree,” or “Agree Strongly,” the results were all similar, with means at 4.47, 4.56 and 4.33 respectively. It would appear, given the closeness of the results, that the degree of concern for the security of the national security does not have as much of an effect on the degree of concern with information leak organizations so long as that concern is present at all. This is yet another area that warrants further study given that there appears to be no remarkable increase or decrease in concern with information leaks.

I felt that further information on this issue might be revealed by cross-tabulating the results of the national security statement against the results concerning citizenship of the United States. Participants in this study were given the option of stating whether or not they were citizens or permanent residents of the United States, with options of “Yes,” “No,” and “Prefer not to say.” These results were somewhat unsurprising although limited in their impact on the study due to the fact that the overwhelming majority of participants were either citizens or permanent residents of the United States, with 91.52% of those surveyed saying that they were citizens or permanent residents, with only 4.85% (8 individuals) saying that they were not and 3.64% (6 individuals) responding that they preferred not to say.

Of these individuals, the mean amongst citizens or permanent residents was 4.85, meaning that they expressed a concern for the national security of the United States nearer to “Agree Slightly” than to “Neutral.” Of those who were not citizens or permanent residents, the mean was 3.5, meaning exactly between “Neutral” and

“Disagree Slightly” in regards to the concern with the national security of the United States. Interestingly, none of those who were not citizens or permanent residents reported a degree of concern higher than “Agree Slightly.”

Table 10. Crosstabulation of National Security with Citizenship

Response	Disagree Strongly	Disagree	Disagree Slightly	Neutral	Agree Slightly	Agree	Agree Strongly
Yes	2 1.32%	9 5.96%	15 9.93%	31 20.53%	40 26.49%	34 22.52%	20 13.25%
No	1 12.50%	1 12.50%	2 25.00%	1 12.50%	3 37.50%	0 0%	0 0%
Prefer not to say	0 0%	0 0%	1 16.67%	2 33.33%	0 0%	2 33.33%	1 16.67%

Somewhat interestingly, the highest degree of concern for the national security of the United States was actually reported amongst those who preferred not to disclose their citizenship, with a mean at 5, the exact equivalent of “Agree Slightly.” Given, however, that only 6 individuals placed themselves in this category, I think a healthy degree of skepticism is necessary when interpreting these results.

This does seem to suggest another question, however: does citizenship affect other factors like the degree of concern with leak organizations? These results, when cross-tabulated against each other, were remarkably similar to the results concerning the national security of the United States. Of those who declared themselves to be citizens or permanent residents of the United States, the mean result was 4.15, meaning that they

expressed a degree of concern with information leak organizations slightly higher than “Neutral.” Of those who were not citizens of permanent residents, the mean was 3.63, meaning a degree of concern slightly less than neutral. Yet again, the highest result was amongst those who preferred not to disclose their citizenship, with a mean at exactly 5 again, meaning that the average result was “Agree Slightly.”

It seemed reasonable to investigate whether or not this affected the nature of the concern with information leak organizations and not just whether or not the degree of concern was affected. When asked to agree or disagree with the statement “I believe the American government has been unfair to WikiLeaks,” American citizens and permanent residents expressed different sentiments than their international colleagues. The mean result amongst American citizens and permanent residents was 3.79, meaning that they leaned towards disagreeing with the statement, albeit it slightly.

Table 11. Crosstabulation of Concern with Citizenship

Response	Disagree Strongly	Disagree	Disagree Slightly	Neutral	Agree Slightly	Agree	Agree Strongly
Yes	7 4.64%	23 15.23%	20 13.25%	37 24.50%	27 17.88%	28 18.54%	9 5.96%
No	1 12.50%	3 37.50%	0 0%	1 12.50%	0 0%	3 37.50%	0 0%
Prefer not to say	0 0%	1 16.67%	0 0%	1 16.67%	1 16.67%	2 33.33%	1 16.67%

Amongst those who were not citizens or permanent residents, the mean was 4.13, meaning that, although slightly again, the participants seemed inclined to agree with the statement. Of those who preferred not to disclose their citizenship status, the results were yet again the highest at 4.17, although this is really a minimal difference at most between non-citizens and those who preferred not to say, meaning that few conclusions, if any, should be pulled from these results and further study is probably warranted on this issue.

Table 12. Crosstabulation of American Government with Citizenship

Response	Disagree Strongly	Disagree	Disagree Slightly	Neutral	Agree Slightly	Agree	Agree Strongly
Yes	8 5.26%	25 16.45%	15 9.87%	66 43.42%	25 16.45%	7 4.61%	6 3.95%
No	1 12.50%	0 0%	1 12.50%	4 50.00%	0 0%	1 12.50%	1 12.50%
Prefer not to say	0 0%	1 16.67%	0 0%	3 50.00%	1 16.67%	1 16.67%	0 0%

Somewhat surprisingly, however, the results were almost identical when participants were asked to agree or disagree with the statement “I believe that international governments have been unfair to WikiLeaks.” The means for both citizens and non-citizens were identical at 3.79 and 4.17, respectively, meaning that Americans were inclined to slightly disagree with the statement and non-Americans were more likely to lean towards agreeing with the statement. Only those who preferred not to say expressed any kind of different opinion on the matter, with a slightly higher mean at 4.5,

meaning that on this statement, those who preferred not to reveal their citizenship seemed to feel even more inclined to agree with the statement.

Table 13. Crosstabulation of International Governments with Citizenship

Response	Disagree Strongly	Disagree	Disagree Slightly	Neutral	Agree Slightly	Agree	Agree Strongly
Yes	4 2.65%	27 17.88%	17 11.26%	74 49.01%	17 11.26%	6 3.97%	6 3.95%
No	1 12.50%	0 0%	0 0%	4 50.00%	2 25.00%	1 12.50%	0 0%
Prefer not to say	0 0%	0 0%	1 16.67%	2 33.33%	2 33.33%	1 16.67%	0 0%

Given that the American government has, in this author’s opinion, been openly more hostile towards WikiLeaks and other information leak organizations and that WikiLeaks is arguably most famous for revealing major information on the American government, these results are somewhat surprising. It would seem that Americans have a more negative perception of WikiLeaks than their international counterparts, which is to be somewhat expected, but neither group seems to believe that the American government is treating the organizations any differently than the international community, which is interesting given that they quite simply have treated the organizations differently.

Very seldom will I invoke my personal opinion in this paper, but these results are, quite frankly, inconsistent with reality. There has been a remarkable difference in the ways that international governments and the American governments have treated

WikiLeaks, so these results seem to show not that this perception is fair, but more that the participants in this survey may very well be relatively uninformed about the wide differences in policy being implemented by different world governments. The results show more about the nature of the information processed by the public than they do about how these governments are actually treating WikiLeaks. If two groups treat an organization differently, this treatment is, to paraphrase the Supreme Court, by definition unequal.

These results, whatever they actually reveal, do suggest that those who are not American citizens or permanent residents do have more positive views of information leak organizations than their American counterparts, but are these feelings exclusive to governments or are they related to other organizations, like the United Nations or corporations, as well?

When asked to agree or disagree with the statement “I believe that international authorities like the United Nations have been unfair to WikiLeaks,” the means were, yet again, extremely similar to the other results. Americans reported a slightly lower degree of agreement with this statement than the others (a mean of 3.78 on this statement as compared with 3.79 on the previous two mentioned) and non-American citizens or permanent residents reported the exact same degree of agreement, with a mean of 4.13. The most remarkable change was, again, from those who preferred not to state their citizenship, with the mean being 4 exactly, meaning that the average was precisely “Neutral,” slightly lower than their sentiments expressed on the previous two statements.

Table 14. Crosstabulation of United Nations with Citizenship

Response	Disagree Strongly	Disagree	Disagree Slightly	Neutral	Agree Slightly	Agree	Agree Strongly
Yes	4 2.65%	23 15.23%	24 15.89%	66 43.71%	23 15.23%	7 4.46%	2 2.65%
No	1 12.50%	0 0%	0 0%	5 62.50%	0 0%	2 25.00%	0 0%
Prefer not to say	0 0%	1 16.67%	1 16.67%	2 33.33%	1 16.67%	1 16.67%	0 0%

This could be seen as somewhat unsurprising given that, by their very nature, international authorities like the United Nations are meant to be proponents of policies similar to those of the international community, so the results should be similar to the results from the statement on international government. In my opinion, those who preferred not to reveal their citizenship actually were right on this issue. Since the United Nations has taken very little notable action either for or against WikiLeaks, I see no compelling reason why anyone should feel anything beyond “Neutral” towards the organization’s policies.

However, corporations often elicit different feelings from individuals than governments do, so I had included two questions in this survey to test whether or not this made a difference in the nature of feelings held towards information leaks organizations. When asked to agree or disagree with the first such statement concerning corporations, “I

believe that American corporations have been unfair to WikiLeaks,” the results were actually slightly different from the statements concerning governments.

Table 15. Crosstabulation of American Corporations with Citizenship

Response	Disagree Strongly	Disagree	Disagree Slightly	Neutral	Agree Slightly	Agree	Agree Strongly
Yes	5 3.29%	22 14.47%	20 13.16%	72 47.37%	23 15.23%	5 3.29%	5 3.29%
No	1 12.50%	0 0%	0 0%	5 62.50%	1 12.50%	1 12.50%	0 0%
Prefer not to say	0 0%	1 16.67%	2 33.33%	3 50.00%	0 0%	1 16.67%	0 0%

All three groups gravitated more towards “Neutral” on this statement, with both non-citizens and those preferring not to disclose expressing means of exactly 4, meaning precisely “Neutral.” Even American citizens began to gravitate slightly closer towards “Neutral,” with a mean of 3.8. This is not particularly notable since the difference between a mean of 3.79 (on the statements concerning governments) and 3.8 (on this one) is of minimal consequence given the limited number of participants in this survey, but it is somewhat revealing that the degree of separation between the groups on this statement was a mere 0.2 as compared with a degree of separation almost twice as high when asked about the feelings towards governments. This could possibly be attributed to a lower degree of knowledge about the interactions of corporations and WikiLeaks, although a

study with a larger sample of non-American citizens or permanent residents might reveal slightly more useful data.

The groups began to separate out again when asked to agree or disagree with the following statement: “I believe that international corporations have been unfair to WikiLeaks.” The mean amongst American citizens or permanent residents was the lowest yet, at 3.74, meaning that out of the American government, American corporations, international organizations such as the United Nations, international governments and international corporations, Americans seemed most inclined to disagree with the idea that international corporations had been treating information leak organizations unfairly.

Interestingly, those who were not citizens or permanent residents were not any more inclined to agree with this statement, with a mean at 4, an average result of exactly “Neutral.” Those who chose not to report their citizenship status were slightly more inclined to agree, with a mean result of 4.33, meaning slightly closer to “Agree Slightly.” Why, exactly, Americans seemed to have more extreme perceptions (although still, notably, fairly close to neutral) than their international counterparts is something not revealed in this study and is yet another reason that further study on this topic is warranted.

Given that these results appeared to, at times, be inconsistent with reality, I felt it would be interesting to cross-tabulate the citizenship status against the two questions I placed in the survey to test direct knowledge of WikiLeaks. I asked two simple questions to participants of this survey to see whether or not they could correctly identify Julian Assange as the current leader of WikiLeaks and to see if they could correctly identify Bradley Manning as the man accused of leaking state secrets. The results were revealing.

Table 16. Crosstabulation of International Corporations with Citizenship

Response	Disagree Strongly	Disagree	Disagree Slightly	Neutral	Agree Slightly	Agree	Agree Strongly
Yes	3 1.97%	25 16.45%	22 14.47%	74 48.68%	19 12.50%	4 2.63%	5 3.29%
No	1 12.50%	0 0%	0 0%	5 62.50%	1 12.50%	1 12.50%	0 0%
Prefer not to say	0 0%	0 0%	2 33.33%	2 33.33%	0 0%	2 33.33%	0 0%

When asked, “Who is the current leader of WikiLeaks?” the overwhelming majority of those taking the survey selected the option “Do Not Know.” Overall, 58.43% of respondents placed themselves in this category, with 59.21% of American citizens or permanent residents placing themselves in this category. Amongst non-citizens, the percentage was even higher at 62.5%. The lowest category was amongst those who preferred not to disclose their citizenship at 33.33%.

Overall, only 27.11% of those surveyed could correctly identify Julian Assange as the current leader of WikiLeaks. 26.97% of Americans correctly identified Assange, with 25% of non-citizens also able to correctly identify the current leader of WikiLeaks. The group with the highest results in this category were those who preferred not to disclose their citizenship, with 33.33% of this group correctly identifying Assange.

Of the other options, Daniel Domscheit-Berg was incorrectly identified as the current leader 5.42% of the time, Arianna Huffington was selected by 4.22% of participants, Stieg Larsson (the author of *The Girl with the Dragon Tattoo*, included in

this survey only for his common ties to Sweden with Assange) was selected 3.61% of the time and, finally, Micah Sifry was selected by 1.2% of the participants.

Table 17. Crosstabulation of Identifying Assange with Citizenship

Response	Julian Assange	Daniel Domscheit- Berg	Arianna Huffington	Stieg Larsson	Micah Sifry	Do Not Know
Yes	41 26.97%	7 4.61%	6 3.95%	6 3.95%	2 1.32%	90 59.21%
No	2 25.00%	1 12.50%	0 0%	0 0%	0 0%	5 62.50%
Prefer not to say	2 33.33%	1 16.67%	1 16.67%	0 0%	0 0%	2 33.33%

When asked, “Which of these people is currently awaiting trial for involvement in leaking government documents to WikiLeaks?”, the results were even more dismal. An even more overwhelming majority stated that they did not know the correct answer, with 64.46% of all participants selecting this option. 65.13% of American participants selected “Did Not Know” and of non-Americans, the results were slightly lower with 62.5% of participants selecting this option. The lowest category, again, was of those who preferred not to disclose their citizenship, with 50% selecting this option.

Table 18. Crosstabulation of Identifying Manning with Citizenship

Response	Robert Gates	Bradley Manning	Mike Mullen	David Petraeus	Leon Panetta	Do Not Know
Yes	6 3.95%	24 15.79%	8 5.26%	7 4.61%	8 5.26%	99 65.13%
No	0 0%	1 12.50%	2 25.00%	0 0%	0 0%	5 62.50%
Prefer not to say	1 16.67%	1 16.67%	1 16.67%	0 0%	0 0%	3 50.00%

Overall, only 15.66% of participants correctly identified Bradley Manning. 15.79% of Americans correctly identified Manning, compared with 12.5% of non-Americans and 16.67% (only one person) of those who preferred not to disclose their citizenship. Robert Gates, the former Secretary of Defense, and Leon Panetta, the current Secretary of Defense, were incorrectly selected instead of Bradley Manning by 4.22% of participants and 4.82% of participants, respectively. The current head of the Central Intelligence Agency, David Petraeus, was incorrectly identified 4.22% of the time as well. Mike Mullen, the former Chairman of the Joint Chiefs of Staff, was incorrectly identified 6.63% of the time. These are, unfortunately, very disappointing results given that all of these individuals are major figures in their respective fields.

Did the number of information systems classes taken by an individual affect these figures? The answer appears to be a somewhat resounding yes. Of those who had only taken 1 information systems class, only 18% of respondents correctly identified Assange as the current leader of WikiLeaks and of those who had taken 2, only 15.56% could

correctly identify Assange, both below the 27.22% amongst all participants. However, as the number of classes taken increased, so too did the likelihood that an individual could correctly identify Assange, at least to a certain extent. Amongst those who had taken 3 information systems classes, 44.44% could correctly identify Assange. Of those who had taken 4 or 5 classes, the results were even higher at 57.14% and 66.67%, respectively. Those who had taken more than 5 information systems classes were a bit lower at 34.38, although this was still well above the average overall result.

Table 19. Crosstabulation of Identifying Assange with Information Systems Classes

Crosstabulation	Julian Assange	Daniel Domscheit- Berg	Arianna Huffington	Stieg Larsson	Micah Sifry	Do Not Know
1	9 18.00%	4 8.00%	1 2.00%	2 4.00%	1 2.00%	33 66.00%
2	7 15.56%	2 4.44%	5 11.11%	3 6.67%	1 2.22%	27 60.00%
3	8 44.44%	0 0%	0 0%	0 0%	0 0%	10 55.56%
4	4 57.14%	0 0%	0 0%	0 0%	0 0%	3 42.86%
5	4 66.67%	0 0%	0 0%	0 0%	0 0%	2 33.33%
More than 5	11 34.38%	3 9.38%	0 0%	1 3.13%	0 0%	17 53.13%

When asked to identify Bradley Manning as currently awaiting trial for involvement in leaking government documents to WikiLeaks, the results were more mixed although they still appear to show a positive correlation. Overall, the correct identification rate was 15.82% of the time and the results amongst those who had taken one information systems class were similar at 16%. The results amongst those who had taken 2 classes was a correct identification rate that was slightly lower at 11.11%. However, amongst those who had taken 3 or more classes, the results were significantly higher. 22.22% of those who had taken at least 3 classes were able to identify Manning and 28.57% of those who had taken 4 information systems classes were able to identify Manning as well. The highest was amongst those who had taken 5 information systems classes, with a correct identification rate of 33.33%. Amongst those who had taken more than 5 classes, the result was a dismal 12.5%, but this appears, by all indications, to be a bit of an outlier.

When analyzed against the respondents' political beliefs, these questions were even more revealing. In one question, participants were asked to identify themselves as "Conservative," "Liberal," "Libertarian," "Socialist," or "Apathetic" and were given the option of selecting multiple choices. Conservatives correctly identified Assange only 25.25% of the time, with liberals slightly lower at 23.08% of the time. Socialists, of which there were only three individuals, identified Assange correctly 33.33% of the time, meaning only one individual answered correctly. Libertarians and, strangely, those who considered themselves to be "Apathetic," both answered the question correctly 50% of the time, the only two groups not to be incorrect more often than not. Perhaps most

Table 20. Crosstabulation of Identifying Manning with Information Systems Classes

Systems Classes	Robert Gates	Bradley Manning	Mike Mullen	David Petraeus	Leon Panetta	Do Not Know
1	1 2.00%	8 16.00%	2 4.00%	3 6.00%	3 6.00%	33 66.00%
2	4 8.89%	5 11.11%	3 6.67%	1 2.22%	1 2.22%	31 68.89%
3	0 0%	4 22.22%	1 5.56%	0 0%	1 5.56%	12 66.67%
4	0 0%	2 28.57%	1 14.29%	0 0%	0 0%	4 57.14%
5	0 0%	2 33.33%	0 0%	1 16.67%	1 16.67%	2 33.33%
More than 5	2 6.52%	4 12.50%	4 12.50%	1 3.13%	2 6.25%	19 59.38%

interestingly, not one person who labeled themselves as “Apathetic” actually got the question wrong — 50% identified Assange correctly and the other 50% said that they did not know the answer.

Of those who described themselves as conservatives, 19.19% correctly identified Bradley Manning as currently awaiting trial for involvement in leaking government documents to WikiLeaks, which was significantly higher than the average of 16.67%. 15.38% of liberals were able to identify Manning and 15% of libertarians were able to do the same. Amongst those who declared themselves as “Socialist” or “Apathetic,” zero

individuals were able to correctly identify Manning, although 16.67% of those who labeled themselves as “Apathetic” incorrectly identified Mike Mullen.

Table 21. Crosstabulation of Identifying Assange with Political Beliefs

Political Beliefs	Julian Assange	Daniel Domscheit-Berg	Arianna Huffington	Stieg Larsson	Micah Sifry	Do Not Know
Conservative	25 25.25%	4 4.04%	5 5.05%	5 5.05%	2 2.02%	58 58.59%
Liberal	9 23.08%	5 12.82%	1 2.56%	0 0%	0 0%	24 61.54%
Libertarian	10 50.00%	1 5.00%	0 0%	1 5.00%	0 0%	8 40.00%
Socialist	1 33.33%	0 0%	0 0%	0 0%	0 0%	2 66.67%
Apathetic	6 50.00%	0 0%	0 0%	0 0%	0 0%	6 50.00%

When the results are this dismal, the obvious thing to report is that all individuals, across the political spectrum, are woefully uninformed about information leak organizations and this may very well have contributed to the apparent discrepancies in the results on this survey. Conservatives appeared to have the most success in correctly identifying the two individuals, although their results were not significantly more accurate than any of the other political groups.

Table 22. Crosstabulation of Identifying Manning with Political Beliefs

Political Beliefs	Robert Gates	Bradley Manning	Mike Mullen	David Petraeus	Leon Panetta	Do Not Know
Conservative	3 3.03%	19 19.19%	8 8.08%	4 4.04%	5 5.05%	60 60.61%
Liberal	3 7.69%	6 15.38%	1 2.56%	2 5.13%	2 5.13%	25 64.10%
Libertarian	1 5.00%	3 15.00%	1 5.00%	0 0%	3 15.00%	12 60.00%
Socialist	0 0%	0 0%	1 33.33%	1 33.33%	0 0%	1 33.33%
Apathetic	1 8.33%	0 0%	2 16.67%	0 0%	1 8.33%	8 66.67%

Having established that essentially a minimal number of participants even possess the most basic knowledge about WikiLeaks, I felt it would be interesting to see if political beliefs had any effect on whether or not an individual supports WikiLeaks. When asked to agree or disagree with the statement, “I support continued information leaks and organizations such as WikiLeaks,” not a single one of the political groups professed that they actually agreed with the statement. Those who labeled themselves as “Apathetic,” somewhat fittingly, were the closest to “Neutral” with a mean of 3.75. Libertarians were the next highest with a mean of 3.7, which seems surprisingly low given the nature of their political beliefs and their opposition to any kind of governmental interference. Liberals were the only other political affiliation with a mean above 3 at

3.36. Conservatives had a mean result of 2.98 (meaning slightly below “Disagree Slightly”) and socialists were the lowest with a mean result of 2.67.

Table 23. Crosstabulation of Support for WikiLeaks with Political Beliefs

Political Beliefs	Disagree Strongly	Disagree	Disagree Slightly	Neutral	Agree Slightly	Agree	Agree Strongly
Conservative	20 20.20%	21 21.21%	16 16.16%	29 29.29%	9 9.09%	4 4.04%	0 0%
Liberal	6 15.38%	12 30.77%	3 7.69%	6 15.38%	6 15.38%	4 10.26%	2 5.13%
Libertarian	4 20.00%	4 20.00%	1 5.00%	1 5.00%	6 30.00%	3 15.00%	1 5.00%
Socialist	1 33.33%	0 0%	1 33.33%	1 33.33%	0 0%	0 0%	0 0.00%
Apathetic	2 16.67%	2 16.67%	2 16.67%	0 0%	4 33.33%	1 8.33%	1 8.33%

When asked to agree or disagree with the statement “I would consider donating to organizations such as WikiLeaks,” the results were even lower. Libertarians and liberals were the only groups with means above 3, at 3.2 and 3.03 respectively. Conservatives had a mean result of 2.68, socialists at 2.67 and, surprisingly, those who labeled themselves as “Apathetic” were actually a little bit higher at 2.75, with one individual in this group actually selecting “Agree Strongly.”

Table 24. Crosstabulation of WikiLeaks Donations with Political Beliefs

Political Beliefs	Disagree Strongly	Disagree	Disagree Slightly	Neutral	Agree Slightly	Agree	Agree Strongly
Conservative	29 29.29%	18 18.18%	20 20.20%	22 22.22%	8 8.08%	2 2.02%	0 0%
Liberal	9 23.08%	10 25.64%	5 12.82%	8 20.51%	2 5.13%	3 7.69%	2 5.13%
Libertarian	4 20.00%	2 25.00%	1 5.00%	5 25.00%	4 20.00%	0 0%	1 5.00%
Socialist	1 33.33%	0 0%	1 33.33%	1 33.33%	0 0%	0 0%	0 0.00%
Apathetic	4 33.33%	3 25.00%	1 8.33%	2 16.67%	1 8.33%	0 0%	1 8.33%

Overall, there seems to be very little difference between the political groups in their knowledge of or feelings towards WikiLeaks and other such information leak organizations.

To conclude this section, I feel that there are two factors that stand out as the most notable. One is that very few individuals appear to know much of anything about WikiLeaks. The second, somewhat less notably, is that if an individual expresses any concern for the national security of the United States, he or she is more likely to be concerned with information leak organizations.

CHAPTER SIX

Conclusion

“Knowledge is power” is a common phrase I heard growing up and I think that, above all else, might be the conclusion to pull from this study. Amongst all of the varying factors analyzed in this study – race, concern for the national security of the United States, whether or not an individual will donate to WikiLeaks, etc. – the relative lack of knowledge about information systems or information-leak organizations is troubling.

It is revealing that my hypothesis was largely proven in that the more information systems-related knowledge individuals possess, the more likely they were to be concerned about WikiLeaks and other information-leak organizations. The number of information systems classes taken was positively correlated with both knowledge of WikiLeaks and a concern about the role that information-leak organizations are going to play in the modern world. The same held true for education-related factors. The more education individuals had been through over the course of their lives, the more likely they were to be concerned with the development of information leak organizations like WikiLeaks.

The fact that so many individuals were unable to correctly identify Julian Assange or Bradley Manning based on widely known facts was disheartening. Let me be clear here: these are not obscure facts, nor are they unimportant ones. As mentioned in my introduction, Assange was strongly (and justifiably, in my opinion) considered for the label of *Time*'s “Man of the Year.” Assange and, to a lesser extent, Manning, are both

playing profound roles in shaping American and international policies concerning national security, diplomacy and information policy and yet many individuals could not even differentiate Assange from the author of *The Girl with the Dragon Tattoo*.

It is somewhat positive that as the level of education increased, specifically within the field of information systems, so too did both the concern with information-leak organizations and the likelihood that an individual could correctly identify Assange or Manning. It is interesting that this was true, however, given the relative lack of information systems-oriented research about WikiLeaks and other leak-based organizations.

The area I believe is most warranting further research after this study is not one I would have expected at its outset: we must, as scholars, attempt to understand why the general populace is so woefully uninformed about current events and how, if at all, this can possibly be corrected. There is no reason that citizens in a democracy like ours should not be able to identify people who are directly affecting the policies of the United States and the international community.

I would strongly encourage scholars in information systems to seek to understand why some of these problems have arisen and how they might be solved in the future. This study did not reveal anything profound about what makes an individual support or discourage the development of information leak organizations, which is unsurprising given the almost complete lack of knowledge on the part of participants in the study.

The fact that the results showed no difference in beliefs about the American government when compared with international governments is troubling given the wide variety of policies being tried and advocated for in the differing nations. These are not

issues that exclusively affect information systems students; these are issues that will affect every single individual alive during the information age in which we live. The fact that information systems students are more likely to get basic facts right as they take more classes is indeed positive and I think it suggests the need for further study.

One issue that this study did not get into is the nature of the information systems classes being taken. Do certain information systems classes make an individual more likely to have knowledge of basic, information systems-related world events? Were there certain classes at Baylor University that made an individual more likely to be concerned with information leaks? Could these classes be emulated elsewhere?

This is not something that this study was able to study in depth, nor was it meant to. As a foundation for further study, I feel this paper revealed some profound problems with how current students view current affairs and how this might be fixed in the future. My hope is that with future study, we might possibly be able to identify the factors that can help encourage students to understand the aspects that affect their field of study in order to be more productive citizens.

This study is not without its limitations that result in limited generalizability to other populations. First, this study was conducted almost exclusively in the Hankamer School of Business at Baylor University. Most of the students were business majors, and most of them were undergraduates. Second, the study relies totally on a single survey instrument, so it is impossible to probe deeper in the data for more understanding about relationships between variables, like how age, education, and race all interact to influence perceptions of leak organizations like WikiLeaks. This also means that if any of the elements in the survey were confusing to participants, there was no way of revealing that

in this study. Finally, since the purpose of this study was to explore people's feelings about leak organizations, it was decided not to base the survey on an existing theory. This of course means that while we are able to explore the relationships between variables, we are unable to explain some of the results.

Ultimately, however, this study does seem to indicate that there is a strongly positive correlation between knowledge concerning information systems and concern about information leaks. I would highly recommend that further and potentially more varied studies be undertaken in order to verify this correlation and, if it is proven further, to attempt to explain why this may be the case.

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