

2-9-2018

Source Recruitment in the Cyber Domain

Joshua Allan Alexander

Follow this and additional works at: <https://rio.tamtu.edu/etds>

Recommended Citation

Alexander, Joshua Allan, "Source Recruitment in the Cyber Domain" (2018). *Theses and Dissertations*. 31.
<https://rio.tamtu.edu/etds/31>

This Thesis is brought to you for free and open access by Research Information Online. It has been accepted for inclusion in Theses and Dissertations by an authorized administrator of Research Information Online. For more information, please contact benjamin.rawlins@tamtu.edu, eva.hernandez@tamtu.edu, jhatcher@tamtu.edu, rhinojosa@tamtu.edu.

SOURCE RECRUITMENT IN THE CYBER DOMAIN

A Thesis

by

JOSHUA ALLAN ALEXANDER

Submitted to Texas A&M International University
in partial fulfillment of the requirements
for the degree of

MASTER OF SCIENCE

August 2016

Major Subject: Criminal Justice

Source Recruitment in the Cyber Domain

Copyright 2016 Joshua Allan Alexander

SOURCE RECRUITMENT IN THE CYBER DOMAIN

A Thesis

by

JOSHUA ALLAN ALEXANDER

Submitted to Texas A&M International University
in partial fulfillment of the requirements
for the degree of

MASTER OF SCIENCE

Approved as to style and content by:

Chair of Committee,
Committee Members,

Kate Houston
John C. Kilburn
Monica Munoz
Marcus Ynalvez

Head of Department,

Claudia San Miguel (Interim Chair: John C. Kilburn)

August 2016

Major Subject: Criminal Justice

DEDICATION

For my grandfather, Ernesto Garza Garza, thank you for being such a positive light throughout my lifetime. I love you and miss you.

ABSTRACT

Source Recruitment in the Cyber Domain (August 2016)

Joshua Allan Alexander, B.A. Psychology, The University of Texas at El Paso;

Chair of Committee: Dr. Kate Houston

Cyber-crime and cyber criminality are a growing threat in today's society. As people gradually become more interconnected through technological advances, the potential for cyber-crime grows. As this issue expands into broader territories, new methods must be implemented as a means to combat it. One of the issues facing those attempting to police cyber-crime is that it is easier to hide and cover the evidence trail for crimes committed in cyber-space than it is for crimes committed outside it. Because of this, law enforcement and intelligence agencies are turning to a new tool in the fight against cyber-crime: sources. However, the issue of source recruitment in the cyber arena is a complex one. This research represents a first step towards scientifically investigating these methods of source recruitment. A total number of 249 Texas A&M International University students were studied across two experiments to determine the effectiveness of the social influence techniques of liking, authority, and scarcity within letters as a method of cyber source recruitment. Letters were implemented as a means to initiate communications with participants, with each letter containing a different tone and timeframe in which to respond to said letter. A 2 (letter tone: authoritative vs. friendly) x 2 (response delay: 7 days vs. 14 days) between-subjects experiment was designed to investigate whether the tonality of the letter and the response window will impact participant's response rate. It was predicted that an

authoritative tone with the shorter response window would yield a higher response rate than that of the other letters. Though data from Experiment 1 showed no significant difference between letter types or response timeframes, the results from Experiment 2 indicated that a friendly tone with a shorter timeframe for response garnered more cooperation from participants, whereas participants under the authoritative tone took longer to respond.

ACKNOWLEDGEMENTS

I would like to thank my committee chair, Dr. Kate Houston, for her endless support and guidance throughout the entirety of this research. I could not have asked for a better mentor or friend.

I would also like to thank my committee members, Dr. Kilburn, Dr. Munoz, and Dr. Ynalvez, for their exceptional support throughout this process.

Thanks to my mother and father for their constant encouragement, love, and support. I love you both very much.

Finally, I would like to thank my wife, Kathyn, for her love and encouragement. Thank you for being my inspiration. I am only here because of you.

TABLE OF CONTENTS

	Page
ABSTRACT.....	v
ACKNOWLEDGEMENTS.....	vii
TABLE OF CONTENTS.....	viii
LIST OF TABLES.....	ix
CHAPTER	
I INTRODUCTION	1
II REVIEW OF LITERATURE	6
“What is Cyber Crime?”	6
III MAIN AIMS OF THE THESIS AND PARADIGM EMPLOYED.....	13
General Paradigm of the Thesis	13
IV EXPERIMENT 1	18
Introduction.....	18
V EXPERIMENT 2	35
Introduction.....	35
VI GENERAL DISCUSSION	49
Conclusion	56
REFERENCES	58
APPENDICES	
A EXPERIMENT LETTERS 1A-1D.....	63
B EXPERIMENT LETTERS 2A-2D.....	67
VITA.....	71

LIST OF TABLES

	Page
Table 4.1: Response Frequency by Letter Format	23
Table 4.2: Respondent Gender.....	24
Table 4.3: Respondent Race/Ethnicity Classification.....	25
Table 4.4: Respondent Major Classification.....	27
Table 4.5: Respondent Primary Language.....	28
Table 5.1: Frequency of Participant Gender	38
Table 5.2: Frequency of Participant Age	39
Table 5.3: Frequency of Participant Race.....	40
Table 5.4: Response Frequency by Letter Format	41
Table 5.5: Respondent Gender.....	42
Table 5.6: Respondent Race/Ethnicity Classification.....	43
Table 5.7: Respondent Major Classification.....	45
Table 5.8: Respondent Primary Language.....	46

CHAPTER I

INTRODUCTION

The issue of security is often of great importance to many in the United States and across the globe (Schell & Martin, 2004). One of the primary tenants of human motivation and behavior is safety and security, therefore it is natural for an individual to want to feel secure in their environment (Maslow, 1943). Advances in technology have recently made things such as internet access and interconnection become paramount fixtures in the personal and professional lives as more and more people begin to digitize aspects of their lives, making convenience become a strategy which lightens the burden of a heavy workload often encountered in modern society (File & Ryan, 2014). As times progress, the two concepts of security and technology have become somewhat contradictory and present society with a seemingly problematic conundrum. With the technological advances made within the last decade, society has been given more power to access a seemingly vast sea of information in the palm of their hands. Personal, private, and financial information is now being broken down, coded, and quantified so that it is readily available for owners to access through electronic means such as a computer or cellular telephone (Schell & Martin, 2004). It is with these advances in mind that society faces a new threat: the cyber-criminal.

Cyber-crime and cyber criminality have become growing threats in today's society (Broadhurst, 2006). Convenience has become a norm for people who are constantly on the go, and the internet, as well as cloud storage, has provided them the means to take care of personal affairs with the use of something as simple as a cellular phone (Casey, 2004).

This thesis follows the style of *Legal and Criminological Psychology*.

The unfortunate downside to this however is that the science of giving information online as a means to pay bills or apply for jobs is not an exact one. Broadhurst notes that technological developments and the emergence of e-commerce, have resulted in both national and international governments being compelled to address the need for regulation on the internet (Broadhurst, 2006). Thus, it is clear that cyber-attacks not only threaten one's identity or personal information on an individual level, but can have a negative impact upon commerce and government as well. It is estimated that damage from cyber-attacks can be measured in billions of U.S. dollars annually (Sofaer et al., 2000).

Cyber-crime is broadly construed as the use of the internet, computers, or related technology in act of committing a crime (Maras, 2011). As the issue of cyber security expands into broader territories, it threatens a greater potential for organized crime on a transnational level (Weiss, 2015). Unfortunately, it would appear that traditional policing is ineffective in regards to combating cyber-crime, thus prompting the examination of new processes to gain traction in the fight against this growing problem (Wall, 1998). This has led to the belief that methods of policing and criminal behavior disruption must be implemented as a means to combat cyber-crime. The problem with this ideal however, is that combating online criminality is much more difficult than one would initially realize. One of the main issues facing those attempting to police cyber-crime is that it is easier to hide and cover the evidence trail for crimes committed in cyber-space than it is for crimes committed outside it (Yar, 2013). The internet enables many hackers and computer specialists to utilize a computer screen as a mask of anonymity. The actions taken by a cyber-criminal can be done in a covert manner, committing a crime and quickly erasing the proof that they were the ones who committed the action in the first place (Yar, 2013). As technology becomes more

sophisticated in the recent years, so too has the manner in which criminals of the cyber domain commit these offenses and cover their tracks (Yar, 2013).

In response, law enforcement and intelligence agencies are forced to consider new models of policing in order to combat cyber-crime: sources. While the use of sources is not altogether a new policing model, the operational environment is new and the issue of source recruitment in the cyber arena is a complex one. The use of sources in the criminal justice field has been practiced for many years and it still carried out to this day (Wroblewski & Hess, 2000). Sources, otherwise known as informants, are people with knowledge about a particular crime or criminal who are willing provide said knowledge to a police force or intelligence agency to further investigations (Wroblewski & Hess, 2000). The use of sources (or informants) remains one of the oldest and most essential tools to the criminal investigation process (Wroblewski & Hess, 2000). Lieberman (2007) recognizes the importance of sources as crucial to investigations and makes note that sources can provide pivotal information that can make or break an investigation in terms of the knowledge of who might have committed a crime, or where that person was when a crime was committed. More often than not sources are criminals themselves, and the risk of a source ruining the investigation can run high (Lieberman, 2007). It is however worth noting that sources can bring an ongoing investigation to a close with the information one can provide.

Why are sources needed in this domain of cyber criminality? Lieberman's (2007) arguments can easily be extended into the cyber-crime arena: as it pertains to cyber-crime, a source could be defined as anyone with knowledge of a particular hacker or cyber-criminal, or the whereabouts of where a cyber-criminal is conducting attacks or criminal activity. This information can prove to be beneficial in locating or identifying cyber criminals and gaining

momentum in cyber-crime deterrence and prevention very similar to the manner in which Lieberman (2007) highlights the usefulness of sources as it pertains to narcotics investigations. Furthermore, the fact that cyber-crime is committed through such an anonymous domain leaves investigators with little to pursue in terms of leads (Yar, 2013). It might be known what happened, perhaps even knowledge of how it happened, but the larger questions remain such as who committed said crimes and from where (Yar, 2013). Therefore, in an effort to confront this issue it has brought law enforcement back to the traditional form of face-to-face policing in an attempt to find sources that are privy to give information on who might have committed these crimes and from where they originate.

However, a movement to return to a source-based model of investigation begs the question of what is an effective means of communication to recruit the cyber source? It has been found that the most effective recruitment strategy for previous source recruitment was using written communication with target audiences such as letters sent to their home address, to help achieve or optimize desired outcomes (Security Sensitive Personal Communication, 2013). Although these practices appear to have been productive in the field, to date there has been no empirical scientific work conducted to buttress these field practices with scientific evidence. One crucial question is that if letters are to be effective in source recruitment strategies then they need to be highly influential over the behavior of the potential source. To this end, the principles of social influence provide very appealing prospects to solicit desired behavior. If individuals can be swayed to buy a product they don't want or need by a television advert, or a flyer in the mail, could the same technique be applied to recruit a source?

The manner in which one gains trust and cooperation from these sources however becomes something to analyze. If one were to be able to establish contact with a source, what method would be most successful in garnering compliance and, potentially, pivotal information to pursue potential cyber-criminals? It is here that one would assess the importance of social influence and how it could potentially be used to garner this information. Would a friendly, more affable approach be key in establishing communications with potential sources, or perhaps a more authoritative, commanding approach is potentially better suited to ensure the cooperation of a potential source?

The following research seeks to answer these questions by investigating source recruitment methods in an online domain, specifically, what letter tone and response windows can be employed to entice a potential cyber source to engage with an online platform which opens dialogue between them and an intelligence/policing organization? The following experiments will examine two variations of a research project used to investigate this new area of cyber source recruitment with the following aims: 1) To assess the effectiveness of using letters as a method of source recruitment in the cyber domain. 2) To begin to understand the use of language which will be most effective for recruitment in regards to the tone or dialogue used in aforementioned letters. 3) To investigate the effectiveness of using scarcity, a principle of social influence, as a method to entice potential sources to interact with the target organization, in terms of the time it takes a source to respond to the recruitment letter.

CHAPTER II

REVIEW OF LITERATURE

What is Cyber-Crime?

The concept of cyber-crime is virtually no different than that of traditional crime as it can vary from fraud to identity theft to even child pornography, however it is executed much more quickly and to a much larger pool of victims (Broadhurst, 2006). Cyber-crime can range from an attack on an individual's bank account with the intent of stealing funds, to obtaining corporate or government secrets for the sole purpose of selling to the highest bidder (Lewis, 2002). Broadhurst (2006) notes that the cross-national nature of internet-related crimes has proven to be a hindrance as it pertains to time honored methods of policing in both domestic and international spectrums. With the neutral mask of internet anonymity, criminals are able to move swiftly and commit crimes to multiple targets far beyond their personal reach, making the crime much easier to commit in terms of one's conscience and convenience (Yar, 2013).

Jaishankar (2007) establishes a theory behind cyber-crimes and cyber criminals. Jaishankar (2007) discusses both the conforming and non-conforming behaviors exhibited by cyber criminals when they are in the physical space as opposed to cyber space. Jaishankar (2007) notes that identity flexibility and lack of deterrence factors in cyberspace provide offenders with the choice to commit a crime. The repressed criminal behavior exhibited by those in the cyber domain are considered behaviors that one would not commit in the real world due to one's social status or position (Jaishankar, 2007). The threat of cyber-crime however is not limited to the individual, it may be reasonable to argue that cyber-crime could be considered a new form of terrorism (Yar, 2013).

In a thought-provoking article, Sofaer et al. (2000) notes that the measures that have been taken thus far by both public and private sectors have been inadequate as these pertain to security, citing lack of timely shared information and slow-moving, poorly coordinated investigations (Sofaer et al., 2000). The threat of cyber-crime and the cyber-criminal are not limited to one's neighborhood, city, or state for that matter (Pocar, 2004). Cyber-crime is a borderless threat that affects people and civilizations on an international level (Pocar, 2004).

What Are Sources?

The use of sources in the field of criminal justice has been practiced for many years and it still carried out to this day. Sources, otherwise known as informants, are individuals or groups of people with knowledge about a particular crime or criminal that is willing provide said knowledge to a police force or intelligence agency to further investigations. The use of sources remains one of the oldest and most essential tools to the criminal investigation process (Wroblewski & Hess, 2000). The importance and usefulness of sources is crucial to criminal investigations (Lieberman, 2007). Sources can provide pivotal information that prove to be essential in an investigation in terms of the knowledge of who might have committed a crime, or where that person was when a crime was committed, shortening the timeframe within an investigation (Lieberman, 2007). More often than not sources are individuals or groups who are criminals themselves, and thus the risk of a source ruining the investigation can run high. It is however worth noting that sources can bring an ongoing investigation to a close with the information one can provide pertaining to the semantics of a certain criminal activity.

Schell and Martin (2004) describe the terminology used to represent those with the abilities to commit these types of criminal activities. Schell and Martin (2004) note that the term “hacker” has been used as an umbrella term for those who enjoy discovering knowledge of computer systems and may use their capabilities in a malicious manner to gain access to information by illegal means. The term “cracker” is also elaborated to explain a person who breaks into security systems by these same means, noting that the term was coined in 1985 by hackers that were upset at the use of the term “hacker” by the media (Schell & Martin, 2004). Throughout the years, the meanings of the terms “hacker” and “cracker” have seemingly become synonymous in describing criminality in the cyber domain (Schell & Martin, 2004). It is noted that there are considered to be two very different types of hackers in the computer underworld that take the form of “White Hat Hackers” and “Black Hat Hackers” (Schell & Martin, 2004).

Schell and Martin (2004) describe White Hat hackers as those with hacking knowledge whom consider themselves to be “the good guys” in that they are merely motivated by analyzing potential exploits in the cyber world. This includes analyzing these potential exploits in the pursuit of greater knowledge or finding intrusion flaws within computer systems with the proper authorization (Schell & Martin, 2004). Many White Hat hackers are actually employed by companies, governments, and financial businesses in an effort to discover potential flaws in their systems that would make them susceptible to attack (Schell & Martin, 2004). The need for ethical hacking, or “penetration testing” within larger companies has turned hacking into a viable form of employment for those who find themselves fascinated with the working of online systems (Schell & Martin, 2004). The increasing need for businesses to use the internet as it pertains to clientele as well as the

movement of products and services has become commonplace, however the greater the online presence for businesses, the greater the risk of attack, hence the need for these ethical hackers (Damsell, 2003). White Hat hackers follow the ethics of a key principle that was formulated at MIT: anything that might teach an individual something about the way the world works, as well as all information, should be free (Levy, 1984). It is within these ethics that White Hat hackers consider themselves to be non-criminal, as the feeling is that what they do is for the greater good of knowledge and information (Schell & Martin, 2004).

Black Hat hackers, however, are considered to be what the general populous know as cyber criminals (Schell & Martin, 2004). Black Hat hackers are oftentimes the ones who commit criminal activities through the use of a computer (Schell & Martin, 2004). Schell and Martin (2004) note that the motives can vary from getting revenge, competitor sabotage, stealing of identity, and terrorizing individuals who are selected or singled out by a particular hacker. Unlike White Hat hackers, Black Hat hackers do not adhere to the ethics of the search for greater information (Schell & Martin, 2004). Black Hat hackers consider the internet and computer systems to be means of personal gain, and thus their behavior is not so much the search of expanding information and knowledge, so much as it is finding weaknesses or exploits in systems to as a means to their end (Schell & Martin, 2004). Black Hat hacking correlates with many of the cyber-crimes that concern enforcement agencies, such as cracking, piracy, stalking, pornography, as well as terrorism (Schell & Martin, 2004).

As it pertains to cyber-crime, a source can be anyone with knowledge of a particular hacker or cyber-criminal, or the whereabouts of where said cyber-criminal is conducting attacks or criminal activity. This can be in the form of a White Hat hacker who is potentially more inclined to provide information, or even a Black Hat hacker who might be under

custody and looking to make a deal of some form. This information can prove to be beneficial in locating or identifying cyber criminals and gaining momentum in cyber-crime deterrence and prevention, very similar to the manner in which Lieberman (2007) credits the usefulness of sources as it pertains to narcotics investigations.

Social Influence and its Possible Application to the Policing of Cyber-Crime

Robert Cialdini (2009), in his seminal book “Influence,” discusses the impact of social influence principles as they pertain to behavioral compliance. Social influence is a collective term, typically used to refer to a set of principles which “tap into” the rules within which we act in a social environment. Social influence principles have long been utilized, to great effect, by the advertising and sales markets to persuade consumers to purchase products (Cialdini, 2009).

Cialdini (2009) speaks upon the principle of scarcity and how it is often used to influence reactions from people. Scarcity instills the belief that there is only a limited supply or amount of time to obtain a particular item. This can prompt a person to react in a “knee-jerk” fashion. Cialdini (2009) defines the scarcity principle as one in which people give more value to opportunities when they become less available. These can be seen in the forms of “limited time offers” and by providing a deadline. This can influence a greater response out of people than they would otherwise give. That said, it stands to reason that by providing participants with a limited time to respond to something, it is possible that it will result in a higher response rate. Thus, if a letter were to have a 7-day response window, as opposed to a 14-day response window, could it prove to be influential in participation response?

Moreover, it could be argued that a shorter, 7-day timeframe response window would prompt a greater response rate than that of a 14-day timeframe.

Cialdini (2009) also discusses the concept of liking. The rationale here is that people are more likely to say yes to people they know or like. The more likeable a person is, the more likely a request made by said person is to be fulfilled by another person. Cialdini (2009) notes that while liking can be attributed to physical attractiveness, there is reason to note that positive interactions are also a means to increase likability (Cialdini, 2009). These positive interactions can indicate a stronger likability between persons and can influence a person's compliance to a particular request. If these positive interactions are also coupled with positive circumstances, the potential for reciprocity and compliance within people increases. These can be obtained through engaging others in a friendly, cheerful, and civil manner. Therefore, it can be said that engaging people in a positive and friendly manner may be able to effectively influence that person to respond to a request given to them given the interaction.

In short, social influence pertains to the manner in which people can change the thoughts or behaviors of other people. Thus, when one considers recruitment of sources for any particular reason, there is a strong argument that the use of social influence principles could be a powerful tool. In the past, social influence techniques have been utilized to great effect to shape behavior and attitudes, such as retailers influencing purchasing behavior or city officials' influence over topics such as recycling (Cialdini, 2009). Cialdini (2009) also notes that the use of reasoning behind a request can garner higher compliance with people. More recently, social influence techniques have been applied in an intelligence scenario to move a detainee into a cooperative mindset (Evans et al., 2013). Thus, a question of great

interest to law enforcement, intelligence agencies and researchers alike is whether social influence techniques can be utilized to recruit cyber sources. Thus, the potential advantages of utilizing social influence techniques to recruit sources merits investigation.

Stanley Milgram's behavioral study of obedience in 1963 demonstrates the impact of social influence as it pertains to authority and compliance/obedience, upon human behavior. The study, conducted at Yale, examined the responses of participants who unknowingly administered fake electrical shocks to participants that they did not know to be confederates to the experiment (Milgram, 1963). Milgram's (1963) results suggest that the majority of people were willing to listen to an authoritative figure despite believing that they were at risk of severely harming the other participant, who was actually a confederate to the study and was unharmed (Milgram, 1963). This study provided the very first insight into our cultural and societal conformity to commands and orders from an authority figure, and thus our strong desire to comply with an authority figure if given a reason. This begs interesting questions with regards to the potential application of authority for behavior change.

CHAPTER III

MAIN AIMS OF THE THESIS AND PARADIGM EMPLOYED

The current study is an assessment of the effectiveness of written communication towards a person of interest and what impact, if any, the language and use of scarcity have as it pertains to opening a dialogue with these persons of interest. The thesis was conducted in a two-experiment manner, with Experiment 1 looking to use letter tonality and scarcity to prompt a response from participants. It was hypothesized that a more authoritative tone with a shorter response window of 7 days would be more influential in participation response. Experiment 2 was conducted in a similar manner to that of Experiment 1, however with changes applied that would seek to improve upon the dialogue in terms of authoritative and friendly tones to prompt a greater response rate in terms of participants opening and responding to the letters.

Bearing this in mind, the main aims of this thesis are as follows:

Dependent Variable 1 - Do the participants respond to the letter with different frequency depending upon the tone and response deadline? Participants who respond to the letters are coded as “1”

Dependent Variable 2 - On the website participants’ demographic information is gathered. None of the information is a required response thus, does tone effect the information participants volunteer?

General Paradigm of the Thesis

Participants were brought in to conduct what they are told is a “Personality Test.” Upon completion of the personality assessment, the participants are given a letter that the

laboratory manager states they were instructed to give to them upon completion. The letters themselves contain the written dialogue in either a friendly or authoritative tone, stating that the participant is of interest to the lab and, depending on the condition, have within 7 to 14 days to respond by accessing a website in which they will set up an appointment with the lab for further discussion using the Participant Identification Number (PIN) provided to them. The PIN is used to identify the participant's condition as to determine whether the participant's letter was authoritative or friendly, and whether they were given 7 or 14 days to respond.

To ensure comparability between conditions, all versions of the letter contain the same overall information being communicated to each participant. That information being that they were a person of interest to the laboratory and that should they wish to discuss this further, they can do so by accessing the Survey Monkey website that is provided to them. The only differences among the four version of the letters was that of the tone in which the information was communicated, and the timeframe a participant has to respond to the letter. Depending on the conditions for the participants, they might receive a letter in which the tone is more authoritative: The dialogue written to the participants is more professional, and their response to the letter is more insisted upon. A participant might also receive a letter that is of a friendlier tone: A laxer dialogue established for the participant, and a more inquisitive tone is established, in the hopes of piquing the participant's curiosity as opposed to seemingly giving them further instruction. Within these conditions is also the condition of the timeframe given to a participant for their response. A 7-day or 14-day window is given to the participant to respond, applying the principle of scarcity to the study, and making this offer have a finite timeframe to respond to a pseudo instruction, or friendly request.

Ethical Considerations: The Use of Deception

In this study deception is a crucial part to the experiment. This study looks to use deception as a means to gain participation by allowing the participants to believe that they are completing a “Personality Assessment” when in reality this research is solely interested in the possibility of participants looking to the letter and if so, which language tone as well as time window given will garner responses to the letters. In order to be able to observe the naturalistic behaviors of participants, it is very important to use deception in this instance. If participants are aware of the true nature of the experiment, or the importance of the letters, the study then would be at risk of getting participants who are too compliant and cooperative. If a participant knows that there is importance to the letters, they might feel the need to “do well” in the experiment, causing them to respond or open the letter when they would not normally do so. This instance is known as reactivity and threatens the study’s external validity. By using this deception however, the risk is that participants will not open the letter and be debriefed after completion of the “Personality Assessment.” Since the website in the letter also used to debrief participants, the possibility of participants not being fully debriefed as it pertains to the true nature of the experiment is a risk that merits consideration. To counter this, participants are required to provide an email address to sign up for participation in the “Personality Testing,” so that at the ending period of the study all participants are emailed a full debriefing statement and given the opportunity to contact the lead researcher should they have any questions or concerns.

A Note on Analysis of Data Throughout this Thesis

Descriptive and inferential statistics were utilized to investigate the effects of this research as it will generate mostly frequency data. This will allow examiners to look at percentage of responses across conditions. A Chi-square test will be implemented for significance testing utilizing a set alpha level of 0.05. Due to the non-normality of the dependent variable, a Chi-square test was deemed most appropriate for this set of experiments. Also, due to the low sample size, binary logistic regression could not be used.

Outline of Experiments

This thesis contains two experiments that look to examine the effectiveness of the social influence concepts of liking and authority, as well as the concept of scarcity in an effort to establish a dialogue with participants through written communication. A brief description of each experiment will now follow.

Experiment 1 is an initial exploration in the effectiveness of the social influence concepts of liking, authority, and scarcity as theorized by Cialdini (2009). The aim of the experiment was to examine whether using a certain tone (Authoritative or Friendly) as well as giving participants a limited time during which to reply (7 days or 14 days) would prove effective in engagement with participants on an online platform.

Experiment 2 sought to extend the research questions from Experiment 1. Participant engagement was low in Experiment 1, and therefore, Experiment 2 attempted to build upon the findings of Experiment 2, while still relaying the same essential message to participants. In both conditions, changes to the letters were implemented to increase participation response. Changes to the letters are fully described in Chapter 3, but an example is that letters

were personalized so that they were made out to each specific participant. The procedures in Experiment 2 were the same as Experiment 1; the core changes in Experiment 2 revolved around the wording and formatting of the letters given to participants.

CHAPTER IV

EXPERIMENT 1

Introduction

Recent advances in technology have provided the criminal element a means by which to conduct various offenses against a seemingly vast pool of potential victims. In response, law enforcement and intelligence agencies have turned to new models of policing in order to combat cyber-crime (Wall, 1998). One potential avenue for intelligence agencies to explore is that of sources. As it pertains to sources in the cyber domain, the exploration of written communication to establish a dialogue with potential sources merits exploration. This prompts the discussion of social influence and its use in enticing a potential source to participate in the desired dialogue. Cialdini's (2009) social influence principles of authority, scarcity, and liking could be instrumental in prompting participation in these desired dialogues. To examine the effectiveness of social influence in potential recruitment of sources in the cyber domain, the following experiment provided participants with letters manipulated in regards to authoritative and friendly-toned dialogue, as well as a 7-day or 14-day response window for participants to respond through an online platform.

It was hypothesized that participants who were given an authoritative toned letter with a shorter timeframe in which to respond would respond more quickly than participants who were given a letter with a friendly tone and longer timeframe in which to respond. Overall engagement with the online platform averaged to be about 10%, with no substantial difference within participant's letter conditions.

Methodology

Participants and Design. This experiment followed a 2 (letter tone: authoritative vs. friendly) x 2 (response delay: 7 days vs. 14 days) between-subjects experimental design. The study sample consisted of 123 undergraduate students from Texas A&M International University. Students from all academic departments on campus were offered the opportunity to participate. This was a laboratory-based experiment, and therefore took place at Texas A&M International University campus, housed within the Emotion, Memory, Persuasion and Investigative Interviewing Laboratory.

Sampling Strategy. Using convenience sampling, a non-random sampling technique, the study was advertised to all undergraduate students registered at Texas A&M International University through the means of online Sona Systems accounts. Participation credit was granted to participants in partial fulfillment of a class requirement or extra credit offered to undergraduate students at the discretion of their instructors.

Materials. Materials used for the research included the use of a need for closure scale, online Survey Monkey platform, as well as letters tailored to participants dependent on their conditions. Materials are described in greater detail below.

Need for Cognitive Closure. To maintain the cover story that this was a study on personality, the researcher included a 42 item questionnaire in which participants are presented with statements such as “I don’t like situations which are uncertain.” Participants

rate the extent of agreement with the statement on a 6-point Likert scale ranging from “1= Strongly Agree” to “6 = Strongly Disagree” (Webster & Kruglanski, 1994).

Survey Monkey Online Platform. Participants who responded to the web address written within the letters were taken to an online platform in which they were asked about their demographics, their Personal Identification Number, and then debriefed upon completion.

Letters. Participants who took part in the study received letters upon completion of the need for closure scale. These letters addressed the participant as a person of interest to the lab research being conducted and indicated that the lab would like to seek an interview with the participant. Thus, the letters were worded in a manner that encouraged participants to engage with an online platform to set up a time for an interview with the lab in either an authoritative or friendly manner. The letters were purposively vague as to what the purpose of the interview entails, or to what extent the participant was a person of interest. This was done in an effort to ensure that participation is at the discretion of the individual. Each letter contained an individualized code to track participants’ engagement with the online platform, as well as the conditions that participants were assigned in terms of tone and response delay.

Authoritative Tone. Letters in this condition were authoritative in nature of the dialogue. For example: “As a TAMIU student, you are of significant interest to us. It is in that regard that I now write to you, to invite your attendance at one of our offices, for a meeting to discuss this situation.” (See Appendices 1A – 1D.)

Friendly Tone. Letters in this condition were made friendlier in nature with a laxer dialogue and tone. For example: “As part of a behavior and disruptions project we would like to invite you to voluntarily attend an informal, personal meeting with an appropriate representative of the EMP-II Lab.” (See Appendices 1A – 1D.)

Letters were further manipulated with either a 7-day or 14-day response window in a fully crossed design to examine the potential effectiveness of scarcity. (See Appendices 1A – 1D.)

Procedure. All participants were randomly assigned to conditions using a random number generator to avoid experimenter biases. Participants initially arrived at the lab under the ruse they were taking part in a study which assessed their personality traits and characteristics. In order to maintain ecological/external validity participants were given a personality scale called “Need for Closure Scale” to complete, in which they were given a series of statements and asked to respond on a Likert-type scale as to their level of agreement with the statement being made. At the end of the study after the student completed the personality questionnaire and had been partially debriefed, the experimenter nonchalantly handed a letter to the participant, which he or she claimed the Professor requested they give to the participant. The dependent measure is the response rate to the letter (i.e. whether the “source” is successfully “recruited”). It was important that too much importance not be placed upon the letter during the experiment as this could confound the results and be a threat to both internal and external validity of the design. The letter was either written in an authoritative or a friendly tone, claimed that the participant was a person of interest to the Emotion, Memory, Persuasion and Investigative Interviewing Laboratory, and requested that

they visit a web-link in order to set-up an interview time to discuss the matter further. Finally, in order to investigate the effects of scarcity, participants were requested to respond in either 7 or 14 days. The web link directed the participant to a Survey Monkey website, in which they were asked to provide the Personal Identification Number (PIN) provided to them in the letter. Participants were asked to fill out a demographic questionnaire, and upon completion they were debriefed as to the true nature of the experiment.

Statistical Hypothesis

Null hypothesis – The null hypothesis is that there is no difference in responding from participants regardless of letter condition.

Alternative Hypothesis 1 – Based on extant research, it is predicted that an Authoritative tonality letter will prompt greater response rate between tonality conditions.

Alternative Hypothesis 2 – Based on the principle of scarcity, it is hypothesized that a 7-day response timeframe will yield greater a greater response frequency than the 14-day response timeframe.

Results

Response Rate to Letters. Out of 123 Texas A&M International University students who participated in the “Personality Testing,” only 7 of those participants proceeded to engage with the online Survey Monkey platform, comprising 5.6% of the sample.

Unfortunately, these response rates are too low to be suitable for inferential statistical analysis. Therefore, the analysis will proceed with descriptive statistics only. Table 4.1 below shows the frequency of engagement by participants with the online tool.

Table 4.1: Response Frequency by Letter Format

Letter Tone	Letter Delay	
	7	14
Authoritative	4	2
Friendly	0	1

As shown on Table 4.1, 85.7% of the 7 participants who engaged with the online platform were under the condition of authoritative, whereas only 14.3% comprised total response to the friendly condition. Within the condition of authoritative, 4 of the 6 total respondents responded to the shorter, 7-day timeframe window, comprising 66.7% of total authoritative response. In the longer, 14-day timeframe response condition, 2 of the 6 within the condition of authoritative responded, making up the remaining 33.3%. The friendly condition accounted for only 14.3% of responses within the online platform with a total of 1 response. That one response was under the condition of a larger timeframe with a 14-day delay, accounting for 100% of the friendly condition response. When assessing conditions from a perspective of letter tonality, authoritative was predominantly the condition in which participants responded, yet when examining it from a perspective of response timeframe, there was a 4-3 split between 7-day and 14-day response timeframes for participants to respond, favoring authoritative tone.

Analysis of Respondents. Table 4.2 shows that within the 7 respondents from the initial sample of 123 participants, there was a fairly even split between the classification of gender. The table shows that of the 7 who engaged with the online Survey Monkey platform,

4 of the respondents were female, comprising a total of 57% of respondents. Within that 57%, 100% of responses were under the condition of authoritative tone, with an even 50/50 split between 7-day and 14-day response windows. With a total tally of 3 responses with the online platform, male gender comprised the remaining 43% of participation responses.

Table 4.2: Respondent Gender

Gender:	Letter Tone:	Letter Delay:		Total:
		7 Days	14 Days	
Female	Authoritative	2	2	4
	Friendly	0	0	0
Female Total:		2	2	4
Male	Authoritative	2	0	2
	Friendly	0	1	1
Male Total:		2	1	3
Total:		4	3	7

Table 4.3 shows which race/ethnicity participants identified as. Overwhelmingly, participants self-identified as Hispanic, with 100% of respondents indicating that they were Hispanic. Within the race category of Hispanic, 85.7% of respondents responded to some form of authoritative tonality, with 66.7% responding within the 7-day timeframe, and 33.3% responding to a 14-day timeframe within the condition of authoritative tone. Only one participant responded in the tonality condition of friendly, comprising 14.3% of total

response, and 100% of friendly response. Within the condition of friendly tone, this single participant responded to a 14-day response timeframe, making up 14.3% of response to the friendly tonality condition.

Table 4.3: Respondent Race/Ethnicity Classification

Race:	Letter Tone:	Letter Delay:		Total:
		7 Days	14 Days	
White	Authoritative	0	0	0
	Friendly	0	0	0
White Total:		0	0	0
Hispanic	Authoritative	4	2	6
	Friendly	0	1	1
Hispanic Total:		4	3	7
Total:		4	3	7

Within the questionnaire given to participants on the Survey Monkey online platform, participants were asked what their major was. Table 4.4 below shows the results of participants' majors among respondents. Business majors accounted for 29% of total responses, with 100% of their responses falling within the condition of authoritative tonality. Responses within authoritative tonality for business majors saw a 50/50 split between 7-day response window, and 14-day. Quite similarly, nursing majors responded in the same manner, with 100% responding to authoritative tonality, and a 50/50 split between 7 and 14-

day response windows, comprising a total of 29% of total participant engagement.

Engineering, Math, and Psychology each accounted for 14% of total participant engagement, with both Math and Psychology majors showing a 100% response rate in the authoritative/7-day condition. Engineering accounted for the lone response within the friendly tonality condition, contributing a 100% response rate to a friendly tonality and 14-day response timeframe.

Table 4.4: Respondent Major Classification

Major:	Letter Tone:	Letter Delay:		Total:
		7 Days	14 Days	
Business	Authoritative	1	1	2
	Friendly	0	0	0
Business Total:		1	1	2
Engineering	Authoritative	0	0	0
	Friendly	0	1	1
Engineering		0	1	1
Total:				
Math	Authoritative	1	0	1
	Friendly	0	0	0
Math Total:		1	0	1
Nursing	Authoritative	1	1	2
	Friendly	0	0	0
Nursing Total:		1	1	2
Psychology	Authoritative	1	0	1
	Friendly	0	0	0
Psychology		1	0	1
Total:				
Total:		4	3	7

Respondents were also asked to clarify what they felt their primary, or predominant language was. Table 4.5 below shows that of the 7 participants who engaged with the online Survey Monkey platform, 5 participants (71%) considered English to be their primary language. Of those 5, 100% responded to the condition of authoritative tonality, with 3 participants responding to the 7-day response timeframe (60%), and 2 responding to the authoritative, 14-day delay (40%). The remaining 2 participants who participated in the online platform considered Spanish to be their primary language (29%), with one responding to the authoritative tonality (50% of Spanish speakers) and one responding to the friendly tonality (50% of Spanish speakers). In the authoritative condition responded by participants whose primary language was considered to be Spanish, 100% responded within the 7-day delay, whereas 100% of Spanish speakers within the condition of friendly tonality responded within the 14-day time window.

Table 4.5: Respondent Primary Language

Language:	Letter Tone:	Letter Delay:		Total:
		7 Days	14 Days	
English	Authoritative	3	2	5
	Friendly	0	0	0
English Total:		3	2	5
Spanish	Authoritative	1	0	1
	Friendly	0	1	1
Spanish Total:		1	1	2
Total:		4	3	7

A 2 (Authoritative vs. Friendly) x 2 (7 Days vs 14 Days) chi-square was run to test the association of tonality and time delay for participant response. There was no significant association between letter tonality and timeframe in regards to participant response: $\chi^2 (1) = 1.20, p = .273$, Cramer's $V = 0.44$, however this statistical result should be treated with caution as it could be due to a low sample size.

Discussion

During the course of the study, the objective was to ascertain whether social influence techniques could be utilized in a manner that would engage participants with an online platform. Data indicated that there was no significant difference between letter conditions and participant engagement with the online platform, which supported the null hypothesis. This, however, was likely due to low participant response rate. Participant response rate to the letters distributed during the experiment were far below expectations regardless of the condition. While getting participants to take part in the research was not an issue, the participants unfortunately did not follow through and respond to the letters in the numbers that we would have expected. Baruch and Holtom (2008) note that while responses can vary depending on the criteria of a mail-in questionnaire/survey, the response rate has averaged anywhere from 30% to 50%. In comparison to that benchmark, the results of participation for this study fell well below the norm.

Low response rates could be for a number of reasons, however it is unclear as to whether these participants are opening the letter and simply disregarding the instructions given to them, or if they are even opening the letter at all. This begs the question of the

manner in which the letters are given to the participants and the importance put upon them. The frequency of participants responding to the letters was 5.6%. This was arguably too low a participant response rate to gain an accurate assessment of the impact, if any, in terms of tone and timeframe of the letters which were given to participants. There are a number of potential factors that could be contributing to the lack of response from participants, and it should be considered that a few changes to the methods of the experiment could improve participant response. Certain changes could be made to ensure a higher participant interaction with the letters given to them upon completion of the initial “Personality Test.”

One of the issues that could have contributed to the lack of response from participants was the fact that when the participant is given the letter upon completion of the “Personality Test,” they are given so by the researcher and given no instruction as to what it is or why it is relevant. The researcher was instructed to give the participant the envelope and act as though they are not completely sure what the contents of the envelope are. While the aim of this instruction was to allow the participant to open the letter on their own accord, and to ensure that no undue importance was attached to the letter by the researchers (i.e. much as if it arrived in the mail), this instruction may have worked against the study and resulted in the participants attaching so little importance to the letter that it was soon forgotten about. Thus, one possible way to empirically assess this idea would be to give some information about the letters to the participants, as long as that information is congruent with the tone of the letter. For example, perhaps in an authoritative condition giving the participant a level of authoritative instruction could better improve responses (Cialdini & Goldstein, 2004).

One conclusion that can be drawn from this experiment is that giving an ambiguous letter to participants with no further information on the topic could prove to be an ineffective

method resulting in the letter being perceived as unimportant by the participant. Given participation with the online platform was so infrequent, it raises the question as to whether the participants are comprehending and paying attention to the instruction that they are to open the letter. Participants may be unsure as to what the details of the letter are, or simply perceive the contents to be unimportant. Another consideration is that participants might believe the envelope to contain debriefing information, or even proof of participation to present to their instructors who offer credit for participating. This could lead to participants failing to open the letter and reviewing its contents.

One thing that is clear from this research is that curiosity alone from receiving an unknown letter does not appear to be enough to encourage participants to respond. One facet of the low response that we do not know is whether the participants opened the envelopes and at that point decided not to engage further, or whether they failed to open the letters at all. When one considers that today's society is one that is constantly faced with junk mail, spam mail, and chain mail (Sills & Song, 2002), it is logical to suspect that a letter given to a participant with little importance from the researcher could be perceived as such and just as quickly discarded.

Given that the lack of importance attributed to the letter when it is handed to the participants may have resulted in their failure to engage with the online tool, this opens up other routes that could be taken to further encourage participant response and engagement. An example of this could be something as simple as personalizing the letters to each participant. Personalization has been used in various studies in efforts to increase participant engagement with mail surveys (Kanuk & Berenson, 1975). In order to more properly mimic a real-world scenario in which a person would receive a letter in the mail, one could consider

(at least in certain conditions) personalizing the letters or envelopes so that they are tailored specifically for the participant. If a participant were to receive a letter made out to them as opposed to a blank one, it could add more credence to that letter's importance, so that even if the research assistant does not know "what exactly is in the envelope." Personalization shows that whatever is in the envelope was made with this particular participant in mind, and thus, can potentially be seen as something more than "spam" or "junk" mail (Kanuk & Berenson, 1975). Personalization may activate an element of curiosity, as the letter may now be perceived as being made with the intent of being given to this person specifically, thus giving the participant a form of ownership over the letter (Kanuk & Berenson, 1975). It was hoped that such a strategy could add a level of importance to the letter that may lead to better response rate from participants. This extension was the focus of Experiment 2.

Another method of personalization could be including the signature/name of the principal investigator that is issuing these responses from participants. It can be said that perhaps by giving the letter sender an identity, it may create more of an interpersonal connection for the participant, though studies have shown that this application can have mixed results (Kanuk & Berenson, 1975). Currently, the letters are simply from "EMP-II Lab Principal Investigator," and while it does imply that there is authoritative figure behind this request, this authoritative figure is shrouded in anonymity. Research has shown that it is easier to disregard a request from a nameless, faceless person than from someone with an identity (Fox, Crask, & Kim, 1988). By giving a name to the sender of the letter, it creates more of a personal touch in which this "authoritative figure" is personally going out of their way to request this involvement from the participant. It can also be used as a "Friendly" condition in which a friendly, more affable approach from a person with whom the

participant can identify merits exploration. These questions were investigated in Experiment 2. It was hoped that these personal touches could prove to be advantageous in increasing the frequency of participant responses.

With implementation of these changes in procedure it is believed that participant response rate will increase. Admittedly initial responses from participants overall in regards to the first iteration of the experiment were not near the estimated quota. It can be contended that this is a result of the nature of today's society as it pertains to receiving an anonymous piece of mail and associating it with junk or "spam" mail, thus making the letters easy forgotten or dismissed. By adding personalization to the letters, the experiment harkens back to Cialdini's (2009) concept of liking. A more personable approach might prove to be effective not only in the tone of the letter, but the approach in which the letter is given to the participant, giving them a greater incentive to open the letter initially. From there the tone of the letter should be able to influence the participant one way or another in terms of their actual response. With these implementations in place, one can assume based on previous literature that the inclination to open the letters upon completion of the "Personality Test" will increase. The response rate can then be determined by the tone of the letter. However, should participant response still show little to no difference as it pertains to the rate in which they occur, it can be argued that perhaps there must be something more than letters to entice response levels. This will be the focus of Experiment 2.

Another limitation within this study was the lack of demographic information of participants prior to their engagement with the online platform. Unfortunately, no demographic information was collected from participants during the Personality Test portion of the research, as demographic data was only collected upon completion of the interaction

with the online platform. Therefore, there was no data about the general composition of our sample across characteristics such as age, gender, race/ethnicity, and education level.

Participants should be given a demographic questionnaire to fill out prior to the actual engagement with the “Personality Test” so that this information is available regardless of whether participants respond to the letter they are given. This was an oversight which was corrected in Experiment 2.

CHAPTER V

EXPERIMENT 2

Introduction

The goal of this research was to expand upon the findings of Experiment 1 in examining the effectiveness of time window as well as letter tone in garnering a response from participants. Alterations were made to the materials used in Experiment 2 in an effort to increase participation engagement and improve upon the results from Experiment 1. With these changes implemented, it was believed that participants would be less likely to associate the letters given to them with something along the lines of “junk” or “spam” mail. If participants are regarding the letters given to them in that sort of manner, it stands to reason that they would not give the letter a proper read over. With the implementation of personalization, those with an authoritative condition might perceive the letters as more professional, and thus, become more predisposed to have a closer look into the details of the letter. For the friendly condition, a personalization might not seem as professional or serious, but the rationale is that the personalization will pique the curiosity of participants, as these letters are specifically designed for them. Another change that was implemented was within the closing of the letters. The original template that was utilized with Experiment 1 did not have a name for the principal investigator that was supposed to be issuing the letters, which could be argued as a means in which participants could disassociate themselves with the letters. For this experiment, a false name was created for a fictitious Principal Investigator so that there was a person that participants could identify as the one who saw them as a person of interest. Per each condition, the closing to each letter was altered to reflect the condition to contribute a more professional, authoritative tone, or a friendly, laxer dialogue. It was

predicted that participants would be more likely to respond to an authoritative tone with a smaller time window, based on the authority and scarcity principles of social influence. It was also hypothesized that a friendlier tone, with a larger time window would yield the lowest rate of responses.

Methodology

The methodology and procedure employed in Experiment 1 were also followed in Experiment 2 with the exception of alterations made to the materials (the letters given to participants), as well as the introduction of a demographic form given to participants prior to their engagement with the “Need for Closure Scale”. For a full description of the methodology and procedure used, please refer to Chapter 4 (pp. 17 – 20). Participant information and a description of the changes made to the letter stimuli are detailed below.

Participants and Design. This experiment follows a 2 (letter tone: authoritative vs. friendly) x 2 (response delay: 7 days vs. 14 days) between-subjects experiment design. The participant sample consisted of 126 students (37 males, 89 females) from Texas A&M International University’s undergraduate population. Students from all departments on campus were offered the opportunity to participate. This was a laboratory based experiment that took place at Texas A&M International University campus, and was housed within the Emotion, Memory, Persuasion and Investigative Interviewing Laboratory.

Material Alterations. Due to the very low response rate in Experiment 1, it was deemed that changes needed to be made to the letters in an effort to evoke a greater number

of participant response. Letters were altered to be personalized to each individual participant in an effort to further mimic a real world scenario. The original template for letters on both conditions in Experiment 1 were simply made out to “Dear TAMIU Student”, which could be a less effective means of engagement than personally addressing the participant. The technique of adding a personal greeting to the letters was applied for each condition of tonality, with the authoritative and friendly tones each having a different manner of personally addressing each participant (See Appendices 2A- 2D). For example, under authoritative tone, the phrase “Dear John Smith” would be used, while under friendly tone, the phrase “Dear John” would be used.

Furthermore, the closing for the letters was altered for Experiment 2, so that they were apparently signed by a “real” person. As before, the implementation of this strategy was slightly different depending on whether the letter was in an “Authority” or “Friendly” tone (See Appendices 2A-2D). In the authoritative conditions, the closing phrase “We look forward to your reply” was followed by a signature and the typed name of Dr. Thomas Hargrove, Senior Investigator, EMP-II Lab. The use of a signature was implemented to imply a more professional, real world setting. Each letter in the conditions of authoritative tone was hand signed before being sealed and given to each participant, to add greater effect to the personalization. Also, the principal investigator was given an authoritative title such as “Doctor” that people often hold in high esteem or are likely to respond to (Cialdini, 2009). For the friendly conditions, the dialogue was more affable with the use of the phrase “With Kind Regards.” The personalized “professional” handwritten signature was removed and the name was simply typed. The title of “Dr.” was also removed from the fictional principal investigator in an effort to make this individual more personable.

Results

Frequency of Participation. One aspect of alteration between Experiment 1 and Experiment 2 was that of implementing the use of demographics prior to the *Need for Closure scale*. The demographics asked participants to answer a questionnaire providing basic information such as age, gender, year in school, as well as major. While a new aspect different from that of Experiment 1, its implementation did not take full effect until the 58th participant of the 126, however gender information was collected for all 126 participants. Therefore, 57 participants had missing demographics providing greater detail of the participants who completed the *Need for Closure scale*. Table 5.1 displays the results of the question of participant gender:

Table 5.1: Frequency of Participant Gender

Gender	Frequency	Percent	Valid Percent
Male	37	29.4	29.4
Female	89	70.6	70.6
Total	126	100	100

Consistent with the Texas A&M International University demographics, the sample of participants was predominantly female. Of the 126 participants, more than 70% were female as opposed to that of the 29% of male participants.

Table 5.2 displays the age range of participants who filled out demographics prior to their completion of the *Need for Closure scale*. Of the 126 total participants, 54.8% completed a demographic questionnaire prior to the “personality assessment”. The table indicated that the majority of participants were in the 21-25-year-old age range, comprising a total of 29.4%. Of the 69 participants who did complete a demographic questionnaire, 28 were 20 years old or younger, comprising a total of 22.2%, whereas those who were 26 years of age or older comprised only 3.2% of total demographic participation.

Table 5.2: Frequency of Participant Age

Age	Frequency	Percent	Valid Percent
20 Years or less	28	22.2	40.4
21-25 Years	37	29.4	53.6
26 and Over	4	3.2	5.6
Total	69	54.8	100
Missing	57	45.2	

Table 5.3 below shows the frequency of race/ethnicity between participation. Similar to age, only 54.8% of the participants filled out a demographic questionnaire. Of that 54.8% however, well over half of the participants identified themselves as some form of Hispanic or Mexican, accounting for 86.9% of total participation in regards to those who completed a demographic questionnaire. This was to be expected given the university’s demographics.

Table 5.3: Frequency of Participant Race/Ethnicity

Race	Frequency	Percent	Valid Percent
White	8	6.3	11.6
Other	1	0.8	1.4
Hispanic	23	18.3	33.3
Mexican	19	15.1	27.5
Mexican American	18	14.3	26.1
Total	69	54.8	100
Missing	57	45.2	

Response Rates to Letters. Table 5.4 below shows the frequency of engagement by participants with the online tool. As can be seen from the table, of the 126 participants who completed the “personality assessment”, 12 participants engaged in responding to the letters given to them upon completion, giving the letters a response rate of 9.52%. Both conditions of authority tone as well as friendly tone had a total number of 6 responses from participants, giving each condition of tone a 50% response rate. Timeframe however shows that of the 6 participants who responded to the authority tone, 33% responded to the 7-day window whereas 66% responded within the 14-day window. The friendly tone however had a 100% response rate in the 7-day response timeframe, with all participants within the friendly tone condition to that 7-day time window, and none in the 14-day timeframe.

Table 5.4: Response Frequency by Letter Format

Letter Tone	Letter Delay	
	7	14
Authoritative	2	4
Friendly	6	0

A 2 (Authoritative vs. Friendly) x 2 (7 Days vs 14 Days) chi-square was run to test the association of tonality and time delay for participant response. There was a significant association between letter tonality and timeframe in regards to participant response: $\chi^2(1) = 6.00, p = .014$, Cramer's $v = 0.71$. With a Cramer's V equaling $v = 0.71$, it can be said that there is a strong association between letter type and responses. Friendlier tones with a smaller response window seem to garner a better response rate than that of an authoritative tone with a larger window of time in which to respond.

Analysis of Respondents. Table 5.5 shows that of the 126 participants who had completed the personality assessment and were given a letter at the conclusion, 12 engaged with the Survey Monkey link provided. Of those 12, 10 of the participants were female (83%) whereas only 2 were male (17%). Within female respondents, there was a 50/50 split in terms of timeframe for the authoritative tonality with 2 of the 4 respondents for the authoritative tone each responding to the 7 and 14-time delay. On the friendly tone, there was

a 100% response rate to the 7-day timeframe, with all 6 participants responding to the friendly/7 Day letters, comprising a total of 50% of the responses. With male respondents, there was a 100% response rate within the authoritative/14 Day letters.

Table 5.5: Respondent Gender

Gender:	Letter Tone:	Letter Delay:		Total:
		7 Days	14 Days	
Female	Authoritative	2	2	4
	Friendly	6	0	6
Female Total:		8	2	10
Male	Authoritative	0	2	2
	Friendly	0	0	0
Male Total:		0	2	2
Total:		8	4	12

Table 5.6 indicates the race/ethnicity of participants who responded to the letters. Of the 12 participants, 11 disclosed their race/ethnicity, with one withholding that information. Of the 11, 2 identified themselves as “White”, comprising 18% of the total respondents, with their responses showing a 100% rate within the 7-day delay, and a 50% response rate per letter tone. There are 9 participants who responded identified themselves as “Hispanic,”

making up a total of 82%. Of that 82% Hispanic ethnicity classification, there were a near even split between responses as it pertains to the tone of the letter, with 44% responding to an authoritative tone, and 56% responding to the friendly tone. The major visible difference however is within the Response Time Delay, as within those who responded to an authoritative tone, as 25% responded within the 7 Day delay, and 75% responding within the 14 Day delay. In the friendly condition, there was a 100% response rate within the 7 Day timeframe, with all participants within the friendly condition responding within 7 days.

Table 5.6: Respondent Race/Ethnicity Classification

Race:	Letter Tone:	Letter Delay:		Total:
		7 Days	14 Days	
White	Authoritative	1	0	1
	Friendly	1	0	1
White Total:		2	0	2
Hispanic	Authoritative	1	3	4
	Friendly	5	0	5
Hispanic Total:		6	3	9
Total:		8	3	11

The questionnaire given to participants upon visiting the Survey Monkey website also asks participants to identify their major. Table 5.7 shows the results of the participants' classification. Of the 12 respondents, 7 classified themselves as Psychology majors, comprising 58% of the total number of participants who responded. Of that 58%, 3 participants (43% of Psychology classification total) responded to letters with authoritative tones, with 1 participant responding to the 7 Day timeframe and 2 responding within the 14 Day timeframe. The remaining 4 participants who classified themselves as Psychology majors and responded to the friendly tonality showed a 100% response rate within the 7 Day timeframe. Comprising 25% of the total number of respondents were participants who classified themselves as Criminal Justice majors. Within those 25% of respondents, 33% of them responded to the authoritative/7 Day timeframe, 33% responded to the authoritative/14 Day timeframe, and 33% responded to the friendly tone/7 Day timeframe. 8% of respondents identified themselves as Communications majors, answering to the authoritative/& Day timeframe, and the last 8% were English majors, answering to the authoritative/14 Day timeframe.

Table 5.7: Respondent Major Classification

Major:	Letter Tone:	Letter Delay:		Total:
		7 Days	14 Days	
Communication	Authoritative	0	0	0
	Friendly	1	0	1
Communication		1	0	1
Total:				
Criminal Justice	Authoritative	1	1	2
	Friendly	1	0	1
Criminal Justice		2	1	3
Total:				
English	Authoritative	0	1	1
	Friendly	0	0	0
English Total:		0	1	1
Psychology	Authoritative	1	2	3
	Friendly	4	0	4
Psychology		5	2	7
Total:				
Total:		8	4	12

Table 5.8 shows that 67% of participants indicated that they felt their first language to be English, with 6 of the 8 participants identifying as such giving a 100% response rate to the friendly/7-day timeframe. The other two participants who identified English as their first language responded within the authoritative/14-day timeframe condition. Those who identified their first language as Spanish (4 participants, 33%), saw an even split amidst the authoritative condition. While all responded to the authoritative condition, 50% answered within the 7-day timeframe, and the other 50% responded within the 14-day timeframe.

Table 5.8: Respondent Primary Language

Language:	Letter Tone:	Letter Delay:		Total:
		7 Days	14 Days	
English	Authoritative	0	2	2
	Friendly	6	0	6
English Total:		6	2	8
Spanish	Authoritative	2	2	4
	Friendly	0	0	0
Spanish Total:		2	2	4
Total:		8	4	12

Discussion

This experiment sought to build upon the work from Experiment 1 in regards to whether the use of social influence mechanisms such as scarcity, liking, and authority could be used as a means to prompt engagement with an online platform with a person of interest. The results indicate that there is a significant difference between tonality and timeframe as they pertain to response rate. The results indicate that friendly tone with a smaller timeframe for response garner more cooperation from participants, whereas authoritative tone seemingly uses a longer timeframe to respond. While these results do not support the hypothesis that a letter with a more authoritative tone would prompt more responses, it does support the hypothesis that tonality and response timeframe are factors in responses. The concept of liking could potentially be a deciding factor, as a friendlier, lax tone might seem more intriguing to a participant and arouse curiosity whereas an authoritative tone could imply that a participant has something they have to do. If that is the case it could be argued that a participant might view responding as a responsibility and potentially cause the participant to procrastinate aforementioned responsibility. Results also show that females were predominantly more likely to respond than males based on the data showing that 83% of respondents to the letters were female. However, this result for gender was only marginally significant begging the question of whether further research could show different response rates based on gender. One perspective to consider however is as noted earlier, that the general sample consisted of a majority of female students as per the TAMIU University demographics. An interesting question of note would be how this data would look within the confines of a University where the gender rates are split evenly between male and female.

While the question of gender and its significance to the research might not be clear, the data however do show that there was a strong association between letter type and participant response. The data indicate that participants were significantly more likely to respond to the friendly, 7-day condition than any other. Participants were found to be more responsive to the friendlier tone with a 7-day response window condition than conditions of authoritative tone as well as 14-day response timeframes. This finding implies that a friendly approach is more advantageous than an authoritative one. With a friendlier approach, there might be a lesser feeling of suspicion for participants (see Cialdini, 2009). The scarcity principle would add further credence to this, as with a smaller window, a participant might feel more obliged to respond as their curiosity is piqued. While the concept of authority might incline a participant to respond, it could be argued that the curiosity was less stimulated in this instance, and a participant might see this request as more of an obligation, and put it off until the last minute, associating responding to the letter as some form of “work” or “school-related work.”

While other aspects of the data did not seemingly reveal much significance in terms of gender or classification, there does appear to be some significance within Race/Ethnicity for Hispanics. This could however be due to the location of the study, as university demographics show that the majority of students are Hispanic. There is also a significance within the participant’s first language. English as a first language appears to be significant when it pertains to participant response. This could be for a number of reasons; however, it is likely a result of comfort level. It could be said that if a potential source is comfortable with the dialogue being used in what they consider to be their native language; it could lead to a potential cooperation with said source.

CHAPTER VI

GENERAL DISCUSSION

As technology continues to become more sophisticated, so too do the methods and potential for cyber criminality (Broadhurst, 2006). With conglomerate businesses turning to the internet as a means in which to expand their business beyond borders, it opens the doors for potential transnational criminalization (Sitterle, 2013). Businesses, as well as individuals are susceptible to victimization to cyber-crime, as cyber-crime has emerged as one of the more predominant forms of financial criminalization (Sofaer et al., 2000). The issue with cyber-crime is the inability to effectively use traditional police tactics within the internet as it is a largely anonymous domain in which criminals can easily cover their tracks (Yar, 2013). One time honored method of traditional policing that has proven to be useful in criminal deterrence however, is the use of sources (Wroblecki & Hess, 2000). Sources are criminals themselves who often have valuable information on criminal activities that law enforcement agencies can use to great advantage (Wroblecki & Hess, 2000). Through the use of sources, information that is vital in the pursuit and deterrence of criminal activity can be provided to effective ends (Lieberman, 2007).

The aim of this research was to examine an effective means in which to engage in a dialogue with potential sources as a method of recruitment. To this end, the use of social influence techniques was examined as a means in which to garner participant engagement. The social influence theories of Cialdini (2009) note that concepts such as liking, authority, and scarcity can be an effective means to obtain compliance. Cialdini (2009) notes that the concept of authority can invoke compliance from individuals if they feel that a figure of authority is asking something of that person, whereas with liking compliance is obtained

because an individual likes the person asking something of them. Scarcity is another social influence technique that believes the use of a “limited time” method can evoke response from individuals (Cialdini, 2009). The present experiment sought to apply these social influence techniques in an attempt to ascertain whether participants would be more responsive to an authoritative or friendly tone, and giving them a finite amount of time to engage with an online platform. The rationale behind this being that if these social influence techniques are successful, they can be applied to the recruitment of sources in the cyber domain.

To examine this theory, the use of letters was implemented as a means in which dialogue is initiated, with each letter having a specific tone in terms of authority/friendly, and gave each participant a limited amount of time in which to engage with the online platform to the tune of 7-day or 14-day response time windows. While the use of letters in establishing a dialogue with individuals who are predominantly more comfortable in the cyber domain seems questionable, the use of letters in engagement has shown to be an often effective means of garnering response with participants (Shih & Fan, 2008). While technological advances have introduced the use of web surveys as an alternate means to gather data, results have still shown that mail in surveys and questionnaires garner a higher response rate (Kaplowitz, Hadlock, & Levine, 2004).

Each experiment brought in participants under the ruse of taking part in a “Personality Assessment,” when in reality the experiment sought to gage what social influence techniques garnered a better response rate. Letters were given to participants upon completion, and the Survey Monkey platform was used as a means to keep track of who participated in the online questionnaire and took note of their conditions. Letters were examined as a cost effective means in which to attempt to establish a dialogue with

participants, letting them know that they are a person interest within the Emotion, Memory, Persuasion and Investigative Interviewing Laboratory and to engage in an online platform to arrange a meeting to discuss further. It is hypothesized that a more authoritative tone and a shorter window in which to respond would be a more effective means of garnering responses as opposed to a friendlier tone with a larger response window.

The study was conducted across two experiments. Experiment 1 resulted in a much lower rate of respondents than was expected. Of 123 participants, only 7 responded to the letters by engaging with the online platform. The low response rate could have been the result of the manner in which the letters were distributed or composed. For example, the letters were impersonal and the instructions surrounding them may have inadvertently resulted in participants placing low levels of import on the letters they were given, possibly believing them to be debriefing information. Another limitation of Experiment 1 was the lack of demographics used in the study, as only those who engaged in the online platform provided demographic information. Experiment 2 sought to make alterations in an effort to increase participation with the online platform. Different methods were employed in this effort such as the personalization of letters to participants, as well as formatting in the closing of the letters, and the addition of an identity to the principal investigator, as research has shown these to be effective methods to garner a better response rate to mail in surveys (Kanuk & Berenson, 1975). Experiment 2 also implemented the use of a demographic questionnaire prior to the participant's engagement with the "Personality Assessment". Unfortunately, due to an experimental oversight, the first 57 participants only had partial demographic information collected for them.

The results from Experiment 2 indicate that there is a significant difference between tonality and timeframe as they pertain to response rate in that a friendly tone with a smaller timeframe garnered more cooperation from participants, whereas those under an authority tone used a longer timeframe to respond. While Experiment 2 showed a nearly double rate of increase in participation percentage (5.7% to 9.5%), and a significant difference within tone and timeframe, Experiment 2 was not without limitations. The overall percentage of participation with the online platform fell well below expectations and failed to reach the average response rate or 30%-50% (Baruch & Holtom, 2008).

In both experiments, participant engagement with the online platform fell below the expected response rate from the extant literature. This issue can be problematic as often times a high response rate is viewed as more desirable and an important measure of quality within a survey (Shih & Fan, 2008). With such low response rate with participants and the online platform, there could be an issue of non-response bias. In Experiment 2, of the 126 who participated, less than 10% engaged in the online platform despite the changes made from Experiment 1. There are a number of reasons as to why a low response rate persisted across experiments. In many instances, the letter might simply be disregarded as nothing of importance for the participant to engage with. Baruch and Holtom (2008) note that in many instances, non-respondents refer to two particular reasons for not responding such as being too busy, as well as not considering the letter/survey relevant. The latter reasoning by non-respondents could potentially be an issue as Armstrong and Overton (1977) note that mail surveys have often been criticized for their nonresponse bias. It is also worth noting however, that this particular study also implemented the use of an online platform as opposed to traditional surveys that are returned by postage. This could also be a factor that has hindered

participant response: Kaplowitz, Hadlock, and Levine (2004) note that for many internet users, the involvement of an online platform raises concerns about security as an unknown or untrusted website can be a deterrent. This can also prove to be an issue in regards to potential sources in the cyber-domain, as they are likely more savvy from a technological standpoint, and unwilling to put themselves at risk of compromising their computer or their technologies. While the use of letters has been a more effective tool in garnering response rates from participants, it could also be of note that in this particular instance, it is simply not as effective as it also implements the use of an online platform. A participant could potentially open a letter and be interested in the material the letter has, however is deterred upon seeing that they are being asked to engage with an online platform, fearing their online security may be at risk should they engage (Kaplowitz et al., 2004).

Turning back to the current data, while Experiment 2 saw an increase in the frequency of engagement with the online platform comparative to Experiment 1, there was a notable difference in response patterns as well. With regards to respondents only, Experiment 1 showed a near 50-50 split in terms of participant gender (57% female, 43% male). Experiment 2 however saw a drastic shift in gender response frequency with 83% of respondents reporting their gender as female. With only 17% of respondents in Experiment 2 being male, thus male participant response rate decreased dramatically across Experiment 1 and Experiment 2, with a 25% reduction. This result could be indicative of a gender bias to letter responses, with females more likely to respond to these types of solicitations than males. However, an alternative explanation is that university demographics show the population of students to have more females than males, and this may also be why more females than males responded to the letters: more females simply took part in the

experiment. Experiment 2 also saw condition responses shift to a 50-50 distribution between authoritative tones and friendly tones, whereas the responses in Experiment 1 were to the authoritative letters in an overwhelming majority of cases. One of the more interesting revelations in Experiment 2 was that, out of those who responded to the friendly tonality condition, 100% responded to the 7-day timeframe.

The changes in response patterns observed between Experiments 1 and 2 are evidence that the changes implemented from Experiment 1 to Experiment 2 did indeed result in a change in response rates to the letters. With the changes implemented, and a sample size similar to that of Experiment 1, not only did response rates to the letters increase, but the patterns in the data reached significance in Experiment 2, showing that friendlier tones with a shorter response window yielded the most responses of any condition. With a friendlier tone, participants might perceive the invitation to the online platform as a request, as opposed to an instruction potentially perceived from the authority tone.

An implication of this research is in the application of social influence techniques in the field of source recruitment: social influence could quite potentially be useful in securing sources with vital intelligence information and, eventually, capture of cyber criminals. To the best of the author's knowledge, this is the first experimental test of social influence in this setting, and therefore further and substantive research is required if one is to garner a better understanding of cyber criminality and establishing a rapport with sources who might have knowledge of criminal activity. Perhaps a better refinement of establishing the initial dialogue could prove to be key in this particular instance. It stands to reason that exploring the use of social influence further, especially if delivered in as cost effective a method as a letter, could prove to be quite beneficial in this domain.

There are many other avenues of possible exploration in this aspect of criminality. Expansion of the current research could prove to yield better results with further alterations to the procedure and methodology in which letters are prepared for participants. One such alternation would be including a following-up phase with participants in an effort to increase response rate. Kanuk and Berenson (1975) note that performing follow ups to mail in surveys has shown to be an effective method in increasing participant response rates. Given this research is conducted with University students, this kind of follow-up phase could easily be implemented in the University setting. For example, an email follow-up to participants' university email address with a link to the online platform within the email could also be effective, as participants could perceive this to provide an easier, more convenient access to the online platform than the physical letters do.

Another route that warrants exploration would be the implementation of a logo or "seal" from the organization distributing these letters. The use of logos or professional formatting for letters or mail in surveys, as well as fliers have been applied to positive results in terms of population and marketing influence (Fang & Mowen, 2005). Though probably more effective as an "authoritative" condition, the use of a seal or insignia can imply that the source requesting the participant's involvement in the online website is a professional one and could quite potentially encourage more of a prompt response per authoritative condition. As previously discussed, a participant may be likely to disregard a piece of mail that they might consider "junk." By adding a logo, it could potentially add a professional touch that the people running the study that participants have taken part in are a larger entity than initially thought, therefore for this same entity to request their response or further involvement, could add a sense of importance to the participant (Fang & Mowen, 2005).

Much like the aforementioned personalization adding works somewhat in similar fashion by adding an identity to the laboratory performing the study. Furthermore, the addition of a logo may add a further element of intrigue when asking participants to perform the follow up on the website. Without an identity, the laboratory is not an entity that is likely to be taken notice of by the participant, thus contributing to the low levels of responses. With the use of a sigil or seal, a clean, professional look can make the letter stand out to the participant, leaving them curious as to what the letter entails, and potentially, within an authoritative condition, prompt a response from participants as it pertains to the website interaction. While it merits potential exploration, there is currently no conclusive data to verify this as an effective means to increase response rates from participants (Kanuk & Berenson, 1975).

Conclusion

While Experiment 1 showed a much greater response rate to the authoritative tone as initially hypothesized (86%), there was no significant association between letter tonality and timeframe in regards to participant response rates; this could be due in part to the experiment's low sample size. Experiment 2 saw a significant association between letter tonality and timeframe in regards to participant response. Furthermore, given the large effect size for this significant difference, it shows that there is a strong association between letter type and response rate in Experiment 2. Friendlier tones with a smaller response window received a better response rate than that of an authoritative tone with a larger window of time in which to respond. Participation response rate was lower than expected in both Experiment 1 and Experiment 2 with response rates in both studies below 10%, however there are measures that can be implemented in future similar studies to expand the sample and attempt

to increase response rates to garner a bigger picture of effective letter formats. Across both experiments, this research has shown that social influence techniques of liking, authority and scarcity can be utilized in a low-cost, written medium that can entice individuals to engage with an online platform. If replicated and extended, a model of social influence techniques that can be an effective means of source recruitment in the cyber domain could be developed. Given the increasing nature of cyber threats facing not just America, but every internet-connected country, establishing a network of cyber sources could be an important step in combating these threats.

REFERENCES

- Armstrong, J. S., & Overton, T. S. (1977). Estimating nonresponse bias in mail surveys. *Journal of Marketing Research*, 14(3), 396-402. doi:10.2307/3150783
- Baruch, Y., & Holtom, B. C. (2008). Survey response rate levels and trends in organizational research. *Human Relations*, 61(8), 1139-1160. doi:10.1177/0018726708094863
- Broadhurst, R. (2006). Developments in the global law enforcement of cyber-crime. *Policing: An International Journal of Police Strategies & Management*, 29(3), 408-433. doi:10.1108/13639510610684674
- Casey, E. (2004). *Digital evidence and computer crime: Forensic science, computers, and the internet*. London: Academic Press.
- Cialdini, R. (2009). *Influence: Science and practice* (5th ed.). New York, NY: Pearson Education Inc.
- Cialdini, R. & Goldstein, N. (2004). Social influence: Compliance and conformity. *Annual Review of Psychology*, 55(1), 591–621. doi:10.1146/annurev.psych.55.090902.142015
- Damsell, K. (2003). 'Ethical hackers' test for weakness. (2009, March 20). Retrieved from <http://www.theglobeandmail.com/report-on-business/ethical-hackers-test-for-weakness/article25288747/>
- Evans, J. R., Meissner, C. A., Ross, A. B., Houston, K. A., Russano, M. B., & Horgan, A. J. (2013). Obtaining guilty knowledge in human intelligence interrogations: Comparing accusatorial and information-gathering approaches with a novel experimental

- paradigm. *Journal of Applied Research in Memory and Cognition*, 2(2), 83-88.
doi:10.1016/j.jarmac.2013.03.002
- Fang, X., & Mowen, J. C. (2005). Exploring factors influencing logo effectiveness: An experimental inquiry. *Advances in Consumer Research*, 32, 161. Retrieved from <http://www.acrwebsite.org/volumes/9062/volumes/v32/NA-32>
- File, T., & Ryan, C. (2014). Computer and Internet use in the United States: 2013. *American Community Survey Reports*. Retrieved from <https://www.census.gov/content/dam/Census/library/publications/2014/acs/acs-28.pdf>
- Fox, R. J., Crask, M. R., & Kim, J. (1988). Mail survey response rate a meta-analysis of selected techniques for inducing response. *Public Opinion Quarterly*, 52(4), 467-491.
doi:10.1086/269125
- Jaishankar, K. (2007). Establishing a theory of cyber-crimes. *International Journal of Cyber Criminology*, 1(2), 7-9. Retrieved from <http://sites.google.com/site/cybercrimejournal2/Editorialjccjuly.pdf>
- Kanuk, L., & Berenson, C. (1975). Mail surveys and response rates: A literature review. *Journal of Marketing Research*, 12(4), 440-453. doi:10.2307/3151093
- Kaplowitz, M. D., Hadlock, T. D., & Levine, R. (2004). A comparison of web and mail survey response rates. *Public Opinion Quarterly*, 68(1), 94-101.
doi:10.1093/poq/nfh006
- Levy, S. (2001). *Hackers: Heroes of the computer revolution* (Vol. 4). New York, NY: Penguin Books.

- Lewis, J. A. (2002). *Assessing the risks of cyber terrorism, cyber war and other cyber threats*. Washington, D.C.: Center for Strategic & International Studies.
- Lieberman, B. (2007). Ethical issues in the use of confidential informants for narcotic operations. *The Police Chief*, 74(6), 1-5.
- Maras, M. H. (2011). *Computer forensics: Cybercriminals, laws, and evidence*. Sudbury, MA: Jones and Bartlett Publishers, Inc.
- Maslow, A. H. (1943). A theory of human motivation. *Psychological review*, 50(4), 370.
doi:10.1037/h0054346
- Milgram, S. (1963). Behavioral study of obedience. *Journal of Abnormal and Social Psychology*, 67, 371–378. doi:10.1037/h0040525
- Pocar, F. (2004). New challenges for international rules against cyber-crime. *European Journal on Criminal Policy and Research*, 10(1), 27-37. doi:10.1007/978-1-4020-2924-0_3
- Schell, B. H., & Martin, C. (2004). *Cybercrime: A reference handbook*. Santa Barbara, CA: ABC-CLIO.
- Shih, T. H., & Fan, X. (2008). Comparing response rates from web and mail surveys: A meta-analysis. *Field Methods*, 20(3), 249-271. doi:10.1177/1525822x08317085
- Sills, S. J., & Song, C. (2002). Innovations in survey research an application of web-based surveys. *Social Science Computer Review*, 20(1), 22-30.
doi:10.1177/089443930202000103

- Sofaer, A. D., Goodman, S. E., Cuéllar, M. F., Drozdova, E. A., Elliott, D. D., Grove, G. D., . . . & Wilson, G. D. (2000). *A proposal for an international convention on cyber-crime and terrorism*. Stanford University, Center for International Security and Cooperation. Retrieved from <http://fsi.stanford.edu/sites/default/files/sofaergoodman.pdf>
- Wall, D. S. (1998). Catching cybercriminals: Policing the internet. *International Review of Law, Computers & Technology*, 12(2), 201-218. doi:10.1080/13600869855397
- Webster, D. M., & Kruglanski, A. W. (1994). Individual differences in need for cognitive closure. *Journal of Personality and Social Psychology*, 67(6), 1049-1062. doi:10.1037/0022-3514.67.6.1049
- Weiss, C. (2015). How do science and technology affect international affairs? *Minerva*, 53(4), 411-430. doi:10.1007/s11024-015-9286-1
- Wroblewski, H.M., & Hess, K.M. (2000). *An introduction to law enforcement and criminal justice* (6th ed). St. Paul, MN: West Pub.
- Yar, M. (2013). *Cybercrime and society*. London: Sage Pub.

APPENDICES

EXPERIMENT LETTER 1A

Dear TAMIU Student,

As you may be aware, the Emotion, Memory, Persuasion and Investigative Interviewing Laboratory (EMP-II Lab) came into force at TAMIU on September 1st, 2014 and is charged with a mission of being at the cutting edge of research on intelligence and interrogative practices. We are determined in that mission and as such, are working tirelessly to adapt research to on-going crime threats, however they manifest.

As a TAMIU student, you are of significant interest to us. It is in that regard that I now write to you, to invite your attendance at one of our offices, for a meeting to discuss this situation.

I am obliged to provide this covering notice with this request, which sets out our formal position.

However, I state for the record that this meeting is entirely intended as an informal opportunity; for colleagues from the EMP-II Lab to meet with you and for us to mutually share information regarding this mission.

You can find out more about this project, complete a short questionnaire and schedule a meeting time, by visiting the following link in the next **7 days**:

Weblink: <https://www.surveymonkey.com/r/EMPIILAB>

Participant Identification Number (please use this in all correspondence with the EMP-II Lab):

A-7- (Participant Number)

We look forward to your reply.

Senior Investigator, EMP-II Lab

EXPERIMENT LETTER 1B

Dear TAMIU Student,

As you may be aware, the Emotion, Memory, Persuasion and Investigative Interviewing Laboratory (EMP-II Lab) came into force at TAMIU on September 1st, 2014 and is charged with a mission of being at the cutting edge of research on intelligence and interrogative practices. We are determined in that mission and as such, are working tirelessly to adapt research to on-going crime threats, however they manifest.

As a TAMIU student, you are of significant interest to us. It is in that regard that I now write to you, to invite your attendance at one of our offices, for a meeting to discuss this situation.

I am obliged to provide this covering notice with this request, which sets out our formal position.

However, I state for the record that this meeting is entirely intended as an informal opportunity; for colleagues from the EMP-II Lab to meet with you and for us to mutually share information regarding this mission.

You can find out more about this project, complete a short questionnaire and schedule a meeting time, by visiting the following link in the next **7 days**:

Weblink: <https://www.surveymonkey.com/r/EMPIILAB>

Participant Identification Number (please use this in all correspondence with the EMP-II Lab):

A-14- (Participant Number)

We look forward to your reply.

Senior Investigator, EMP-II Lab

EXPERIMENT LETTER 1C

Dear TAMIU Student,

The Emotion, Memory, Persuasion and Investigative Interviewing Laboratory (EMP-II Lab) is keen to engage with members of the TAMIU community (like you) who have some interest in law enforcement activity.

As part of a behavior and disruptions project we would like to invite you to voluntarily attend an informal, personal meeting with an appropriate representative of the EMP-II Lab.

This is part of a new approach to research projects and we would like to give you the opportunity to engage with us and share some of your thoughts and experiences in a non-traditional way.

We would welcome your input into developing a broader understanding for the way that law enforcement agencies are perceived, how they operate and what could be done to better support people in their interactions with the law enforcement community.

You can find out more about this project, complete a short questionnaire and schedule a meeting time, by visiting the following link in the next **7 days**:

Weblink: <https://www.surveymonkey.com/r/EMPIILAB>

Participant Identification Number (please use this in all correspondence with the EMP-II Lab):

F-7- (Participant Number)

We look forward to your reply.

Senior Investigator, EMP-II Lab

EXPERIMENT LETTER 1D

Dear TAMIU Student,

The Emotion, Memory, Persuasion and Investigative Interviewing Laboratory (EMP-II Lab) is keen to engage with members of the TAMIU community (like you) who have some interest in law enforcement activity.

As part of a behavior and disruptions project we would like to invite you to voluntarily attend an informal, personal meeting with an appropriate representative of the EMP-II Lab.

This is part of a new approach to research projects and we would like to give you the opportunity to engage with us and share some of your thoughts and experiences in a non-traditional way.

We would welcome your input into developing a broader understanding for the way that law enforcement agencies are perceived, how they operate and what could be done to better support people in their interactions with the law enforcement community.

You can find out more about this project, complete a short questionnaire and schedule a meeting time, by visiting the following link in the next **7 days**:

Weblink: <https://www.surveymonkey.com/r/EMPIILAB>

Participant Identification Number (please use this in all correspondence with the EMP-II Lab):

F-14- (Participant Number)

We look forward to your reply.

Senior Investigator, EMP-II Lab

EXPERIMENT LETTER 2A

Dear (STUDENT FIRST AND LAST NAME),

As you may be aware, the Emotion, Memory, Persuasion and Investigative Interviewing Laboratory (EMP-II Lab) came into force at TAMIU on September 1st, 2014 and is charged with a mission of being at the cutting edge of research on intelligence and interrogative practices. We are determined in that mission and as such, are working tirelessly to adapt research to on-going crime threats, however they manifest.

As a TAMIU student, you are of significant interest to us. It is in that regard that I now write to you, to invite your attendance at one of our offices, for a meeting to discuss this situation.

I am obliged to provide this covering notice with this request, which sets out our formal position.

However, I state for the record that this meeting is entirely intended as an informal opportunity; for colleagues from the EMP-II Lab to meet with you and for us to mutually share information regarding this mission.

You can find out more about this project, complete a short questionnaire and schedule a meeting time, by visiting the following link in the next **7 days**:

Weblink: <https://www.surveymonkey.com/r/EMPIILAB>

Participant Identification Number (please use this in all correspondence with the EMP-II Lab):

A-7- (Participant Number)

We look forward to your reply.

(Signature)

Dr. Thomas Hargrove

Senior Investigator, EMP-II Lab

EXPERIMENT LETTER 2B

Dear (STUDENT FIRST AND LAST NAME),

As you may be aware, the Emotion, Memory, Persuasion and Investigative Interviewing Laboratory (EMP-II Lab) came into force at TAMIU on September 1st, 2014 and is charged with a mission of being at the cutting edge of research on intelligence and interrogative practices. We are determined in that mission and as such, are working tirelessly to adapt research to on-going crime threats, however they manifest.

As a TAMIU student, you are of significant interest to us. It is in that regard that I now write to you, to invite your attendance at one of our offices, for a meeting to discuss this situation.

I am obliged to provide this covering notice with this request, which sets out our formal position.

However, I state for the record that this meeting is entirely intended as an informal opportunity; for colleagues from the EMP-II Lab to meet with you and for us to mutually share information regarding this mission.

You can find out more about this project, complete a short questionnaire and schedule a meeting time, by visiting the following link in the next **7 days**:

Weblink: <https://www.surveymonkey.com/r/EMPIILAB>

Participant Identification Number (please use this in all correspondence with the EMP-II Lab):

A-14- (Participant Number)

We look forward to your reply.

(Signature)

Dr. Thomas Hargrove

Senior Investigator, EMP-II Lab

EXPERIMENT LETTER 2C

Dear (TAMIU Student First Name),

The Emotion, Memory, Persuasion and Investigative Interviewing Laboratory (EMP-II Lab) is keen to engage with members of the TAMIU community (like you) who have some interest in law enforcement activity.

As part of a behavior and disruptions project we would like to invite you to voluntarily attend an informal, personal meeting with an appropriate representative of the EMP-II Lab.

This is part of a new approach to research projects and we would like to give you the opportunity to engage with us and share some of your thoughts and experiences in a non-traditional way.

We would welcome your input into developing a broader understanding for the way that law enforcement agencies are perceived, how they operate and what could be done to better support people in their interactions with the law enforcement community.

You can find out more about this project, complete a short questionnaire and schedule a meeting time, by visiting the following link in the next **7 days**:

Weblink: <https://www.surveymonkey.com/r/EMPIILAB>

Participant Identification Number (please use this in all correspondence with the EMP-II Lab):

F-7- (Participant Number)

With Kind Regards,

Thomas Hargrove

Senior Investigator, EMP-II Lab

EXPERIMENT LETTER 2D

Dear (TAMIU Student First Name),

The Emotion, Memory, Persuasion and Investigative Interviewing Laboratory (EMP-II Lab) is keen to engage with members of the TAMIU community (like you) who have some interest in law enforcement activity.

As part of a behavior and disruptions project we would like to invite you to voluntarily attend an informal, personal meeting with an appropriate representative of the EMP-II Lab.

This is part of a new approach to research projects and we would like to give you the opportunity to engage with us and share some of your thoughts and experiences in a non-traditional way.

We would welcome your input into developing a broader understanding for the way that law enforcement agencies are perceived, how they operate and what could be done to better support people in their interactions with the law enforcement community.

You can find out more about this project, complete a short questionnaire and schedule a meeting time, by visiting the following link in the next **7 days**:

Weblink: <https://www.surveymonkey.com/r/EMPIILAB>

Participant Identification Number (please use this in all correspondence with the EMP-II Lab):

F-14- (Participant Number)

With Kind Regards,

Thomas Hargrove

Senior Investigator, EMP-II Lab

VITA

Name: Joshua Allan Alexander

Address: 6500 Pino Real, El Paso, TX 79912

Email Address: joshuaalexander@dusty.tamtu.edu

Education: B.A., Psychology, The University of Texas at El Paso, 2014