

rEvolutionary Changes: The Complex Relationships Between Legislators and  
Communication Technology

by

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## ABSTRACT

Newer communication technologies (CTs) will always vie with more mature technologies for the attention of time-constrained legislators. As continual advances in CT make new methods of communication available to legislators, it is important to understand how newly introduced CTs influence novel and changing legislator behaviors. The mixed-method research presented in this study provides deep insights into the relationships between legislators and the CTs they use. This study offers many contributions, among them: it effectively bridges a gap between existing Internet Enabled CT (IECT) behavioral studies on non-legislators by expanding them to include legislator behavior; it expands existing narrowly focused research into the use of CT by legislators by including both IECT and mature CTs such as face-to-face meetings and telephone; it provides a fresh perspective on the factors that make CTs important to legislators, and it uncovers legislator behaviors that are both useful, and potentially harmful, to the process of democracy in the United States. In addition, this study confirms and extends existing research in areas such as minority party constituent communication frequency, and extends the topic of legislator CT behavior into some unanticipated areas such as constituent selective behaviors and the use of text messaging during floor debates which effectively enable lobbyists and paid consultants to participate real-time in floor debates in the Arizona House and Senate.

## DEDICATION

This dissertation is dedicated to my family. First, to my wife Tracy, who provided unbounded support during a five-year journey along a difficult and uncertain path strewn with obstacles both real and imagined. Second, to my children Chalet Fuery (Spiff), Serenity Danner (Fwenny), Hunter West (Bubby), and Courtney West (Woodles) who put up with five years of a stressed Papa who missed countless family nights to pursue this dream. To Tracy and my children: I love you more than words can express. Thank you for carrying me on this journey.

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## TABLE OF CONTENTS

	Page
LIST OF TABLES.....	x
LIST OF FIGURES.....	xi
PREFACE.....	xii
CHAPTER	
1 INTRODUCTION .....	1
Statement of the Problem.....	1
Purpose and Design of the Study.....	7
Past Research on the Problem.....	10
Gaps in the Literature.....	13
Research Questions.....	14
Significance of the Study.....	15
Definitions and Terms .....	16
Study Audience.....	16
Delimitations.....	19
2 REVIEW OF LITERATURE .....	21
Introduction.....	21
Communication Technology Frequency of Use .....	23
Communication Technology Importance and Naturalness Theory .....	35
3 METHODS AND PROCEDURES .....	48
Research Design.....	49
Data Collection Strategy.....	50

CHAPTER	Page
Phase One.....	51
Phase One Research Questions.....	53
Phase One Instrument.....	53
Phase One Quantitative Sampling and Data Collection Procedure .....	60
Phase Two.....	62
Phase Two Research Questions.....	63
Phase Two Instrument.....	63
Phases Two and Three Qualitative Sampling and Data Collection .....	66
Phase Three.....	69
Phase Three Research Questions.....	70
Phase Three Legislator Instrument.....	70
Phase Three IT Department Instrument.....	72
Population and Sample.....	73
Rationale for Selection.....	79
Research Design Caveats.....	80
Data Analysis Techniques.....	81
Limitations.....	85
4 RESULTS.....	88
Quantitative Phase One.....	88
Qualitative Phases Two and Three.....	111
Summary of Results.....	157
5 DISCUSSION, IMPLICATIONS, AND RECOMMENDATIONS .....	167



	Page
Summary of the Study .....	167
Contribution of Research .....	168
Unanticipated Research Findings .....	171
Closing Comments, Recommendations, and Future Research .....	179
REFERENCES.....	182
APPENDICES.....	195
A    RECRUITING AND PARTICIPANT COMMUNICATIONS .....	195
B    INSTRUMENTS .....	222
C    INTERVIEW CONSENT FORM .....	243
D    WORD CLOUD GREP FILTER LIST .....	244
E    WORD CLOUDS .....	251
F    E-MAIL NETWORK DIAGRAMS .....	260
G    FACE-TO-FACE NETWORK DIAGRAMS .....	268
H    TELEPHONE NETWORK DIAGRAMS .....	274
I    TEXT MESSAGING NETWORK DIAGRAMS .....	282
J    SOCIAL MEDIA NETWORK DIAGRAMS .....	287
K    PAIRED NETWORK DIAGRAMS .....	291
L    ASSISTANT NETWORK DIAGRAMS .....	299
M    ATLAS.TI SCREENSHOTS .....	301
N    LEGISLATOR DEMOGRAPHICS .....	303
O    CT FREQUENCY OF USE FREQUENCY TABLES .....	305
P    CT IMPORTANCE FREQUENCY TABLES.....	307

	Page
Q QUALTRICS SURVEY RESPONSE HISTOGRAMS .....	310
R DEFINITIONS AND TERMS .....	316
S LEGISLATOR ASSISTANT DESCRIPTIONS .....	319
T LEGISLATOR DESCRIPTIONS .....	321
U SURVEY STATISTICS.....	323
CURRICULUM VITAE .....	326

## LIST OF TABLES

Table		Page
2.1	Communication Media Richness of Interaction .....	44
2.2	Importance of CTs Used By Legislators .....	46
3.1	Survey Variables and Coding .....	55
4.1	Legislator Demographic Information by Survey Mode .....	89
4.2	Survey Mode Frequency of Use t tests .....	91
4.3	Phase One Survey Legislator Demographics .....	94
4.4	Constituent and Peer CT Frequency of Use Rankings, Active Legislators .....	96
4.5	Overall CT Frequency of Use Rankings.....	96
4.6	Constituent and Peer CT Importance Rankings .....	97
4.7	Overall CT Importance Rankings, Actual vs. Predicted .....	98
4.8	CT Frequency of Use and Importance Comparison.....	104
4.9	Hardware Technology Use vs. CT Use, Bivariate Regression Results .....	107
4.10	Frequency of Use t tests .....	108
4.11	Internet Survey IP Address Types .....	111
4.12	CT Importance and Legislative Duties .....	117

## LIST OF FIGURES

Figure		Page
3.1	Three Phase Sequential Exploratory Research Design .....	50
4.1	E-Mail Network Diagram.....	121
4.2	Bulk E-Mail Network Diagram.....	122
4.3	E-Mail Efficiency Network Diagram.....	124
4.4	E-Mail Naturalness Network Diagram.....	126
4.5	E-Mail Risks Network Diagram.....	128
4.6	E-Mail Benefits Network Diagram .....	131
4.7	Legislator E-Mail Behavior Network Diagram .....	133

## PREFACE

This dissertation is the culmination of my doctoral studies that began in the fall semester of 2009. The fieldwork for this dissertation began in March of 2013 and was completed in July of 2013. I began drafting the first chapter of this dissertation in April of 2013, and the final version was completed in April of 2014.

This dissertation follows the traditional five-chapter dissertation format. Chapter 1 is an introduction to the dissertation. Chapter 2 is a review of the relevant literature and focuses on communication technology (CT) frequency of use behavior and CT importance. Chapter 3 outlines the methods and procedures used in this mixed-methods dissertation. The results of this dissertation are presented in Chapter 4 and substantial supporting materials are contained in the appendices. Chapter 5 concludes the dissertation with a discussion of the results, the implications for future research, and a few recommendations. Also included in Chapter 5 is a presentation of the unanticipated results of the study, which are typically found in exploratory research studies such as this one.

## CHAPTER 1

### INTRODUCTION

“When anyone can publish, and when anyone else can read (listen to, watch, work with, etc.) what’s been published, *roles shift – and blur* – in dramatic ways”  
(Lathrop & Ruma, 2010)

In the passage above, Lathrop & Ruma (2010), references two of the impacts of communication technology (CT) on the roles and behaviors of citizens and government officials: first, that the roles and behaviors of citizens and government officials have shifted due to changes in CT, and second, that the boundaries of these roles are being blurred. According to Oleszek (2011), the roles of citizens and legislators have shifted and in some cases, melded as changes in CT alter both the issues legislators address<sup>1</sup> and the way they address them.

#### **Statement of the Problem**

Little research exists on the impact of CT on legislator behavior, and that which does exist tends to examine the behavioral influences of *specific* technologies such as Twitter™ or Facebook™, or a *narrow range* of CTs such as social media. As the types of CTs expand rapidly with changes in hardware and software technologies, and the costs of communication decrease (Bimber, 2003; Malone, 2005; C Shirky, 2008), information, including political information, is becoming more abundant (Bimber, 2003) precipitating political (R. K. Garrett et al., 2012; R.K. Garrett, 2009b; C. Shirky, 2011; Stroud, 2008)

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<sup>1</sup> As legislators address issues such as Internet security, net neutrality, copyright protections, file sharing activities, and telecommunication spectrum allocation, the multi-faceted impact of CT on governance becomes more obvious.

and policy network (Sabatier, 2007) changes. In *Information and American Democracy*, Bimber suggests that political change is a natural byproduct of CT:

In a general sense, the information regime model predicts that such a large-scale change [decrease] in the cost of information should lead to political change, through its effects on the identity and structure of political intermediaries (p. 21)

Information received over various CTs not only changes political intermediaries, it can change the entire process of governing (Garson, 2006).

The impact of CT on the process of governing is not a modern phenomenon. Throughout history, advances in CTs have impacted the process of governing, both creatively<sup>2</sup> and destructively<sup>3</sup> (Ferber, Foltz, & Pugliese, 2005). Examples of the impact of CT on the process of governing abound, and include a diverse array of examples such as the use of the heliograph, semaphores, and beacons by the ancient Greeks to communicate administrative information via lights quickly across great distances (Leighton, 1969), the invention of the printing press and its impact on the American revolution (DeFleur, 1966), and the influence of social media on the public sector (Mergel, 2013). By studying the impact of CT on legislator behavior, both quantitatively and qualitatively over a wide range of CTs, the research in this study expands significantly our understanding of how CT influences legislator behavior.

Legislator behaviors associated with CT can be broken down into two behavioral categories: 1) CT frequency of use behaviors (CTFOU) are characterized by how often legislators use a particular CT and 2) legislator CT associated (CTA) behaviors which are

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<sup>2</sup> For example, the use of social media to increase government transparency (Mergel, 2012)

<sup>3</sup> For example, the impact of CT on the “Arab Spring” (Stepanova, 2011)

the impacts on legislator behavior associated with the use of CT. An example of the first category would be an examination of how frequently legislators use Twitter™ (Hwang, 2013; Peterson, 2012; Straus, Glassman, Shogan, & Smelcer, 2013) and an example of the second category would be research that investigates the ideologically polarizing impact of Internet communications (Marshall, 2010). In a second example unrelated to legislators but reasonably expected to play a role in their CTA behaviors is selective exposure<sup>4</sup> (R.K. Garrett, 2009a; Lowin, 1967; Stroud, 2008), which is traditionally thought of as consisting of equal parts of politically motivated reinforcement seeking<sup>5</sup> (R.K. Garrett, 2009b), and challenge avoidance<sup>6</sup> (R.K. Garrett, 2009b) behaviors. Phase one of this study focuses primarily on CTFOU behaviors while phases two and three focus primarily on CTA behaviors. Hereafter, general references to legislator behavior in this study encompass both CTFOU and CTA behaviors.

Additionally, because both forms of legislative behavior usually involves the activities of persons beyond the legislator alone, and may be affected by the institutional context in which the legislator works, it is important to investigate staffing and organizational influences to provide a comprehensive examination of the influences of CT on legislator behavior. Interviewing legislator assistants and Information Technology (IT) staff (in addition to legislators) in the second and third phases of research accomplishes this goal. Such triangulation is one of the hallmarks of mixed-method

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<sup>4</sup> Defined as an individuals' preference for exposure to arguments supporting their position over those supporting other positions (R.K. Garrett, 2009b).

<sup>5</sup> Defined as an individual actively seeking to reinforce existing beliefs by seeking out information that supports their beliefs (R.K. Garrett, 2009a).

<sup>6</sup> Defined as the intentional filtering out of information which conflicts with an individual's existing beliefs.



research (Creswell, 2009; Lapan & Quartaroli, 2009; Miles, Huberman, & Saldaña, 2014; Stake, 2010) and adds to the internal validity of the research by corroborating, or more frequently, offering refinements to the research findings (Barbour, 2001).

In addition to examining legislator behaviors, this dissertation research examines the importance legislators attach to a range of CTs. The concept of importance is inherently ambiguous and highly contextual. Because of this, the topic of importance is examined from two perspectives in this study: overall importance and specific importance. Overall importance is explored in the phase one survey where legislators are asked to indicate the importance of a range of CTs with respect to (WRT) performing their legislative duties. In this context, importance is examined from the perspective of completion of their legislative duties, whatever they perceive those duties to be. Specific importance is examined through the use semi-structured interviews with legislators during phase three. In this context, the meaning of importance is examined by allowing legislators to define importance in detail; specifically, legislators are encouraged during the interview to explain exactly why they find a particular CT important. The combination of overall importance and specific importance provides a detailed picture of the concept of importance as applied to legislator use of CTs.

As evidenced by the number of academic publications that touch on the topic of the use of CTs by legislators and governments, the importance of the confluence of CT and the governance process is well recognized by researchers. Publications by scholars run the gamut of levels of analysis from the institutional, focusing on the design of CTs and information systems for government institutions (Mergel, 2012) to the individual, with a focus on legislator use of texting (Olaore, 2011) and Electronic mail (E-mail)

(Richardson & Cooper, 2006). A review of the literature suggests that researchers understand that CT is important to the process of governing, but there is little focus on exactly why a wide range of CTs is important to legislators. Although the topic of CT and its relationship to governance is popular in academic literature, the link between legislator behavior and CT remains a relatively untapped avenue of exploration, and it is just this path that is to be explored in the following study. With both behavior and importance defined, focus is now turned to CT.

Stated simply, CT is the means of exchanging information between individuals. By extension, CT can include the media used to disseminate information to the public because it constitutes an indirect form of communication between elected officials and citizens. Information is well understood to be important to politics (Bimber, 2003; Castells, Cardoso, & Relations, 2006; Mergel, 2012), but the focus on the behaviors precipitated by the CT over which information is transmitted is less well recognized. In the “digital age”, CT has expanded greatly (Van Dijk, 2006) and has enabled decentralized adhocratic<sup>7</sup> communications between legislators and citizens (Lathrop & Ruma, 2010). Davis (1999) summarized the importance of CT succinctly when he noted; “The political role of new communication technology has been termed a ‘great transformation’<sup>8</sup>” (p. 20). It is reasonable to expect, based on the findings of these researchers, that CT is impacting the behavior of legislators, and by extension, different types of CT impact legislator behavior differently.

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<sup>7</sup> According to Lathrop & Ruma, adhocracies are everything bureaucracies are not; adaptable, quick to respond, and adept at solving problems and getting results (Lathrop & Ruma, 2010, p. 124)

<sup>8</sup> The Electronic Republic: Reshaping Democracy in the Information Age (Grossman, 1995)

Obviously, legislators use a variety of CTs to interact with and shape the thinking of the public, and the public uses a variety of CTs to interact with and shape the thinking of legislators. Twenty-four hour instant news on multiple electronic media suggests that a much wider range of communications than those received directly from the public influences legislator behavior. Furthermore, individuals and groups can “send messages” to elected representatives by communicating with each other via channels that are monitored by representatives. For example, Twitter™ traffic between citizens that is monitored by the legislators or their staffs or reported by the media or constituent and non-constituent posts to a legislator’s Facebook™ page that is monitored by a legislator’s primary opponent during an election campaign. In view of these changes, it is challenging to determine not only how legislator behaviors may be changing, but also the CTs and technology related factors that may be driving those changes.

The influences of CT on legislator behavior range from demographic (age, gender, education, etc.) and institutional (House or Senate) variables, to the potential for more fundamental changes such as CT related variations that impact the policy making process. An example of a demographically related change in legislator behavior precipitated by CT might be an avoidance of the use of E-mail by older legislators precipitated by an age-related fear of unfamiliar technology as predicted by research on non-legislators (Juznic, Blazic, Mercun, Plestenjak, & Majcenovic, 2006; A. Morris, Goodman, & Brading, 2007; Peacock & Künemund, 2007). An example of a fundamental finding of this study that may impact theories on the policy making process is the use of text messaging real time to influence legislation during floor debates in the House and Senate.

## **Purpose and Design of the Study**

This research has two primary purposes: First, to understand the CTFOU and importance that Arizona legislators assign to CTs and examine the relationships between CTFOU and various demographic, political, and institutional variables. Second, through the use of a triangulated semi-structured interview protocol, to explore how CTFOU and CTA behaviors impact the importance legislators assign to CTs and the relationships between CT and the roles, and responsibilities of Arizona state legislators, their staffs, and the organizations in which they operate.

The intent of this three-phase mixed methods study is not only to probe relationships between legislator behavior and CT using survey and interview protocol, but to do so in such a way that allows the focus of the research to shift as new (and potentially unanticipated) relationships are uncovered. Findings regarding the use and importance of various CTs from the first phase survey were used to guide the exploration of relationships between various CTs and the behaviors, roles, responsibilities, and understanding of constituents of legislator assistants (phase two), legislators (phase three), and IT staff (phase three). For example, the phase one survey uncovered evidence that legislators were using text messaging, which allowed further probing of this topic during the phase three interviews with legislators. This in turn led to the discovery that legislators were using text messaging on the floor of the House and Senate to obtain real-time information from lobbyists and paid consultants. In effect, legislators were acting as mouthpieces for lobbyists and paid consultants to engage in public debate with each other.

The ability to adapt research to unanticipated findings is one of the strengths of sequential exploratory mixed-method research (Creswell, 2009), and was one of the motivations for choosing this methodology. Exploratory research, by its very nature, involves the investigation of relationships that are relatively unexplored in academic papers, and the ability to adapt the research based on intermediate findings is important.

Phase one of the research, a survey of legislators, examines the CTs in use by Arizona House and Senate members and facilitates an exploration of the relationships between the use of CT and demographic and institutional variables. By examining the CT used by Arizona legislators, important knowledge was gained regarding the influences that gender, education, years of legislator experience, technology usage, and institution play in shaping how legislators use CT. Understanding the impact demographic and institutional variables have on legislators CT behavior is an important first step in understanding how CT influences legislators' political behavior and guided the direction of the second and third phase qualitative research.

Phase two research involves interviews with the assistants of Arizona legislators to understand how CT impacts their behaviors, roles, responsibilities and their understanding of the constituents of the legislator they work for. Legislator assistants (sometimes referred to as member assistants in interviews) have many roles that influence both how legislators use CT and how constituents interact with legislators. In an example of how legislators use CT; assistants, who are employees of the state, often serve many legislators over the years and frequently have more experience with House and Senate CTs. These state employee legislator assistants often help train new legislators on the use of CT as applied to the legislative role, and pass best practices down from legislator to

legislator. By way of an example of legislator assistants controlling legislator interactions, legislator assistants screen phone calls and (often but not always) E-Mails for legislators, effectively gating access to the legislator. Through the use of semi-structured interview protocol, second phase research seeks to uncover the complex relationships that exist between legislators, legislator assistants, and CTs. Knowledge gained during the second phase interviews was used to inform and guide the third phase research.

Phase three of the research is similar in scope to the second phase research, focusing on legislators and information technology (IT) staff rather than legislator assistants. In this phase, information from the legislator survey in phase one and legislator assistant interviews in phase two was used to shape the focus of the phase three interviews. While questions in phases two and three are similar in nature (to aid in a comparison between legislator assistants and legislators), the understandings gained in the first two phases helped focus interactions with the legislator, allowing more time to be spent on exploring previously uncovered relationships. Additionally, the second half of phase three consists of semi-structured interviews with IT department staff to understand the role that CT support and infrastructure play in shaping the relationships between legislators and CT.

Quantitative research was chosen for the first phase because reliable data on the use of specific CTs state legislators generally, and by Arizona's fifty-first legislature specifically, are not available from secondary sources. In addition to a lack of data on CTs in use by state legislators, no existing research has been uncovered that highlights the importance that state legislators generally, and members of Arizona's fifty-first

legislature specifically, place on various CTs. Finally, the use of secondary information would have precluded econometric analyses of demographic, institutional, and political variables. While the second and third phase interview protocols did not contain questions regarding any specific CT, the information obtained during the first phase helped guide the interview protocol by highlighting the range of CTs commonly used and the importance legislators associate with those CTs.

It is important to note that CT (and technology in general) is constantly changing. Snapshots of the impact of a specific technology at any given point in time are useful for exploratory research such as this, where little is understood about the subject. However, studying dynamic environments such as CT may decrease the long-term value of the research as the specific nature of the relationships examined change dramatically over time. The research methodology utilized in this study attempts to mitigate this problem in two ways: First, by examining multiple technologies over a short period of time, potential relationships *between* the various CTs and legislator CT use and CT use associated behaviors may be uncovered. Second, the utilization of a sequential exploratory mixed methods approach allows a dynamic reconfiguration of the study focus based on participant responses in phases one and two, effectively allowing the study to refocus on unanticipated results.

### **Past Research on the Problem**

Past research on the CT and legislator behavior can be broken nicely into the two fundamental categories described at the beginning of this chapter: CTFOU and CTA. Greenberg's (2012) research into congressional use of social media provides an example

of CTFOU while Hogan's (2011) investigation into CT as a factor impacting representative behavior is an example of CTA research.

Compared to research on the CTFOU behavior of non-legislators, relatively little research exists on the CTFOU behavior of legislators. Importantly, this researcher posits that the research on legislator CTFOU (and demographic and institutional variations that impact CTFOU) can be supplemented by research on non-legislators, an area where research is plentiful. The assumption here, which was tested as part of this study, is that legislators behave similarly to non-legislators WRT relationships between CTFOU and demographic variables. Put another way by use of an example; it is expected that older legislators will display CTFOU behaviors similar to those of older non-legislators. While CTFOU research typically focuses on non-legislators using Internet Enabled CTs (IECTs), research into the relationships between IECTs and legislator behavior is a relatively modern phenomenon and appears to be growing in popularity. For the purposes of this research, IECTs are defined as CTs that utilize the Transmission Control Protocol/Internet Protocol (TCP/IP). Examples of IECTs include E-Mail, webpages, Facebook™, Twitter™, YouTube, and blogs.

Research into the demographic and institutional impacts of traditional communication methods such as face-to-face meetings, phone conversations, and letter writing can be found, but are of less interest when examining frequency of use. IECTs are expected to produce the most interesting demographic variation because their preliminary introduction into significant use spans multiple legislator generations and are likely to be impacted by the "digital divide" (Mossberger, Tolbert, & Stansbury, 2003; Norris, 2003) that separates access to digital technologies by age, income, education, and



ethnicity among other demographic variables. Because there is no of an equivalent variance provoking “analog divide” separating legislators using mature CTs such as face-to-face meetings and phone conversations, these CTs are less interesting from the perspective of this researcher. This being said, mature communications will be analyzed with respect to (WRT) demographic, institutional, and political variations, and the results reported in Chapter 4.

Examples of research into the CTFOU of IECTs and demographic and institutional variables include age (Carpenter & Buday, 2007; Cooper, 2004; Juznic et al., 2006; A. Morris et al., 2007; Peacock & Künemund, 2007), gender (Akman & Mishra, 2010; M. Hogan, 2006; M. G. Morris, Venkatesh, & Ackerman, 2005; Thayer & Ray, 2006), education (Chen & Persson, 2002; Cutler, Hendricks, & Guyer, 2003; Selwyn, Gorard, Furlong, & Madden, 2003; Tak & Hong, 2005), and political party affiliation (Greenberg, 2012). Indicative of the gap in research in this area, only the research by Cooper (focusing on state legislators) and Greenberg (focusing on federal legislators) directly address legislator CTFOU and related demographic and institutional relationships. Importantly, and speaking to a gap in the literature, no existing empirically based literature on legislator perceived importance of a wide range of CTs could be located.

Research targeting legislator behaviors related to specific CTs includes research into legislators’ use of social media (Serrat, 2010; C. Shirky, 2011), Twitter™ (Golbeck, Grimes, & Rogers, 2010; Peterson, 2012), E-mail (Cooper, 2002a; Pole, 2005; Richardson Jr, Daugherty, & Freeman, 2001; Richardson & Cooper, 2006; Sheffer, 2003), and webpages (Narro, Mayo, & Miller, 2008). Some research such as

Greenburg's (2012) investigation into the use of social media by Congress bridges both behavioral and communication specific research, effectively combining both categories of research into a single research project.

### **Gaps In The Literature**

The research in this study departs from, and adds to, existing literature in multiple ways: First, unlike other current research that focuses on a single CT (or a narrow range of technologies such as social media) or a single legislator behavior (such as the ideological impacts of Internet use), a wide range of CTs are explored in this study. These technologies span from the earliest human CT; sounds or words and face-to-face communications, to the latest CTs; digital communications embodied in Transmission Control Protocol/Internet Protocol (TCP/IP) enabled formats such as Facebook™ or Twitter™. In addition, semi-structured interviews allow a full range of legislator behaviors to be investigated rather than focusing research on a single behavior or set of behaviors. Effectively, legislator behaviors will be discovered rather than sought out through advanced knowledge based on the literature. Second, the research in this study adds to the literature by exploring the complex relationships between legislator behavior and CT using three different perspectives: legislator assistants, legislators, and IT support personnel. By interviewing legislators, legislator assistants, and House and Senate IT support personnel; a rich tapestry woven of the complexities of these relationships was uncovered. Third, by analyzing quantitative and qualitative data individually using the data analysis programs Stata and Atlas.ti and then combining these data into a mixed dataset and analyzing the homogeneities and heterogeneities of these combined data,

deeper understandings of the relationships between legislator behavior and CT was exposed.

Gaps in the literature have been exposed. Among others, these gaps include: 1) A lack of quantitative research that examines the relationships between various demographic and institutional variables and the CTFOU and importance of CTs used by legislators. 2) No research was located that examines the perceived importance of various CTs by legislators, either quantitatively or qualitatively. 3) A shortage of research that examines legislator behaviors across a wide variety of CTs including traditional CTs such as face-to-face and telephone conversations as well as more advanced IECTs. 4) Existing research does not attempt to explain why a wide range of CTs may be important to a legislator.

### **Research Questions**

The following research questions will be explored in the three phases:

#### ***Phase One Survey of Legislators***

RQ1: What CTs do legislators in the Arizona House and Senate use to communicate with their peers and constituents, and with what frequency do they use these CTs? What importance do legislators attach to these CTs?

RQ2: How does legislator frequency of use and perception of importance of the CTs identified in RQ1 vary as a function of political party, institution (House or Senate), age, gender, years in office, education, and technology usage.

#### ***Phase Two Interviews with Legislator Assistants***

RQ3: What is the impact of CT on the behaviors, roles, responsibilities, and understanding of constituents of the staff of Arizona House and Senate legislators?

### ***Phase Three Interviews with Legislators and IT Department***

RQ4: What is the impact of CT on the behaviors, roles, responsibilities, and understanding of constituents of legislators in the Arizona House and Senate?

RQ5: What role does IT support and infrastructures play in a legislator's use of CT, and how do IT personnel perceive legislator behaviors associated with CT?

RQ6: What are the implications of changing legislator use of CT for the development of, and change in, IT support and infrastructures.

### **Significance of the Study**

Academics understand that CT influences many aspects of human behavior (Cook et al., 1983; Dennis, Valacich, Speier, & Morris, 1998; Graber, 2009; Howard, 2006; Kock, 2005; Serrat, 2010; Stroud, 2008), yet exploring the impact of CT presents a challenge to scholars, who typically do not view CT and the information it transmits as an independent variable (Bimber, 2003). Put another way, CT is not typically viewed as a motive force (or cause) for political outcomes but rather, is viewed by scholars as a context. As a result, Bimber notes, "ideas about information and democracy typically achieve no better than a skeletal existence" (p. 12). As the literature review in Chapter 2 will show; the same could be said for research into the relationship between the CTs over which information is transmitted and legislator behavior; thick (in-depth, or rich) research on the impact of CT on legislator behavior was not uncovered.

Significantly, this exploratory study examines CT as a possible driver for political behavior, as a cause rather than a context. The difference between cause and context is important. For example, have changes in CT *caused* increases in legislator partisan behavior noted by some academics (Abramowitz, Alexander, & Gunning, 2006; Roberts

& Smith, 2003) or is CT simply part of the modern context in which partisan behavior is occurring? While the answer to this very narrow, very specific question is not the focus of this study, it speaks to the significance of viewing CT as an independent variable, as a potential cause rather than simply a context.

Three phases of research, each focusing on a different perspective of the relationship between legislators and CT promises to uncover the some of the complex linkages that exist between CT and legislator behavior. The perspectives of the legislators, their legislator assistants, and the IT department staff who support them offer the ability to triangulate findings using quantitative and qualitative data that will ultimately lead to a deeper understanding of the influences of CT on the behaviors of legislators and their staffs. In addition, this research study may ultimately lead to a theoretical platform through which more focused questions on the nature of the influence of CT on legislator behavior may be based.

### **Definitions and Terms**

A complete list of definitions and terms is contained in Appendix R: Definitions and Terms.

### **Study Audience**

The research in this study is targeted at a broad audience that includes first and foremost academics interested in the topic of information and CT<sup>9</sup> and its intersections with democratic governance and institutions, and legislator behavior. In addition, this research is applicable in a practical sense to political scientists, public administrators, legislators, legislative staff, and communication and IT professionals interested in

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<sup>9</sup> Sometimes referred to in the literature as ICT.

legislator behavior. Finally, citizens, special interest groups, and professionals such as lobbyists who are interested in communicating with their legislators should find certain aspects of this research not only interesting, but also useful in maximizing the efficiency of their communications with legislators. Specific examples of why these groups may benefit from this research are listed in the following section.

***Public Administrators*** – Legislators indicate frequent interactions with public administrators. The most common interactions revolve around budgeting, legislation related to the administrators department or agency, and constituent service requests. Public administrators will find that understanding the importance legislators place on CTs, and the behaviors associated with legislator use of CT are useful from a practical perspective; the knowledge gained from this study may lead to more effective communications, resulting in a more favorable outcome in areas of budgeting and legislation.

***Academics*** - With scholars typically focusing on the substance of the communications between legislators and constituents rather than the CT utilized to transmit information, this research may be a new lens through which academics can view legislator behavior. For example, if this research suggests that both the substance of a communication *and* the type of CT used impact the priority a legislator assigns to a constituent request, then CT may be viewed in later research as an independent variable (IV) that drives legislator behavior, offering a whole host of avenues for theoretical exploration both with respect to theoretical policymaking frameworks and public administration scholars. Public administration scholars may find the results of this study useful for analyzing legislator – public administrator interactions. Public policy scholars

might find the results of this study interesting because the results suggest that CT may play a role in influencing how policy is made. For example, how does the addition of real-time text messaging during floor debates, where lobbyists and paid consultants are actually participating in the debate, influence existing models of the policy making process?

***IT Departments*** – By understanding how CT can influence legislator behavior; new CTs may be more effectively designed and deployed at the institutional level. For example, if a House or Senate IT department understands that older legislators tend to avoid new CTs when compared to younger legislators, they may make an effort to target older legislators for additional training when rolling out a new CT.

***Legislators*** - Made aware of the potential behavioral impacts of CT, legislators may choose to take steps to enhance or offset these impacts to improve communications with public administrators, constituents, staff, etc. For example, a legislator who realizes that she/he has unconsciously been favoring constituent requests received via E-mail (because E-mail is his/her preferred form of communication), may make an effort to spend more time reviewing letters received via regular mail and less time responding to E-mail, effectively ameliorating this source of CT preference bias.

***Constituents*** - Made aware that the CT they choose to use to communicate with a legislator impacts how a legislator responds, may take steps to understand their legislator's communication preferences to precipitate a more favorable outcome for their request. For example, media richness theory suggests that CT can be selected to fit specific types of information in order to enhance understanding (Dennis et al., 1998) and increase physiological arousal (Kock, 2005), implying that constituents can take steps to

choose the optimum CT for the information being communicated. In addition, constituents may be surprised to find that the most common form of citizen-legislator communication, bulk E-Mail, is typically the least effective, with many legislators indicating that bulk E-Mail actually precipitates a negative impression of the constituent, if they even bother to notice the bulk E-Mail at all.

*Lobbyists* – While it is likely that lobbyists and other professionals who interact with legislators on a frequent basis intuitively (through experience or training) understand how various CTs impact legislator behavior, it is unlikely that they have been exposed to quantitative or qualitative evidence that suggests how specific CTs impact specific legislator behaviors. For these professionals, the research in this study may not only reinforce their anecdotal understanding of the relationships between CT and legislator behavior, but it may also debunk understandings of legislator behavior that are either false, or have changed over the years. In addition, to their potential dismay, lobbyists may find that the exposure and elucidation of the use of real-time text messaging with Senators and Representatives during floor debates (effectively using this CT to influence legislation) may drive changes to institutional rules to prohibit such behavior.

### **Delimitations**

Delimitations of this study include:

1. The study will be confined to legislators, their assistants, and the IT department employees in the House and Senate of Arizona's fifty-first legislature.
2. The study provides three perspectives on the use of CT within the Arizona House and Senate: The perspective of the legislators themselves, the



perspective of their assistants, and the perspective of IT support personnel.

Other perspectives exist which, if included in the study, might impact the results. Additional perspectives were not included due to time and the financial limitations of the researcher.

3. The phase two qualitative interview portion of the study was limited to nine legislator assistants representing the Arizona House (6) and Arizona Senate (3). Additional interviews, although useful, may not be included due to time and financial limitations of the researcher.
4. The phase three qualitative interview portion of the study was limited to nine legislators representing the Arizona House (4) and Arizona Senate (5) and three IT department staff. Additional interviews, although useful, may not be included due to time and financial limitations of the researcher.

## CHAPTER 2

### REVIEW OF LITERATURE

#### **Introduction**

Past research on legislator CT behavior can be broken into two fundamental categories as outlined in the first chapter: 1) CTFOU research that focuses on first order effects, and 2) CTA behavior research that examines second-order or indirect effects of CT.

The CTFOU and CTA behavioral categories were chosen for a number of reasons: First, the categories aligned nicely with the phases of the research, allowing a convenient way of splitting the quantitative research literature stream (phase one) from the qualitative research literature stream (phases two and three). Second, because significantly more CTFOU research exists than CTA research, the CTA behavior portion of the literature review is much more exploratory in nature. Since the content and direction of the CTA behavior literature review depends greatly on the unanticipated results of the exploratory phase 3 interviews, a literature review can be found in the final chapter of this dissertation, as recommended by Creswell (2009).

#### **CT Frequency of Use behavior**

Following the recommendation of Creswell (2009) for the quantitative strand of a mixed-method research project, this chapter focuses on the dependent and independent variables associated with the quantitative phase of research. The dependent variables (DV) in phase one of the research are: 1) *Frequency of Use* of CT and 2) legislator perceived *Importance* of CT. The literature review is subdivided by these dependent

variables to allow for a more structured understanding of the literature stream associated with each dependent variable. In addition, specific hypotheses related to demographic and institutional independent variables are developed with respect to CTFOU while the hypothesis related to importance is in rank order (or relative) format. The literature streams used to develop these hypotheses are sufficiently different to make dependent variable subdivision important as an aid to clarity.

It is important to note that the focus on the CTFOU part of the literature review is on developing hypotheses for Internet Enabled CTs<sup>10</sup> (IECTs) and not all CTs explored in phase one research. In effect, no attempt is made to develop CTFOU hypotheses for “mature”<sup>11</sup> communications such as face-to-face meetings, phone conversations, or for printed communication, although mature communications are examined with the exact same rigor as IECTs. In essence, no attempt was made to differentiate between mature communications and IECT communications in either the econometric analyses or the qualitative analyses. In addition, no research on legislator use of mature communications in the presence of IECTs was found, making hypothesis development based on existing research impossible.

Another reason for focusing on hypotheses development for IECTs rather than for mature communications is because IECTs can be reasonably expected to produce the

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<sup>10</sup> Sometimes called computer-mediated CT. I prefer internet-enabled to computer-mediated for multiple reasons. First, the term mediated has connotations of intentional intervention that changes the information being communicated, and second, because the term computer is now ubiquitous and is used for diverse tools from SCUBA diving computers to cash registers. The term internet-enabled is a more accurate and has fewer negative connotations than computer-mediated.

<sup>11</sup> Mature communications are defined as face-to-face meetings, phone conversations, and printed (letters, postcards, etc.) communications.

most interesting demographic variation. Because the introduction of IECTs span multiple legislator generations (put another way, the mature communications examined have been around for the vast majority of legislators for their entire lives) and can be reasonably expected to be impacted by the “digital divide” (Mossberger et al., 2003; Norris, 2003) that separates access to digital technologies by income, education, and ethnicity (among other demographic variables). Effectively, there is no equivalent variance delivering “analog divide” separating legislators using mature CTs such as face-to-face meetings and telephone conversations.

### **CT Frequency Of Use (CTFOU) Behaviors**

Variables impacting CTFOU for any particular CT can be grouped into two categories: variables that are *external* to the legislator and variables which are *internal*. External variables consist of those related to accessibility (the digital divide) and those related to the institution (House or Senate). External variables related to accessibility are normalized across all legislators and therefore need not be considered as significant contributors to changes in CTFOU behavior across legislators. In effect, all legislators have access to state provided communication infrastructure such as an office in which to hold face-to-face meetings, a phone over which phone conversations may be held, a state E-mail account and notebook computer to use for official purposes, and so on. Because all legislators receive the same access to CT (provided by the state at no cost to the legislator), changes due to CT access will be minimized, leaving institutional variables to dominate the external category. In summary, it is reasonable to expect that variations in CTFOU behavior precipitated by *external* variables will be dominated by variables associated with the institution and not by variables associated with access to CT. This

concept is reinforced by the knowledge that the Arizona House and Senate share identical technology infrastructures and IT support structures.

Internal variables that impact CTFOU include demographic variables such as age (Carpenter & Buday, 2007; Juznic et al., 2006; A. Morris et al., 2007; Peacock & Künemund, 2007), gender (Akman & Mishra, 2010; M. Hogan, 2006; M. G. Morris et al., 2005; Thayer & Ray, 2006), education (Chen & Persson, 2002; Cutler et al., 2003; Selwyn et al., 2003; Tak & Hong, 2005), political party affiliation (Davis, 1999; Greenberg, 2012; Lassen & Brown, 2011; Mancini, 2000), and even sexual orientation (Wolf, 2012). In addition, CTFOU is impacted by more nuanced variables such as attitudes toward aging (Cody, Dunn, Hoppin, & Wendt, 1999), computer anxiety (J.R. & J., 2012) and self-efficacy (Cody et al., 1999), interest in computers (L, Morrell, Park, Christopher, & Mayhorn, 1999), health (Carpenter & Buday, 2007; Chen & Persson, 2002; Selwyn et al., 2003), and personality (Chen & Persson, 2002), among others.

Although the literature stream on variables impacting IECT usage is dominated by research on non-legislators, significant relationships can be uncovered by examining literature investigating the behaviors of state and federal legislators. Due to the lack of research investigating relationships between legislator demographics and CTFOU, some assumptions must be made. One of these assumptions is that state legislators are influenced by the same internal variables that influence non-legislators and federal legislators. For example, it is assumed that state legislators use of IECTs is influenced by age in the same way that non-legislators use of IECTs is. Discussion and hypothesis development begins with an examination of one of the most dominant variables associated with CTFOU; age.

## *Age*

The impact of age on the use of IECT is well documented, with researchers typically finding that age is negatively correlated with the use of IECTs. Effectively, the older an individual is, the less likely they are to use a computer (Carpenter & Buday, 2007; Cutler et al., 2003; Friedberg, 2001) or, if they own a computer, the older an individual, the less likely they are to use the Internet to communicate (Madden & Savage, 2000; A. Morris et al., 2007; Selwyn et al., 2003). In one example of the impact of age, Greenberg's (2012) investigation into the use of social media by the US Congress found that on average, members of older generations use social media less than younger members. Greenberg found that while this age trend held true across both Facebook™ and Twitter™, the effect of age was stronger with Facebook™.

While the effect of age on the use of IECT is well documented, it is important to question whether there is reason to expect this effect to change because the individuals participating in the study are legislators. Research by Cooper (2004) suggests that there is not. In his article investigating the use of the Internet by state legislators to research public policy, Cooper found a statistically significant (95% CI) negative relationship between legislator age and Internet use that can be interpreted as a one year increase in age results in a 5.2% decrease in the likelihood that a legislator will use the Internet to research policy. Cooper's findings are consistent with research into legislator use of Twitter™ and Facebook™ by Sala (2012) who found "an important inverse relationship between legislator age and the use of new media technologies" (p. 16) and research by Mayo (1998) who found that lawmakers younger than age 40 were more likely to utilize

online services than their older counterparts. Based on these data, hypothesis H<sub>1</sub> is proposed:

***H<sub>1</sub>: An increase in legislator age is correlated with a decrease in IECT usage.***

### ***Gender***

Research into the impact of gender on the use of IECT, while less prolific than research on age, is none-the-less widely available. While research is mixed, the majority suggests that being male results in an increase in the use of IECT, except when Information and CT (ICT) infrastructure is shared among the research population. In effect, when ICT infrastructure is shared, gender ceases to play a role in the use of IECT. Research involving participants who did not share a common ICT infrastructure generally reported gender as a significant differentiator in computer usage (M. Hogan, 2006; Li & Kirkup, 2007; Selwyn et al., 2003; Thayer & Ray, 2006) and Internet access (Fang & Yen, 2006; Hills & Argyle, 2003; Li & Kirkup, 2007), both of which impact IECT usage. Research by Akman et al. (2010), Knight (2005), and Thayer (2006) who examined participants who shared common ICT infrastructure (as company employees, knowledge workers across companies, and university students respectively) found no statistically significant relationship between gender and Internet use.

These findings suggest that gender may cease to be a differentiator in IECT usage in professional life where both men and women have access to the same ICT infrastructure. Importantly, the findings suggesting no relationship between gender and IECT usage among users who share ICT infrastructure are bolstered by Cooper's (2004) state legislator research finding that gender does not significantly predict Internet usage. Cooper hypothesized that his finding may have been due to an equalization of

socioeconomic status in the state legislatures, did not recognize the role that a common ICT infrastructure may have played. Because Arizona legislators share a common ICT infrastructure, hypothesis H<sub>2</sub> is proposed:

***H<sub>2</sub>: Legislator gender is not correlated with IECT usage.***

### ***Education***

The effects of education on computer and Internet usage are both well studied and nuanced, with researchers typically finding that increases in education result in increases in computer usage (Carpenter & Buday, 2007; Cutler et al., 2003; Selwyn et al., 2003) and Internet usage (Chen & Persson, 2002; Juznic et al., 2006; Tak & Hong, 2005).

Among the nuanced effects of education on computer and Internet use is the interaction between income and education. The effects of income on education (and vice-versa) are well known and the causal nature of the relationship is difficult to disaggregate (Gregorio & Lee, 2002; Houthakker, 1959; Tinbergen, 1972). Studies that investigate the relationship between computer and Internet use and education and income suggest that computer and Internet users have both more education and more income than non-users (Graham, 2002; Warschauer, 2004). In one example, Carpenter's (2007) comparison of computer users vs. non-users, Carpenter notes that computer users have a mean (SD) education of 14.4 years (2.2) and a mean income of \$31,443 (\$20,185) while non-users have a mean education of 12.9 years (2.4) and a mean income of \$20,449 (\$15,468). Carpenter makes no attempt to determine the relationships between income and education and their impact on computer users. Based on existing research on the relationship between education and IECT usage, the following relationship H<sub>3</sub> is hypothesized:

***H<sub>3</sub>: An increase in legislator education is correlated with an increase in IECT usage.***



### ***Political Party***

Empirical data suggesting relationships between political party and IECT usage are relatively rare, but anecdotal evidence suggesting that linkages between party identification and IECT usage can be found. While no research was located that examined IECT usage as a function of political party, research was located which discussed the use of some of the specific technologies that comprise IECT usage by political party. For example, empirical research was located that discussed E-mail and social media (Facebook™, YouTube™, and Twitter™) usage by political party. While IECTs are comprised of more than E-mail and social media, the research located is sufficient to form hypotheses related to E-mail and social media use, and by extension, IECT usage. This research is discussed below.

Greenberg (2012) discovered in her analysis of US congressional use of social media (defined as Twitter™, Facebook™ and YouTube™), that Republicans use social media more than Democrats. Supporting Greenberg's research with anecdotal evidence, Lathrop & Ruma (2010) notes that a retreat in Michigan in 2009, Republicans discussed increasing the use of social media and in putting more emphasis in digital outreach. According to Nick Schaper, digital outreach director for Speaker of the House John Boehner; "It was about this time [during the retreat] when it was decided that our digital outreach was going to be a consideration in every major effort that we would undertake" (p. 184). Interestingly, Schaper notes that at the time, Republican tweets outnumbered Democrat tweets on Twitter™ almost 2 to 1.

In 2011, when Greenberg (2012) examined Twitter™ use (From August through October), Democrats were using Twitter™ more frequently than Republicans (63.3% to

70.5%). Additionally, Greenberg found that Republicans used Facebook™ more frequently than Democrats (36.4% to 29.5%). Providing contradictory evidence to Greenberg's research, Peterson (2012) performed a logistic regression on DW-NOMINATE<sup>12</sup> project data and found that Republicans in the 111<sup>th</sup> Congress were 34% more likely to use Twitter™ than their Democrat counterparts. It is important to note that Greenberg used cross-sectional data collected near the end of the 111<sup>th</sup> Congress while Peterson used time-series data from 2009-2011 (the span of the 111<sup>th</sup> Congress), which may explain the contradictory results. Because Greenberg ultimately found that Republicans (overall) used social media more frequently than did Democrats, and because her data were cross-sectional, Peterson's Twitter™ research will be used for hypothesis guidance. Based on the above research, the following two hypotheses, H<sub>4a</sub> and H<sub>4b</sub> are proposed:

***H<sub>4a</sub>: Republicans use Facebook™ more frequently than Democrats***

***H<sub>4b</sub>: Republicans use Twitter™ more frequently than Democrats***

Cooper (2002a) examined E-mail usage by California and Georgia state legislators and provided another link between IECT usage and party affiliation. Cooper performed a regression on the number of times per week a legislator checked email, and the regression results indicated a positive unstandardized coefficient<sup>13</sup> on the dummy variable "Democrat" (0 = Republican) after controlling for gender, leadership roles, age, attitude towards the Internet, and district income. While the relationship was not

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<sup>12</sup> Acronym stands for Nominal Three-Step Estimation and is a multidimensional scaling method developed by Poole and Rosenthal (Poole & Rosenthal, 2000) to examine legislator roll-call behavior

<sup>13</sup> All regressions in this study produce unstandardized coefficients.

statistically significant, a positive relationship was noted between CTFOU of E-mail and a legislator identifying as a Democrat.

In a second example, Sheffer (2003) investigated how state legislators communicate by E-mail with their constituents and found that Illinois Democrats responded to E-mail in a more timely manner, found E-mail to be more effective, and viewed E-mail more favorably as a political tool, than did their Republican counterparts. While Sheffer did not report the CTFOU of E-mail, based on her results, it is reasonable to expect that Democrats would use E-mail more frequently than Republicans. In a final example, research by Richardson (2001) asked Tennessee state legislators how many service request E-mails they receive in a week. Richardson performed difference of means testing (Independent samples t test) on party affiliation and number of E-Mails and found a relationship between party affiliation and number of service request E-mails. Unfortunately, Richardson fails to discuss the results and does not elaborate sufficiently on variable coding to determine whether the coefficient sign indicates Democrat or Republican. In effect, all that can be said from Richardson's research is that there is a relationship between party affiliation and E-mail CTFOU. Based on the reviewed research, Hypothesis H<sub>5</sub> is identified:

***H<sub>5</sub>: Democrats use E-mail with more frequency than do Republicans***

### ***Institution***

As with the research on IECT behavior by political party, research that focuses on investigating IECT behavior by institution is relatively rare although research that contains references to IECT behavior by institution can be found. Greenberg's (2012) research into congressional use of social media produced evidence that House members

posted fewer posts per day to Facebook™ and fewer tweets to Twitter™. House members posted an average of .61 posts per day per member as compared to the Senate's .68 posts per day per member. House members also tweeted less than Senate members, producing an average of 1.18 tweets per day per member. Alperin (2003), who investigated the CTs used by Wisconsin and Minnesota state legislators found that the per-capita E-mail communications by House members were approximately double that of their counterparts in the Senate. Based on research by Greenberg and Alperin, the following relationships are hypothesized:

*H<sub>6a</sub>: House members use Facebook™ less frequently than Senate Members*

*H<sub>6b</sub>: House members use Twitter™ less frequently than Senate Members*

*H<sub>6c</sub>: House members use E-mail more frequently than Senate Members*

### **Communication Technology Associated (CTA) Behaviors**

The purpose of this section is to offer a number of examples of legislator CTA behavior based on existing research. Existing research into legislator CTA behaviors is relatively sparse, however, just as with CTFOU research, knowledge can be gained by examining CTA research on both legislators and non-legislators. This section begins with a non-legislator literature example and concludes with examples that focus on the interactions between CT and the process of democracy itself, both at the state and federal level.

Research by Garrett (2009b) suggests that Internet users actively engage in politically motivated selective exposure behavior<sup>14</sup>, seeking reinforcement for existing

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<sup>14</sup> Selective exposure can be defined as seeking exposure to information that confirms existing beliefs.

political ideological beliefs. Importantly, Garrett decouples reinforcement seeking and challenge avoidance<sup>15</sup> behaviors, showing that Americans (n=1,510) engage in selective exposure behavior *without* actively disengaging from contact with other conflicting opinions. Garrett indicates that challenge avoidance is more harmful to the political process than reinforcement seeking:

Exposure to political difference is a defining element of effective deliberation and has a significant influence on an individuals' ability to accept disagreement and seek political solutions (p. 677).

Based on Garrett's research, it is reasonable to expect that legislators may also engage in a form of political ideological selective exposure without engaging in challenge avoidance behaviors. If indeed legislators participate in challenge avoidance behaviors, Garrett's research would predict increases in political disagreements and fewer bipartisan agreements among legislators. Put another way, challenge avoidance behavior can be reasonably expected to result in increased ideological polarization among legislators. Reinforcing Garret's research, Stroud (2008) uses the 2004 National Annenberg Election Survey dataset to argue that political topics are more likely to result in selective exposure behavior than other non-political topics.

### **Constitutional, Procedural, and Legal Regulations of Legislator Use of CT**

A second, and broadly scoped CTA topic of interest is the interactions between CT and the process of democracy itself. Phrased as one of many possible questions: How might legislators be using CTs to circumvent constitutional, procedural and legal regulations designed to control their behavior? This section discusses the CT controls

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<sup>15</sup> Challenge avoidance can be defined as intentionally disengaging from information that conflicts existing beliefs.

exerted on Arizona legislators by both the Arizona Constitution and the Institutional Rules and Procedures of the Arizona House and Senate, which may be expected to precipitate legislator CTA behaviors.

One might wonder why Arizona laws are not included in this discussion. Importantly, and perhaps unsurprisingly, a text search of the Arizona Revised Statutes (ARS) for laws implemented by Arizona legislators to control Arizona legislator use of CT yielded no results. So, while Arizona Law cannot be examined in more detail, examples of laws that may impact Arizona state legislator CTA behavior exist at the federal level. For example, federal Freedom of Information Act (FOIA) laws that control the distribution of public documents may reasonably be expected to impact legislator CTA behavior; if a legislator knows that a communication they have sent or received may be subject to public examination, it is reasonable to expect they may alter their behavior to prevent some communications from being exposed to the public.

Because laws and constitutions are often related, to avoid conflation between these two subjects, Lessig (2006) defines a constitution as “an architecture – not just a legal text, but a way of life – that structures and constrains social and legal power, to the end of protecting fundamental powers” (p. 4). In this context the concept of law is a subset of the concept of constitution. This section will use this definition moving forward. Although only the Arizona Constitution is examined in this section, the notion of constitutional controls on CTs that drive legislator CTA behavior applies equally to the interactions between other state constitutions and their respective legislators and Congress and the Federal Constitution.

*Arizona Constitution and Control of CT*

The Arizona Constitution both in its original and most recent forms applies controls only to face-to-face meetings, effectively implicitly abdicating control of legislator use of other CTs to the Institutional Rules and Procedures of the Arizona House and Senate. As an example of a face-to-face meeting control instituted in the Arizona Constitution, part 2 section 9 requires that a majority of the legislators meet face-to-face to form a quorum to do business. At the federal level, open meeting laws might be considered another form of face-to-face meeting controls exerted on legislators that may impact legislator CTA behaviors.

Of the CTs examined in this study, only face-to-face communications and the telephone existed at the time of the initial drafting of the Arizona Constitution in 1910. In effect, drafters of the Arizona Constitution did not predict the impact of any CT on legislator behavior other than face-to-face communications. The only mention of CT other than face-to-face meetings that occur in the 1910 Arizona Constitution is contained in section 10, here communications via telephone and telegraph for the purposes of sending messages are declared common carriers and subject to control by law. In the most recent draft of the Arizona Constitution, Section 10 remains unchanged and two other references to telephone and telegraph have been added, neither which address the use of these two CTs either by legislators or by citizens.

*Institutional Rules and Procedures of the Arizona House and Senate and Control of CT*

The institutional rules for the Arizona House and Senate, as with the Arizona Constitution, apply formal limitations only to face-to-face meetings. A text search of the 51<sup>st</sup> legislature House and Senate rules did not produce a single mention of any CT other than face-to-face meetings. Although there are many possibilities for legislators to

circumvent face-to-face meeting requirements using other CTs, one example will prove the possibility. Rule 14 § E of the Arizona House Rules and Procedures document for the 51<sup>st</sup> legislature requires that all members must remain in their seats from the start of the roll call until the final vote is tallied and reported. One of the reasons for this rule is to eliminate unrecorded dialog and coercion among legislators during the final vote on any legislation. It would be reasonable to expect that legislators may use other technologies such as E-Mail from a laptop computer or cellphone and text messages to communicate with each other during the third reading and final vote on a bill, effectively using CT to bypass the restrictions in Rule 14 section E. There are many such examples that can be extracted from the Arizona House and Senate Rules.

This section can be summarized succinctly. Neither the Arizona Constitution, nor the procedural rules of the Arizona House and Senate, nor any Arizona law limit a legislator's use of CT, other than face-to-face meetings, while executing their duties as legislators. In effect, Arizona legislators are free to use all CTs other than face-to-face meetings freely to perform their legislative duties, even if the intent of the Arizona Constitution and the Arizona House and Senate rules is to limit such communications. With this in mind, it is reasonable to expect that Arizona legislators may exhibit “creative” CTA behaviors when it comes to the execution of their duties.

### **Communication Technology Importance and Naturalness Theory**

This section examines naturalness theory as a driver for the importance legislators assign to a CT. For this section, importance is defined WRT the phase one survey, overall importance of a CT to a legislator for fulfilling their duties as a legislator. The logic of the answer provided in this section can be summarized as follows: Legislators are



motivated to communicate with constituents by their need for reelection. Legislators are time constrained, and will rate CTs that deliver unambiguous information in the shortest time possible as most important. Media naturalness theory suggests that the more face-to-face like a CT is, the more physiologically satisfying it is, the less ambiguous it is, and the more information it can transmit over a given period of time. Given the benefits of natural communications, legislators can be expected to rate more natural CTs as more important than less natural CTs.

When examining why specific CTs are important to legislators, it is helpful to understand why legislators are motivated to communicate with their constituents and peers. In other words, what underlying motivations drive a legislator to place any importance on communicating with constituents or peers?

Fenno (1973), who interviewed over 200 U.S. representatives, concluded that legislator motivation could be broken into three categories focusing on the following goals: reelection, political influence, and good public policy. Legislators concentrating primarily on good public policy are viewed as displaying altruistic tendencies while legislators who focus on reelection are typically viewed as self-interested. In literature focusing on legislator behavior, legislator motivations are frequently bifurcated into two categories: 1) altruistic (Goodin, 1983; Jewell & Patterson, 1966) and 2), self-interested. Self-interested legislator behaviors are sometimes expressed as a legislator's ambition (Dietrich, Lasley, Mondak, Rempel, & Turner, 2012; Jewell & Patterson, 1966; Oleszek, 2011), a drive for reelection (Herrick, Moore, & Hibbing, 1994; Jewell, 1982; Mayhew, 1974; Mezey, 2008; Oleszek, 2011), or a quest for power (Cooper, 2002b; Oleszek, 2011;

Patterson, 2000; Schneider & Ingram, 1997). In effect, there are many ways for legislators to exhibit both altruistic and self-interested behaviors.

Importantly, few, if any, researchers suggest that legislators are either completely self-interested or fully altruistic in nature. Many note that legislators are likely to display behaviors that are both self-interested and altruistic (Arnold, 1992; Kalt & Zupan, 1990; Olson, 1971; Schneider & Ingram, 1997). Schneider & Ingram express this relationship well:

Scholars who focus on the *processes* through which human action occurs find that people are multifaceted and do not follow any single rule of behavior, such as self-interest. Instead, they are intentional, purposeful, spontaneous, intuitive, self-reflective, creative, aesthetic, emotional, spiritual, self-interested, and altruistic, among other characteristics. (p. 69)

Mayhew (1974), noting the tension between altruism and self-interest, argues that self-interested legislators place good public policy second to reelection. Olson (1971) expresses a common attitude towards the altruistic tendencies of legislators in the literature by noting; “Such altruism, is, however, considered exceptional, and self-interested behavior is usually thought to be the rule...” (p. 1). Olson takes a position lamented by Schneider and Ingram (1997) when they note; “Self-interest has been elevated to a normative standard, thereby undermining conceptions of public interest, altruism, or even long-term self interest...”(p. 26).

For legislators, motivation to be reelected is a form of legislator self-interest that aligns closely with rational actor theory, the essence of which espouses that actors (in this case, legislators) will pursue goals that reflect the actor’s perceived self-interest, and if

given the option, will choose the alternative with the highest expected utility (or value)<sup>16</sup>. Assuming legislators wish to continue to do their job, whether their focus is good policy or reelection, reelection is mandatory. Douglas North (1990), an economist whose seminal work *Institutions, Institutional Change and Economic Performance* often challenged rational actor theory, illustrated the limitations of the rational actor paradigm when he noted; “There is nothing the matter with the rational actor paradigm that could not be cured by a healthy [social scientist] awareness of the complexity of human motivation...” (p. 111). In other words, human behavior is too complex to be explained exclusively by rational actor theory.

It is extremely simplistic to suggest that one can fully understand what motivates legislators to communicate with constituents and their peers, so this study follows the lead of Mayhew (2004) and other prominent scholars (Arnold, 1992; Campbell, 2003; Krehbiel, 1992; Schneider & Ingram, 1997), and assumes that legislators are “single-minded seekers of reelection.” (Mayhew, p. 5). In effect, it is reasonable to expect that legislators communicate with constituents and other legislators because they want to be reelected, regardless of whether their motivations for being reelected are altruistic or self-interested in nature. Jewell (1982), captures the essence of this concept when he notes:

Consequently, the hardworking congressman who takes advantage of opportunities to communicate with constituents and answers their requests as promptly and fully as possible is likely to get reelected even when the party balance in the district or national political tides are unfavorable. (p. 48)

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<sup>16</sup> There are many other assumptions under the rational actor model, but they need not be outlined here.

Confirming links between legislator motivation and constituent communication, significant research at the congressional level suggests that members who are not seeking reelection communicate with constituents less than those who are running for reelection (Carey, 1994; Herrick et al., 1994; Lott, 1990; Zupan, 1990). In effect, these studies strongly suggest that legislators are motivated to communicate with constituents because they wish to be reelected, regardless of whether their purposes for reelection are altruistic or self-interested.

While the previous section might explain why legislators might find communication with constituents important, it does little to explain the *relative* importance of various CTs. For this explanation, a discussion of media richness and media naturalness theories will be useful. In effect, media richness and media naturalness theory can be used as a theoretical lens to derive the relative importance that legislators may assign to a range of CTs.

Media richness and media naturalness theory provide a link that enables one to predict how a particular CT or range of technologies may impact human behavior. While there are many human behaviors related to CT that can be investigated, this section focuses on using media richness and naturalness theory to develop a hypothesis regarding the relative importance that legislators can be expected to assign to a range of CTs. This hypothesis will be tested using data from phase one of the dissertation research. Both media richness theory and media naturalness theory require a brief investigation of social presence.

Social presence is an important concept in media richness theory. According to Short (1976), various CTs differ in their ability to communicate both quantity and type of

information in a fixed timeframe. Short suggested that higher bandwidth CTs were associated with increased social presence while lower bandwidth media types were associated with lower social presence. According to Burke (Burke & Chidambaram, 1999) bandwidth is defined as the “range of [verbal and non-verbal] cues transmitted by the [communication] medium; a higher bandwidth medium transmits more types of cues than one with less bandwidth” (p. 559). Social presence is defined as “the ability of learners to project themselves socially and affectively into a community of inquiry” (Rourke, Anderson, Garrison, & Archer, 1999, p. 1) or, put another way, the extent a learner feels the presence of an individual with whom they are interacting. According to Rourke et al., social presence as a concept has its roots in Wiener & Mehrabian’s (1968) concept of *immediacy*, defined as “those communication behaviors that enhance closeness to and nonverbal interaction with another” (Wiener & Mehrabian, 1968, p. 203).

The essence of media richness theory is that different CTs vary in “richness”, which is defined by Daft & Lengel (1986) as “...the ability of information to change understanding within a time interval” (p. 560). Daft & Lengel go on to state that CTs that require a long time on the reader’s part to understand are less rich while CTs that convey information quickly are more rich. Time is an important factor both in media richness theory, and in determining why a particular CT may be more or less important to a legislator. Why might time be important to legislators?

In *Information Sources in State Legislative Decision Making*, Mooney (1991) references work by March & Simon (1958) and Huber (1989) to justify the importance of time in legislative decision making. Referencing legislative bounded rationality, Mooney

suggests that because legislators have severe limitations on their time, they will search for the information they need to make a decision from the most readily available source. Like Mooney, Arnold (1992) lists a legislator's time (and that of their staff) as: "two of their scarcest resources" (pp. 36-37). Mooney goes on to suggest that once legislators obtain the information they need, they will stop searching. In Simon's terminology, legislators who acted thusly would be "satisficing" (1957, p. 119).

Associated with the shortage of time as a motivating factor for legislative information selection, Bradley (1980) in his research *Motivations in Legislative Information Use* found that legislators are "strongly motivated" (p. 399) to use information sources that are both accessible and convenient. According to Bradley, in the legislators polled (n=36), the most important aspect of information is accessibility (72%) while convenience and understandability were tied as the second most important attributes of information. The link between legislators having limited time and the importance of accessibility and convenience of information is clear – logic would dictate that accessible, convenient information *should* be important for legislators who have limited time to address all of the tasks they face.

To summarize the hypothesis thus far: First, media richness theory suggests that the richer the media, the more information it can transmit over a fixed period of time. Second, legislators are time-constrained and value (read: find more important) information that is clear, concise, and can be gathered quickly. Third, and derived from the two previous relationships; legislators can be expected to find richer CT more important than leaner CT. To understand the mechanisms that make one media richer than another, a discussion of the concept of social presence is necessary.




Burke (1999) outlines media richness theory which suggests that CT with inherently limited cue-carrying capacity will be less effective on ambiguous tasks than on simpler, pre-defined tasks (p. 560). Media richness theory suggests that ambiguous information requires more bandwidth to be understood while simpler information requires less bandwidth. The richer the media, the more social presence that is communicated, and the higher the bandwidth of the CT needed to communicate the information. It is important to note that empirical attempts to test the media richness hypothesis have resulted in mixed results, with some studies finding support for the theory and others finding little or no support (Kock, 2005).

Taking a different theoretical approach that suggests a relationship between CT and human behavior, Kock (2005), hypothesizes that the “naturalness” of CT may directly impact human behavior. Kock defines naturalness as “degree of similarity to the face-to-face medium” (p. 117) and suggests that the less natural a communication media is, the more effort humans must expend to understand the information that is being communicated. Specifically, Kock suggests that less natural communications increase cognitive effort, increase communication ambiguity, and decrease physiological arousal, “each of which may or may not lead to certain types of behavior or task outcomes” (p. 125). To test his theory, Kock (2007) performed an experiment on 230 university students that compared the cognitive effort of face-to-face communications with a Web-based quasi-synchronous electronic medium similar to an interactive blog. Kock found that the web interface increased cognitive effort by 12%, communication ambiguity by 19%, and caused an increase in receiver effort by 19% over face-to-face communications.

Putting Kock's naturalness theory in terms of legislative behavior and CT: the less face-to-face like a CT is, the more cognitive effort a legislator must expend, the less physiologically aroused the legislator may be, and the more ambiguity there may be in the communication. If legislators are as time-constrained as many researchers suggest (Ellis, 2010; Harden, 2011; Kingdon, 1989; Oleszek, 2011), then CT which requires more cognitive effort, is less physiologically arousing, and is more ambiguous, can be reasonably expected to decrease the importance of that CT. If this is the case, then the more face-to-face like a CT is, the greater the importance that technology should be to a legislator. The question then becomes, how might CTs be categorized by their "naturalness"? Recent literature drawing on media richness theory offers an answer to this question.

Mergel (2012), investigating social media adoption at the US federal level, builds on media richness theory to define a connection between the richness of interaction for various CT. Mergel notes some of the advantages and disadvantages associated with various CTs in use by public sector entities and uses the term "informal interactions" to describe how rich or face-to-face like certain CTs are. Mergel's ranking of the richness of various CTs provides a convenient platform upon which the importance (from a legislator perspective) these CTs may be. Mergel's Figure 4.5 (p. 69) is synthesized into Table 2.1 below.



Communication Media	Richness	Advantages	Disadvantages
Formal Report	Low	Provides Records, Premeditated, Easily disseminated	Impersonal, One-way, Time lag in feedback
Memos, Letters			
E-mail, IM, Web			
Phone, VOIP			
Social Media			
Face-to-Face	High	Personal, Two-way, Reflexive feedback cycles	No record, Spontaneous, dissemination difficult

**Table 2.1.** Communication Media Richness of Interaction, adapted from Mergel (2012)

By ranking various CT used by legislators by their naturalness, their relative importance<sup>17</sup> can be hypothesized. Drawing on Kock's (2005) naturalness theory which includes a discussion of the importance of synchronicity. Kock argues that humans are evolutionarily wired to communicate in a synchronous (full duplex) manner, and prefer to be co-located to receive visual and audio cues from each other. Table 2.2 lists the naturalness and the hypothesized importance of the CTs investigated in phase one of the research.

It is important to note that in order to generate the hypothetical relative importance shown in Table 2.2, each CT has been sorted three times, first by duplex (is the communication real-time bidirectional) and then by the availability of visual and audio cues, and finally by media bandwidth. The final sort by media bandwidth is a

<sup>17</sup> It is important to note that importance towards what purpose is not defined, but rather, is inferred to be overall importance based on the survey instrument. If importance must be defined, then importance for reelection is the best single choice (Mayhew, 1974)

recognition of the value of media richness theory which proposes that richer media consume a larger electronic bandwidth (Burke & Chidambaram, 1999). For example, the size of a digital video is significantly larger than the size of a digital photograph. It is important to note that E-Mail is assumed to be used primarily without attachments that contain visual or audio cues, and that blogs, webpages, and Twitter™ while they can be half duplex, are primarily unidirectional in nature. The results of Table 2.2 lead to the final hypothesis:

***H<sub>7</sub>: The overall importance of a CT to a legislator, in completing their duties as a legislator is positively correlated with the naturalness of that CT such that more natural CTs will be ranked with higher importance.***

<u>Hypothesized Importance</u>	<u>CT</u>	<u>Naturalness</u>
1	Face-to-Face Communications	Full duplex <sup>18</sup> , verbal and visual cues available
2	Phone Conversations	Full duplex, real-time verbal cues
3	Facebook™	Half duplex <sup>19</sup> , visual and auditory cues possible
4	Non-electronic Written Communications	Half duplex, can be personal in nature. Cues available from handwriting
5	E-mail	Half duplex, emoticons available to cue meaning
6	Blogs	Typically unidirectional, but comments typically encouraged
7	Webpages	Typically unidirectional
8	Twitter™	Typically unidirectional

**Table 2.2.** Importance of CTs Used By Legislators

In the previous section, the expected *relative* importance of CT to legislators was derived from media richness and media naturalness theory. While no research could be found which directly measures the relative importance legislators assign to various CTs, indicators of the overall importance of various CTs can be found. For example, Ferber et al. (2005) surveyed Arizona legislators and found that members “overwhelmingly prefer face-to-face communication” (p. 149) to computer-mediated CTs when performing their duties as legislators. Although Ferber et al. measured overall popularity of CTs and not

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<sup>18</sup> Full duplex communications allow for communication from multiple participants at the same time. Full duplex communication can be thought of as parallel communication. Multiple participants can be communicating at the same time.

<sup>19</sup> Half duplex communications allow for communication from multiple participants one at a time. Half duplex can be thought of as serial communications – one participant communicates and once that communication has been completed, the next participant communicates.

overall importance, the two concepts are likely to be linked. Ferber's findings, when compared with the hypothesized importance of CT in Table 2.2, suggest a link between the importance of a CT as predicted by media naturalness theory and the popularity of communication media to legislators. Ferber et al. noted that legislators viewed face-to-face interactions as most popular (31.7%). Telephones were second most popular (23.1%), followed by E-mail (19.2%) and regular mail (18.4%). These findings correlate exactly with Table 2.2.

Interestingly, research by Burke & Chidambaram (1999) uncovered evidence that groups *initially* found the face-to-face medium to be more effective compared to Web-based synchronous and asynchronous communications, this effectiveness differential disappeared the longer the teams communicated. This suggests that, over time, and with the experience gained from group interactions, other CTs may be seen to be as effective at transmitting information as face-to-face communications.

Like Ferber et al., other researchers who note a human preference for face-to-face communications over other forms of communication, indicate that a preference for one CT over another depends on many factors. These factors include time constraints (Caballer, Gracia, & Peiró, 2005; Daft & Lengel, 1986), symbolic needs<sup>20</sup> (Denhardt, Denhardt, & Aristigueta, 2008; Trevino, Lengel, & Daft, 1987), and of course, the availability of the media itself for use.

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<sup>20</sup> For instance, the symbolic value of a face-to-face meeting to convey bad news might make it a preferred communication channel over a channel with less symbolic value such as e-mail.

## CHAPTER 3

### METHODS AND PROCEDURES

Chapter 3 begins with a discussion of the research design utilized in this dissertation research. The research design overview is followed by detailed discussions of the research population and sample, instrumentation, data analysis techniques, and concludes with a discussion of the limitations of the methods utilized in this study. Discussions of the procedures utilized are distributed throughout this chapter as appropriate.

Special attention has been paid to the discussion of the various populations involved as participants in this research: legislators, legislator assistants, and IT department staff. This focus occurs for a number of reasons: First, the relationship between Arizona state legislators and their legislator assistants is much different than the relationship between congressional legislators and their staffers, with which many readers of this study may be most familiar. Second, because the institutional environment facing legislators varies significantly from state to state; professional vs. citizen legislator, length of sessions, salary, chamber rules, etc., it is necessary to note these environmental variables as an aid to understanding the research setting. Third, because legislators and their corresponding legislator assistants were both interviewed in six of nine cases, it is useful to understand how legislator assistants may impact legislators' use of CTs.

In effect, legislator assistants are career state employees who are assigned to legislators. While there is some flexibility in these assignments, most legislators work with an assigned legislator assistant not of their choice. While according to legislators interviewed, there is more flexibility in the Senate than in the house, the traditional

concept of legislators bringing in their own legislator assistants does not hold in Arizona, and results in some friction between some legislators and their legislator assistants. A full description of the research population follows the research design discussion.

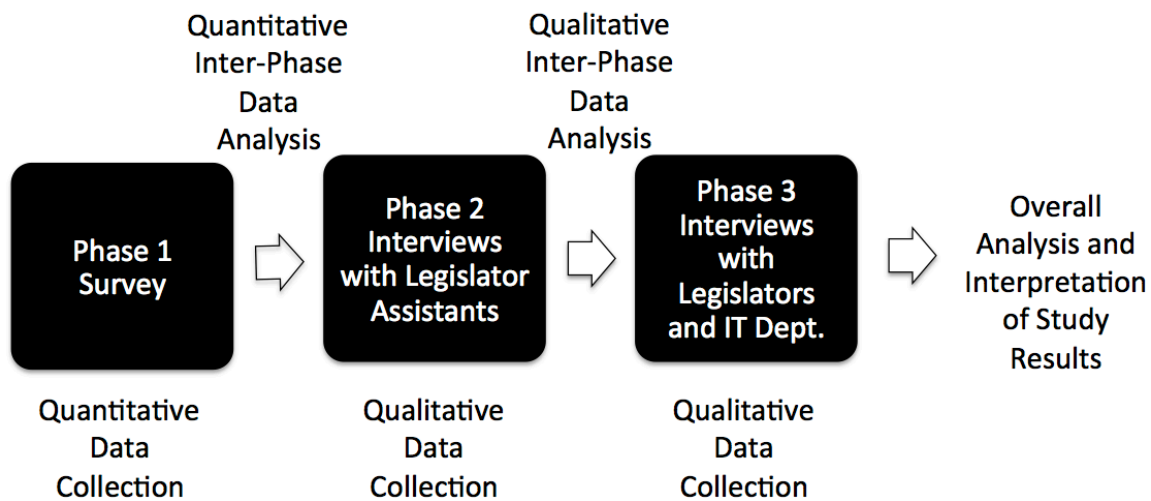
### **Research Design**

Dominating the choice of a research design for this study was the exploratory nature of the subject under study. Exploratory studies are traditionally used for three primary purposes, each of which is important for this study: 1) to satisfy a researcher's need to understand a phenomena (Babbie, 2010; Lawrence, 2011; Sue & Ritter, 2011), 2) to test the waters for a more extensive study (Babbie, 2010; Lawrence, 2011), and to develop the methods that can be used in subsequent studies (Babbie, 2010; Lawrence, 2011). Babbie and others note that exploratory studies are particularly appropriate for research that investigates previously unexplored topics (Babbie, 2010; Patton, 1990). After careful review of many research designs, a three phase, quantitative first, sequential exploratory mixed methods design was deemed optimal and selected.

As noted by Creswell & Clark (2007) exploratory mixed methods research is particularly useful when there are insufficient theoretical constructs with which to guide a study, when instruments and measures are unavailable to the researcher, and when a researcher wishes to develop an emergent theory. Each of these aspects reflects the conditions surrounding the research in this study at the time it was developed and conducted. One of the benefits of a sequential exploratory mixed methods approach is that it allows a dynamic reconfiguration of the study focus based on participant responses, effectively allowing the study to refocus on unanticipated or important results.

## Data Collection Strategy

Figure 3.1 outlines the mixed method strategy used in this study. It should be noted that Figure 3.1 utilizes the mixed method notation outlined by Creswell (2009, p. 209) as adapted from Morse (1991), Tashakkori and Teddlie (2002), and Creswell and Plano Clark (2007).



**Figure 3.1.** Three Phase Sequential Exploratory Design

Figure 3.1 highlights the sequential steps of the study. The study begins with the phase one survey. Between phase one and two, there is a quantitative inter-phase data analysis used to adapt and focus the phase two interviews with legislator assistants. Following the phase two interviews, there is qualitative inter-phase data analysis used to adapt and focus the phase three interviews. An overall analysis and interpretation of study results was completed after the phase three interviews.

In total, four instruments were utilized in this research: 1) phase one survey, 2) phase two interview protocol for legislator assistants, 3) phase three interview protocol for legislators, and 4) phase three interview protocol for IT department staff. Each of these instruments is listed in Appendix B: Instruments. The interviews with legislators

and staff were combined into phase three since IT staff interviews were focused on a different set of research questions than were legislative assistants and legislators and were the very last interviews completed. IT staff interviews could have been delineated to an artificial phase four, but since the legislator interviews were not informing the IT staff interviews, such delineation would have made little sense. A detailed discussion of each phase, including a description of all instruments, follows.

### ***Phase One***

During phase one of the research, 57 Arizona House and Senate members were surveyed via a mixed-mode (Internet and mail) survey. The survey explored the CTFOU and importance of various CTs in use by Arizona legislators. The phase one survey consisted of eleven questions that collected legislator demographic information and information on the CTFOU and importance of various CTs. Legislator demographic information was captured via six survey questions. The questions covered chamber, political party, total years in office, highest level of education completed, gender, and age category (in five year increments).

Two survey questions asked legislators to rate the CTFOU and importance<sup>21</sup> of: face-to-face meetings, telephone, E-Mail, Twitter™, Facebook™, Web pages, and Blogs when used to communicate with their constituents. Two survey questions asked legislators to rate the CTFOU and importance<sup>22</sup> of: face-to-face meetings, telephone, E-Mail, Twitter™, Facebook™, Web pages, and Blogs when used to communicate with

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<sup>21</sup> Importance with respect to communicating with constituents when performing their legislative duties, as outlined in Chapter 2.

<sup>22</sup> Importance with respect to communicating with their peers when performing their legislative duties, as outlined in Chapter 2.



their peers. The final survey question asked legislators to indicate how frequently they used certain communication hardware technologies including: desktop computers, laptop computers, net-book or other sub-laptop sized computers, tablet devices, smart phones, basic cell phones, smart watches or computerized wrist devices, and pocket digital media players.

By examining the CT used by Arizona legislators, important knowledge can be gained regarding the influences that gender, education, years of legislator experience, technology usage, and institution play in shaping how legislators use CT. Understanding the impact demographic and institutional variables have on legislators CT behavior is an important first step in understanding how CT influences legislators' political behavior and ultimately guided the direction of the second and third phase qualitative research. The survey instrument used is documented in Appendix B, Instruments.

Quantitative research was chosen for the first phase because reliable data on the use of specific CTs state legislators generally, and by Arizona's fifty-first legislature specifically, are not available from secondary sources. In addition to a lack of information on CTs in use by state legislators, no existing research was uncovered that highlighted the importance that state legislators generally, and members of Arizona's fifty-first legislature specifically, place on various CTs. While the second and third phase interview protocols did not contain questions regarding any specific CT, the information obtained during the first phase helped guide the interview protocol by highlighting the range of CTs commonly used and the importance legislators associate with those CTs. This knowledge shaped the interactions with the interviewees during the second and third phases.

### *Phase One Research Questions*

**RQ1:** What CTs do legislators in the Arizona House and Senate use to communicate with their peers and constituents, and with what frequency do they use these CTs? What importance do legislators attach to these CTs?

**RQ2:** How does legislator frequency of use and perception of importance of the CTs identified in RQ1 vary as a function of political party, institution (House or Senate), age, gender, years in office, education, and technology usage.

### *Phase One Instrument*

The phase one instrument was reviewed and approved by the Arizona State University Institutional Review Board (IRB) on March 15, 2013 under IRB protocol 1303008903. The Qualtrics survey website (<http://www.qualtrics.com>) was used to develop the survey and administer the Internet survey. United States Post Office (USPS) was used to administer the mail survey. Upon receipt, all mail surveys were entered by hand into the Qualtrics website by the researcher. Hand entered mail surveys contained two additional variables indicating survey mode and level of personalization<sup>23</sup>. Qualtrics was also used to output the survey data into SPSS format, which was subsequently converted to Stata<sup>TM</sup> format using the Stata<sup>TM</sup> data translation tool StatTransfer<sup>TM</sup> 11. Phase one research questions were converted into variables and then used to design the survey. In addition, informal meetings were held with House and Senate workers to determine the possible range of CTs in use in both chambers. In a nod to the adequacy of these meetings in producing an a viable list of CTs for legislators to choose from in the

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<sup>23</sup> A personalization experiment was performed as a part of this study but too few responses were received to warrant substantial discussion herein, given that no research questions were related to the experiment.

survey (content validity), the only CT added by two legislators to the survey in the form of “Other Technology” was text messaging. The addition of text messaging by two legislators was significant in that it enabled research questions focusing on text messaging during phase three interviews, which uncovered a significant use of this CT; legislators are communicating with lobbyists real-time during floor debates with text messaging. The CTs listed in the survey included face-to-face meetings, telephone communications, non-electronic written communications (letters, memos, etc.), E-mail, Twitter™, Facebook™, Web pages, and Blogs. All demographic variables chosen were derived either from research interest or from the literature review; which revealed the demographic variables important in determining CTFOU.

The phase one survey instrument consists of an introductory cover letter briefly outlining the study and obtaining participant consent followed by eleven questions. The study introduction is followed by three demographic questions, each designed to create comfort in the respondent by being easy to read and comprehend, easy to answer, and relevant to the research as outlined in the cover letter. Dillman (2009) notes that the first question in a survey is the most important question as it is likely to determine if respondents will actually complete the survey. Difficult or obtuse questions increase the likelihood that a respondent will not complete the survey, and should be avoided, especially in the early questions. The first three demographic questions are followed by four questions that form the dependent variables being studied in phase one: questions four and five ask about the CTFOU and importance of CTs used to communicate with other legislators, and questions six and seven ask the CTFOU and importance of CTs used to communicate with constituents. Question eight measures the CTFOU of various

CT hardware platforms and the final four questions are demographic in nature. Table 3.1, survey variables and coding, ties each question in the instrument to the phase one research questions, defines the variable type, and identifies how variables were coded.

Question	Variable	Variable Type	Coding
1	Chamber	Independent/Nominal	1=House, 2=Senate, 33=Prefer not to answer
2	Party Affiliation	Independent/Nominal	1=Green, 2=Democrat, 3=Independent, 4=Republican, 5=Libertarian, 33=Prefer not to answer, 66=Other
3	Years in Office	Independent/Ratio	Real Number, 33=prefer not to answer
4	Legislator CT Frequency	Dependent/Ordinal	8 technologies <sup>24</sup> + Other category all coded: 0=Do not use, 1=Use Annually, 2=Use Monthly, 3=Use Weekly, 4=Use Daily, 5=Use Hourly
5	Legislator CT Importance	Dependent/Ordinal	8 technologies (see footnote 23) + Other category all coded: 0= Do not use, 1=Not Important, 2=Slightly Important, 3=Moderately Important, 4=Important, 5=Very Important
6	Constituent CT Frequency	Dependent/Ordinal	8 technologies (see footnote 23) + Other category all coded: 0=Do not use, 1=Use Annually, 2=Use Monthly, 3=Use Weekly, 4=Use Daily, 5=Use Hourly
7	Constituent CT	Dependent/Ordinal	8 technologies (see

<sup>24</sup> The eight technologies are: face-to-face meetings, telephone communications, non-electronic written communications (letters, memos, etc.), E-mail, Twitter™, Facebook™, Web pages, and Blogs. Each technology had a different variable name but used the same codes for use and importance. In other words, email, if marked Use Weekly by the legislator on the survey, was coded 3. Twitter™ if marked Use Weekly by the legislator was also coded 3.

	Importance		footnote 23) + Other category all coded: 0= Do not use, 1=Not Important, 2=Slightly Important, 3=Moderately Important, 4=Important, 5=Very Important
8	Hardware Technology Usage Frequency	Independent/Ordinal	8 technologies + Other category all coded: 0=Do not use, 1=Use Annually, 2=Use Monthly, 3=Use Weekly, 4=Use Daily, 5=Use Hourly
9	Education	Independent/Ratio	10=Less than High School, 12=High School, 14=Associates Degree, 16=Bachelors Degree, 18=Masters Degree, 23 = Doctorate, 33=Prefer not to answer
10	Gender	Independent/Nominal	0=Female, 1=Male, 33=Prefer not to answer
11	Age	Independent/Ratio	Real Number = mean of age category chosen.
Researcher	Mail	Binary	0=Internet, 1=Mail

**Table 3.1.** Survey Variables and Coding

Due to the exploratory nature of this study, no existing survey instruments with established validity and reliability could be located, so a new survey instrument was created. Lawrence (2011) notes that there are three types of reliability in quantitative research: measurement reliability, stability reliability, and representative reliability. Measurement reliability refers to the ability of a measurement indicator to stay constant as a function of the measurement process or measurement instrument. Stability reliability refers to the ability of a measure to provide consistent responses over time. Representative reliability refers to a measure’s ability to deliver the same result when applied to various subpopulations. All three forms of reliability are addressed fairly

succinctly due to the nature of the survey constructs. Of the eleven survey questions, six are demographic questions that can reasonably be expected to deliver high measurement, stability, and representative reliability in the population surveyed (legislators). For example, a demographic question such as age or political party can be reasonably expected to deliver consistent results independent of measurement process and instrument (measurement reliability). The same holds true for stability reliability and representative reliability. Simply put, demographic constructs can be expected to have clear, explicit, and specific meanings to legislators, which should lead to high reliability in all its forms.

Similarly, three survey questions (4, 6, and 8), ask legislators how frequently they use specific CTs (4, 6) and how frequently they use specific technology hardware (8). The CTs listed are common and unambiguous, and the CTFOU choices such as “do not use”, “use annually”, and “use monthly”, etc. are easily understood. Much like the demographic constructs, these frequency questions have clear, explicit, and specific meanings to legislators, again, leading to high measurement, stability, and representative reliability.

The previous two paragraphs have argued that the six demographic and three CTFOU questions have inherent reliability precipitated by simple constructs being presented to an elite group – legislators. There are two questions for which this argument does not hold, at least in part. Two survey questions (5, 7) ask legislators about how important specific CTs are for their work as a legislator. The specific CTs are the same as those listed in CTFOU questions 4 and 6. The reliability issues associated with questions 5 and 7 center on the use of the word “important” in the question. While the questions identify that the importance being asked about is relative to their function as a

legislator, the concept of importance is anything but defined. In fact, it could easily be argued that the concept of importance is not only dependent on legislator roles (delegate, trustee, or politico) but also on how a legislator is feeling the particular day that they take the survey. Put succinctly, importance is a complicated and ambiguous construct, and this detracts from the reliability of these two questions. This being said, the survey questions on importance specify that importance is to be measured with respect to legislators performing their legislative duties. This significantly narrows the possible meanings for importance.

Scale ambiguity with respect to importance also detracts from the reliability of the questions on importance. The response categories used on the survey: Not important, slightly important, moderately important, important, and very important are not particularly clear. For instance, what, exactly, is the difference between “slightly important” and “moderately important”. Mitigating the impact of this ambiguity, the response categories for importance are balanced (Dillman, Smyth, et al., 2009), frequently used in social science survey instruments, and suggested in survey design textbooks (Lawrence, 2011). In addition, it is clear from the presentation of the importance questions that importance increases from “not important” to “very important”, and that this scale will work well in the nonlinear analyses that will be completed on the importance responses.

The phase one survey instrument relies heavily on face validity. In other words, the instrument appears to measure what it reports to measure. For example, the phase one survey asks legislators to report which CTs they use, and how frequently they use them. This approach has face validity. There are other approaches to answering this

question that have less face validity. For example, legislator assistants could have been asked which CTs the legislators they work for use, and how often they use them. This second approach assumes that a legislator's assistant knows which CTs a legislator uses and how frequently they use them, which may or may not be true.

Although normally associated with achievement tests (Patten, 2007), content validity is also important when a researcher is exploring unknown conditions such as in exploratory research. In this case, a broad selection of choices is more likely to encompass the full spectrum of possible responses than a narrow selection of choices. For instance, the construct of CT could have been defined as any possible method that legislators might use to communicate with constituents, and the survey instrument could have been limited to two selections: telephone conversations and E-mail. In this case, content validity would have been low. Content validity was addressed through four preliminary meetings with staffers in various positions at the state capitol in order to ensure that the CTs actually used by legislators were contained in the questions relevant to specific CTs.

As protection against inadvertent content exclusion, all questions regarding CT had an "other" category and a place for legislators to write-in a CT not contained in the survey. Text messaging was added in the "other" category by two legislators, indicating relatively high content validity for the CT construct. The content validity for demographic variables is self-evident as each demographic category contains all possibilities. For instance, the question on legislator age covers the youngest possible legislator age (25, set by state law) and the oldest possible age (>90) for the choices. As with face validity, two experts from the researcher's study committee reviewed the



survey for content, making suggestions for modifications. The content validity of the phase one instrument should be high.

The phase one survey was sent to two members of the researcher's study committee in online format as a field test of the instrument. Feedback from committee members was obtained and then incorporated into the survey. For example, committee members found that the randomization of CT selections (the eight specific CTs and the "other" category) in questions four through eight to be burdensome, noting that the changing order of the CTs from question to question could be confusing and result in frustration or error were the legislators not paying close attention to the order of the choices. While the randomization of the selections was done to eliminate order bias, the possible confusion and/or frustration on the part of the legislators overrode this concern. The suggestion was made to remove the randomization on these questions, and it was incorporated. Once released to survey respondents, no revisions were made to the phase one instrument.

#### *Phase One Quantitative Sampling and Data Collection Procedure*

Because the population of legislators in Arizona's fifty-first legislature is relatively small, all members of the population were selected to participate in the phase one survey. The unit of analysis for the quantitative phase of research is the individual legislator.

Surveys of elite populations such as state legislators are often plagued with low response rates (Maestas, Neeley, & Richardson, 2003). One solution to this problem is the use of sequential mixed-mode surveys (Dillman, Smyth, et al., 2009) which often increase survey response rates (Kaplowitz, Hadlock, & Levine, 2004) above those

obtained through single mode surveys. Though useful for increasing survey response rates, sequential mixed-mode surveys often present a problem for researchers requiring anonymous survey designs, specifically; targeting respondents for secondary survey modes adds additional costs and may reduce response rates in anonymous surveys by requiring respondents to contact the researcher to indicate they have responded to the primary mode survey. To combat this problem, the standard sequential mixed-mode survey approach was modified to allow respondents to self-select out of the secondary survey mode without researcher contact. As discussed in Chapter 4, this anonymous sequential mixed-mode survey technique significantly increased legislator survey response rates over single mode survey response rates, while at the same time ensuring the anonymity of legislator responses.

A multiple wave approach was utilized to recruit and maintain contact with legislators during the Internet survey. First contact with legislators was initiated via a personalized prenotice letter<sup>25</sup> on March 18, 2013.

On March 20, 2013, the official invitation to participate in the online survey was E-mailed to legislators. The invitation contained a link to the Qualtrics survey. Follow-up (reminder) E-Mails were sent on March 27, 2013 and April 5, 2013, and a final E-mail thanking legislators for their participation in the survey was sent on May 2, 2013. The Internet survey resulted in 20 legislators completing the survey online, for an overall Internet response rate of 22.2 percent. A second survey mode, a mail survey followed the

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<sup>25</sup> All correspondence with participants is contained in Appendix A: Recruiting and Follow-up Participant Communications

Internet survey on April 25<sup>th</sup>, 2013. The mail survey was designed to duplicate the Internet survey as closely as possible given the two different mediums.

Mail surveys were mailed to all legislators in the Arizona House and Senate with specific directions in the cover letter not to complete the mail survey if the legislator had completed the Internet survey. The first responses from legislators were received on May 2, 2013 and were received intermittently through June 5, 2013. No mail surveys were received after June 5<sup>th</sup>, 2013. The mail survey resulted in 36 returned surveys for a mail response rate of 40 percent. The overall response rate for the multi-mode survey is simply the sum of the individual mode response rates, or 62.2 percent.

### ***Phase Two***

Phase two research consisted of nine recorded interviews with the legislator assistants. These semi-structured interviews explored how CT impacts the behaviors, roles, responsibilities and understanding of constituents of the staff of Arizona legislators. Legislator assistants have many roles that influence both how legislators *use* CT and how constituents interact with legislators. For example, legislator assistants, who are employees of the state, often serve many legislators over the years and frequently have more experience with House and Senate CTs and CT rules and procedures than do the legislators they work for. These state employee legislator assistants often help train new legislators on the use of CT as applied to the legislative role, and pass best practices down from legislator to legislator. In a second example, legislator assistants screen phone calls and (often but not always) E-Mails for legislators... effectively gating access to the legislator.

### *Phase Two Research Questions*

**RQ3:** What is the impact of CT on the behaviors, roles, responsibilities, and understanding of constituents of the staff of Arizona House and Senate legislators?

### *Phase Two Instrument*

The phase two interview protocol was reviewed and approved by the Arizona State University Institutional Review Board (IRB) on April 22, 2013 under IRB protocol 1303008903. The phase two interview protocol is shown in Appendix B: Instruments. Prior to the interview, all interviewees were required to read and sign the interview consent form listed in Appendix C: Interview Consent Form.

The phase two interview protocol was designed to be a semi-structured interview lasting approximately 40 minutes. A semi-structured approach was chosen for its ability to focus the interviews on topics important to the researcher, while still allowing the participant to contribute information that the researcher may not have known to ask about

A semi-structured interview was chosen because it strikes a balance between allowing a participant to choose the topic of discussion (an unstructured format), and a quantitative or closed-ended format in which the participant has no control over the topic discussed. For the purposes of understanding the impact of CT on the behaviors, roles, responsibilities, and understanding of constituents of the staff of Arizona House and Senate legislators, the researcher needed to control and guide the topic, but the participant needed to feel comfortable in expounding in areas that the researcher did not address; an essential part of exploratory research. In short, in exploratory research, a researcher may not be aware of all of the questions he/she needs to ask, and a participant must have the freedom to extend the research in unanticipated directions.

The phase two interview protocol is broken into three sections comprised of non-directional open-ended questions. Closed-ended questions, where used, gate sequenced closed-ended questions to improve the flow of the interview and establish rapport with interviewees (Miles et al., 2014, p. 324). Section one is comprised of an introduction and recording authorization. Section two, making up the main body of the interview, consists of 15 interview questions spread across seven response categories designed to address research question RQ3. These response categories include: CTFOU and preferences (three questions), the perceived risks and benefits of CT (two questions), behavior (two questions), roles and responsibilities (one question), new CTs (one questions), constituents (four questions), communication strategy (one question with five subparts).

The interview protocol concludes with an open-ended exploratory question, which asks: As an insider, and in your opinion, do you think that there are other important aspects of the relationship between legislators and CT that I have not touched upon in this interview? [If so] What are they? This final question is specifically designed to prompt the interviewee to reveal aspects of the relationships between legislators and CTs that were not covered in the previous sections. Section three contains closed-ended demographic questions. As with the phase one survey instrument, the phase two interview protocol could not use existing research from which to glean the protocol, or even portions of the protocol because no existing research could be located. The phase two interview protocol was not modified once approved for use by the IRB.

This section on validity and reliability is common to both the second and third phases of research, and all interview protocol associated with them. Because the identical methods to ensure validity and reliability were used during both phases, this

section will be presented only once as part of the second phase discussion on validity and reliability, and will not be repeated in the phase three discussion for the purposes of brevity.

The following procedures were used to address the reliability and validity of the qualitative research: First, qualitative coding schemes were verified for consistency by comparing the data and codes on an ongoing basis and by writing and then frequently reviewing memos outlining the codes and their meanings. Second, a qualitatively oriented expert cross-checked the researcher's codes (intercoder reliability, discussed in more detail later) and Krippendorff's Alpha (Lawrence, 2011) is reported. Third, a mixed methods approach was used to triangulate<sup>26</sup> quantitative and qualitative data to help ensure validity, noting inconsistencies. But these procedures, in and of themselves, are insufficient to ensure reliability and validity, so the following recommendations from Creswell (2009, p. 192) were also utilized: Fourth, the polished results of several sections of the study were shown to members who were interviewed to ensure that the themes and findings are accurate (Creswell calls this member checking). Fifth, rich, thick descriptions (for example, detailed descriptions of the interview settings and multiple perspectives) were used to engage readers. Sixth, researcher bias and discrepancies in the data were noted.

The intercoder reliability testing occurred on 11% of the transcribed legislator interviews and utilized Krippendorff's Alpha ( $\alpha$ ) calculation. Krippendorff's Alpha was calculated (using Stata's `krippalpha` command, 118 codes, 2 coders, matrix format) to be

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<sup>26</sup> Mixed method research inherently utilizes triangulation to help ensure the validity of the research if the quantitative and qualitative research is compared and contrasted by the researcher.

.889, indicating an 88.9% intercoder agreement. These results exceed the 85 percent recommended by Miles et al. (2014, p. 85).

Analysis of the phase two interview transcripts was completed by computer-aided qualitative analysis using the program Atlas.ti. Qualitative research followed a grounded theory approach traditionally used in exploratory studies (Babbie, 2010). As suggested by Saldaña (2012), two cumulative coding cycles of analytical memoing were used to generate networked relationships that were then analyzed for theory generation. Noting the importance of multiple coding cycles, Miles et al. (2014) assert that interim analyses can be superficial and invite premature closure based on faulty preliminary analyses. Miles et al. argue that these weaknesses can be avoided by multiple pass coding, and through “intelligent critique from skeptical colleagues” (p. 158).

#### *Phases Two and Three Qualitative Sampling and Data Collection Procedure*

The following discussion applies to both phases two and three of the research, although this discussion is presented in phase two only. Nonprobability qualitative quota sampling was used to obtain a quasi-representative sample of legislators with demographic characteristics of interest in this research. According to Lawrence (2011), quota sampling is defined as “A nonrandom sample in which the researcher first identifies general categories into which cases or people will be placed and then selects cases to reach a predetermined number in each category” (p. 243). Although non-probabilistic in nature, qualitative quota sampling is typical of purposive small sample qualitative sampling techniques (Miles et al., 2014, p. 31). The categories of interest for legislators included political party, gender, age, and chamber. The category of interest for legislator assistants was association with an interviewed legislator. Based on the

financial resources of the researcher, and a research timespan of one year from inception to completion of the dissertation associated with this study, sixteen interviews (eight legislators and eight legislator assistants) would be an appropriate quota for this research. Ultimately, nine legislators and nine legislator assistants were interviewed, along with three staff from the IT department. The positions of interest for IT department staff were positions in the IT staffing hierarchy (staff, supervisor, or manager), and one of each was interviewed.

The Arizona legislator webpage was used as a guide to identify legislators based on age (as much variation as possible between younger and older), gender (male or female), political party (Democrat or Republican), and chamber (House or Senate). It is important to note that maximizing age differences between legislators is a form of maximum variation sampling as identified by Miles et al. (2014). Literature suggests that age is an important indicator of CTFOU in non-legislators so by increasing age differences as much as possible, it is hoped that these relationships will be uncovered, if they exist.

Identified legislators were sent an introductory E-mail asking if they would be willing to participate in the second phase of the research by granting me permission to contact their legislator assistants to ask them if they would like to participate in the second phase of the research. Legislators' permission was obtained before contacting their legislator assistants directly for two reasons: First, there was concern that failure to obtain a legislator's permission might place a legislator assistant's job at risk if a legislator did not approve of their legislator assistant's participation. Second, there was a belief that legislators who allowed interviews with their legislator assistants, would be



“invested” in the research such that when it was time to ask them for an interview, would be more likely to agree to the interview.

On May 4, 2013, all identified legislators were contacted via E-mail with a request for permission to interview their legislator assistants. The E-mails included the legislator assistant interview protocol in Portable Document Format (PDF) as an attachment. Seven of the eight legislators who received these E-mails indicated that their assistant could be interviewed and one indicated that their assistant was not comfortable being interviewed, but that she (the legislator) could be interviewed when the time came. The initial response rate for the legislator assistant selection was 7/8 or 87.5 percent. On May 14, 2013, two additional legislators were contacted for permission to interview their legislator assistants, and in both of these cases, permission was granted. The final interview response rate for the second phase interviews was 100 percent. Interviews with legislator assistants were held from May 12, 2013 through May 24, 2013. All interviews were held at the Arizona state capitol complex located at 1700 West Washington Street, Phoenix Arizona, 85007.

Legislators who had allowed their legislator assistants to be interviewed during phase two were contacted via E-mail on May 21, 2013 and asked if they would be willing to participate in the phase three legislator interviews. Six of the nine legislators interviewed. Based on the demographic characteristics of the legislators who were unavailable to be interviewed, three additional legislators were contacted via E-mail and asked to participate. Interviews with legislators were held from May 24, 2013 through July 27, 2013. All interviews were held at the Arizona state capitol complex located at 1700 West Washington Street, Phoenix Arizona, 85007.

IT department staff were contacted via E-mail on July 01, 2013 and asked to participate in the phase three interviews. Interviewing was coordinated and approved through the IT manager, who authorized contact with the supervisor and help desk worker. All three IT department staff identified by the IT manager were interviewed. Interviews with IT department were back-to-back on July 12, 2013. All interviews were held at the Arizona state capitol complex located at 1700 West Washington Street, Phoenix Arizona, 85007.

### ***Phase Three***

The third phase research is similar in scope to the second phase research, focusing on legislators and IT staff themselves rather than legislator assistants. Nine interviews were recorded with legislators. The third phase used information from the legislator survey in phase one and legislator assistant interviews in phase two to shape the focus of the phase three interviews.

While questions in phases two and three are similar in nature (to aid in a comparison between legislator assistants and legislators), the understandings gained in the first two phases help focus interactions with the legislator, allowing more time to be spent on exploring previously uncovered relationships rather than expending time and energy exploring basic relationships already uncovered during the first two phases. For example, the phase one survey uncovered the CTs that Arizona legislators use to communicate with their constituents and peers.

The phase two interviews exposed how the legislator assistant screens and filters each of these CTs for the legislator. During phase three, the legislator was asked about their assistant's role in filtering and screening. The paired network diagrams shown in

Appendix K: Paired Network Diagrams allow for a direct comparison between the legislator's response to the question on screening and filtering, and the equivalent responses given by the legislator's assistant.

The second half of phase three consists of semi-structured interviews with IT department staff to understand the role that CT support and infrastructure play in shaping the relationships between legislators and CT. The semi-structured interview protocol instrument used during this phase is documented in the instrumentation section of this chapter and listed in Appendix B: Instruments.

#### *Phase Three Research Questions*

**RQ4:** What is the impact of CT on the behaviors, roles, responsibilities, and understanding of constituents of legislators in the Arizona House and Senate?

**RQ5:** What role does information technology support and infrastructures play in a legislator's use of CT, and how do information technology personnel perceive legislator behaviors associated with CT?

**RQ6:** What are the implications of changing legislator use of CT for the development of, and change in, information technology support and infrastructures.

#### *Phase Three Legislator Instrument*

The phase three legislator interview protocol was reviewed and approved by the Arizona State University Institutional Review Board (IRB) on May 21, 2013 under IRB protocol 1303008903. The methods used for phase three interviews were identical to the phase two methods, and will not be repeated in this section. For instance, Krippendorff's Alpha ( $\alpha$ ) was used to calculate intercoder agreement for phase three, but it will not be

discussed in detail since it was discussed at length in the phase two instrument section. The phase three legislator interview protocol is listed in Appendix B: Instruments.

The phase three legislator interview protocol is broken into three sections comprised of non-directional open-ended questions. Closed-ended questions, where used, gate sequenced closed-ended questions to improve the flow of the interview. Section one is comprised of an introduction and recording authorization. Section one is comprised of an introduction and recording authorization. Section two, making up the main body of the interview, consists of 16 interview questions spread across seven response categories that mirror the phase two response categories. These categories were designed to address research question RQ4. The section two response categories include: CTFOU and preferences (four questions), the perceived risks and benefits of CT (two questions), behavior (two questions), roles and responsibilities (one question), new CTs (one question), constituents (four questions), communication strategy (one question with five subparts).

The interview protocol concludes with an open-ended question, which asks: As an insider in the legislative process, what are some other important aspects of the relationship between legislators (yourself as well as other legislators) and CT that I have not touched upon in this interview? This final question is specifically designed to prompt the interviewee to reveal aspects of the relationships between legislators and CTs that were not covered in the previous sections. Section three contains closed-ended demographic questions, but these questions were not utilized as the information on legislators could easily be gathered from secondary sources.

As with the phase one survey instrument and the phase two interview protocol, the phase three legislator interview protocol could not use existing research from which to glean the protocol, or even portions of the protocol because no existing research could be located.

Analysis of the phase three interview transcripts was completed by computer-aided qualitative analysis using the program Atlas.ti. Qualitative research followed a grounded theory approach utilizing two cumulative coding cycles as outlined by Saldaña (2012) analytical memoing to generate networked relationships that were then analyzed for theory generation. Following a mixed method approach, these results were compared and contrasted with the quantitative phase one results.

#### *Phase Three IT Department Instrument*

The phase three IT department interview protocol was reviewed and approved by the Arizona State University Institutional Review Board (IRB) on May 21, 2013 under IRB protocol 1303008903. The methods used for phase three interviews were identical to the phase three legislator interview protocol methods and will not be discussed again in this section. The phase three IT department interview protocol is listed in Appendix B: Instruments.

The phase three IT department interview protocol is broken into three sections comprised primarily of non-directional open-ended questions. Closed-ended questions, where used, gate sequenced closed-ended questions to improve the flow of the interview. Section one is comprised of an introduction and recording authorization. Section two, making up the main body of the interview, consists of 13 interview questions spread over three response categories. These categories were designed to address research question

RQ5 and RQ6. The section two response categories include: job function and legislator training (four questions), IT support and infrastructure (six questions), and behavior (two questions). The interview protocol concludes with an exploratory open-ended question, which asks: In your opinion, as an IT insider, do you think that there are other important aspects of the relationship between legislators and CT that I have not touched upon in this interview? [if so] What are they? This final question is specifically designed to prompt the interviewee to reveal aspects of the relationships between legislators and CTs that were not covered in the previous sections. Section three contains closed-ended demographic questions.

As with the phase one survey instrument and the phase two interview protocol, the phase three IT department interview protocol could not use existing research from which to glean the protocol, or even portions of the protocol, because no existing research could be located. The phase three interview protocol was not modified once approved for use by the IRB.

### **Population and Sample**

There were three primary target populations for research: legislators, legislator assistants, and IT personnel. It is important to note that legislator assistants in the House and Senate have different reporting structures and different rules that dictate their job requirements. The reporting structure for legislator assistants in the House and Senate will be briefly discussed in the section describing the legislator assistant population. In addition, IT department personnel are common to both the House and Senate, and report up through the executive branch. Each of these populations is described in the following sections.

## *Legislators*

The Arizona state legislature is a bicameral body comprised of the House and Senate. The Arizona House (the lower body) is comprised of 60 members, two members from each of Arizona's 30 legislative districts. The Senate (the upper body) is comprised of 30 members, one from each legislative district. Arizona legislators are "citizen legislators", meaning that their positions are part-time in nature as opposed to professional legislators whose positions are full-time (with increases in salary, staff, and session length when compared to citizen legislators). Legislators in both the House and Senate earn \$24,000 per year plus per diem.

Republicans in Arizona's fifty-first legislature enjoy majorities in both the House and Senate, although their majority margin narrowed when the Democratic Party gained four seats in the Senate and six seats in the House in the 2012 election. The Senate is comprised of 13 Democrats and 17 Republicans, and the House is made up of 24 Democrats and 36 Republicans. In an unusually high 41% turnover rate, the legislature had 37 freshmen members. It was first seated on January 14 2013 and was scheduled to end on Saturday April 27<sup>th</sup>, but was extended by special sessions and adjourned Sine Die on June 14, 2013. Arizona's legislative sessions traditionally begin on the second Monday of January and end on the Saturday following the 100<sup>th</sup> calendar day since session start. All members will come up for reelection in November of 2014.

Arizona House and Senate members are elected to two-year terms and are term limited under article 4, part 2, section 21 of the Arizona Constitution, to four consecutive terms, or 8 years total. Members use the phrase "termed-out" to describe exiting office due to mandatory term limits. Members, after being termed-out must take a two-year

hiatus from their elected institution before running for office in that institution again. Members can, and frequently do, term-out in one institution and then immediately run for election in the other institution, transitioning back and forth between the House and Senate. Although there is no way to identify legislators who responded to the survey who have served in both chambers, the overall percentage of legislators who have served in both chambers is identified and discussed in the relevant sections in chapter 4.

In phase one, the quantitative survey, all 90 Arizona legislators were invited to participate in the survey and 57 responded. In phase three, the legislator interviews, nine legislators were selected to obtain a mix of male and female legislators, Republican and Democrats, and older and younger legislators across both the House and Senate. Legislator assistants were interviewed if the legislator they worked for agreed that the legislator assistant could be interviewed, and if the legislator assistant agreed to be interviewed.

### ***Legislator Assistants***

Legislator assistants are Arizona state employees that are assigned to legislators in the House or Senate. Legislator assistants in both chambers serve “at the pleasure of”<sup>27</sup> the Speaker of the House or the President of the Senate. The pairing of legislator assistants and legislators differs slightly across chambers. According to several legislator assistants, legislator assistant new hires are relatively uncommon in both chambers, and are usually considered for members in leadership, although Senators seem to enjoy slightly greater freedom in choosing their assistants than do Representatives.

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<sup>27</sup> Meaning that they have no grievance or other rights under the state personnel system, rights typically afforded all other state employees.



In the House, individual legislators, especially freshmen legislators, have little or no influence over which legislator assistants are assigned to them although more experienced legislators, committee chairs, and members in leadership can precipitate legislator assistant staffing changes. Senators who are transitioning to the House have been known to take their legislator assistants with them. The legislator assistants can decline the move and interview with another Senator in an attempt to stay in the Senate. The final decision regarding which legislator assistants are assigned to which legislators is made by the Chief Clerk with the approval of the House Chief of Staff. Assistants are tested for basic skills including typing, calendar maintenance, correspondence, and computer expertise. The Chief Clerk's office typically attempts to match the skills of the legislator assistant with the skills that legislators have indicated they are seeking in a legislator assistant. As an aid to reduce the learning curve, freshman legislators are frequently co-located with more experienced legislators and they share an (often experienced) legislator assistant.

In the Senate, freshman legislators have the option of reviewing the resumes of legislator assistants who have applied for a position, of bringing their legislator assistants with them if they came from the House, or of precipitating a new hire (typically someone they know). Legislators transitioning from the House to the Senate will frequently bring their legislator assistant with them. Senators who wish to bring their legislator assistant from the House or who wish to bring in a new hire will typically negotiate these staffing arrangements with the Senate Chief of Staff and obtain final approval.

Senate legislator assistants are assigned at a ratio of one assistant per Senator. In the House, legislator assistants are assigned at a ratio of one legislator assistant per two

Representatives, or at the ratio of one legislator assistant per Representative if the Representative is a committee chair or in a leadership position. Legislator assistants in the house are responsible for “covering” the desks of up to five Representatives if another legislator assistant is out for any reason. In the Senate, legislator assistants are responsible for covering at most, the desks of two Senators. There are a total of 74 legislator assistants working in the House and Senate. There are 31 legislator assistants in the Senate (the President of the Senate has two assistants) and 43 legislator assistants in the House (the Speaker of the House has two legislator assistants and there is one floating legislator assistant).

Legislator assistants are employed year-round in both the House and Senate. During the interim period (the time between the first legislative session Sine Die and the start of the second legislative session), legislator assistants are required to maintain a presence in the legislator’s office to answer phones and perform the various duties as assigned by the legislator. Legislator assistant duties vary widely based on the requirements of the legislator they work for. Often, legislators consider an assistant’s interests and skillset when assigning job duties but under no circumstances are legislator assistants allowed to help with any campaign or reelection efforts. According to one legislator assistant in the House “We are frequently reminded that we do [work for the Speaker of the House] regardless of how competent our members think we are.” Put another way, legislators do not typically precipitate the termination their assistant. According to one legislator assistant, legislator assistant turnover can be high, but many legislator assistants who find the job to their liking make a career out of the position.

Many legislator assistants have served multiple legislators over careers that extend in excess of 20 years.

Legislator assistants were selected for interviewing based on their pairing with selected legislators. One goal of the research was to select legislator-assistant pairs to interview so that comparisons and contrasts could be made during qualitative analysis. In addition, it seemed likely that having legislator-assistant pairs would offer a more accurate picture into how legislators communicate with constituents since they would be describing similar CT environments. In six of nine cases, legislators and their legislator assistant were both interviewed. In the remaining three cases, the legislator assistant or the legislator was not available to be interviewed, resulting in unmatched interviews. A total of nine legislator assistants were interviewed. All of the paired legislator assistants were assigned to their legislator, rather than chosen by their legislator.

### ***IT Department***

IT department staff are Arizona state employees who report to the Arizona Legislative Council. The IT department consists of 10 employees: 1 IT manager, 1 network administrator, 1 project manager, 2 programmers, 1 helpdesk supervisor, and 4 support specialists. IT department staff support the Arizona House and Senate, as well as the Legislative Council and Joint Legislative Budget Committee (JLBC). The IT department is tasked with supporting and training approximately 500 users, maintaining intranet and webpages, and creating and maintaining custom programs and applications used by legislators, staff, and citizens who interact with the legislature. IT department staff were selected to provide a cross-section of the hierarchical reporting structure. A total of three IT department staffers were interviewed.

## **Rationale For Selection**

The Arizona state legislature was selected primarily for convenience and to reduce the cost of research. Because the researcher's doctoral studies are at Arizona State University, it was convenient to select the Arizona legislature for study. Although primarily selected for convenience and cost reduction, the Arizona legislature is an ideal candidate for research for a number of reasons: First, because of the demographic heterogeneity of its members, the Arizona legislature provides an excellent microcosm of American legislators. Encompassing age, gender, and racial diversity, the Arizona legislature offers demographic heterogeneity that can be expected to provide an increased range of quantitative variation and more interesting results than a more homogeneous state legislature might. Second, the Arizona legislature has recently passed controversial and far-reaching legislation<sup>28</sup> in multiple legislative arenas and has been considered a catalyst for change in America (Chin et al., 2010). It is possible that Arizona legislators may have a broader range of communications outside the state due to the nature of the legislation it passes.

As with most sequential mixed method research projects, the quantitative and qualitative phases of research utilized different sampling techniques. Phase one, the quantitative phase utilized the Arizona state legislative webpage to generate a sampling frame of Arizona state legislators, all of which were contacted via E-mail and United States Postal Service mail and asked to participate in the survey. Phases two and three,

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<sup>28</sup> For example, Arizona Senate immigration reform bill SB1070 raised significant states rights issues as similar bills propagate throughout the United States and challenges to this bill wind through state and federal courts (Campbell, 2011; Chin, Hessick, Massaro, & Miller, 2010)

the qualitative phases, utilized nonprobability quota sampling to generate a quasi-representative sample of legislators that focused on relevant demographic categories. The following sections outline the step-by-step sampling procedures for both quantitative and qualitative phases of research.

### **Research Design Caveats**

Although proponents of exploratory mixed methods designs may argue that the approach is used to mitigate the weaknesses of “monomethod” (Johnson & Onwuegbuzie, 2004, p. 14) approaches, exploratory mixed methods research designs are not without their weaknesses and shortcomings. Perhaps the most fundamental shortcoming of all is noted in the very nature of exploratory research itself is expressed by Babbie (2010), who notes that exploratory research projects “seldom provide satisfactory answers to research questions, although they can hint at the answers” (p. 96). Put another way, exploratory research may precipitate more questions than answers.

Another challenge is that mixed methods research is likely to embody many of the weaknesses inherent in both quantitative and qualitative research. For example, in qualitative research, it is possible (in fact probable) that different readers will interpret the research results differently (Lapan & Quartaroli, 2009; Patton, 1990; Stake, 2010). Intercoder reliability can be used to minimize the subjective aspects of qualitative coding; if multiple researchers code a transcript using similar constructs, then it is reasonable to expect that the probability of multiple interpretations will be reduced.

Mixing and timing add another degree of complexity to the sequential mixed methods research process over and above that required in single method research designs. Importantly, in a sequential mixed methods research design, the timing between the

phases of research must be short enough to ensure that the information gathered in early stages is still relevant in later stages (Creswell & Clark, 2007). The research in this project began in March of 2013 and was completed in July of 2013. This four-month research period helps reduce the likelihood of temporal data issues precipitated by delays between the various phases of the research project. Some additional weaknesses specific to mixed method designs include the difficulty that a single researcher faces when attempting to carry out both quantitative and qualitative research (J.R. & J., 2012; Johnson & Onwuegbuzie, 2004), the added time required to perform the research (Creswell, 2009; J.R. & J., 2012; Johnson & Onwuegbuzie, 2004; Lawrence, 2011), the increased expense (Johnson & Onwuegbuzie, 2004), and the difficulty interpreting conflicting results (Johnson & Onwuegbuzie, 2004; Lawrence, 2011).

Although mixed research methods have many of the weaknesses of monomethod research and some significant additional weaknesses, the study strength added by mixed method research is compelling. Although more expensive, more time consuming, and more difficult than monomethod research, mixed method research paints a picture of the research subject the theoretical richness of which monomethod research cannot match. It is the pursuit of this theoretical richness that motivates this study forward, presenting a picture of the whole through quantitative research, and of the individual through qualitative research.

### **Data Analysis Techniques**

As outlined in Figure 3.1, and typical of sequential mixed method research designs, data analysis occurred both during and after data collection. For instance, a preliminary data analysis of the phase one survey occurred prior to the start of phase two

and again at the end of phase three when all data collection was complete. For quantitative analysis, Stata MP™ version 13.0 for mac was used. For qualitative analysis, Atlas.ti version 7.0.92 for windows was used. The following sections outline the data analysis techniques utilized for the quantitative and qualitative phases of this study.

### ***Quantitative Phase One***

**Institutional and Legislator Demographic Descriptive Statistics:** Institutional (or chamber) and legislator demographic descriptive statistics were summarized for each independent variable using Stata's summarize command which provides the number of observations, minimum observation value, maximum observation value, mean observation value, and the standard deviation ( $\delta$ ).

**CT Frequency of Use Descriptive Statistics:** Stata was used to summarize (descriptive statistics) CTFOU for each CT examined in the survey. Variations between peer and constituent CTFOU were examined to identify meaningful (statistically significant at the 95% confidence interval) differences.

**CT Importance Descriptive Statistics:** Stata was used to summarize (descriptive statistics) CT importance for each CT examined in the survey. Variations between peer and constituent CT importance were examined to identify meaningful (statistically significant at the 95% confidence interval) differences.

**Internet Enabled CTFOU:** Regression modeling is used to examine relationships between IECT usage and importance and demographic, institutional, and political variables.

**Correlation, Frequency of Use and Importance:** Pearson's  $r$  correlation coefficient matrices were calculated to examine statistically significant correlations between CTFOU variables and CT importance variables.

**Technology Hardware Usage:** Frequency of use of specific hardware technology is analyzed. Bivariate regression modeling is performed to determine relationships between a legislator's use of hardware technology and demographic, institutional, and political variables. Descriptive statistics are reported, as are Spearman's  $\rho$  and Pearson's pairwise correlation coefficient.

**Regression Models, Frequency of Use:** Linear regression modeling was performed to analyze relationships between CTFOU and demographic, institutional, and political variables. Stata's unpaired Independent samples  $t$  test and bivariate regressions were used to examine variations in legislator CTFOU as a function of various demographic measures. Where indicators were binomial in nature (such as Democrat/Republican, House/Senate, or Male/Female) the Independent samples  $t$  test was utilized. Where indicators were ordinal (Likert scale) or ratio (for example, age) level, the appropriate nonlinear or linear bivariate (robust) regression technique was utilized.

**Regression Models, Importance:** Nonlinear regression modeling was performed to analyze relationships between CT importance and demographic, institutional, and political variables. Importance variables for all CTs examined were subjected to Mann-Whitney U-test for ordinal variables by binary variables (senate, male, republican, etc.) to determine statistically significant relationships. Nonlinear bivariate regressions were used to examine variations in legislator CT importance as a function of various demographic, institutional, and political measures.



**Legislator IP Analysis:** The Qualtrics™ survey website includes the ability to gather IP address information for participants. IP addresses are unique hardware specific hexadecimal addresses that are assigned to individual computers (or smart phones, iPads, etc.). At any given time, no computer on any intranet or the Internet should share a common IP address. Because IP addresses are assigned in “blocks” or groups/ranges of IP addresses, and because these groups or ranges are both assigned both geographically and by company/institution, it is possible to determine the location, type of device, and company or institution whose IP address was used to complete the survey. In effect, by examining the IP addresses of the legislators who completed the survey, one can determine whether legislators took the survey from within the Arizona House and Senate, from a home or business Internet connection, from a computer or a mobile phone, and one can determine the country, state, or city from which the legislator completed the survey. Microsoft Excel™ was used to catalog and organize legislator IP addresses. The results of the IP address analysis are contained in Chapter 4.

**Survey Visual Snapshots:** Qualtrics has built-in analytic capabilities that can be used to create histograms for frequency and response percentages for the survey questions.

These data were saved to image files and imported into Microsoft Word™ tables. These tables are shown in Appendix Q: Qualtrics Survey Response Histograms.

### ***Qualitative Phases Two and Three***

**Interview Transcript Qualitative Analysis:** Qualitative analysis utilizes Saldaña’s (2012) exploratory coding methods outlined in his book *The Coding Manual for Qualitative Researchers*. Saldaña recommends that exploratory qualitative research utilize a two cycle coding method, with second cycle coding being a refinement or

adjustment to the first cycle methods designed to incorporate researcher knowledge gained during first cycle coding. An exploratory, grounded theory approach was utilized to analyze interview data. This approach consisted of an exploratory two pass cumulative coding cycle methodology as recommended by Saldaña. First pass coding utilized provisional coding (literature review based code), hypothesis coding (researcher hunches) and holistic coding (broad topic areas arising from the data). The second pass coding followed a focused approach, distilling first pass coding into themes based on conceptual themes related to CT relationships and behaviors. For first pass codes, a quasi In Vivo approach was utilized. This approach summarized coded sections into short sentences that could easily be understood in a network diagram and was designed to capture the nuances associated with CTFOU and behaviors. Quasi In Vivo second pass codes were typically summarized with one or two word codes that were then “connected” to first pass codes using Atlas.ti’s network relationship functions to determine theoretical relationships.

### **Limitations**

Limitations of this study include:

1. Because this study includes only members of the fifty-first Arizona state legislature and their staff/employees, the results cannot be assumed to be generalizable to other state legislatures.
2. The small sample sizes in both the quantitative phase (n=57) and qualitative phases (n=21) reduce the representativeness of this research.

3. No attempt was made to use race or ethnicity as a demographic differentiator. In effect, this study is not representative of the racial or ethnic diversity available in the Arizona House or Senate.
4. The use of qualitative research in the second and third phases of this research study may result in different interpretations of the results by different readers.
5. The study takes place immediately following an election year, which may influence the results of the research.
6. The first, second, and portions of the third phases of the study took place while legislators were in session. The final three interviews with legislators took place after the end of the first legislative session. This may influence the results of the study due to asymmetrical legislator task-loading and availability. It is reasonable to expect that legislators will have more time to spend with the researcher when they are out of session than when they are in session, and that rushed or hurried in-session responses may be less representative of behavior than slower, thoughtful responses received out of session.
7. During the research study, it was discovered that significant differences exist between a legislator's use of CT during a legislative session and the use of CT during the off session. For example, legislators have more face-to-face meetings during the legislative session than they do when the legislature is out of session. Some of these differences were captured in the phase three interviews, but the phase one survey did not delineate between CTFOU in session vs. out of session.
8. There is a risk of non-response error in phase one of the study, which may bias the results since those who choose to respond to the survey may differ

- substantially from those who do not respond to the survey (Babbie, 2010; Couper, 2000; Dillman, Phelps, et al., 2009).
9. Only the CTs considered significant by legislators and their legislator assistants and IT support staff were studied. Significant differences may exist between the CTs utilized by the Arizona legislators surveyed and interviewed and those who are not surveyed or interviewed.
  10. The study is fully funded by the researcher, which significantly limits the scope and duration of the study.
  11. CTs and their influences on legislators are not static. It is conceivable that a new event will occur during the research that may focus the attention of legislators on a certain CT and skew interview responses. An example of such an event was Representative Anthony Weiner's inappropriate use of Twitter™ in 2011 that ultimately resulted in his resignation in June of that year and focused attention on the use of Twitter™ by legislators.

## CHAPTER 4

### RESULTS

In this chapter, the analytical techniques and results of the study are presented. These results can be bifurcated into two distinct threads: quantitative phase one results stemming from the phase one survey<sup>29</sup>, and qualitative results precipitating from the second and third phase interviews. The results presented are preceded by a brief review of the research questions associated with the results, and are followed, where possible, by a succinct discussion of the literature related to the results; because this study is experimental in nature, many of the findings in this section are not directly comparable to existing research.

#### **Quantitative Phase One**

##### *Survey Statistics*

Survey statistics including the times and dates the survey was completed, average completion time, survey completion rates, dropped questions, etc., are shown in Appendix U, Survey Statistics.

##### *Mixed-Mode Legislator Demographic Relationships*

The survey contained six demographic variables: *senate* (1 if Senator), *partyid* (1 if Republican), *male* (1 if male), *yrsoffice* (number of years in office), *age* (legislator's age range in 5 year increments), and *education* (legislator's education in years). Table 4.1 contains an overview of the number of responses to the survey by demographic variable and survey mode. For ratio level variables, the number in Table 4.1 represents the mean value of the variable. The final column of Table 4.1 lists the overall response

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<sup>29</sup> Including mixed mode analyses.

rate for each demographic characteristic, or, in the cases of years in office, age, and education, it is the percentage of respondents who answered the question.

<b>Characteristic</b>	<b>Internet Response Count</b>	<b>Mail Response Count</b>	<b>Overall Response Rate</b>
<b>House</b>	12	20	53%
<b>Senate</b>	8	16	80%
<b>Democrat</b>	8	13	56%
<b>Republican</b>	12	23	67%
<b>Male</b>	12	25	65%
<b>Female</b>	7	9	49%
<b>Years in Office</b>	5.28 years	5.8 years	96.4%
<b>Age</b>	48.1 years	51.4 years	96.4%
<b>Education</b>	18.1 years	17.1 years	96.4%

**Table 4.1.** Legislator Demographic Information by Survey Mode

Table 4.1 suggests that legislators were more inclined to respond to the mail survey than the Internet survey, with 36 legislators (40%) choosing to respond to the survey via mail and 20 legislators (22%) responding via the Internet survey, a preference ratio of 1.82:1 for mail surveys over Internet surveys. These results were similar, but not identical, to the results obtained in a recent study by Fisher & Herrick (2013), who examined the single mode response rate efficiency of mail and Internet surveys of legislators in 26 states. Fisher & Herrick found an average response rate of 31.9% for mail surveys and 12.5% for Internet surveys, or a preference ratio of 2.55:1 for mail surveys over Internet surveys.

The data in Table 4.1 also suggests that male legislators preferred the mail survey to the Internet survey significantly more than female legislators, although both genders preferred the mail survey to the Internet survey overall. Once again these results are similar to those obtained by Fisher & Herrick (2013). Male legislators were 16% more

likely to respond to the mail survey than were female legislators with 27% of female legislators and 44% of male legislators responded to the mail survey. Interestingly, male and female legislators responded to the Internet survey in roughly equal percentages; 21.1% of male legislators and 21.2% of legislators responded to the Internet survey. These findings suggest that female legislators who responded have a 6% preference for mail surveys over Internet surveys while male legislators have a 23% preference for mail surveys.

To test the statistical significance of the relationships between survey response mode and legislator demographic information, nonlinear binary probit bivariate regression was run on mailmode and male. Probit models assume that model regression errors follow the standard normal distribution. The probit model returned a CI of just 64%, so, while male legislators have a stronger preference for mail surveys than do female legislators, this difference is not statistically significant. A larger sample size is needed to examine these differences more closely.

#### *CT Frequency of Use vs. Survey Mode*

To test for any statistically significant differences between the mean values of the CTFOU variables as a function of the survey mode, difference of means testing was performed on all CTFOU variables by survey mode. Table 4.2 highlights the results of this difference of means testing. Responses are in mean uses per year.

<b>Variable</b>	<b>Internet Survey Response (average number of communication events per year)</b>	<b>Mail Survey Response (average number of communication events per year)</b>	<b>t-value</b>
Frequency of face-to-face meetings with peers	1228	573	1.82*
Frequency of using letters to communicate with peers	399	53	2.05*
Frequency of E-mail with peers	1570	850	1.81*
Frequency of using Twitter™ to communicate with peers	425	52	2.19*
Frequency of using Facebook™ to communicate with peers	722	174	2.18*
Frequency of using webpages to communicate with peers	394	40	2.12*
Frequency of using webpages to communicate with constituents	395	59	1.96*

**Table 4.2.** Survey Mode Frequency of Use t tests  
\*p-value <.05, \*\*p-value <.01, \*\*\*p-value <.001

The results shown in Table 4.2 suggest that IECT use is much higher for legislators who responded to the Internet survey. These results seem intuitively correct. However, it appears that legislators who responded to the Internet survey also communicate more frequently with peers face-to-face and with letters than do legislators who responded to the mail survey. Why this might be the case is not obvious as legislator age differences are not sufficient to justify the significant differences in communication means.

*CT Importance vs. Survey Mode*

Importance variables for all CTs examined were subjected to Wilcoxon rank-sum (Mann-Whitney) testing for independent samples of ordinal variables by the survey mode



binary variable to determine significant relationships between the two distributions. No statistically significant results were obtained. This completes the discussion of mode variations in the study. Research questions associated with the phase one survey and the results associated with these research questions are presented in the next sections.

### ***Phase One Survey Results***

The phase one survey directly addresses research questions RQ1, RQ2, and RQ4.

These three research questions are restated below:

*RQ1: What CTs do legislators in the Arizona House and Senate use to communicate with their peers and constituents, and with what frequency do they use these CTs? What importance do legislators attach to these CTs?*

*RQ2: How does legislator frequency of use and perception of importance of the CTs identified in RQ1 vary as a function of political party, institution (House or Senate), age, gender, years in office, education, and technology usage.*

*RQ4: What is the impact of CT on the behaviors, roles, responsibilities, and understanding of constituents of legislators in the Arizona House and Senate?*

Phase one survey questions focus on the following eight CTs: E-Mail, face-to-face meetings, telephone communications, Facebook, Twitter, hardcopy letters, web pages, and blogs. It is important to note that many of the regression models used in this section are limited in complexity due to the small sample size of the phase one survey. A brief discussion of statistical power and its relationship to regression model complexity may help to explain model size limitations. The discussion of model size is followed by a presentation of the phase one survey response descriptive statistics.

Cohen (1988), conceptualizes statistical power “The power of a statistical test of a null hypothesis is the probability that it will lead to the rejection of the null hypothesis”.

Put another way, power is the probability that the test will result in the conclusion that the

phenomenon under study exists. Using the standards for behavioral sciences statistical research outlined by Cohen ( $p \leq .05$ , .8 statistical power,  $f^2_{\min} = .1$  (small effect size), two-tailed), and a sample size of 57 (the sample size of the phase one survey), multiple regression models are limited to two predictors in a multiple regression test. Increases in the number of predictors (all else equal) will either decrease statistical power or increase effect size. Decreased power (holding effect size constant) reduces the probability that the test will lead to a rejection of the null hypothesis (i.e., decreases the probability that the test will indicate a phenomenon exists) while increased effect size (holding statistical power constant) effectively decreases the sensitivity of the null hypothesis test. It follows that exploratory research such as this study, where effect sizes are unknown, might benefit from smaller effect sizes. One of the most commonly used guides for the impact of effect size is provided by Cohen (1988). Cohen suggests using the following guide to determine the significance of an effect size:  $< 0.1$  = trivial effect,  $0.1 - 0.3$  = small effect,  $0.3 - 0.5$  = moderate effect, and  $0.5$  = large difference effect.

For example, Whalberg (1984) measured effect sizes from a high of .97 for graded homework to a low of .28 for assigned homework. Had Whalberg designed his study to detect an effect size of .3, the relationship between grade increases and homework would have remained undetected as he failed to reject the null hypothesis. In short, the regression models in the quantitative section of this chapter are limited in complexity because this is an exploratory study with a relatively small sample size. This being said, more complex regressions can be run, and a post-hoc power analysis completed to calculate effect size.

The majority of the regressions in this study are bivariate, however, Tables 4.15, 4.16, and 4.17 contain multivariate analyses with five IVs. For these regressions, statistical power was calculated and reported post-hoc. As can be clearly seen in these tables, the majority of these effect size fall in the trivial to small range, with only one effect size falling in the moderate range. The significance of these effect sizes are summarized in the discussion of the results in each table.

***Legislator Demographic Descriptive Statistics***

Legislator demographic information was captured via six survey questions. The questions covered chamber, political party, years in office, highest level of education completed, gender, and age category (in five year increments). Table 4.3 summarizes legislator demographic information for the phase one survey responses.

<b>Demographic Variable</b>	<b>Number of Responses</b>	<b>Summary Statistics</b>
<b>House (Democrats and Republicans)</b>	32	53% of the House
<b>Senate (Democrats and Republicans)</b>	24	80% of the Senate
<b>Democrat</b>	21	55% of Democrats
<b>Republican</b>	35	67% of Republicans
<b>Male</b>	37	65% of Male Legislators
<b>Female</b>	16	49% of Female Legislators
<b>Years In Office</b>	See Appendix N for Full Listing	Mean = 5.63 Std. Dev. 5.17
<b>Age</b>	See Appendix N for Full Listing	Mean = 50.24 Std. Dev. = 13.64
<b>Education</b>	See Appendix N for Full Listing	Mean = 17.44 Std. Dev. = 3.16

**Table 4.3.** Phase One Survey Legislator Demographics

Appendix N contains a complete listing of all demographic data collected, including detailed frequency data for years in office, age, and education. Qualtrics online

survey response histograms outlining the individual responses by legislators are shown in Appendix Q.

### ***CT Frequency of Use Descriptive Statistics***

Phase one CTFOU descriptive statistics are used to directly answer the first half of research question 1:

***RQ1: What CTs do legislators in the Arizona House and Senate use to communicate with their peers and constituents, and with what frequency do they use these CTs? What importance do legislators attach to these CTs?***

A ratio level scale indicating the number of times the technology was used per year was developed. For example, a “use annually” response remained at a value of 1 (indicating a once per year use) and a use hourly response was converted to a value of 3,285 (1 use per hour, times 9 hours per day<sup>30</sup>, times 365 days per year).

Using this conversion to weight the CTFOU responses allowed the mean weighted score for each CT to be used as a relative indicator of CTFOU, with the higher mean scores indicating higher CTFOU. It is important to note that the actual conversion factor (times per year, per month, per week, etc.) used is not of concern, as long as it is applied consistently across all categories. Table 4.4 contains a rank order of the CTs most frequently used by legislators to communicate with peers and constituents. This table does not include data from legislators who did not use the CT, and is valuable from

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<sup>30</sup> 9 hours per day were used because seven of the nine legislators interviewed said they stayed at their desk and worked while eating lunch. Regardless, the actual number of hours used is irrelevant because it is simply a scalar that will not change the relationships between regression coefficients nor the relative descriptive statistics. In effect, as long as the same scalar is used across all variables, the scalar only changes the absolute value of the frequency of use but does not change the relative frequency of use between CTs.

an overall CT use perspective. Put another way, Table 4.4 lists the legislator frequency of use of all CTs, excluding legislators who indicated that they do not use the CT.

Appendix O: Frequency of Use Frequency Tables provides the detailed responses from legislators for CTFOU questions.

CT	Constituent Ranking	Mean Constituent Score (Times Used Per Year)	Peer Ranking	Mean Peer Score (Times Used Per Year)
E-Mail	1	1505	1	1192
Face-to-Face	4	362	2	886
Telephone	5	301	4	590
Facebook	2	657	3	592
Twitter	3	652	5	398
Letter (Hardcopy)	7	141	7	234
Web Page	6	247	6	281
Blog	8	64	8	54

**Table 4.4.** Constituent and Peer CT Frequency of Use Rankings, Active Legislators

To determine *overall* CTFOU rankings, the mean scores for constituent and peer CTs were added together, producing the overall ranking shown in Table 4.5. CTFOU is one of two primary dependent variables in this research.

CT	Overall Ranking	Mean Score (Times Used Per Year)
E-Mail	1	2611
Face-to-Face	2	1168
Telephone	3	844
Facebook	4	839
Twitter	5	502
Web Page	6	343
Letter (Hardcopy)	7	312
Blog	8	37

**Table 4.5.** Overall CT Frequency of Use Rankings

### *CT Importance Descriptive Statistics*

Phase one importance descriptive statistics are used to directly answer the second half of research question 1:

*RQ1: What CTs do legislators in the Arizona House and Senate use to communicate with their peers and constituents, and with what frequency do they use these CTs? What importance do legislators attach to these CTs?*

CT importance is the second primary dependent variable. Legislators were asked to indicate the importance<sup>31</sup> of each CT using an ordinal scale (0 = not used, 1 = not important, 2 = slightly important, 3 = moderately important, 4 = important, and 5 = very important) were used. The higher the mean response for the CT, the more important it was to the legislators for the purposes of performing their legislative duties. This method was used to produce the CT importance rankings shown in Table 4.6. The detailed survey response frequency tables for the survey importance questions are contained in Appendix P: CT Importance Frequency Tables.

CT	Constituent Ranking	Mean Constituent Score	Peer Ranking	Mean Peer Score
Face-to-Face	1	4.79	1	3.98
E-Mail	2	4.5	2	3.96
Telephone	3	4.29	3	3.75
Letter	4	3.51	4	2.55
Facebook	5	2.57	5	1.84
Web Page	6	2.21	6	1.52
Twitter	7	1.71	7	1.41
Blog	8	1.11	8	.79

**Table 4.6.** Constituent and Peer CT Importance Rankings

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<sup>31</sup> Importance with respect to performing their legislative duties when communicating with peers and constituents.

To determine overall CT importance rankings, the mean scores for constituent and peer CTs were added together, producing the overall ranking shown Table 4.7.

Table 4.7 compares the hypothesized CT importance as predicted by media naturalness theory as discussed in chapter two and summarized in Table 2.2.

CT	Importance Reported by Legislators	Mean Score <sup>32</sup>	Media Naturalness Predicted Importance
Face-to-Face	1	8.76	1
E-Mail	2	8.46	5
Telephone	3	8.02	2
Letter	4	6.07	4
Facebook™	5	4.41	3
Web Page	6	3.77	7
Twitter™	7	3.13	8
Blog	8	1.89	6

**Table 4.7.** Overall CT Importance Rankings, Actual vs. Predicted

As shown in Table 4.7, the importance of face-to-face meetings and letters were perfectly predicted by naturalness theory. Of the CTs examined, E-Mail was the only CT not within 1 or 2 ranks of the naturalness predicted value, suggesting a correlation between the naturalness of a CT and the importance the legislator placed on it. The Pearson’s pairwise correlation between the Importance of a CT as reported by legislators and the naturalness predicted importance is 0.762. Spearman’s rho = 0.762, p = .028.

Based on the correlation between legislator reported CT importance and the naturalness theory reported importance, hypothesis H<sub>7</sub>: ***The overall importance of a CT to a legislator, in completing their duties as a legislator is positively correlated with the naturalness of that CT such that more natural CTs will be ranked with higher***

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<sup>32</sup> Note: This mean score represents the sum of constituent and peer importance, producing an overall importance score.

*importance* is not rejected. These results are supported by Kock's (2005) naturalness theory which suggests that natural communications have less ambiguity, require less cognitive effort, and offer less physiological arousal. Kock argues that humans are biologically programmed to read and understand body language, and that these biological responses are more efficient at transmitting information than less natural communications, and more important than less natural communications because human survival has depended largely on the use of biological (natural) communication apparatus.

Phase three interviews support the results shown in Table 4.7 and Kock's naturalness theory. During the phase three legislator interviews<sup>33</sup>, legislators indicated that face-to-face meetings were most important primarily because they allowed them to interpret the body language and emotional state of the individual they were meeting with. Often, legislators wanted face-to-face meetings so that they could judge the truthfulness of the person they were meeting.

In short, the results outlined in this section suggest that the importance of face-to-face communications for legislators is largely biological. This being said, E-Mail, a relatively unnatural CT was ranked with much higher importance than naturalness theory would predict, indicating other factors are influencing the importance of CT to legislators. This unanticipated result is discussed in the following section.

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<sup>33</sup> These results are discussed in detail in the qualitative results section of this chapter.



Naturalness theory does not address the influences of time constraints<sup>34</sup> or mass media benefits on communication preferences, and these influences may increase the importance of E-mail over what naturalness theory predicts. Researchers recognize that legislators are both aware of the time saving benefits of mass communications (Abramson, 2003; Bimber, 2003), and take advantage of these benefits by utilizing E-Mail (Golbeck et al., 2010; Lathrop & Ruma, 2010; Sheffer, 2003). Based on legislator interviews in phase three, legislators view E-Mail as a tool used to take care of “the business of being a legislator” and note the efficiency of E-Mail to respond to day-to-day events that arise as a normal part of being a legislator. Phase three results suggesting the efficiency and effectiveness of E-Mail are buttressed by other research investigating state legislators’ use of E-Mail (Cooper, 2002a; Pole, 2005; Richardson Jr et al., 2001; Richardson & Cooper, 2006; Sheffer, 2003).

### ***Internet Enabled CT (IECT) usage***

With the exception of hypothesis H<sub>7</sub>, all hypotheses in this study are related to focusing research question two on IECT usage. Research question two asks:

*How does legislator frequency of use and perception of importance of the CTs identified in RQ1 vary as a function of political party, institution (House or Senate), age, gender, years in office, education, and technology usage.*

Put another way, while research question two focuses on all CTs examined, hypotheses H<sub>1</sub> through H<sub>6</sub> focus on IECT use by legislators. This section focuses on these hypotheses. Confirming Greenberg’s (2012) study, legislator age was found to be a significant factor in social media usage by legislators. The results of bivariate regressions

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<sup>34</sup> Except in the abstract by reference to media richness, which is related to the quantity of information transmitted per unit time.

suggest that a 1 year increase in legislator age is associated with a 62 time per year *decrease* in the number of times social media (defined as Facebook™ and Twitter™) is used per year. This result is statistically significant at the 95% CI ( $p = .049$ , R-squared = 5.9%, suggesting that age does not explain much of the variation in social media frequency of use). Interestingly, while age was a factor in social media use, it was not a significant factor in IECT usage. Based on these results, hypothesis ***H<sub>1</sub>: An increase in legislator age is correlated with a decrease in IECT usage*** is rejected.

As suggested in research by Akman et al. (2010), Knight (2005), and Thayer (2006), who found that gender was not a significant predictor of IECT usage when a common IT infrastructure was shared, gender was not a significant predictor of IECT *usage* or *importance* for legislators. A independent samples t test of the frequency of IECT communications by gender produced a mean annual number of 4859 IECT communication events for female legislators, a mean annual number of 3989 IECT communication events for male legislators ( $t = .5191$ ,  $p = .303$ ) therefore hypothesis ***H<sub>2</sub>: Legislator gender is not correlated with IECT usage*** is not rejected.

Education was expected to play a role in IECT frequency and importance based on research on non-legislators (Chen & Persson, 2002; Juznic et al., 2006; Tak & Hong, 2005), but this was not the case. The relationship between education and IECT usage and importance was not statistically significant. A linear regression of the frequency of IECT communications by gender produced an unstandardized coefficient suggesting that a 1 year increase in education is correlated with an 84 times per year increase in IECT communication events ( $t = .28$ ,  $p = .763$ ) therefore hypothesis ***H<sub>3</sub>: An increase in legislator education is correlated with an increase in IECT usage*** is rejected.

Difference of means testing on the CTFOU of Facebook™ and Twitter™ by party affiliation produced no statistically significant relationships. An independent samples t test of the frequency of Facebook™ communications by *partyid* produced a mean annual number of 1264 Facebook™ posts for Democrat legislators and a mean annual number of 584 Facebook™ posts for Republican legislators ( $t = 1.32, p = .1939$ ). An independent samples t test of the frequency of tweets<sup>35</sup> by *partyid* produced a mean annual number of 780 tweets for Democrat legislators and a mean annual number of 330 tweets for Republican legislators ( $t = 1.19, p = .1197$ ). Importantly, Democrats are the minority party in Arizona, and the t tests suggest that Democrats are communicating more than Republicans, potentially supporting an extension of the Straus et al. theory that the minority party communicates more than the majority party, and possibly supporting his theory that the minority party will communicate more via Twitter™, even though the results are not statistically significant at the 95% CI. It is possible that a larger sample size will increase the statistical significance of these tests. Based on these results, hypothesis *H<sub>4a</sub>: Republicans use Facebook™ more frequently than Democrats* and hypothesis *H<sub>4b</sub>: Republicans use Twitter™ more frequently than Democrats* are rejected.

Difference of means testing on the frequency with which legislators use E-Mail produced results which were statistically significant at the 95% CI. The results suggest that the mean frequency of Democrats' use of E-Mail was 3,366 times per year while the mean frequency of Republican use was 2,161 times per year, therefore hypothesis *H<sub>5</sub>: Democrats use E-mail with more frequency than do Republicans* is not rejected.

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<sup>35</sup> A message sent by Twitter™ to “followers” is commonly referred to as a tweet.

Legislator elected chamber, while expected to play a role in overall IECT usage based on research by Greenberg (2012) and Alperin (2003), was found to be uncorrelated. Difference of means testing on the CTFOU of Facebook™, Twitter™, and E-Mail by legislator chamber all produced results which were not statistically significant at the 95% CI. An independent samples t test of the frequency of Facebook™ communications by *senate* produced a mean annual number of 919 IECT Facebook™ posts for the House and a mean annual number of 730 Facebook™ posts for the Senate ( $t = .368, p = .714$ ). An independent samples t test of the frequency of tweets by *senate* produced a mean annual number of 457 tweets for the House and a mean annual number of 560 tweets for the Senate ( $t = -.276, p = .784$ ). An independent samples t test of the frequency of E-Mail use by *senate* produced a mean annual number of 2542 E-Mails for the House and a mean annual number of 2707 E-Mails for the Senate ( $t = -.240, p = .811$ ). Based on these results, hypotheses ***H<sub>6a</sub>: House members use Facebook™ less frequently than Senate Members***, ***H<sub>6b</sub>: House members use Twitter™ less frequently than Senate Members***, and ***H<sub>6c</sub>: House members use E-mail more frequently than Senate Members*** are all rejected. Representatives used phone calls more than twice as often as Senators, and Senators used blogs four times more often than Representatives.

#### *Relationships Between Frequency of Use and Importance*

Examination of the relationships between CTFOU and importance is exploratory in nature. Based on the data presented previously on CTFOU and importance, it is reasonable to expect that the two may be correlated. Table 4.8 compares the overall CTFOU and importance rankings side by side.

CT	Frequency Rank <sup>36</sup>	Importance Rank <sup>37</sup>
E-Mail	1	2
Face-to-Face	2	1
Telephone	3	3
Facebook	4	5
Twitter	5	7
Web Page	6	6
Letter (Hardcopy)	7	4
Blog	8	8

**Table 4.8.** CT Frequency of Use and Importance Comparison  
Table notes: (n=49),  $\rho = .6762$  and is statistically significant at the 99.9% CI

Using Spearman’s rho, a significant correlation is found between CT frequency rank and CT importance rank. Pearson’s pairwise correlation coefficient = .810. No research on legislators or non-legislators could be located which suggests relationships between the importance of a CT and the frequency of a CT although at face value, one might reasonably expect legislators to more frequently use the CTs that are more important to them.

The relationship between CTFOU and CT importance was further tested via a linear regression model:

$$frequency = \beta_0 + \beta_1 importance + \beta_2 gender + \beta_3 age + \beta_4 education + \beta_5 yrsoffice + \beta_5 senate + \varepsilon$$

The ratio level dependent variable *frequency* represents the total number of communication events reported by each legislator and is the sum of the total number of constituent communication events per year and the total number peer communication events per year. The ratio level independent variable *importance* is the sum of the

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<sup>36</sup> Frequency rank is based on the CTFOU for each of the CTs in the survey. The higher the CTFOU, the higher the frequency rank.

<sup>37</sup> Importance rank is based on the overall CT importance for each of the CTs in the survey. The higher the legislators ranked the importance of a CT, the higher the importance rank.

importance of peer communications and the importance of constituent communications for all CTs surveyed. The variable *frequency* represents a measurement of the overall frequency that a legislator communicates per year and the variable *importance* represents the overall importance a legislator assigns to all CTs surveyed. The results of a robust linear regression controlling for gender, age, education, years in office, and chamber suggest that a one unit increase in the overall importance legislators assign to CTs results in a 313 times per year increase in the overall frequency of communication of a legislator ( $\beta = 313$ , R-Squared = .297,  $p=.005$ ), effect size = .422 (moderate to large). Importance is the only variable in the model which is statistically significant at  $\geq 95\%$  CI.

### ***Technology Hardware Usage***

As with the relationship between CTFOU and CT importance, the examination of the relationships between the hardware technologies a legislator uses and CT importance and CTFOU is exploratory in nature. While no research on this topic as related to legislators could be found, it is reasonable to expect that the more communication technology hardware a legislator uses, the more they will communicate. Legislator use of technology hardware was indicated by a single composite variable that ranged from a value of zero (indicating that a legislator did not use any of the technology hardware listed) to a value of 26,280 (indicating that a legislator used all of the technology hardware listed every hour in a 9 hour legislative day, 365 days per year). The following hardware technologies were examined: desktop computers, laptop computers, net-book or other sub-laptop sized computers, tablet devices, smart phones, basic cell phones, smart watches or computerized wrist devices, and pocket digital media players. Importantly,

with the exception of the pocket digital media player, all hardware technologies examined can be used to communicate.

For all listed technology hardware, legislator CTFOU responses were converted from a ratio scale (a value of 0 for never used, 1 for used yearly, 2 for used monthly, etc.) into the number of times used per year following the same technique as the CTFOU variable. After weighting, the technology use variable ranged from a minimum of 1095 to a maximum of 16,425 with a mean of 7039 and a standard deviation of 3427. Robust bivariate regressions (normality not assumed) between all demographic variables and the *techuse* variable produced only one statistically significant result between hardware technology use and the number of years in office which is statistically significant at the 99.9% CI. The relationship was such that a one year increase in the number of years a legislator has been in office is correlated with a 213 times per year *decrease* in hardware technology usage, on average, all else equal.

Shifting the analysis of legislator hardware technology use from demographic variables to its relationship with CTFOU and importance offers a wider perspective of the influence of hardware technology on legislator behavior. As pointed out earlier, the same weighting calculations were applied to both CTFOU and hardware technology use, allowing the straightforward application of linear bivariate regressions. In Table 4.9, the independent variable that represents a legislator's total use of hardware technology, bivariate regressions were performed. The variable *techuse* is regressed against the constituent CTFOU and peer CTFOU variables for each CT, and the statistically significant results are presented.

Dependent Variable	Independent Variable	Unstandardized Coefficient. (Std. Err.)	Spearman's Rho	Pearson Pairwise Correlation Coefficient
CTFOU for E-Mail Communications with Constituents	Technology Hardware Use ( <i>techuse</i> )	.197 (.043)***	.359**	.450
CTFOU for Twitter™ Communications with Constituents	Technology Hardware Use ( <i>techuse</i> )	.062 (.029)*	.360**	.250
CTFOU for Face-to-face Communications with Peers	Technology Hardware Use ( <i>techuse</i> )	.117 (.056)*	.342**	.304
CTFOU for Telephone Communications with Peers	Technology Hardware Use ( <i>techuse</i> )	.107 (.045)*	.430**	.349
CTFOU for E-Mail Communications with Peers	Technology Hardware Use ( <i>techuse</i> )	.209 (.038)***	.499***	.488
CTFOU for Twitter™ Communications with Peers	Technology Hardware Use ( <i>techuse</i> )	.045 (.022)*	.339**	.244

**Table 4.9.** Hardware Technology Use vs. CT Use, Bivariate Regression Results  
 \*p-value <.05, \*\*p-value <.01, \*\*\*p-value <.001

Using constituent E-mail communications in Table 4.9 as an example, the results can be interpreted as a one-time increase in the use of hardware technology is correlated with a .197 time increase in the frequency that E-Mail to communicate with constituents, on average, all else equal. Effectively, this suggests that five uses of one (or a



combination of) the listed hardware technologies are correlated with a one use increase of E-Mail by legislators.

*CT Frequency of Use: Political, Institutional, and Demographic Variations*

An examination of CTFOU variations as a function of political, institutional, and demographic variables is required to address research question two:

*How does legislator frequency of use and perception of importance of the CTs identified in RQ1 vary as a function of political party, institution (House or Senate), age, gender, years in office, education, and technology usage.*

CTFOU variables for all CTs examined were subjected to difference of means testing by binary dummy variables (*senate, male, partyid*) to determine significant relationships. Table 4.10 reports the statistically significant relationships. It is important to note that the mean values reported in columns three and five of Table 4.10 are the mean number of communication events *per year* for the selected CTs in column one of Table 4.10.

Variable	Group 1	Group 1 Mean <sup>38</sup>	Group 2	Group 2 Mean <sup>39</sup>	t-value
Frequency of Phone Use with Peers	Democrats	1065	Republicans	238	3.04***
Frequency of E-Mail Use with Peers	Democrats	1518	Republicans	861	1.66*
Frequency of Phone Use with Constituents	Democrats	473	Republicans	190	1.73*

**Table 4.10.** Frequency of Use t tests  
\*p-value <.05, \*\*p-value <.01, \*\*\*p-value <.001

The results in Table 4.10 appear to conflict with the research in Chapter 2 that suggested Republicans would communicate more frequently than Democrats for most

<sup>38</sup> This mean represents the average number of communication events per year.

<sup>39</sup> This mean represents the average number of communication events per year.

CTs. In every statistically significant result shown in Table 4.10, Democrats are using CTs more frequently than Republicans. This finding may be an extension of research completed on Twitter™ use at the congressional level (Straus et al., 2013) showing that the minority party communicates more with Twitter™ than the majority party. This finding is one of the more important unanticipated results of this study and will be discussed more thoroughly Chapter 5. The importance of mature communications did not vary as a function of *partyid*.

#### *CT Importance: Political, Institutional, and Demographic Variations*

Importance variables for all CTs examined were subjected to Wilcoxon rank-sum (Mann-Whitney) testing for independent samples of ordinal variables by binary variables (senate, male, republican) to determine significant relationships between the two distributions. Wilcoxon rank-sum tests do not make any assumptions about the normality of the distribution of the ordinal variable and are traditionally used to compare two sets of ordinal data differentiated by a binary variable (Acock, 2010; McCrum-Gardner, 2008; Welch & Comer, 1983). Only two tests were statistically significant at > 95% CI: House members ranked the importance of communicating face-to-face with constituents (1) and peers (2) higher than did their Senate counterparts, with the House rank-sum in each case over twice that of the Senate rank-sum. Based on these results, the null hypotheses ( $H_0$ ) inherent in the Wilcoxon rank-sum test:

$H_{0a}^{40}$ : importance of communicating face-to-face with constituents (House) = importance of communicating face-to-face with constituents (Senate) and

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<sup>40</sup> The use of the  $H_0$  format here is simply an artifact of how Stata reports the results of the Wilcoxon rank-sum test. There are no formal hypotheses associated with the importance of communicating face-to-face with constituents or peers in this study due to a lack of existing research on the importance of CTs to legislators.

H<sub>0b</sub>: importance of communicating face-to-face with peers (House) = importance of communicating face-to-face with peers (Senate)

are rejected. There are statistically significant differences in the overall importance of communicating face-to-face with constituents and peers in the House as compared to the Senate, with Representatives finding face-to-face communications with constituents and peers more important than Senators.

Non-linear regression models of the form:

$$\text{CT Importance} = \beta_0 + \beta_1 (\text{Male}) + \beta_2 (\text{Senate}) + \beta_3 (\text{Republican}) + \beta_4 (\text{Age}) + \beta_5 (\text{Years in Office}) + \beta_6 (\text{Education}) + \varepsilon_0$$

Produced statistically significant results with respect to Twitter™ use and age, Facebook™ use and Gender, Facebook™ use and years in office, and blog use and gender such that males use Facebook™ and blogs less than females, Twitter™ use declines with increasing age, and Facebook™ use declines with years in office<sup>41</sup>, however, as anticipated earlier in this chapter, the all of the effect sizes for statistically significant results fell in the trivial (< 0.1) to small (0.1 – 0.3) range. Effectively, the economic significance of the results were trivial or small due to sample size.

### ***Internet Protocol (IP) Address analysis***

The phase one survey was completed during the first session of Arizona's 51<sup>st</sup> legislature. As citizen legislators, many Arizona legislators maintain a non-legislative career in parallel with their legislative duties. One question that can be examined through a feature in Qualtrics is the location of legislators when they completed the survey. Ideally, all legislators would take the survey under the same settings to normalize outside

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<sup>41</sup> Note: age is held constant and years in office is still statistically significant.

influences while taking the survey. For example, if half of the legislators completed the survey on their cellphone and the other half completed their survey from the state capitol, a control variable may be necessary when completing regression analyses. Although the Internet survey was anonymous, Qualtrics collects the Internet Protocol (IP) addresses of the respondents. Using the UNIX whois command via a terminal command line, certain details about the physical location of the IP address where the legislator took the survey can be determined. One of the more interesting details that can be drawn from an IP address, is the location and type (business or residential) of the IP address block in which the IP address resides. Table 4.11 outlines the locations and/or types of IP addresses legislators used to respond to the Internet survey. As can be seen from Table 4.11, the majority of legislators took the survey from the Arizona state capitol, many completed the survey from home, but some used a cellphone to take the survey and one legislator took the survey while they were out of state.

Internet Protocol (IP) Address Type	Percent of Legislators Utilizing Address Type
Arizona State Capitol	60%
Residential Arizona Address	25%
Cellular Telephone	10%
Out of State Residential Address	5%

**Table 4.11.** Internet Survey IP Address Type

### **Qualitative Phases Two and Three**

The qualitative discussion in this chapter covers all research questions (RQ1-RQ6). The topics covered in these research questions are woven throughout interviews with legislator assistants, legislators, and IT staff. Importantly, the topics covered in the remainder of this chapter were derived from interview coding cycles and the subsequent network diagrams highlighting recurring relationships and themes discovered during the

interviews. No attempt was made to force the interview content into a form factor that supported a specific research question, and, in the opinion of this researcher, any attempt to do so would detract from the nuanced complexity of the relationships between legislators, legislator assistants, IT staff, and CT.

While the material presented in the following qualitative results section is not delineated by research question, there are some relationships that should be noted. For instance, while RQ1:

*What CTs do legislators in the Arizona House and Senate use to communicate with their peers and constituents, and with what frequency do they use these CTs? What importance do legislators attach to these CTs?*

and RQ2:

*How does legislator frequency of use and perception of importance of the CTs identified in RQ1 vary as a function of political party, institution (House or Senate), age, gender, years in office, education, and technology usage.*

were covered extensively in the phase one discussion of this chapter, they also appear in coded network diagram nodes as topics of importance during interviews. RQ3:

*What is the impact of CT on the behaviors, roles, responsibilities, and understanding of constituents of the staff of Arizona House and Senate legislators?*

is appropriately addressed whenever legislator assistant interview material is presented.

In addition, network diagrams nodes showing relationships between CT, legislator assistants, and their roles and responsibilities occur in almost every CT network diagram in Appendices F through L. The Appendix L: Assistant Network Diagrams are dedicated to legislator assistant relationships, and the network diagram in Appendix K: Paired Network Diagrams highlights relationships between matched legislator-legislator assistant pairs.

The heart of the remainder of this chapter addresses research question RQ4:

*RQ4: What is the impact of CT on the behaviors, roles, responsibilities, and understanding of constituents of legislators in the Arizona House and Senate?*

while research questions RQ5 and RQ6:

*RQ5: What role does IT support and infrastructures play in a legislator's use of CT, and how do IT personnel perceive legislator behaviors associated with CT?*

*RQ6: What are the implications of changing legislator use of CT for the development of, and change in, IT support and infrastructures.*

play supporting roles and are addressed indirectly as IT department interview material is used in this section, tied into legislator interviews as necessary to build a coherent picture of the complexity of the relationships between IT staff and legislators and legislator assistants.

The previous section mentions coding, nodes, and network diagrams used to analyze interview material. The purpose of this section is to provide some detail regarding how these tools were developed. Qualitative analyses for phases two and three followed Saldaña's (2012) exploratory coding methods outlined in his book *The Coding Manual for Qualitative Researchers*. Saldaña recommends that exploratory qualitative research utilize a two cycle coding method, with second cycle coding being a refinement or adjustment to the first cycle methods designed to incorporate researcher knowledge gained during first cycle coding. An exploratory, grounded theory approach was utilized to analyze interview data. This approach consisted of an exploratory two-pass cumulative coding cycle methodology as recommended by Saldaña.

First pass coding utilized provisional coding (literature review based code), hypothesis coding (researcher hunches) and holistic coding (broad topic areas arising

from the data). The second pass coding followed a focused approach, distilling first pass coding into themes based on conceptual themes related to CT relationships and behaviors. For first pass codes, a quasi In Vivo approach was utilized. This approach summarized coded sections into short sentences that could easily be understood in a network diagram and was designed to capture the nuances associated with CTFOU and behaviors. Quasi In Vivo second pass codes were typically summarized with one or two word codes that were then “connected” to first pass codes using Atlas.ti’s network relationship functions to determine theoretical relationships based on network link densities. In effect, clusters of codes with similar theoretical themes appear as node clusters in network diagrams.

This section begins with a brief introduction to the participants who were interviewed during the second and third phases of research. It is important to note that Chapter 4 focuses primarily on interviews with legislator assistants (phase two) and interviews with legislators (first half of phase three). IT staff interviews (second half of phase 3) are covered in the discussion of research question five and research question six in Chapter 5.

***Legislator Assistants*** - Nine legislator assistants were interviewed. They are identified as assistant A through assistant I. A brief<sup>42</sup> description of each of the legislator assistants interviewed is contained in Appendix S: Legislator Assistant Descriptions.

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<sup>42</sup> Too many details could lead to identification; brevity is important to ensure anonymity.

**Legislators** - Nine legislators were interviewed. They are identified as legislator B, D, E, G, H, I, J, K, and L. A brief description of each of these legislators interviewed is contained in Appendix T: Legislator Descriptions.

**IT Department** - Three IT department professionals were interviewed. They are identified as IT A through IT C. Because the IT department is very small, no description is provided for IT department professionals; any demographic or job description indicator would likely be uniquely identifying, effectively removing anonymity for the interviewees.

**Interview Settings** - All interviews took place at the Arizona state capitol complex. Meetings with IT staff were held in the offices of IT staff located in the state capitol building which houses the Arizona Governor's office, capitol complex support and administration staff. The IT staff offices were the oldest and most utilitarian offices. There were no decorations on the walls, and offices were found off long brightly lit (with utility style fluorescent lamps) corridors. Full offices with doors entering from the hallway were common, and indicative of the popular style of architecture popular in 1898 when construction on the capitol building began. The part of the capitol building inhabited by IT staff was sterile, old, and rather uninviting.

Interviews with Representatives and their legislator assistants were held in the Arizona state House of Representatives building, in the assistant's foyer or the legislator's office. This building, built in 1960, is much more inviting than the IT staff offices. Assistants are typically in a common area that branches off to anywhere from one (for leadership offices) to three or more legislator offices. The assistant area may have as many as six assistants separated by low wall cubicles. Phone calls and the chatter



of other assistants frequently interrupted interviews with assistants, and with the exception of one interview with the assistant of a House leadership member and two other assistants, none of the assistant interviews were private. In the House, representative's offices tended to be nicely (and richly) decorated, with Arizona related trinkets on shelves and desktops and Arizona themed paintings and awards on the walls. Every interview with House legislators was private and the setting was quiet, with few interruptions from phone calls.

The Arizona Senate building, built at the same time as the House building, is similar in design and atmosphere to the House building. Because Senate legislator assistants serve only one Senator, all interviews with assistants were held in private, in the office of the assistant. Offices of the Senate assistants are in a room that has an entry door to a hallway, and another door that leads to the Senator's office. These assistant/Senator office pairings make the assistant appear as the gatekeeper to the Senator's office, and in many ways, they are. Senate legislator assistants have walls to decorate that are their private spaces, and the decorations tend to be nice, but not elaborate or richly appointed like legislator offices. All interviews with Senate legislator assistants were private, with few interruptions. Senator offices were about the same size as Representative offices, and had the same richly decorated aura as their counterparts in the House. All Senator interviews were private, held in their offices, and had few interruptions.

As noted earlier, the topic of importance is both subjective, and ambiguous. From the perspective of the phase one survey results, importance was defined with respect to performing their "work as a legislator". The topic of importance was explored in more

detail in legislator interviews. Table 4.12 outlines the importance that legislators associate with various CTs and their legislative duties as defined in network diagrams for all CTs shown in Appendix F (E-Mail) through Appendix J (Social Media). Importance for each CT is derived from network nodes for each CT grounded in quotes from interviews with legislators.

<b>Survey Importance Rank</b>	<b>CT</b>	<b>Interview Importance Associated With</b>
1	Face-to-face Communications	Trust Building, Influence, Coalition Building, Reading Body Language, Privacy, Job Satisfaction, Understanding Emotions, Feeling Connected, Understanding Individual, Passing Legislation, Significant Topics, Circumventing FOIA Laws, Impact On Constituents, Mobilization, Constituent Feedback
2	E-Mail	Efficiency, Convenience, Taking Care of Routine Legislative Business, Mass Communication, Disengagement, Constituent Impact, Time Savings, Coalition Building, Campaigning, Mobilization, Constituent Feedback (Except Boilerplate E-Mail)
3	Telephone	Hearing Emotion, Efficiency, Multitasking, Time Savings, Feeling Connected, Addressing Constituent Issues, Circumventing FOIA Laws, Significant Topics, Reaching Older Constituents, Impact On Constituents, Mobilization, Constituent Feedback
4	Letters	Constituent Recognition, Significant Documents, Maintaining Contact With Low Technology Use Constituents
5	Facebook	Campaigning, Releasing (Pushing) Information Quickly, Mass Communication, Running For Higher Office, Chamber Leadership
6	Web Page	Campaigning, Obtaining Information (Research)
7	Twitter	Campaigning, Releasing (Pushing) Information Quickly, Mass Communication, Running For Higher Office, Chamber Leadership
8	Blog	Campaigning, Releasing (Pushing) Information Quickly, Constituent Feedback

**Table 4.12.** CT Importance and Legislative Duties

### *Network Diagrams and Content Analyses*

As discussed in Chapter 3, an exploratory, grounded theory approach was utilized to analyze interview data. This approach consisted of an exploratory two pass cumulative coding cycle methodology as recommended by Saldana (2012). First pass coding utilized provisional coding (literature review based code), hypothesis coding (researcher hunches) and holistic coding (broad topic areas arising from the data). The second pass coding followed a focused approach, distilling first pass coding into themes based on conceptual themes related to CT relationships and behaviors. For first pass codes, a quasi In Vivo technique was utilized. This technique summarized coded sections into short sentences that could easily be understood in a network diagram and was designed to capture the nuances associated with CTFOU and behaviors. Second pass codes were typically summarized with one or two word codes that were then “connected” to first pass codes using Atlas.ti’s network relationship functions. Appendix M: Atlas.Ti Screenshots contains example Atlas.ti™ screenshots corresponding to coding and network linking features.

Discussion of CT network diagrams begins with the most frequently utilized CTs that embody the most complex network diagrams. As legislators spend more time discussing an important or frequently used CT, more complex relationships are uncovered. For example, the network diagrams associated with E-Mail, one of the most important and frequently used CTs contains over 100 nodes and 331 related quotations (or grounding nodes) while infrequently used CT such as blogs contain two nodes and 12 related quotations. Network analysis begins with E-Mail and the associated network diagrams for all E-Mail related codes are shown in Appendix F: E-Mail Network

Diagrams. To provide a greater understanding of how network diagrams were generated, a detailed discussion will be presented with the first CT discussed, E-Mail, but not with subsequently discussed CTs<sup>43</sup>. All network diagrams are shown in Appendices F through L.

### ***E-Mail***

E-Mail was the single most grounded and connected CT discussed during interviews with legislators and legislator assistants. As shown in the network diagram in Figure 4.3., E-Mail clusters around six primary themes: bulk E-Mail, E-Mail efficiency, E-Mail naturalness, E-Mail risks, E-Mail benefits, and behaviors associated with E-Mail. Figure 4.3 is further broken down into these themes in Figures 4.4 through 4.9.

These themes appear as central nodes with second pass quasi In Vivo codes clustered around them. The quasi In Vivo second pass codes are supported by quotes from transcribed interviews. In general, there are many connections between these nodes that describe the relationships. For example, in Figure 4.6, connected to the node “Behavior” is the code “Legislator Concerned More About Risk Than Benefit” with the association “is a part of”. In other words, a legislator being concerned more about the risks of E-Mail than the benefits of E-Mail is a part of legislator behavior. In turn, the “Legislator Concerned More About Risk Than Benefit” node is connected to both the “Email Risks” and “Email Benefits” nodes via “is associated with” links, which in turn are connected to the coded risks and benefits that legislators associated with E-Mail via “is a property of” links. The individual risks and benefits of E-Mail are grounded to

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<sup>43</sup> Network diagrams consume a great deal of space in the study proper, and are contained in Appendices F through L to facilitate study readability.

quotes in the interviews. Using E-Mail risks as an example, the risk “No Control Over Information Once Released” is grounded by four quotes from interviews. E-Mail behavior is grounded in 942 quotes and 95 individual codes. In the following sections, each of the six primary E-Mail themes will be expanded and examined in detail. Where appropriate, links to other to other themes will be examined.

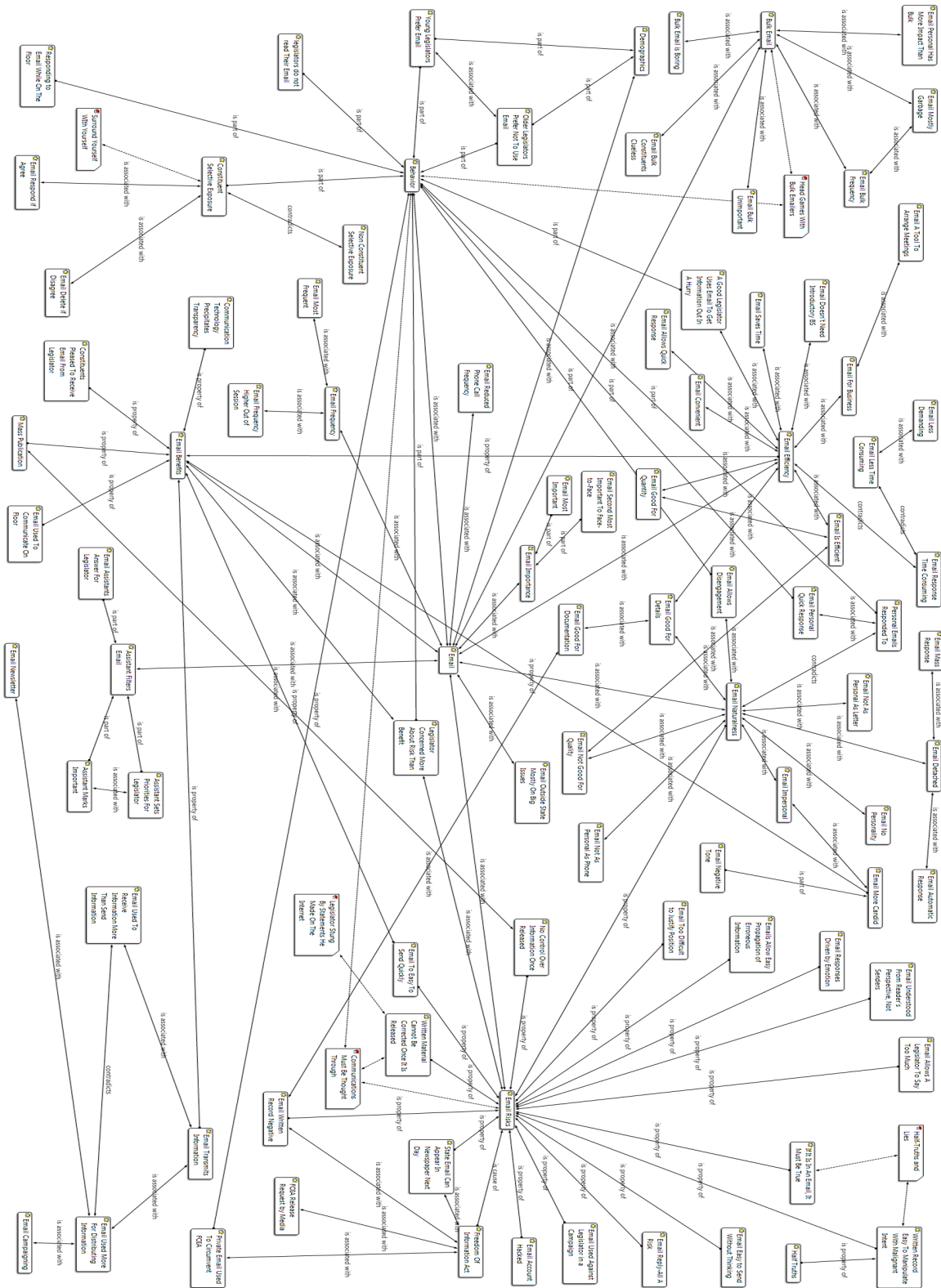
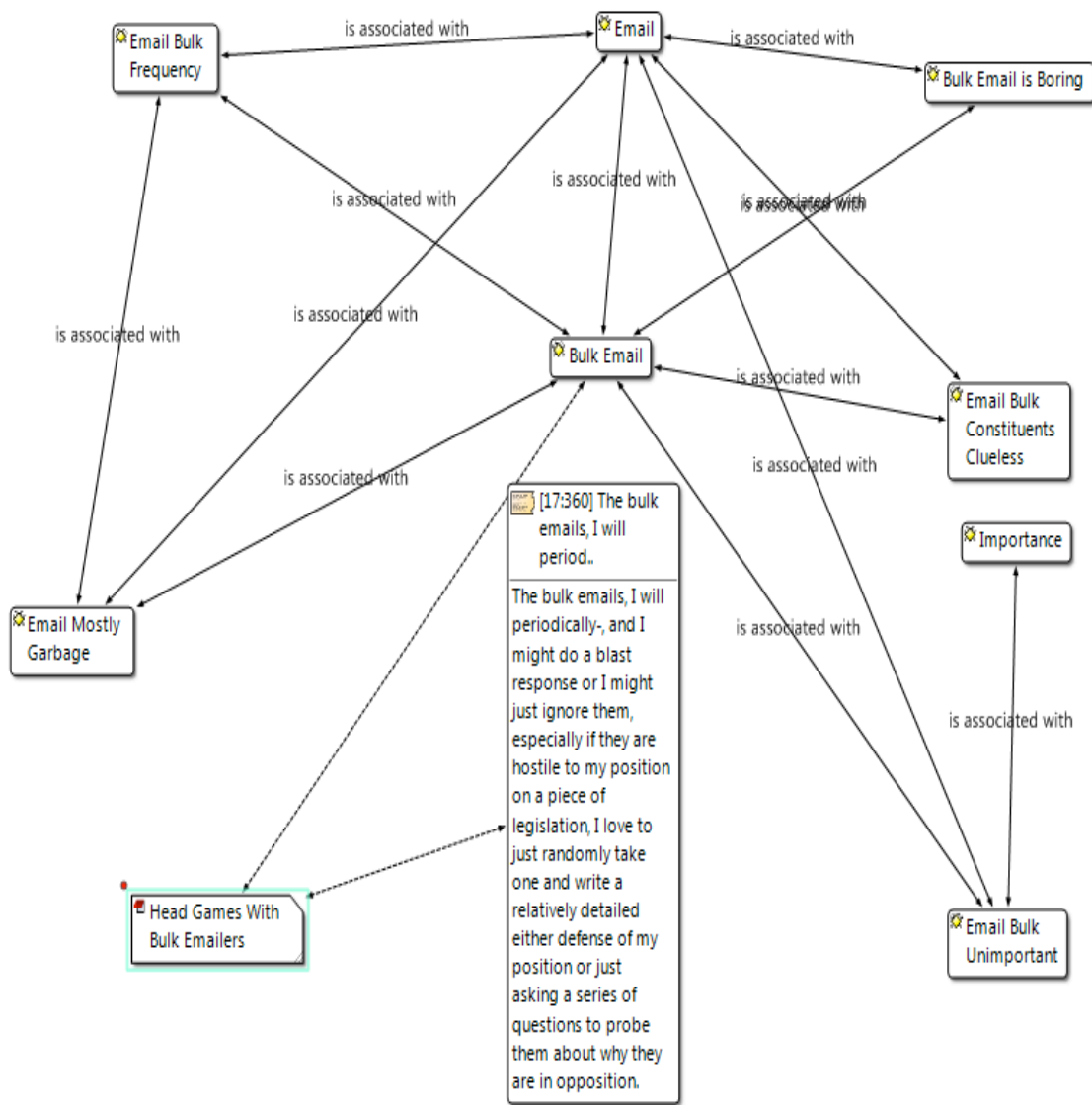


Figure 4.1. E-Mail Network Diagram

## Bulk E-Mail



**Figure 4.2.** Bulk E-Mail Network Diagram

Bulk E-Mail is E-Mail that occurs in large numbers and has identical text other than minor personalization differences. In general, legislators indicate that they receive relatively large numbers of bulk E-Mail has little impact on them. A representative quote from legislator E:

Respondent: Yeah, I mean basically somebody... it's sent to, whatever the Sierra Club [00:01:30]<sup>44</sup> or... any NRA, they have organized groups, they type their name in and then it generates an e-mail to me, sent from them, but it's the same text ... And I consider those more to be public opinion polls, extremely non-random, extremely unreliable, so they really mean very little to me.

Two legislators suggested that constituents who use bulk E-Mail often have little "clue" what they are signing.

Legislator L:

I don't think that people that are actually putting their name on a-, [0.09.24] on, a-, a form letter has any clue of what they're signing or not

Legislator K:

They don't have a clue. They're just a member of a group and the leadership of the group has said we're going to oppose this and we need to get as many people to join us in the opposition as we can. And so I say I will just, from time to time, if I have a few minutes, I'll just pick one of those. I don't even, I have no clue. And I will send this. And it's amazing how often I get no response whatsoever from that person. [00:30:30] Because that's the last thing they expected was some sort of actual, thoughtful response.

Assistant H on the topic of bulk E-Mail:

I would say, yes, it does. [0.19.29] Like, for example, the form E-Mail has very little impact at all on how the legislators is gonna vote.

Bulk E-Mail is one of the most frequent forms of communication received by legislators from constituents, but, as can be seen from the interview data, is of little importance.

None of the legislators had any comments with respect to bulk E-Mail suggesting that it in any way changed their floor voting behavior. Interestingly, bulk E-Mail is identified as the most common constituent communication by legislator assistants and legislators,

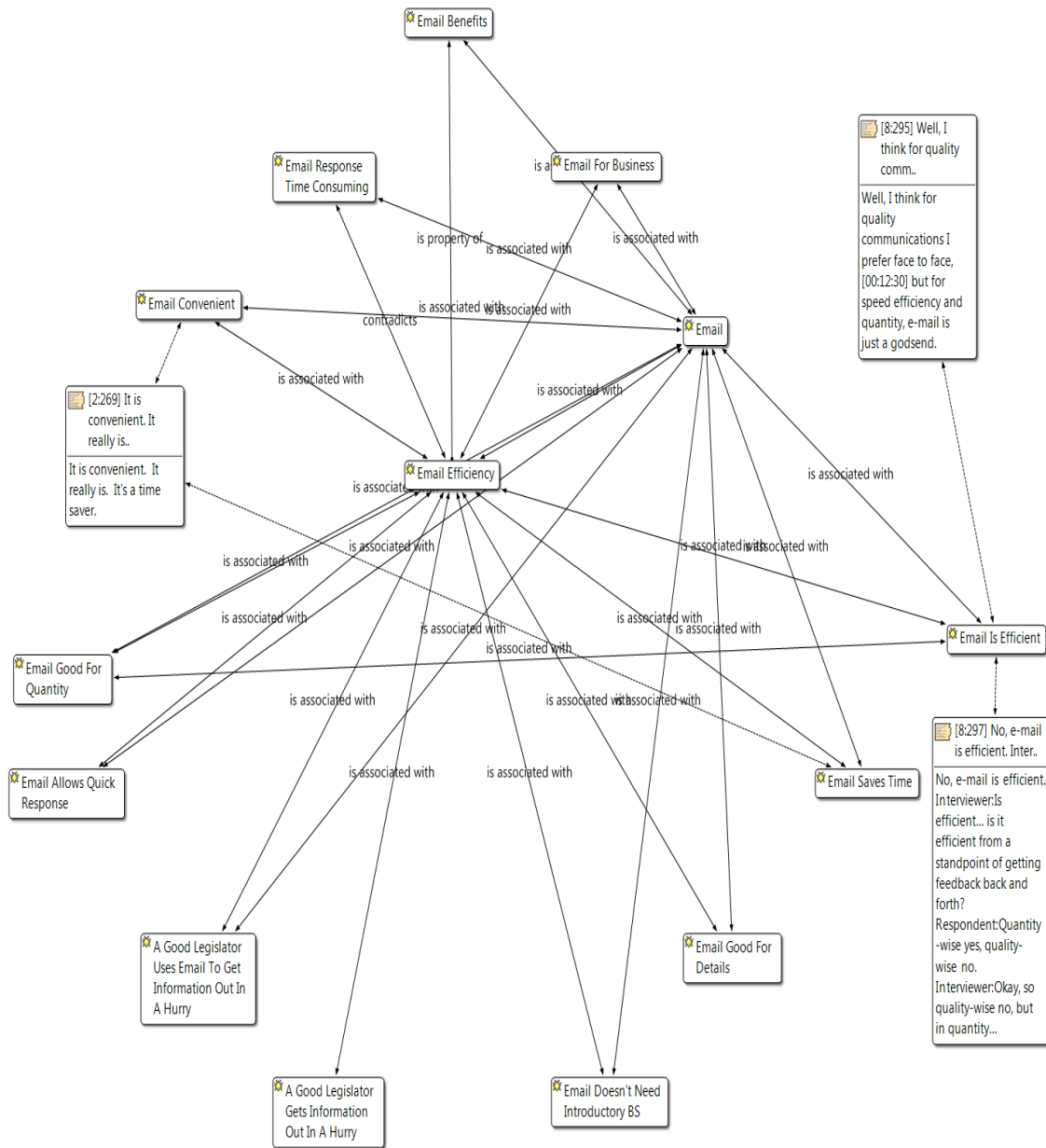
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<sup>44</sup> All interview transcripts were coded with timestamps approximately every 30 seconds. These numbers indicate the time that elapsed since the start of the interview and give the reader a concept of how far into the interview a particular comment was made.



but it is also identified as the least effective CT in common use, an example of a communication mismatch. Mismatches between constituent CTs and the CTs deemed most important by legislators is one of the most important unanticipated results of this study and will be discussed further in Chapter 5.

### *E-Mail Efficiency*



**Figure 4.3. E-Mail Efficiency Network Diagram**

A second common thread in interviews was the concept of E-Mail efficiency.

Here is legislator E's discussion of efficiency:

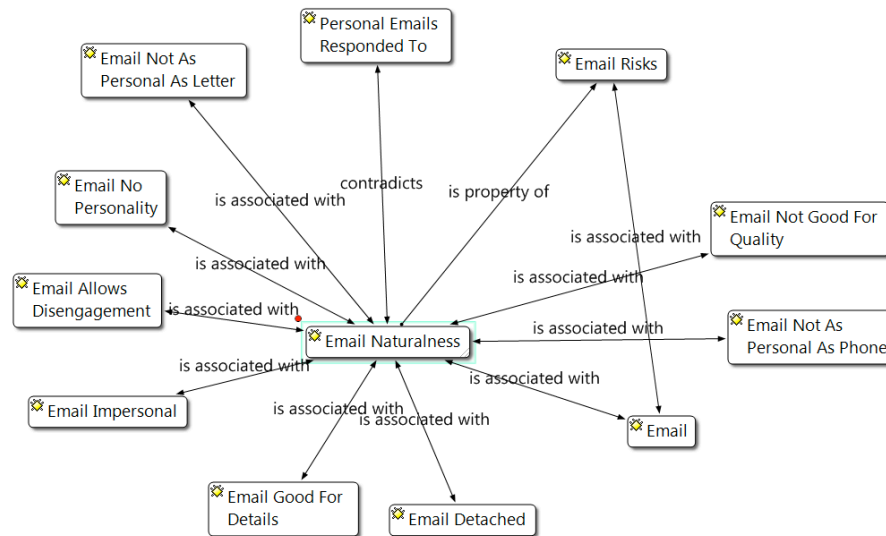
And then second, just based on sheer volume of course, is e-mail.  
[00:09:00] Again, qualitatively it's pretty poor in terms of exchange of info, although I like the efficiency of e-mail; people don't expect you to do three minutes of BS how you're doing before you get to the point. E-mail's very efficient, to the point, cryptic is fine, and that's it, so I think it's... it's probably... to dramatically increase the flow and quality of efficient communication, so that's a blessing for it.

Codes associated with E-Mail efficiency include convenience, quick response time, mass communications (quantity of information delivered at one time), and time savings. Here is legislator L on time savings:

So I'm-, I'm more of the old school. Now I can tell you there's legislators down here that'd just as soon get it over the E-Mail or get it on a text, or Facebook™ or whatever. Because I think they don't have to engage. You know, once it's there it's-, you look at it and you can send a quick message. And so it saves time.

E-Mail efficiency is categorized as a benefit by legislators. As discussed in the phase one results previously in this chapter, it is likely that the efficiency of E-Mail is one of the major factors that raised its importance above that which naturalness theory would predict. Notice that legislator L indicates a reason that E-Mail is efficient – legislators do not have to engage. Importantly, legislator L is indicating that *other* legislators prefer E-Mail, but he is “old-school” and prefers face-to-face or telephone (as he indicates earlier in the interview).

## E-Mail Naturalness



**Figure 4.4.** E-Mail Naturalness Network Diagram

Naturalness theory suggests that E-Mail is not very “face-to-face” like. Interviews with legislators and staff produced codes related to naturalness theory suggesting that this is indeed the case.

Legislator L sums up his feelings on the impersonal nature of E-Mail:

Emails, you can say whatever you want to in E-Mails and it’s just words on paper that really doesn’t give personal effect, that I think. Same with a text message. You know, they’re so short now because everybody is trying to be in a hurry to - they may give you some pertinent information real quick but it doesn’t give you the detail that I like in-, in personal-, personal conversation.

Naturalness theory suggests that a phone call is more natural than E-Mail. Legislator L touches on this topic when he indicates a preference for a telephone call so that he can ask questions in a full duplex (real-time interactive) mode:

**[0.19.06]** And gives me something that I can take to the people that I need to in order to start resolving it. So I would prefer- you can alert me with an E-Mail but I would prefer to have a hard copy letter so that I have it in

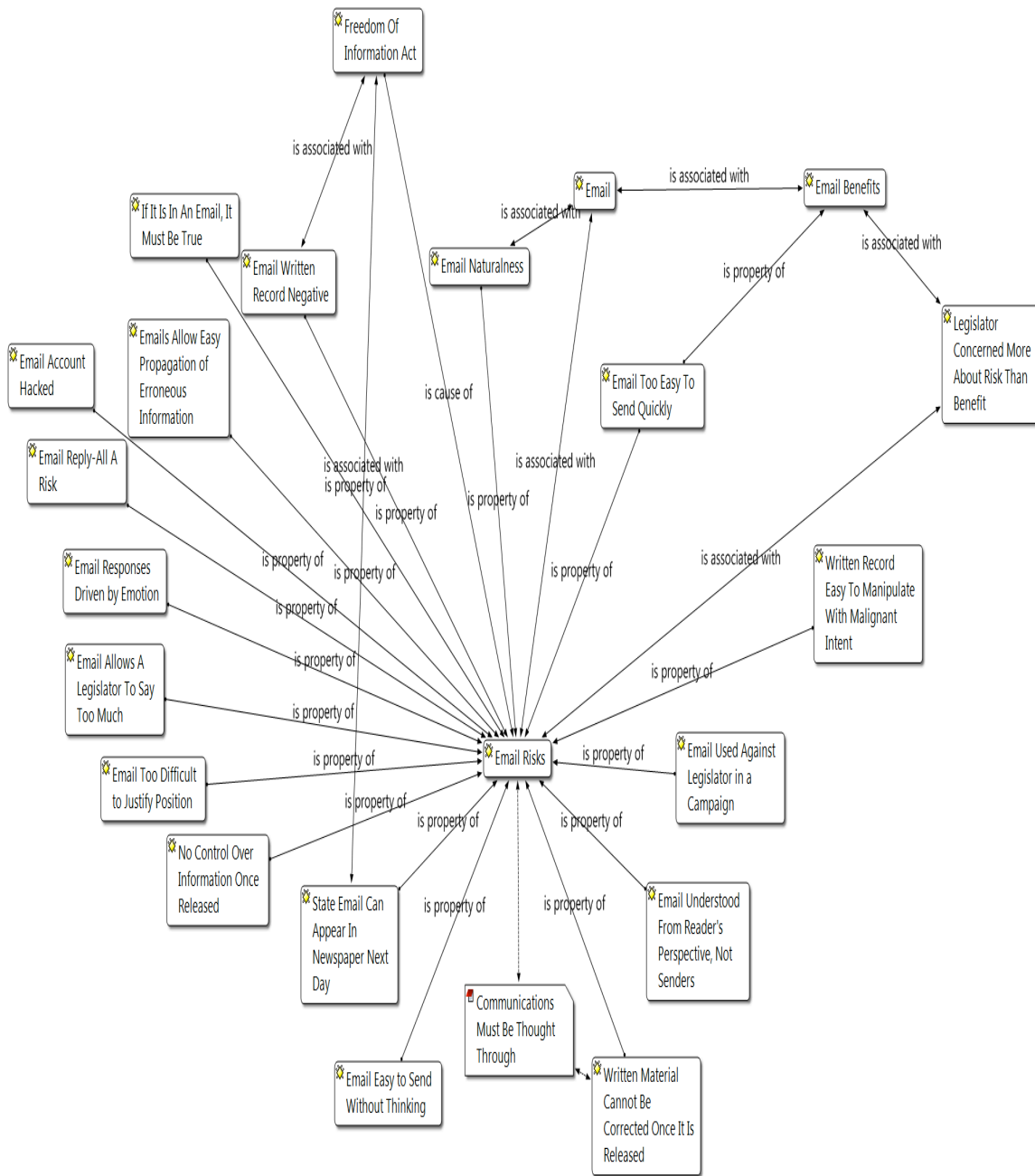
hand. Or a telephone call so that I know and can ask some questions about, “Well, how is this affected?” or “What do I need to do?” or how...?” You know?

Legislators note that one of the risks of E-Mail is that it is difficult to gauge reactions and emotions in an E-Mail. Here is legislator H on the topic:

Respondent: Well, face-to-face always gives me the benefit of knowing... reading their personalities or aura or whatever it is about them; how they react to my statements, much better than email. On the phone you can do it a little bit, you know, but face-to-face always seems to work better as far as being able to read their reactions to an issue. Usually they give you both sides of an issue, and they’ll tell you the pros and the cons, but some lobbyists don’t, you know; they only say this is how it’ll benefit you, and if you don’t ask how on the negative side of it, they aren’t going to tell you. So you have to probe and you know, you have to ask questions; you have to generate [00:21:30] possible concerns that might come out of it, of a bill passing, so... You can hear a bit, yeah, of what they’re... you know, by the tone of their voice and by their reaction to your questions, but in e-mail there’s no personality there.

The above interviews indicate that E-Mail does not offer the same amount of information that face-to-face communications offer, such as emotions and instant reactions to the topic being discussed. Legislator H notes that E-Mail lacks personality. This is an important concept, and naturalness theory predicts that unnatural communications increase ambiguity (Kock, 2007) , and this ambiguity (and other factors associated with unnatural communications) lead to risks for legislators. Legislator H notes that some lobbyists offer only partial information, and that by being able to see them face-to-face, or hear the tone of their voice over the phone, the legislator can pick up on any deception.

*E-Mail Risks*



**Figure 4.5. E-Mail Risks Network Diagram**

A common theme in the risks that legislators associate with E-Mail is the speed at which it can be released. Listed as both a benefit and a risk, according to legislators, sending quickly without thinking can kill legislator careers. Legislator E:

The other of course is, it's too easy to quickly send an e-mail, so you might not think... you know, either you're driven by emotion or you didn't think out [00:12:00] an issue properly; you made your response that you later probably shouldn't have made - that's another issue. And of course, there's always the possibility of reply all and totally screwing yourself.

Legislator G, having had his career almost derailed by information he made public before he was a legislator, notes the dangers of the quick reaction and combines it with the peril of the permanence of digital information:

I think the risks are that to the extent that you're impulsive or you react quickly, or fly off the handle, you might say, to the extent that that's documented digitally; that can come back and haunt you in a campaign - those things get replayed and replayed and replayed in campaigns. [00:05:00] So I find my personality is one of let's be thoughtful about what we say before we say it; let's be careful what we say. This isn't about me being the center of attention; this is about being a reasonable statesperson, thoughtful about what you say and what you do. Live your life in a conservative way, and so I think to some extent, if you get too carried away with the wonderful digital media tools we have - that we did not have ten, [00:05:30] fifteen years ago - it's entirely possible that you might try to make yourself kind of a media icon - a digital media icon - which is up there chatting all the time, talking all the time and maybe saying too much

The theme of the risks associated with the permanence of digital information are echoed by other legislators:

Legislator D:

You know anything you write, whether it's in an E-Mail or physically, is there in perpetuity. And so, you know, if you don't have a firm grasp on what you think before you communicate it, it probably wouldn't be smart to do that. So, I try and think that through before I communicate in written communication.

Legislator H responding to a question about E-Mail risks: "You have to be careful what you say in an e-mail anywhere, because they're public and they can request them."

Legislator H, raising the issue of the Freedom of Information Act (FOIA), points directly to a legislator behavior precipitated by FOIA and expressed by six of nine legislators.

Legislator B expresses this behavior:

Well there is an understanding within the legislative process that we organize ourselves [0:14:00] within partisan frameworks but if it is party work or things that are exclusively unrelated to public policy but partisan in nature, can they work for another candidate, we never want to use the public communication tool for that so any communication in this setting has risk because it is subject to public scrutiny. [0:14:30] Anything you put out that goes on to a Facebook™ or even an email, can be released, that's not the right word, but forwarded on to others so you don't have control over where it goes so you have to make decisions, if you are in a private conversation with somebody you don't want to do it over legislative email.

In effect, legislators turn to private CTs to bypass the dangers associated with FOIA disclosure. Legislator K on the subject of FOIA and then extending the FOIA risk to encompass yet another risk legislators associate with E-mail: a lack of distribution control:

So, if you think at all that how you respond to an E-Mail is somehow private, forget it. And I'm not talking about the fact that they can go in and make public records request and get your email. [00:28:00] I'm just talking about the fact that you can be assured and there is a few times that I was surprised by that. I thought I was just responding to John Doe, you know, in my district and then I discover that, you know, that's disseminated far and wide and sometimes will regret that. So, learned that like everybody else, after a few hard knocks.

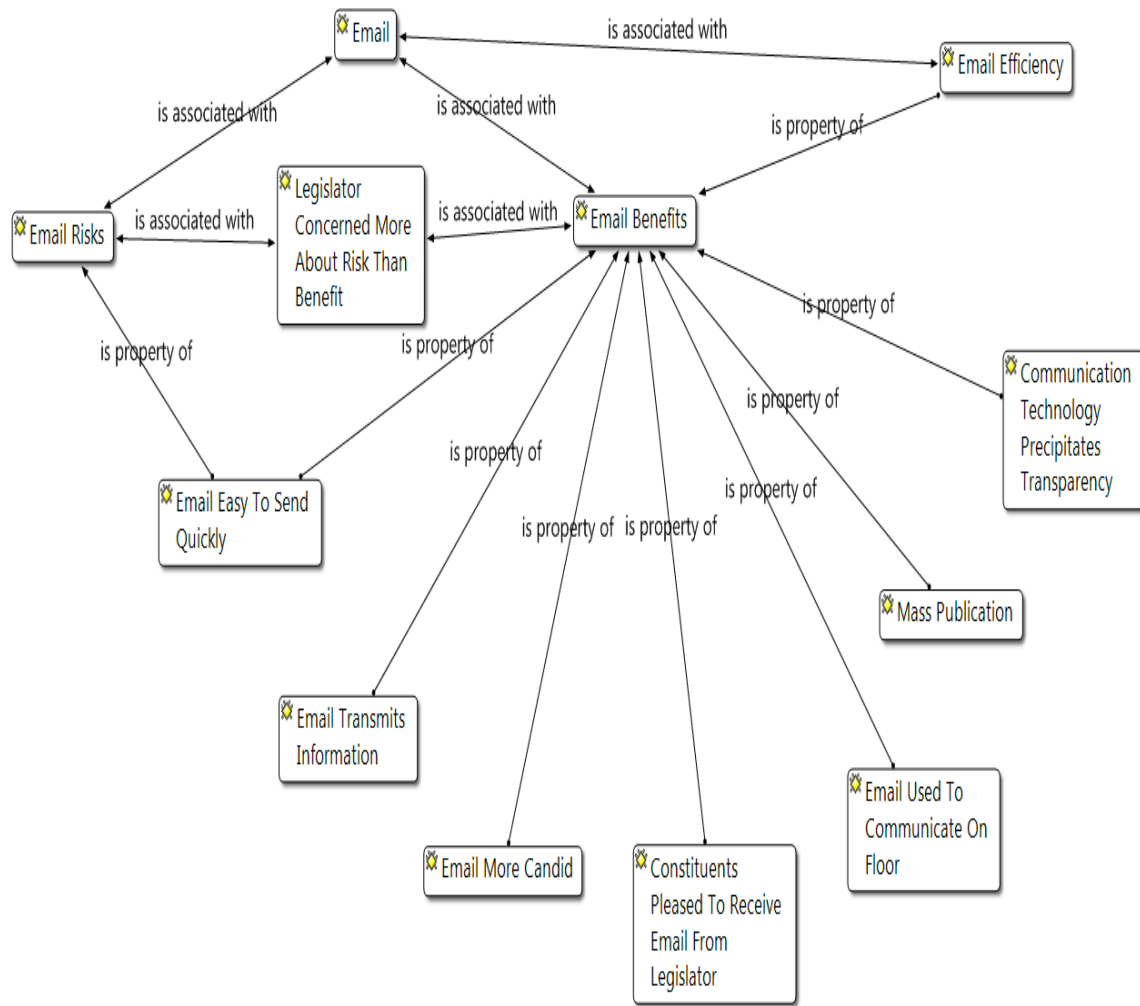
Legislator H, tying communication risks to benefits by noting he is more concerned about risks than benefits, offers a segue to the benefits associated with E-Mail:

Respondent: I'm concerned about risk, more than benefits, you know. Being in the legislature [00:23:00] and being in public office and people taking pot shots at you, you know, depending on your position on issues, you take... you know, the risk is there.

Legislators understand the risks associated with E-Mail, especially their official public E-Mail, and work to find ways around the risk. As will be shown in future sections, all CTs examined were associated with risks, however, the more natural the CT, the fewer the risks legislators associated with it. Although legislators associate risks with E-Mail, they

also identify specific benefits (beyond efficiency). The next section examines these benefits.

*E-Mail Benefits*



**Figure 4.6.** E-Mail Benefits Network Diagram

Although the majority of the benefits legislators associate with E-Mail are related to its efficiency, many legislators focused on the mass communication capabilities of E-Mail as a benefit. Legislator L sums this up succinctly: “Well, I think-, I think benefits is that you can put-, you can blast out a message to a lot of people in one stroke key.”

Transparency is a benefit identified by Legislator G:



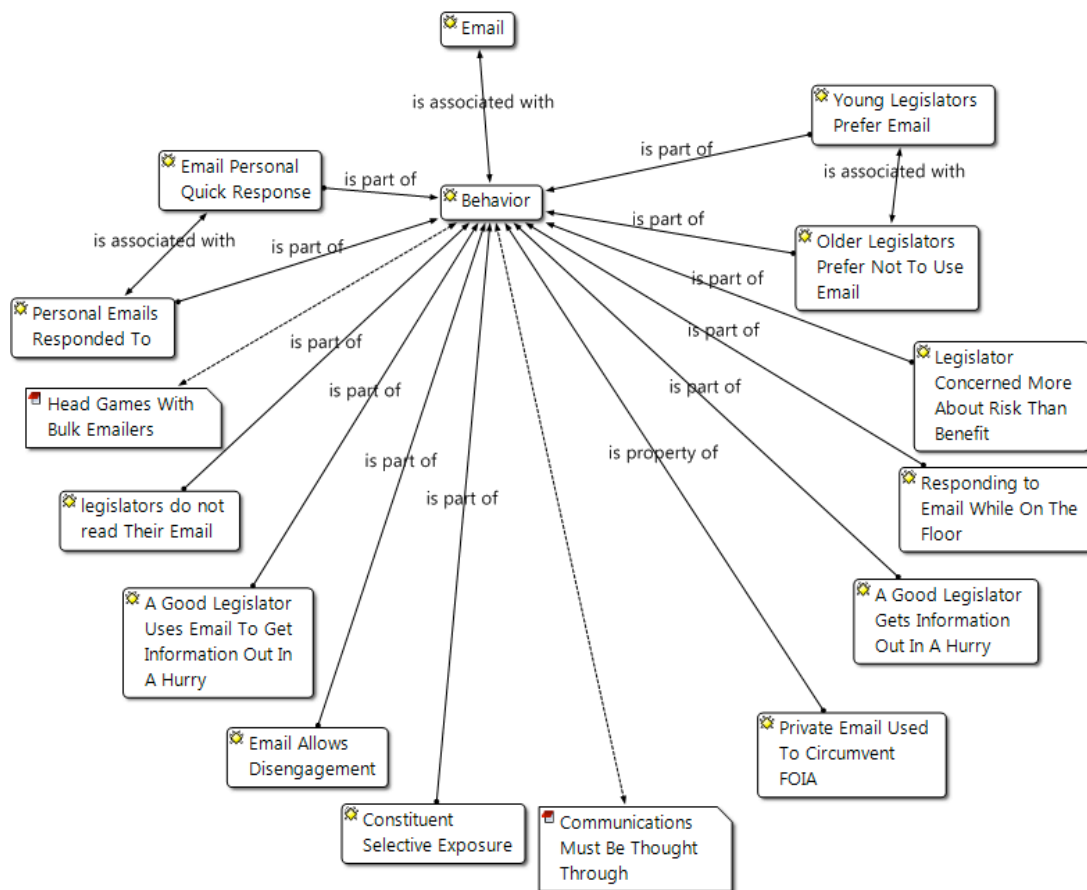
The benefit is that the elected representatives are more transparent and what they're doing, what they're working on, what they're thinking, that's the benefit. The voters can see [00:06:30] who they've elected. It used to be they'd come down here in smoke-filled rooms, back room deals, you didn't know, and then when there's an election cycle, you just know what they decide to tell you; now things are much more transparent, which I think is a good thing.

Assistant B suggests that people are more candid when they send E-Mails, and she sees this as a benefit: "The benefits is, um, people tend to be more candid, maybe more so when they email". Legislator K noted that E-Mail allows legislators to communicate with each other during the third reading of a bill, when legislators are not allowed to leave their seats:

When I was in the House, and on third read of bills in the House, you know, you can't leave your chair. Once you're in the third read you have to stay there. Now, you can E-Mail somebody or you can text another member, you know, across the chamber, you know: How are you going to vote on this one? Something like that.

Interestingly, when legislators were asked about the risks and benefits of CT, E-Mail was the single most risky CT based on interview coding network diagrams. Legislators seemed to be most concerned with the risks associated with permanence of information associated with written, audio, and video technologies. Linked to these concerns is the inability to control information in these formats once it has been distributed. In effect, legislators are aware that anything which is recorded becomes part of the public domain, and information can rarely, if ever, be contained once it is released, whether that release was intentional or not.

## E-Mail Associated Legislator Behaviors



**Figure 4.7.** Legislator E-Mail Behavior Network Diagram

Many of the behaviors, such as using private E-Mail to circumvent FOIA laws and the concept that legislators are more concerned about CT risk than CT benefits have been covered in previous sections, and other behaviors are self-explanatory from looking at the network node quasi In Vivo code name.

Age related E-Mail behaviors align nicely with the expectations set in Chapter 2 – namely that older individuals are likely to use technology less. The following interview data support the age-related regression models discussed in the phase one results earlier in the chapter. Here is Staffer F’s perspective:

Respondent: -- so we have a lot of older constituents. A lot of them don't have e-mail

or don't like to use e-mail. These are older folks, [00:35:00] mm-hmm. I think... From what I've seen and -- and in dealing with -- with the older generations, they like letters. They like letters because that's -- that's what they're used to. And personally too, it's more personal.

Assistant F went on to tell a story about an 83 year old female constituent who calls her once a week just to talk about the things going on in her life and current events. IT A contributes to the discussion regarding age related E-Mail behavior in this passage:

Respondent: There's a wide range of behaviors out there; there is from older members that don't really want to use their technology at all - they tend to resist it still, they have their assistant do all the communication through e-mail, etc. - and then there is members in the middle that [00:27:30] use the technology, but they don't demand and really embrace it, and then we have a group of younger members that are really demanding that they have greater communication tools that's available, and it does not seem to be each specific ---I would say that the assistant would have to filter out what's necessary correspondence or not, and then either draft up a letter or e-mail to the constituent on behalf of the member. Most members are literate enough that they can do e-mails themselves, currently; they may not want to, that's the issue. [00:28:30]

In this passage, IT A categorizes three types of legislators who use CT, all delineated by age, and then notes that older members (legislators) have their legislator assistant filter and relay E-Mail information to the older legislator while younger legislators who "demand" the best CT that is available. IT A also directly addresses the second half of

RQ5:

*What role does IT support and infrastructures play in a legislator's use of CT, and how do IT personnel perceive legislator behaviors associated with CT?*

All three IT staff interviewed perceived legislator behaviors associated with CT as being related to age, exclusively. When specifically questioned about gender or education or other demographic, political, and institutional variables they notice impact legislator behavior associated with CT, only age was mentioned.

Here is legislator B on the topic of older constituents:

Younger folks communicate with us by email. They, the older folks more experienced folks who didn't grow up in a digital world are on a different edge of that digital divide we talked about and so they tend to call. With the exception of some of the retired school teachers in the district who [0:08:00] were early adopters in the digital technology. I hear from some of my retired teachers and teacher friends who were in their 80's and 90's.

Interestingly, legislator B notes that she has seen some exceptions to the rule that older constituents prefer the phone.

#### *Constituent Selective Behavior*

One of the more interesting legislator behaviors related to E-Mail is coded as "Constituent Selective Behavior". Constituent Selective Behavior (CSB) occurs when legislators engage in acts that either limit or enhance their exposure to certain types of constituents as a normal function of their day-to-day communications acting in their capacity as a legislator. The definition of CSB specifically excludes campaign activities as such activities typically involve enhanced exposure to certain types of constituents (usually their supporters). CSB is associated with two behaviors: constituent selective exposure and constituent challenge avoidance. Constituent selective exposure can be defined as legislator actions that seek to enhance their exposure to certain types of constituents as a normal function of their day-to-day communications acting in their capacity as a legislator. Constituent challenge avoidance occurs when legislators seek to reduce their exposure to certain types of constituents as a normal function of their day-to-day communications acting in their capacity as a legislator.

CSB is one of three most important unanticipated results<sup>45</sup> that will be more thoroughly discussed in Chapter 5. With respect to CSB behaviors, E-Mail was grounded in CSB behavior in 13 coded exchanges in interviews with legislators. In the following example, legislator J responds to a question asking how she filters communications from constituents:

Respondent: It depends on the issue. If they don't include their address or if they include their address and it is outside [0:29:00] of my district I just hit delete unless it is an issue I agree in, so for instance I agree in protecting second amendment rights so I am in agreement with gun rights and so if I have people that E-Mail me from throughout the state saying protect my gun rights, I am going to save their E-Mail addresses because I may run [0:29:30] for statewide office someday and so or, what I try to do if I have time, is then as soon as I vote on a pro gun right legislation I send out an E-Mail saying I voted for this pro gun right legislation to my whole group of people that I have categorized because we have categories, we have categories in their contacts so those are the, my second amendment category [0:30:00].

In further questioning, legislator J notes that she categorizes constituents by creating E-Mail folders that describe the constituent. For example, she has a "Republican" E-Mail folder and E-Mail address list, a "Pro-Life" E-Mail folder and E-Mail address list, etc. She then has her legislator assistant send messages to these focused E-Mail lists as appropriate. In subsequent conversations during the review process, Legislator J made it clear that the goal of this behavior is not to surround herself with like-minded people or to filter out constituents who disagree with her, but rather, to simply maintain a database of those who agree with her on issues.

Legislator E takes a similar approach:

Respondent: I will save an e-mail that I'm going to take action on; if somebody asks me to do something, I hang on to that until it's done. [00:02:00] Other than that, the only e-mails that I'll save will be e-mails from people who

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<sup>45</sup> Along with legislator-constituent CT mismatches and minority party use of CT.

support me strongly on certain issues, be it guns or what have you. And I simply save that so that I can use the e-mail addresses later on for campaigning or fundraising purposes.

In a third example, legislator I who also maintains E-Mail lists of like-minded constituents explains his criteria for adding constituents to his mailing list:

Respondent: Well, if somebody-, if you can tell that you're aligned, ideologically, you know any efforts that you do will be efficient because you're going to be working together. It's a waste of time to try to bring on somebody that doesn't agree with you or think the same way you do, or who's fighting you. You're much better off trying to find somebody else who does, rather than convert the person that doesn't. It's a waste of time.

Interviewer: And how do you--

Respondent: I just let them-, basically, it ends up agreeing to disagree is where you end up. Ninety-nine percent of the time. [00:24:30] People don't change. But I have had literally people hug me and say they really like me and even though we've disagreed literally they've... [answers phone] So, no, I'm trying to build a movement, and you do that by bringing on people that agree with you. You don't do it by trying to change people that don't. And really the key is coordination. You get things done when everybody wants to do the same thing. The hard thing is herding cats. And when everyone is trying to do different things, you can't do anything. So, I try to bring on people that-, I try to get as close to people as I can that we all share the same values and principles.

Legislator I raises a number of issues. First, that he is trying to build a movement and the only way to build a movement is by "bringing on" people who agree with him. Second, legislator I indicates that movements cannot be built by trying to change constituents who disagree with his value positions. Third, legislator I suggests that engaging individuals who disagree with him ends up in a stalemate, with discussants "agreeing to disagree" and that "people don't change". Interestingly, legislator I indicates that including individuals in his "movement" which disagree with his values and principles would be like "herding cats". Put another way, the legislator seems to be expressing the opinion that including constituents who disagree with his values and

principles takes the focus out of the “movement” he is trying to build, or at least, makes progress more difficult.

In all of these threads, E-Mail is the CT that legislators use to filter (by deleting or having their legislator assistant delete) communications from constituents who *disagree* with their policy agenda, and to build communication lists that allow focused communications with *like-minded* individuals. Effectively, E-Mail is being used as a way for a legislator build databases of like-minded constituents. In another example of this behavior, legislator E indicates that he deletes (or has his legislator assistant delete) bulk E-Mails from individuals who disagree with his policy position but saves and responds to bulk E-Mails that agree with his policy position:

Respondent: And if the bulk e-mails are **[00:02:30]** against my position, I just delete, delete, delete, delete. And it’s nice that you can group them title - they usually all have the same title and you can do mass deletions. Yeah, I mean, I’ll read the first one, but after that you pretty much know what’s going on. If it’s an e-mail that... the position I’m supporting, I’ll usually... either I’ll give a very quick, cryptic yes thank-you, you know, I agree, I support you, or I’ll do a little one paragraph reply. I’ll give it to my assistant and I’ll just tell her to cut and paste those into any and all of these e-mails that come in. **[00:03:00]**

Importantly, legislators indicated that they avoid contact with constituents who disagree with their political ideology and/or policy position *only for certain CTs*. Most legislators indicated that they did not have the time to engage with constituents who disagreed with their policy position and/or ideology via E-Mail, more legislators indicated that they would engage constituents on such topics over the phone, and every legislator interviewed on the topic indicated they welcomed face-to-face engagements with constituents who disagreed with them on ideology or policy issues. Put another way, legislator challenge avoidance is a function of CT. The less natural the CT, the more likely a legislator is to avoid challenges from constituents via that CT.

### *Face-to-face Communications*

Just as with the E-Mail network diagram, the face-to-face network diagram clusters codes around primary themes suggested in second pass coding based on first pass grounded codes. Second pass themes for face-to-face communications include: importance, trust, constituents, priorities, legislator assistants, risks, lobbyists, CTFOU, legislators, and naturalness theory. Face-to-face communication behavior is grounded in 2,837 quotes and 83 individual codes. Network diagrams for face-to-face communications are shown in Appendix G: Face-To-Face Network Diagrams.

### *Importance of Face-to-face Communications*

Legislators frequently mentioned that face-to-face meetings were the most important CT they used. Legislator J sums up her feelings on face-to-face communications: “I think in the legislative process still person to person communication whether that be via telephone or in person, face-to-face is the most important. [0:02:00]”. Only one legislator, legislator K, indicated that another CT was more important than face-to-face:

I would say E-Mail would probably be at the top of the list, now. Fifteen years ago I never would have thought I would say that. But, yeah, that would be a high priority and important to me. The face-to-face that I do is important, but like I say, I really, really limit it. [00:23:02] Just because of my own personal communication style. But it’s important in the sense that when I say, you know, Lobbyist A wants to talk about this particular bill. I may be really anxious to talk to Lobbyist A about that bill because they may be able to share something that I just don’t otherwise know or know even how to figure out.

The network diagram shown in Appendix G: Face-To-Face Network Diagrams suggest a number of reasons why face-to-face meetings are important, but one of the most interesting is that the more important a topic is to a legislator, the more important face-to-



face communications become. Four legislators tied the importance of the topic being discussed to the importance of face-to-face meetings. Here is legislator B with a typical response to why face-to-face meetings are important:

Body language, expression, emotional reaction, I function a lot off emotional, they call it emotional intelligence, they call it emotional cues, so if I am wanting to engage somebody in something that's important to me, I will make a point of having a face-to-face communication, if it is simply a matter **[0:10:30]** of disseminating information, or gathering information, E-Mail is fine.

Importantly, legislator B includes some of the reasons why face-to-face meetings are important to her, and being able to read body language tops the list. One of the reasons that body language is so important is because it builds trust. Legislators find that the ability to read body language is an important factor when building trust with another individual, because it gives them a more complete picture of what the other individual is feeling.

### *Trust*

Legislator L on the topic of trust and face-to-face meetings:

**[0.03.46]** Well, I think that comes in part of the communication well before you ever get on the floor and you start doing that-, that face-to-face communication and-, and people that you've built trust with. And so they've been in your office before the bill ever goes to-, to the floor and you've discussed and talked about those kind of things. And so you know who you're getting the information from and so you can-, you can rest pretty assured that they're, you know, telling you the-, the-, the correct information that-, that will assist you in-, in what you need.

Interestingly, in the passage at the end of legislator L's response, he struggles to say the word "truth" and instead, stammers out "the correction information" rather than simply using the word truth. The discussion continues with why face-to-face meetings are important:

Respondent: [0.04.25] Well, I think-, you know, I'm a-, I'm a face-to-face type guy. A lot of people, you know, they talk on the phone and they can-, you know, that. But I want to-, I want to be able to look you in the eye and I want to be able to, you know, see your reactions as-, as I ask questions and as we talk about certain things. And-, and I want you to be able to respond back to me when I ask questions that-, that I think are pertinent to the legislation that you may be for or against in that. [0.04.55] So I try to build that personal relationship before I ever to get the floor and start, you know, discussing or passing or voting on any legislation at all. In effect, legislators use face-to-face meetings to determine the trustworthiness of the individual they are meeting with. The reason face-to-face meetings are important for building trust is because it is more difficult to hide true feelings when body language and/or vocal clues are available.

### *Constituents*

If there is a single summarization of the relationships between legislators, face-to-face meetings, and constituents, it is that such meetings are rare. While legislators meet routinely with large groups of constituents, they do not sit down one on one with them. Appendix G: Face-To-Face Network Diagrams offers clues to some of the reasons why: the meetings are not convenient, face-to-face meetings intimidate constituents, and face-to-face meetings are not necessary for the majority of the reasons why a constituent may contact a legislator. Four legislators indicated that face-to-face meetings were rare, including legislator K: "Yeah. I probably have not sat face-to-face in 11 years with but a handful of constituents".

### *Priorities*

Legislators prioritize group and one on one meetings with constituents as a top priority, frequently indicating that being seen by large numbers of their constituents as being a high priority for them. Here is legislator G prioritizing CTs:

Yeah, I would say in ranking of order, face-to-face, one-on-one, a group face-to-face is probably second, then I would say probably a phone call, then an e-mail, in terms of priority. And then probably Facebook™ [00:15:30] and then probably website would be last, so the least interactive.

All but one legislator listed face-to-face meetings as their top priorities, whether the meetings were one on one or group meetings, or whether they were with lobbyists or constituents. Only one legislator, legislator K, indicated that he limits face-to-face meetings.

### *Legislator Assistants*

Not surprisingly, the interactions between legislator assistants and face-to-face meetings are largely related to the task of scheduling meetings. One interesting exception to this is that many legislator assistants screen face-to-face meetings for the legislator they work for. Here is legislator D discussing how her legislator assistant screens face-to-face meetings:

They have those, you know. Call whoever and maybe it's being sent by your opponent to call in. [00:18:37] So, you know, she's good at trying to find the source of the calls. And whether people are asking for an appointment and whether or not I should meet with them. You know, all those things I think NAME DELETED is a great help in deciphering where the source is, is it going to be a benefit to them to meet with them, or not?

In the quote above, legislator D raises an interesting point that political opponents will call in to obtain information that will give them a political advantage. The concept of how CT is used to gather information to be used to gain political advantage may be an interesting topic for future research.

## *Risks*

Of all the CTs examined, legislators listed face-to-face communications as the least risky; only one legislator associated risks with face-to-face communications.

Legislator H: “One of the risks is e-mail and face-to-face is the hearsay that comes out of being face-to-face; you know, you tell somebody something and you never know if it stays where it’s supposed to stay, and that’s how rumors get started.” Interestingly, the legislator mentions two risks but appears to conflate them. Hearsay is the risk associated with the inability to adequately verify the information being communicated. The second risk that legislator H mentioned is the inability to control distribution of the information being communicated, which was a significant risk listed for E-Mail.

## *Lobbyists*

Results of the interviews suggest that face-to-face meetings occur primarily with other legislators and lobbyists. In Appendix G: Face-To-Face Network Diagrams, there are two nodes that are most interesting from a CT perspective. First, is that many legislators prefer to meet with lobbyists face-to-face because they need the additional information contained in a legislator’s body language. Here is legislator I on the topic:

I do. And I’ve noticed with lobbyists, what lobbyists do, and they understand this, is that they do not do anything. [00:14:05] They are very careful to just be as neutral and vanilla and not show any emotion one way or another whatsoever. So, I think they are, you know, I mean, it depends, they may, you know, if they really want something they may show emotion. [00:14:29] But I would say that lobbyists are very careful not to ever show a negative. If they disagree with you, unless it’s the exact issue they’re talking about, they’re not going to let you know that. They want to be everything to everybody.

Legislator I on the same subject:

I get more... yeah, I get more feedback, I get more emotional feedback, I read body language a little better and know how they’re... you know, like when I’m talking to a lobbyist, face-to-face on an issue is so much better than an e-mail, because I can figure out a little bit about where they’re

coming from, whether they're in favor of it or whether against it. You know what I'm saying?

Legislator I suggests that lobbyists intentionally try to hide their body language in order to obfuscate their true feelings on a topic. Legislator I reinforces the concept that reading a lobbyist's body language reveals their feelings on an issue, and provides a comparison between face-to-face and E-Mail, noting that face-to-face is better than E-Mail for uncovering a lobbyist's feelings towards an issue. Whether the majority of face-to-face meetings are actually with lobbyists or with other legislators appears to be a function of the legislator's preference, and is briefly discussed in the next section on legislator behavior.

#### *Legislator Behavior*

Some of the network nodes shown in Appendix G: Face-To-Face Network Diagrams have been discussed previously due to their linkages to other network node concepts. Of the behaviors that remain to be explored, there are two that are most interesting: age relationships and position flexibility. The Chapter 2 literature review suggested that older legislators may use newer CTs less frequently. The corollary to this finding is that older legislators will use mature CTs more frequently: and this appears to be the case. Five interviews indicated that older legislators preferred face-to-face communications because of their age, using terms like "old school" to describe themselves and effectively tying their behavior to their age.

A second unexplored topic regarding legislator behavior and face-to-face meetings involves the "position flexibility" that face-to-face communications offer a legislator.

Legislator L explains:

Respondent: **[0.07.25]** Because as you-, as you-, in my case anyway, when I start to have a conversation and I ask a question then I can-, I can start to see which direction. And so then I can either move in that direction or this direction, depending on the responses and so on that I get. And I-, and I've always been a-, a-, a face-to-face guy. So that's the one I use the most.

Here we see that legislator L adapts his dialog based on feedback he receives on the position taken by the person he is meeting with. This positional flexibility is related to full duplex communications (real time interactivity) and is one of the benefits of immediate feedback and feedback based on body language, a key component of naturalness theory.

### *Naturalness Theory*

The links between naturalness theory and the behaviors that drive a legislator's use of face-to-face meetings are amongst the most interesting of this study. Appendix G: Face-To-Face Network Diagrams highlights a number of key relationships that are linked to naturalness theory. The discussion begins with a legislator's need for face-to-face communications.

Legislator B:

I still have a tremendous need to have face-to-face communications and interactions with people. And part of that is that I am a very intuitive person, I need to be able to read someone's reaction to my ideas and to my communication. **[0:10:00]**

Naturalness theory suggests that humans have a evolutionarily driven need for face-to-face communications because they offer significant physiological arousal (Kock, 2005, p. 123). Legislator I, when asked what CTs make him feel more closely connected with constituents:

Respondent: [00:20:04] Well, I think face-to-face, again, is going to be the best. But and right after that is probably speaking over the phone, and then Facebook™.

Interestingly, legislator I lists his “feeling connected” preferences from most fulfilling to least fulfilling, in the exact order that naturalness theory would predict... from the most physiologically arousing to the least physiologically arousing.

Legislator H, unsure of how to communicate the essence of what she picks up from the person she meets with face-to-face, calls it aura:

Well, face-to-face always gives me the benefit of knowing... reading their personalities or aura or whatever it is about them; how they react to my statements, much better than email. On the phone you can do it a little bit, you know, but face-to-face always seems to work better as far as being able to read their reactions to an issue.

Although the definition of the term aura involves an invisible emanation from a living creature, it is reasonable to suggest that legislator H is speaking about non-verbal human emotions. Three legislators relate the ability to understand another individual’s emotional state with face-to-face meetings. Here is more of the interview with legislator H:

Interviewer: Okay. Tell me why you prefer face-to-face.

Respondent: Because I feel like the connection is better and that I can read faces and reactions to different issues; I just think it’s better than an e-mail. I get more... yeah, I get more feedback, I get more emotional feedback, I read body language a little better and know how they’re... you know, like when I’m talking to a lobbyist, face-to-face on an issue is so much better than an e-mail, because I can figure out a little bit about where they’re coming from, whether they’re in favor of it or whether against it. You know what I’m saying?

Legislator I continues the theme of understanding emotions through face-to-face meetings:

Respondent: Yeah, face-to-face is-, face-to-face is always going to be the best way to completely understand somebody, I think. I think body language is, I think, yeah, I do think so. And emotions and those kinds of things.

The link between naturalness theory and human emotions is clear. Humans, evolutionarily programmed to respond to the emotions of those around them, find face-to-face interactions provide the best possible link for understanding emotions (Kock, 2005). In addition, Kock notes that humans can expect to find face-to-face interactions more emotionally fulfilling than computer mediated communications. Legislator E, searching for a term to describe face-to-face meetings, calls them “quality”:

Respondent: Well, I think for quality communications I prefer face-to-face, [00:12:30] but for speed efficiency and quantity, e-mail is just a godsend.

Interestingly, Legislator E captures one of the common relationships between legislators and E-Mail; E-Mail is useful for speed, efficiency, and quantity.

The above interview quotes highlight the close relationship between naturalness theory and a legislator’s use of face-to-face meetings. In addition, legislators, in the process of identifying key attributes of face-to-face meetings, note the relationships between face-to-face meetings and other CTs. These relationships are predicted by naturalness theory, and are consistent with the results obtained during the phase one quantitative survey.

### ***Telephone Communications***

The network diagram for telephone communications is shown in Appendix H: Telephone Network Diagrams. Just as with the face-to-face network diagram, the telephone network diagram clusters codes around primary themes suggested in second pass coding based on first pass grounded codes. Second pass themes for face-to-face communications include: phone banks, CTFOU, importance, phone vs. E-Mail, naturalness, constituents, age, legislator assistants, and legislator behaviors. Phone behavior is grounded in 1,689 quotes and 123 individual codes.



## *Phone Banks*

Discussion on phone banks was limited to two legislator assistants, both of which indicated that they had little patience for them. Essentially, phone bank communications occur when grassroots organizations such as the American Association for Retired Persons (AARP) pay a phone bank to phone their members and ask them to communicate with their legislators regarding a specific topic, suggesting what the member should say. The phone bank then connects the member to their legislator via a phone transfer. Here is assistant B on the topic:

Respondent: --nonstop. Now, there are different groups who will-, and I'm very much opposed to this. I really don't like this, for a perfect example. **[0.07.58]** AARP will call somebody's home-, somebody-, one of their AARP members and ask them if they support the governor's Medicaid expansion. And I don't know the whole shepal that they give them---but whatever it is-, and the person will say, "Well, yes." not-, not realizing what's happening. And then the next thing they know they're transferred to my phone. I answer the phone and these are senior citizens, mind you. And they're like, "How did I get you? I didn't call you." And, you know, they start thinking government conspiracy.

Assistant I:

Respondent: Yes. We had one recently that was very interesting the way they did it. They contacted the person first and told them you -- to call their representative or their Senator and tell them you support blah, blah, blah. Or let's say support Medicaid expansion **[00:20:00]** because that was the one that did it. So -- and press 1. And when they press 1, we get the ring and answer it and say Representative So-and-so's office. And they say, "Huh?"

Both legislator assistants note that constituents are confused by the AARP phone bank methods, and both note that constituents take policy positions against the policy position requested by AARP. Legislator assistants interviewed see phone banks as the telephone version of bulk E-Mail.

### *Frequency of Use*

Both legislator assistants and legislators note that phone lines are much more busy when the legislature is in session than when it is out of session. Here is an interesting exchange with legislator E, who is responding to a frequency of use question:

Interviewer: Okay. [00:08:00] All right... I guess along the lines of the communication you use on a daily basis, what would you say, which CT do you use the most?

Respondent: E-mail.

Interviewer: E-mail? How about next... what's the next most?

Respondent: Well, let me take that back; face-to-face is first, e-mail is second and then probably telephone.

Interestingly, legislator E responds with E-Mail as the most frequent (which agrees with both the phase survey and quantitative word count data) but, for some reason, changes his mind and indicates that face-to-face is the most frequently used CT.

### Importance

In general, the importance of the phone was tied to specific tasks, such as emergency communications or filling in information gaps quickly. Legislator L listed the phone and face-to-face meetings as most useful for understanding constituents. Assistant A and legislator I both indicated that phone and E-Mail communications were the most important CTs. Interestingly, the topic of phone vs. E-Mail came up frequently, even though there was no specific question asking interviewees to compare and contrast these CTs.

### *Phone vs. E-Mail*

Several legislator assistants noted that over time, E-Mail has (in their opinion) decreased the frequency of telephone calls. Assistant I, assistant B, and Assistant D all noted this effect. Here is assistant D:

Interviewer: Faxes. You don't get many faxes. How about phone calls? Tell me about phone calls.

Respondent: Used to be-, used to be the phones would ring off the hook but with E-Mail taking up more-, becoming more and more convenient for people-

Interviewer: Mm-hmm.

Respondent: --we get more E-Mails now. But I still get a lot of phone calls every day. [0.07.28] I don't have a number that I could give you because it-, again it depends on the issue.

Several interviewees indicated that the phone is more personal than E-Mail; which is a naturalness concept. Here is assistant F on the subject:

Respondent: Me personally, I like e-mail, I [00:14:00] like computers, but it's just very impersonal --

Interviewer: Mm-hmm.

Respondent: -- for me. I prefer to pick up the phone --

### *Naturalness*

There are several concepts that link phone use to naturalness theory. Interviewees indicate that the phone is more personal than E-Mail (as naturalness theory would predict). Most legislators noted that face-to-face communications are best for understanding people, but one legislator assistant indicated that the phone was best, but quickly followed up with face-to-face meetings. Assistant D:

Respondent: Well, the phone is always the best because-, or if they actually come down here in person. And we do have that at times.

Here is legislator J on the topic:

Respondent: Important as far as influencing people and getting the job done, face-to-face communications, directly to a legislature or constituent [0:11:00] whether that be over the face-to-face in person is the best, next would be over the phone, next is email, and then I just view Facebook™ and Twitter™ as a way for me to get my message out. And the news letter and

the guest columns and all that is a way for me to get my information out, but also a mechanism for them to respond, I do like [0:11:30] feedback from constituents because it is important to me.

In several codes shown in Appendix H: Telephone Network Diagrams, the phone is shown as listed second best or second most important. In all seven quotes associated with these codes, face-to-face was listed first. Naturalness theory predicts this relationship, as phone conversations are less “face-to-face like” than face-to-face meetings.

Legislator J:

Interviewer: Okay, so email is one of the primary ways you communicate?

Respondent: I would say email is definitely, I think in the legislative process still person to person communication whether that be via telephone or in person, face-to-face is the most important. [0:02:00]

Legislators note another key feature that makes telephone communications more natural; it communicates information such as emotions and “Aura”. Here is assistant D:

And I'll say, “I have your E-Mail but I need to ask you a few questions.” You know, I'll give them a reason why I'm calling them and stuff. And so then I can hear their voice. I can know if it's urgent, if it's not so urgent. You know.

And legislator H:

Well, face-to-face always gives me the benefit of knowing... reading their personalities or aura or whatever it is about them; how they react to my statements, much better than email. On the phone you can do it a little bit, you know, but face-to-face always seems to work better as far as being able to read their reactions to an issue.

### *Legislator Assistants*

Answering a legislator's office phone is one of the single most important aspects of a legislator assistant's job. Although legislators are not typically in their offices during the out of session time periods, legislator assistants are required to be in their office year

round. The large number of nodes shown in Appendix H: Telephone Network Diagrams is an indication of the importance of the phone to a legislator assistant's job. Several of the codes indicate the phone's priority: legislator assistants must answer the phone, phone most important for legislator assistant, phones transferred during lunch to ensure a live response. No legislators indicated that they answer their own office phone, and many indicated that their assistants screen (or filter) their phone calls. Here is legislator D with a typical response:

Well, I'm learning, you know. It takes a while to learn who is the kind of person that picks up the phone rather than does the E-Mail thing. Most people do email, now. [00:18:04] So, when somebody does pick up the phone, NAME DELETED answers my phones and she helps screen them so that I know, you know, kind of the importance of-, and how to respond.

### *Legislator Behaviors*

The network diagram for legislator phone behavior is shown in Appendix H: Telephone Network Diagrams. A legislator's phone is one of the key communication links with their legislator assistants. In important or urgent situations, legislator assistants will either call or text message their legislator to communicate the message. Some legislators publish their personal phone number on their campaign webpages and provide them to lobbyists while some legislators do not give their phone numbers out to anyone other than family and other legislators.... refusing to even allow trusted lobbyists to call them.

As with the phone constituent network diagram, the phone legislator network diagram has a quote to node ratio close to one. In effect, there is roughly one quote for every node. Because of this, each node represents a quote, and the quote summary shown in

each node in Appendix H: Telephone Network Diagrams is relatively self-explanatory, suggesting that a detailed explanation is not necessary.

### *Risks*

As with face-to-face meetings, legislators mention few risks associated with telephone usage, and no risks associated with cell phone usage. Only one legislator indicated that phone conversations carry risk. Here is legislator B on the topic of risk:

Respondent: Well, everything that has an advantage has a disadvantage. If you put information out, you have no control over where it goes. You have to be very comfortable with that information. And [0:12:30] all of the communications we do in the legislative setting is access to public examination. Request for information from the media.

Legislator B alludes to the fact that the media (or anyone) can request state legislator official phone logs under FOIA laws. In an interesting twist, when discussing risks, legislator B indicates a reason why phones are less risky than other written forms of communication:

Respondent: Yeah, well I'm extremely [00:10:30] cognizant of the fact that anything I write on a legislative e-mail account can be in the newspaper the next day. And very often I'll just tell someone to call me, just to avoid the so-called paper trail. Not that I'm doing anything illegal, but... Yeah, but I mean, if I'm taking a position against a bill that might be generally popular or rather, if I'm taking a position for a bill that's unpopular, even though it's the right thing to do, [00:11:00] I don't mind taking the hit if I have to vote on it. But if the bill winds up not getting out of committee and not going to the floor, then I don't want to take the hit, you know...

### *Text Messaging*

The network diagrams for text message communications are shown in Appendix I: Text Messaging Network Diagrams. Second pass themes for text messaging communications include: importance, lobbyists, age, trust, texting on the floor, and time savings. Text messaging behavior is grounded in 786 quotes and 44 individual codes. As a CT used by legislators, text messaging arose somewhat as a surprise. There were

indications that text messaging was useful to legislators in the phase one survey; two legislators wrote in text messaging in the “other CTs used” category.

### *Lobbyists*

Legislators mentioned the use of text messaging to communicate with lobbyists.

Importantly, communication with lobbyists is related to the use of text messaging on the floor of the House and Senate. Legislator K providing a link between text messaging and lobbyists:

Texting I will do a little bit of, not a lot, with a, again, mostly with just family members, personal kind of stuff. Occasionally there are-, I mean, I have the text address for all of the other members on my phone, but I don't text with any of them very often. [00:16:34] But occasionally I would. There are like I say probably three or four lobbyists who I would text with. But, again, those are sort of-, they're typically not-, they're lobbyists who run organizations. They are not the typical paid lobbyists.

### *Texting on the Floor*

The use of text messaging while legislators are engaged in floor debates in the house and senate is one of the most interesting uses of CT discovered during this dissertation research. In effect, lobbyists are feeding information to legislators during floor debates, and legislators are using that information “real time” to bolster their argument. In addition, floor rules intended to stop legislators from communicating (rules such as remaining in their seats during the third and final reading of a bill and formally recognizing legislators prior to their entry into the discussion on the floor) are being circumvented. Here is legislator B:

Respondent: I will give you the prime example and an outsider would not have a clue, and this one is sort of interesting from a couple points of view, because all the communication that is done by our computers, although we are all interlinked, and we can do a communication to all the members of our caucus [0:31:00] at the same time, all the members of the legislature, when

we are on the floor and we are in debate and in discussion, we tend to communicate among ourselves through our private devices, not our public.

Interviewer: Like texting from a phone to a phone.

Respondent: Yes. And I have observed some of my colleagues being prompted to engage in debate on the floor through their private devices [0:31:30] from lobbyists in the gallery who are sitting, observing the dialogue, they don't have a direct voice into the discussion but they text, I have literally seen colleagues read arguments from their phone.

Respondent: What an awesome use of technology, but what a challenge for, in my case, it happened on a bill that I knew my counter arguer, I don't know if that's a word, was not particularly knowledgeable about, that individual simply read from things that were given to them, [0:32:30] as argument point counter point and so I raised an issue I knew full well the individual was not informed about and was incapable of answering based on their understanding of what the legislation did, only to watch him read the answer from the outside source who was paid to be there to argue. A paid pawn in the discussion who ethically has no place in the discussion at that point.

Legislator E, indicating that such texting is rare:

Respondent: Yeah... mostly for personal stuff; I very rarely... sometimes on the floor you'll get texted by another member during debate or something, but it's pretty rare... not much texting.

And legislator K, suggesting that the use of texting on the floor is not so rare:

Respondent: I've no doubt that it is a common phenomenon. It's just not one that I personally have much to do with. And again this is not a criticism of anybody else. In fact, to some degree I'm probably jealous of how adept they are at that process. [00:20:14] But that would not be me. When I was in the House, and on third read of bills in the House, you know, you can't leave your chair. Once you're in the third read you have to stay there. Now, you can E-Mail somebody or you can text another member, you know, across the chamber, you know: How are you going to vote on this one? Something like that.

This section closes with legislator L's perspective on texting on the floor:

Respondent: [0:00:49] On my phone checking E-Mails all the time. Text seems to be the upcoming thing that everybody wants to talk to you, even on the floor



when we go in session there would be a lot of texting going on to talk about pros and cons of each piece of legislation. Rather than talking on the phone, it becomes, you know, “Did you know this was in the bill? How are we gonna fix this?” or “What-, can this be done?” that kind of stuff, so- **[0.01.34]** For example a question may be asked on the floor about a certain part of a bill. And a lobbyist would say, “Here’s the answer to the question that you’re asking.” So it-

The implications of the real-time use of text messaging during legislative floor debates could be dedicated to an entire book and will not be explored here, however, they can be summed up by one question: What are the democratic and institutional implications of unelected officials engaging in floor debates as legislators parrot questions and responses generated by lobbyists and special interest groups? This is a topic for future research.

### ***Social Media***

The network diagrams for social media communications is shown in Appendix J: Social Media Network Diagrams. Second pass themes for face-to-face communications include: YouTube™, Facebook™, and Twitter™. Social media behavior is grounded in 328 quotes and 41 individual codes. In general, the Arizona legislators interviewed do not use social media, and largely indicate that time constraints are a factor why. Here is legislator D on time constraints:

Respondent: No, I don’t do any social media. I have enough time keeping up with my legislative e-mail account, my personal e-mail account and my REDACTED - I’m a REDACTED - e-mail account. The thought of having to respond to people who are on Twitter™, Facebook™, LinkedIn and all the rest is just too daunting.

Legislator B suggesting that more ambitious legislators use social media:

**[0:05:00]** I have watched my colleagues who are ambitious who have a political future in mind being much more active in Facebook™ and Twitter™.

Several legislators interviewed commented that they knew they should be using social media, but somehow they never get around to it. Examination of the phase one survey responses offers a slightly contradictory finding: with 29 out of 57 legislators responding that they never use Twitter™ to communicate with constituents, 30 legislators indicating they never use Twitter™ to communicate with peers, 16 legislators indicating they never use Facebook™ to communicate with constituents, and 21 legislators indicating they never use Facebook™ to communicate with peers. So while some legislators are using social media, legislators who agreed to be interviewed tended not to use it.

The results presented in this chapter were bifurcated along two distinct quantitative and qualitative methodologies. The following summary of results presents the research questions posed during this study, and summarizes them by weaving together the quantitative and qualitative threads when possible.

### ***Summary of Results***

#### **Research Question 1**

*RQ1: What CTs do legislators in the Arizona House and Senate use to communicate with their peers and constituents, and with what frequency do they use these CTs? What importance do legislators attach to these CTs?*

Arizona legislators use CTs differently when communicating with peers and constituents, although E-Mail ranked first as the most frequently used CT for *both* peers (an average of 1107 times per year) and constituents (an average of 1504 times per year). E-Mail and blogs (ranked respectively most frequently used CT and least frequently used CT) are the only CTs to have the same CTFOU ranking for peers and constituents. For

constituent communications, E-Mail CTFOU is followed by Facebook™ (469)<sup>46</sup>, face-to-face meetings (361), Twitter™ (315), telephone calls (296), web pages (174), hardcopy letters (136), and blogs (19). When communicating with other legislators, E-Mail is followed by face-to-face communications (807), telephone calls (548), Facebook™ (369), Twitter™ (181), hardcopy letters (179), web pages (165), and blogs (17).

Unlike CTFOU rankings which, (other than E-Mail and blogs) ranked differently for CTFOU between constituents and peers, Arizona legislators ranked the importance of the various CTs in the identical rank order irrespective of whether they were communicating with constituents or peers. Face-to-face communications ranked first overall and was followed (in order of decreasing importance) by E-Mail, telephone calls, hardcopy letters, Facebook™, web pages, Twitter™, and blogs. Importantly, as shown in Table 4.6, in all cases, the mean importance score ranked higher for constituents than for peers. In effect, even though the importance rank orders were the same, legislators appear to view communications with constituents as more important than communications with peers. This would be an interesting topic for future research.

Media naturalness and richness theory were used as a lens through which to view the importance legislators placed on CTs. As outlined in Chapter 2, naturalness theory suggested that the importance a legislator placed on a CT would be correlated with the “naturalness” of a CT. As shown in Table 4.7 and the associated correlation this is indeed the case. With a correlation coefficient of .762, there is a correlation between the naturalness of a CT and the importance a legislator places on that CT. As shown in Table 4.7, there is one glaring exception: E-Mail. Naturalness theory would predict that E-Mail

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<sup>46</sup> Average communication events per year

would have a ranked importance of 5<sup>th</sup> overall, but the results of this study indicate that E-Mail was ranked 2<sup>nd</sup> overall. Based on these results, hypothesis *H<sub>7</sub>: The overall importance of a CT to a legislator, in completing their duties as a legislator is positively correlated with the naturalness of that CT such that more natural CTs will be ranked with higher importance* is accepted.

The increased importance of E-Mail over that predicted by naturalness theory is likely due to a number of factors: First, legislators identified E-mail as being an efficient way to communicate information to large numbers of individuals quickly. Second, grounded in 44 interview responses, legislators and legislator assistants indicated that they are very busy, especially during the legislative session. The time-constrained condition of legislators is well documented in the literature (Arnold, 1992; Bradley, 1980; Jewell & Patterson, 1966; Mooney, 1991). Third, some legislators indicated that E-Mail is their most frequently used CT during the off session. The combination of these three factors: efficiency of mass communications, time constraints, and the increased CTFOU of E-Mail during the off session, may increase the importance of E-Mail over what naturalness theory would suggest. Interestingly, naturalness theory would also play a role in CSB as discussed in the unanticipated results section of this chapter.

## **Research Question 2**

*RQ2: How does legislator frequency of use and perception of importance of the CTs identified in RQ1 vary as a function of political party, institution (House or Senate), age, gender, years in office, education, and technology usage.*

Earlier in Chapter 4, hypotheses related to IECT demographic variations were examined and either supported or rejected based on phase one survey data analyses.

These results are summarized below:

***H<sub>1</sub>: An increase in legislator age is correlated with a decrease in IECT usage*** was rejected.

***H<sub>2</sub>: Legislator gender is not correlated with IECT usage*** was not rejected.

***H<sub>3</sub>: An increase in legislator education is correlated with an increase in IECT usage*** was rejected.

***H<sub>4a</sub>: Republicans use Facebook™ more frequently than Democrats*** and hypothesis ***H<sub>4b</sub>: Republicans use Twitter™ more frequently than Democrats*** were rejected.

***H<sub>5</sub>: Democrats use E-mail with more frequency than do Republicans*** was not rejected.

***H<sub>6a</sub>: House members use Facebook™ less frequently than Senate Members***, ***H<sub>6b</sub>: House members use Twitter™ less frequently than Senate Members***, and ***H<sub>6c</sub>: House members use E-mail more frequently than Senate Members*** were all rejected.

***H<sub>7</sub>: The importance of a CT to a legislator is positively correlated with the naturalness of that CT such that more natural CTs will be ranked with higher importance*** was not rejected.

It is important to note that the rejection of hypotheses  $H_{4a}$ ,  $H_{4b}$ ,  $H_{6a}$ ,  $H_{6b}$ , and  $H_{6c}$ , precipitated a reexamination of the literature resulting in the discovery of recent research (Straus et al., 2013) which showed that members of the minority party in congress used Twitter™ more than members of congress in the majority party. This study suggests that Straus et al.'s findings may be extended to all CTs. As shown in Table 4.10, in *every* statistically significant comparison, Democrats (the minority party in Arizona's 51<sup>st</sup> legislature) communicate more frequently than do their Republican counterparts. This unanticipated finding is discussed in more detail later in this chapter.

The remainder of the discussion on research question 2 centers around exploratory results for which no hypotheses were formed.

Legislator assigned importance of individual CTs had statistically significant bivariate relationships with certain demographic variables: Frequency of Facebook™

communications with peers and constituents decreased as a function of age and years in office. Legislator use of Facebook™ decreased both with age and years in office while legislator use of Twitter™ to communicate with constituents decreased with age.

Unfortunately, as predicted in chapter 4, insufficient power exists with such a small sample size to maintain significant effect sizes that are in the moderate and large ranges. A larger sample size including legislators from all states may shed more light on these relationships.

A legislator's use of hardware technology had a positive influence how frequently a legislator uses certain CTs. As shown in Table 4.9, legislators who used hardware technology more frequently also used certain CTs more frequently. There were no statistically significant results where a legislator's *increase* in the use of hardware technology resulted in a *decrease* in CTFOU.

### **Research Question 3**

*RQ3: What is the impact of CT on the behaviors, roles, responsibilities, and understanding of constituents of the staff of Arizona House and Senate legislators?*

The impact of CT on the behaviors, roles, responsibilities, and understanding of constituents on the staff of Arizona House and Senate legislators is largely driven by the legislators they work for. With the exception of the office telephone, legislators determine which communication technologies legislator assistants are allowed to utilize to assist the legislator. The legislator also determines the scope of a legislator assistant's duties associated with a CT. For example, some legislator assistants are authorized to communicate the ideological stance of their legislator to constituents either over the phone or via E-Mail, and some are not, depending on the desires of the legislator they

work for. The dominant CTs in use by legislator assistants are the telephone and E-Mail. Legislator assistants note a decreasing use of both the telephone and hardcopy letters as E-Mail becomes more popular with constituents and lobbyists. Many of the legislator assistants interviewed (most in fact) had CT filtering or screening responsibilities related to their phone and E-Mail duties. Some legislator assistants seemed to be uncomfortable with having their duties framed as filtering or screening, and one assistant indicated that her screening duties were “unfortunately” necessary.

#### **Research Question 4**

*RQ4: What is the impact of CT on the behaviors, roles, responsibilities, and understanding of constituents of legislators in the Arizona House and Senate?*

As shown in the phase one analyses, legislator CT behaviors towards CT are a function of their age, number of years in office, political party status as majority or minority, their use of hardware technology, and the naturalness of the CT. The naturalness of a CT is correlated with the importance that a legislator assigns to the CT *and* to the risks and benefits associated with that CT.

Phase three interviews uncovered legislator behaviors that were both expected and unexpected. Among the expected findings: 1) As shown in Appendix E: Word Clouds and the legislator-assistant paired network diagrams in Appendix K: Paired Network Diagrams, overall CTFOU by legislators varied significantly from legislator to legislator and from legislator assistant to legislator assistant. 2) Legislators confirm that more natural CTs are more important to them, primarily because natural CTs tend to convey information such as emotions and honesty/deception better than less natural CTs. 3) Demographic relationships between CTFOU and importance obtained during the phase

one survey were confirmed. Significantly, CTFOU rankings obtained in phase one were significantly correlated with the frequency of discussion for each CT in phases two and three.

More interesting than the expected findings were the unanticipated findings of this study. These findings include: 1) There are significant mismatches between the CTs that legislators find most important and the CTs that constituents use most frequently. 2) For all statistically significant relationships between political party and CTFOU, the minority party communicates more frequently than the majority party. 3) Legislators are using E-Mail to avoid communications from constituents who disagree with their policy and/or political ideology and using E-Mail to enhance communications with constituents who agree with their policy and/or political ideology. 4) Legislators are using text messaging real-time during floor debates to obtain outside information to assist them as they debate other legislators. 5) CT risk perceptions are related to the naturalness of the CT, with more natural CTs involving less risk for the legislator. 6) Legislators use CTs as a challenge avoidance mechanism; legislators are more likely to engage with constituents with opposing ideologies if the engagement is face-to-face, slightly less likely to engage these constituents over the phone, and unlikely to engage these constituents via E-Mail. Interviews suggest that naturalness theory offers an explanation for this behavior. Legislators believe they are unlikely to convince a constituent to change their mind about a topic via E-Mail, slightly more likely to do so over the phone, and two legislators indicated they have changed the minds of every constituent they have ever met face-to-face. These unanticipated results will be discussed in a dedicated section after a discussion of research questions five and six.



## **Research Question 5**

*RQ5: What role does IT support and infrastructures play in a legislator's use of CT, and how do IT personnel perceive legislator behaviors associated with CT?*

The legislature IT department primarily supports legislator and legislator assistant use of E-Mail and phones. Help desk employees spend the majority of their time assisting legislators and legislator assistants work through problems associated with computer setup and use, which includes assistance with E-Mail and IECTs. Phone technology support issues are rare although the phone system is VOIP based and can have a steep learning curve according to legislator assistants.

Both E-Mail and phone are important and frequently used CT for legislators. In session, while legislators are located at the capitol complex, IT infrastructure support for the phone and E-Mail systems are critical. Out of session, legislators tend to use their personal cell phones, making IT support and infrastructure less important for them. Legislators frequently rely on personal E-Mail accounts and cell phones for a number of reasons. Phone logs and E-Mail transcripts from official communications supported by the capitol complex IT infrastructures are subject to FOIA requests, so legislators use their personal phone and E-Mail accounts to circumvent possible FOIA based information leaks. Arizona legislators are also part time citizen legislators and therefore rely on their personal communication infrastructure (cell phones, E-Mail accounts, and personal computers) for both official and unofficial communications, making them less reliant on the capitol complex IT infrastructure than legislator assistants. Legislator assistants are required to maintain a presence at the capitol complex year round, making

IT support for the phone systems critical since both phone and E-Mail form the basis of a legislator assistant's primary duties.

IT department staff perceive legislator behaviors associated with CT exclusively as a function of legislator age. When questioned about legislator behaviors associated with CT, legislator age was the only factor according to IT staff. According to IT staff, older legislators are less likely to use IECT, need more help with technology, and are more likely to request enhancements to IT infrastructure than younger legislators. One IT staffer noted that older legislators were more likely to have their legislator assistants phone the help desk for them, while younger legislators would simply call themselves. In two of the three IT staffer interviews where they were asked specifically about other factors such as political party, gender, and institutional impacts on legislator CT behavior, both IT staffers indicated that only age appeared to play a role.

### **Research Question 6**

*RQ6: What are the implications of changing legislator use of CT for the development of, and change in, IT support and infrastructures.*

Younger legislators are driving CT infrastructure development and changes while older legislators are resisting these changes. In addition, technology itself is driving reductions in IT support staffing levels through automation made possible by new technologies. In an example of younger legislators driving changes in IT support infrastructure, several younger legislators requested IT support in setting up personal cell phones and computers to access the capitol intranet. These requests required secure tunneling VPN technology that was not in use by the IT department. The request was sent to the director and approved, and now, setting up legislators' private computers and

cell phones is one of the IT departments most requested services. In another example, legislators requested bills be saved in PDF format in addition to Microsoft Word format.

IT A categorized legislators into three fundamental categories: legislators who do not want to use technology at all, and have their legislator assistants deal with technology, legislators “in the middle” who use the technology but do not demand or embrace it, and finally, the third group of legislators who demand new communication technology. IT A indicated that older legislators tend to fall in the first category while younger legislators tend to fall in the third category. IT B calls the first category of legislators “cowboy legislators” while noting that these older legislators wear cowboy boots under their suits.

Legislators are driving IT infrastructure changes and IT staff are adjusting their roles to support legislator requests. On the other hand, technology itself is driving reductions to IT staff by automating tasks that were once assigned to an IT staffer. IT A provides the example of web page creation. Web page creation was once a manual process and now it is automated through the use of scripts and custom programs. These factors suggest that IT infrastructure is a dynamic environment where technology can both add to the task load of IT personnel as well as reduce it. Interviews with IT staff suggest that legislators do in fact precipitate changes in IT infrastructure and support.

## CHAPTER 5

### DISCUSSION, IMPLICATIONS, AND RECOMMENDATIONS

“Without a conscious and deliberate effort to use the new technology of telecommunications in behalf of democracy, it may well be used in ways harmful to democracy” (Dahl, 1989).

“...so I raised an issue [on the floor of the House that] I knew full well the individual [legislator] was not informed about and was incapable of answering based on their understanding of what the legislation did, only to watch him read the answer [via a text message] from the outside source who was paid to be there to argue. A paid pawn in the discussion who ethically has no place in the discussion at that point” (Legislator B).

#### *Summary of the Study*

The exploratory research in this study centered on understanding how CT impacts legislator behavior by examining CTFOU, CT importance, and some of the demographic, institutional, and political variables that effect legislator CT behavior. The importance legislators assign to CT was examined using two perspectives. First, naturalness theory was used as a lens through which to view the importance legislators assign to CTs when performing their legislative duties and second, the specific importance of any individual CT was uncovered during the phase three interviews with legislators. Legislator CTFOU was examined in the phase one survey that examined communications with peers and communications with constituents. Legislator use of various hardware devices was also examined in phase one. Using a triangulated approach, legislator behaviors with respect to (WRT) CT were examined from the perspectives of legislators, legislator assistants, and IT department staff. Quantitative data from phase one was supported via the phase two and three interview, often providing more granulated details about CTFOU, CT importance, and CTA behaviors.

### ***Contribution of Research***

This study offers many contributions: it effectively bridges a gap between existing IECT behavioral studies on non-legislators by extending it to legislator behavior, it expands existing narrowly focused<sup>47</sup> current research into the use of CT by legislators by including both IECT and mature CTs, it provides a fresh perspective on the factors that make CTs important to legislators, and it uncovered legislator behaviors that are both useful, and potentially harmful, to democracy. In addition, this study confirms and extends existing research in areas such as minority party constituent communication frequency and extends this concept to communications with peers and a wider variety of CTs. The topic of legislator CT behavior also produced some unanticipated results such as constituent selective behaviors and the use of text messaging during floor debates. These aspects are explored in more detail in the next section which elaborates on the contributions of this study.

### **IECT Specific Studies**

As mentioned in the literature review, the majority of studies on IECT behavior are conducted on non-legislators. This study extended some of the findings of studies on non-legislators including research indicating that gender is not a significant predictor of IECT usage when a common IT infrastructure was shared (Akman & Mishra, 2010; Knight & Pearson, 2005; Thayer & Ray, 2006). In addition, this study confirmed research on legislators that suggested social media use by legislators decreases as a function of age (Greenberg, 2012) and provided contradictory evidence that suggested that IECT usage decreases with age (Carpenter & Buday, 2007; Cutler et al., 2003;

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<sup>47</sup> Narrowly focused from the perspective of evaluating a limited number of CTs.

Friedberg, 2001). This study confirms and significantly extends to all CTs, Straus et al.'s (2013) finding that the minority party communicates more frequently than the majority party when using Twitter™. This study confirms research by Fisher & Herrick (2013) who found that legislators prefer mail surveys than Internet surveys by a substantial margin<sup>48</sup>, and that this preference for mail surveys is not gender specific.

#### Overall CT Use by Legislators

This study expands existing research on legislator use of CT by focusing on a broad range of CTs and examining CTFOU across both peer and constituent communications. In addition, this study examines the importance of a broad range of CTs, both with respect to peer communications and constituent communications. One of the many significant findings is that legislators assign more importance to communications with constituents than they do with other legislators, although their average rates of communication across all CTs examined are roughly the same (3274 communication events per year with constituents and 3373 communication events per year with peers). This study uncovered significant relationships between legislator CTFOU and age and years in office, with older legislators and legislators who have been in office longer, communicating less. Unsurprisingly, this study finds that the longer a legislator is in office, the less important they find social media communications with constituents, even after controlling for all demographic, institutional, and political variables examined in the study. This study finds significant correlations between the importance legislators assign to a CT and the CTFOU of that CT. Unsurprisingly, the

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<sup>48</sup> Fisher & Herrick found a 250% higher preference for mail surveys while this study found the preference to be 182% higher.

correlation is positive such that more important CTs are used more frequently (or vice versa)<sup>49</sup>.

### Naturalness Theory

Based on interviews and survey data analyses related to hypothesis H<sub>7</sub>, this research suggests that legislator behavior towards CT is both evolutionary and revolutionary. From an evolutionary perspective, this research suggests that legislators place greater importance on the CTs that are most natural, and during interviews, they cite the exact reasons that naturalness theory (Kock, 2005, 2007) would suggest; humans are evolutionarily hard-wired to receive more information in a shorter period of time, via face-to-face interactions. There was however, one notable exception to this evolutionary concept: the importance of E-Mail. Naturalness theory does not predict the high level of importance that legislators assigned to E-Mail.

In terms of the evolutionary timespans that led humans to prefer face-to-face communications, legislator behavior towards E-Mail is revolutionary. Although legislators indicate that E-Mail has the highest number of overall risks of any CT examined in this study, they rank it as the second most important CT. During interviews with legislators, the reason became clear; E-Mail is quick, efficient, and allowed mass communications with their constituents. These findings suggest that IECTs may someday overtake “natural” communications in importance to legislators. The implications of such a finding are significant and include a potential increase in political polarization as, has been identified in this study, legislators find it easier to filter and ignore dissenting constituent opinions via IECTs than via face-to-face communications.

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<sup>49</sup> No causality was assigned.

This finding is discussed more thoroughly in the unanticipated findings section of this chapter.

### CT and Democracy

This study uncovered legislator behaviors that may be considered harmful to democracy. Two such behaviors: constituent selective behavior and the real-time use of text messaging on the floor of the House and Senate during debate stand out as particularly troubling.

Legislator use of text messaging real-time during debates on the floor of the House and Senate suggests that unelected officials such as lobbyist, special interest groups, and paid consultants (as highlighted in the opening quotation at the beginning of this chapter) may be playing a more significant role in the policymaking process than many academics expect. One indication that the real-time use of text messaging by legislators during floor debates is a relatively new phenomena is that no research on the use of text messaging by legislators was located in searches using the Google Scholar™, JSTOR®, Web of Science™, and ProQuest™ search engines. The influences of special interest groups and lobbyists on the political process in America are well documented in academia; however, the use of text messaging real-time by legislators takes their role from *influencing* floor debate to being *engaged* in floor debate. The ramifications of such behavior for the theories of the policymaking may be significant. Exploring these potential impacts makes for interesting future research.

### **Unanticipated Research Findings**

#### *Legislator-Constituent CT Mismatches*



Network diagrams shown in appendices F (E-Mail network diagrams) and G (face-to-face network diagrams) suggest that there are fundamental differences in the CTs that are most important to legislators for the purposes of fulfilling their duties as a legislator when communicating with constituents, and those used by constituents to communicate with legislators. These differences were unanticipated at the start of this study, and the purpose of this section is to discuss these differences and the implications arising from them.

Legislators indicate that personal E-Mails from constituents were the most important form of E-Mail, yet according to the legislators interviewed, relatively few constituents take the time to draft personal E-Mails. Both legislators and legislator assistants reveal that the majority of the E-Mail they receive from constituents is bulk or form letter E-Mail. However, bulk E-Mail holds little importance and may actually produce a negative response in a legislator. During interviews, two legislators indicated that they believe constituents who send bulk E-Mail are clueless about the topic of the E-Mail and one legislator indicated he would actually respond to a bulk E-Mail just “to screw with them” to see if a constituent would respond back. He indicated few constituents who send bulk E-Mail would respond back to him and those who did, would have a relatively shallow understanding of the topic. All legislators interviewed indicated a belief that constituents who use bulk E-Mail tend to be uninformed regarding the policy or legislation topic of the E-Mail.

One of the commonly held beliefs among researchers who investigate the impact of IECT on the governance process suggest that IECT increases the capacity of citizens to communicate with their government (Bimber, 1998; Ferber, Foltz, & Pugliese, 2003;

Garson, 2006; Mergel, 2012). While this study suggests that constituents and legislators are utilizing IECT, it also finds that communications in a form unimportant to a legislator can have no impact (for instance, when a legislator does not use that CT due to personal preferences), or worse (as is the case with bulk E-Mail), a negative impact on the legislator. Importantly, as many scholars have noted (Bimber, 1998; Stromer - Galley, 2006) increasing the capacity of citizens to communicate with their government does not necessarily increase participation. Bimber (2001) studied the impact of Internet transmitted information (IECT in the context of this study) on various forms of political participation and found that the only statistically significant relationship between participation and IECT was increased political donations.

In a second form of communication mismatch, data from phases one and three of the study indicate that the most important form of communication from constituents is one-on-one face-to-face communications yet the majority of legislators indicate that one-on-one face-to-face communications with constituents are rare. Only one out of nine legislators interviewed said that face-to-face communications with constituents were common.

These two forms of communication mismatch share a common theme: communications from constituents are not in a form that has a significant positive impact on the legislator receiving the communication. While it is clear from the phase three interviews that different legislators prefer different CTs, no legislators indicated that they prefer (or even that they have a positive perspective on) bulk E-Mail and every legislator indicated that face-to-face meetings had the most impact on them (and on their constituents). Whether one is a researcher hoping to study legislative behavior, a

constituent hoping to influence a legislator, a lobbyist hoping to influence a legislator, or a public administrator working with a legislator on a budget or legislation, one recommendation from this study is: discover and use CTs that the legislator prefers and that has the most impact. Based on the research in this study, face-to-face meetings are likely to have the most impact on a legislator and bulk E-Mail is *always* the wrong CT choice when hoping to influence a legislator.

#### *Minority Party CT Frequency of Use*

As noted in Chapter 4, almost all of the hypotheses related to the influence of political party on the CTFOU of CT were rejected. In all statistically significant cases, Democrats were communicating at twice the rate with constituents than were their Republican counterparts. In addition, Democrats were communicating over five times the rate with their peers over the phone and almost twice the rate with their peers via E-Mail. The differences were both statistically and economically significant, and the rejection of these hypotheses demanded further investigation.

Straus et al. (2013), who studied Twitter™ use in the 111<sup>th</sup> Congress, offers a compelling explanation. Straus et al. hypothesize that those in the minority party (the Republicans in the 111<sup>th</sup> Congress) are more likely to use Twitter™ to reach a broader constituency than their Democrat counterparts. Using two models incorporating political, personal, and district-level variables, Straus et al. posit that the minority party communicates more via Twitter™ to communicate with a broader constituency.

The research in this study suggest that it may be possible to extend Straus et al.'s theory to *all* CTs, one might argue that those in the minority party (in Arizona, the Democrats, and at the federal level, the Republicans in the 111<sup>th</sup> Congress) are more

likely to use all CTs (and not just Twitter™ or Facebook™) in an effort to reach a broader constituency. Existing research suggests that minority party may communicate more in an attempt to influence an unresponsive media (Graber, 2009; Lassen & Brown, 2011) and to turn out supporters in greater numbers (Inouye, 2014).

Interestingly, while political party affiliation was an indicator of overall communication frequency by legislators, it was not a predictor of overall IECT communication frequency. This suggests that the difference in CT frequency between Democrats and Republicans was a primarily a function of mature CTs. Confirmation of this relationship is obtained through a difference in means test of the CTFOU of mature CTs as a function of party affiliation. The results of this t test, significant at the 97% CI, show that the mean annual CTFOU of mature CTs for Democrats is 3558 communication events per year while Republicans reported a mean annual frequency of 1630 communication events per year. In effect, Democrats communicate more than Republicans by using face-to-face meetings, letters, and the telephone more than Republicans. In essence, Democrats are using the most important technologies to communicate with their constituents. Minority party communications is a promising topic for future research.

#### *Constituent Selective Behavior*

Recalling the definition of CSB from Chapter 4, CSB occurs when legislators engage in acts that either limit or enhance their exposure to certain types of constituents as a normal function of their day-to-day communications acting in their capacity as a legislator. The definition of CSB specifically excludes campaign activities as such activities typically involve enhanced exposure to certain types of constituents (usually

their supporters). CSB is associated with two behaviors: constituent selective exposure and constituent challenge avoidance. Constituent selective exposure can be defined as legislator actions that seek to enhance their exposure to certain types of constituents as a normal function of their day-to-day communications acting in their capacity as a legislator. Constituent challenge avoidance occurs when legislators seek to reduce their exposure to certain types of constituents as a normal function of their day-to-day communications acting in their capacity as a legislator.

Selective exposure and challenge avoidance behaviors among constituents is well documented (Bimber & Davis, 2003; R. K. Garrett et al., 2012; R.K. Garrett, 2009a; Marshall, 2010; Mutz & Martin, 2001; Stroud, 2008). These studies can be summarized succinctly: constituents engage in selective exposure, and the more politically ideologically extreme the constituent is, the more selective exposure behavior they exhibit. Garrett (2009b) specifically examines links between selective exposure and challenge avoidance and concludes that challenge avoidance behaviors are not linked to selective exposure behavior.

No studies were located that empirically explored legislator selective exposure and challenge avoidance behaviors although Calvert (1985) posited that political decision makers *should* engage in selective exposure behavior through a model which suggested that biased information (such as that obtained by selective exposure and selected acceptance) may be preferential to unbiased information, *even* when there is no rational actor cost advantage. Selective exposure behavior related to legislators communicating with like-minded constituents via E-Mail for the purposes of campaigning is well documented from multiple perspectives (Bimber & Davis, 2003; R.K. Garrett, 2009b;

Graber, 2009; Selnow, 1998). This research suggests that having an E-Mail list of like-minded constituents can be valuable, especially given Bimber's (2001) research linking IECT activity to increases in donations. Three legislators (all three are Republicans) interviewed in this study used their "like-minded constituent" mailing lists to build relationships with constituents through E-Mail contact while four others (three Democrats and one Republican) indicated that they maintain E-Mail mailing lists of all constituents. Implied, but not always stated, is that some legislators are communicating more via E-Mail with constituents who agree with their ideology than with constituents who disagree with their ideology. One legislator summed up the reason why succinctly: trying to build a movement that incorporates constituents who both agree and disagree with your political position is like herding cats; the movement goes nowhere. Possible, but never stated during interviews, is that legislators are always in a state of campaigning and that the use of E-Mail to communicate with like-minded constituents is not selective exposure behavior, but rather, is an artifact of non-stop campaigning.

Several legislators indicated that it is difficult if not impossible to change the mind of a constituent who strongly disagrees with their policy position or ideology. Supporting this theory, research by Vaccari (2008) argues that 2004 U.S. election campaigns focused IECT communications on the mobilization of supporters rather than persuasion of the undecided voter. Bimber and Davis (2003) note four categories of efforts in which 2000 U.S. elections campaigns catered to supporters via IECT: donating, opinion reinforcement, activism, and voter registration and mobilization. The above research suggests that campaigns routinely focus IECT communications on supporters rather than the undecided or dissenting opinioned constituent, and that the behavior

uncovered by this study is consistent with the literature: legislators are choosing to communicate more frequently with like-minded constituents, campaigning or not.

One valid question is whether or not other legislator CSBs (besides maintaining E-Mail lists of like-minded constituents) might be associated with CT. The research in this study suggests it might. Legislator E, responding to how he prioritizes E-Mail communications:

Okay, well, highest priority is... there are just two dynamics: one is there's the person that lives in my district. In my district obviously gets a lot more attention and concern[00:16:30] than somebody outside my district. And the second is, are they agreeing with me or are they disagreeing with me? Agreeing with me gets a lot more important, so I'm most likely to want to take care of somebody who likes me and who is in my district, versus somebody who hates me and is outside of my district.

Legislator E indicates that communications with individuals who agree with him are a higher priority, and he explains why: he is more likely to take care of someone who likes him. He makes a subtle link between constituents who like him and constituents who agree with him. The corollary to this is that constituents who disagree with him do not like him, although this remains unstated. Legislator E's statement indicates a partisan bias that impacts how he services his constituents. Might selective exposure to constituents who agree with a legislator's ideology precipitate partisan bias? Research suggests it does.

Some legislators interviewed during phase three of the study indicated that they avoid contact with constituents who disagree with their political ideology and/or policy position *only for certain CTs*. Most legislators indicated that they did not have the time to engage with constituents who disagreed with their policy position and/or ideology via

E-Mail, more legislators indicated that they would engage constituents on such topics over the phone, and every legislator interviewed on the topic indicated they welcomed face-to-face engagements with constituents who disagreed with them on ideology or policy issues.

Naturalness theory suggests the reason for this CT based selective engagement: The more natural the communication, the more likely the interaction will result in physiological arousal for the participants, the less ambiguity there will be, and the cognitive effort to engage will be reduced (Kock, 2005). Legislators express how difficult it is to change the mind of a constituent who disagrees with them; it is unsurprising that they would avoid challenges via less natural CTs and welcome challenges via more natural CTs.

### **Closing Comments, Recommendations and Directions for Future Research**

#### *Closing Comments*

This study adds to a growing body of evidence suggesting that the increased communication capacity offered by IECT does not necessarily translate into increased participation by citizens. Constituent selective exposure behavior precipitated by E-Mail and challenge avoidance behaviors that vary as a function of the naturalness of the CT used, and communication mismatches between legislators and constituents suggest that increased communication capacity, while offering the opportunity for increased participation, adds significant complexity to increased participation via IECTs discussion.

This study has shown that while legislators consistently rank constituent communications as more important than communications with other legislators, communications may be directed more towards like-minded constituents than



constituents who disagree with the legislator's political ideology and/or policy stance through CSB mechanisms. Constituent challenge avoidance by legislators varies as a function of CT: it is less likely to occur with face-to-face communications and more likely to occur with E-Mail, and naturalness theory offers one explanation: face-to-face communications are most likely to change a constituents mind about a policy or legislation and E-Mail is least likely, lending credence to naturalness theory's premise that face-to-face communications have more emotional and physiological impact on individuals. Legislator CTFOU and importance vary by a number of statistically significant institutional, demographic, and political variables that add yet more complexity to the factors that determine the effectiveness of any given constituent communication. In short, the relationships between legislators, constituents, and CTs are complicated.

### *Recommendations*

While there are many recommendations that could be made based on the results of this study, there are three I consider most important from the perspective of communicating with legislators. These recommendations include: 1) Communicate with legislators face-to-face as much as possible. The more face-to-face like the CT, the more influence it is likely to have on a legislator. 2) Bulk E-Mail from constituents is a waste of time and may actually have a negative impact on the legislator: do not use it. Corporations, special interest groups, and others seeking to influence policy or legislation via bulk E-Mail are wasting their time and money on this communication method and should refocus on mobilizing their members to engage in face-to-face communications, the phone, or personalized E-Mails, all of which have greater impact. 3) Legislators use

and value different CTs for different purposes. E-Mail works well for “taking care of business” while face-to-face meetings work best for topics legislators say are important to them. Knowing a specific legislator’s CT preferences is of value to those seeking to engage them.

### *Directions for Future Research*

The future research from this study I find most interesting centers on several topics: 1) Increasing the sample size of phase one of this study to include all state legislators in the U.S. The limited sample size of phase one of this study precluded the use of complex regression models due to a lack of statistical power. 2) Examining more closely the relationships between the importance of peer and constituent communications. Might these be indicative of new political roles that do not fit the traditional Burkean model? 3) Minority party communications. Is the phenomena uncovered in this study replicable in other state legislatures? 4) Constituent selective behavior. Do legislators routinely seek interactions with constituents who are like-minded and exhibit challenge avoidance behaviors linked to the naturalness of CT, and if so, what are the implications of this behavior? 5) What are the democratic and institutional implications of unelected officials engaging in floor debates as legislators parrot questions and responses generated by lobbyists and special interest groups through text messaging? In reviewing all of the results of this study, I am overwhelmed with the possibilities for future research.

### *A closing thought*

In reviewing the results of this study, the reader may feel as if they are drinking from a fire hydrant. Exploratory research, and especially mixed methods exploratory research is frequently broader in scope than single method confirmatory research.

Lawrence (2011) captures the purpose of exploratory research nicely: “Our goal with it [exploratory research] is to formulate more precise questions that we can address in future research” (p. 38). The research in this study has generated more precise questions in spades. In addition, it has supported the results of a substantial number of studies, extended others, and contradicted a few. In addition, it offers insights into legislator CTFOU and CTA behaviors that to date have not been explored.

If one considers an interesting question or piece of information from this study, explored individually, to be a sip from the fountain of knowledge, then it is not surprising that grasping all of it is like drinking from the fire hydrant of knowledge. This is the nature of exploratory research.

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## APPENDIX A

### RECRUITING AND FOLLOW-UP PARTICIPANT COMMUNICATIONS

## Prenotice E-mail

To: [insert recipient name]  
From: Joe F. West <jfw@asu.edu>  
Subject: Arizona State University Doctoral Candidate Needs Your Help

Dear [Name],

I am sending you this notice to let you know that shortly, I will be asking for your help. I've included a short executive summary of what I will need as well as a longer (gory details) version if you are interested in more depth.

### **Executive Summary:**

I know you are extremely busy, but I wanted to give you some notice that **within approximately one week**, I will be sending you a link to a **short 10-minute survey** that will form the first phase of my doctoral dissertation at Arizona State University. An Arizona native since 1969, this is the first time I have asked a representative for help... but I really need yours. If you do not wish to take the survey, please reply back to this E-Mail with opt-out in the subject or body, and I will not contact you again. I appreciate the time you have already spent just reading this executive summary. Below are the details of my research if you would like to see what I am up to.

### **Gory Details:**

I am writing to ask for your help with an important study that examines the use of CT by members of the Arizona House and Senate, and is being conducted as part of my doctoral dissertation at Arizona State University. I have been a citizen of Arizona since 1969, and this is the first time I have had the opportunity to correspond with members of the Arizona House and Senate. In the next few days, you will receive a request from me to participate in my doctoral research by participating in a survey. Ultimately, I expect my research to shed light on the complex relationships that exist between the use of CT and legislator and staff behavior.

I would like to do everything I can to make it both easy and enjoyable for you to participate in my dissertation. I am writing in advance because many legislators and their staff like to know ahead of time that they will be asked to fill out an online questionnaire. My research can only be successful with the generous help of legislators like you.

While it would be inappropriate for me to offer any token of appreciation more than my sincere thanks, rest assured that I appreciate your assistance more than I could ever say in an e-mail. This research is the culmination of my five-year effort to earn my Ph.D. from Arizona State University. As you might imagine, the importance of this research to my future and me cannot be overstated. Because of this, anything I could possibly offer you other than my sincere gratitude will pale by comparison.

The next e-mail that you receive from me will contain more details regarding my research. Please note that my full dissertation, once defended, will be made available to



you in electronic form.

Please note that you can opt-out of being contacted by me in the future by simply replying to this E-Mail with the subject line "opt-out". I would like to thank you in advance for your time and effort to help me with this important research on the Arizona House and Senate.

Warm Regards,

Joe

-----  
Joe F. West, MBA  
Doctoral Candidate  
Faculty Associate, Arizona State University  
Email: [jfw@asu.edu](mailto:jfw@asu.edu)  
480.522.6186 / Fax: 480.502.2430

**First Phase Survey Recruiting E-mail**

Dear Representative RECIPIENTLASTNAME,

Approximately a week ago, I sent you an E-Mail requesting your help to complete a brief survey that forms a component of my doctoral dissertation. Because I did not receive an opt-out response back, I am sending you the link to the short survey.

As I mentioned in my previous email, I am a doctoral student under the direction of Dr. Elizabeth Corley in the College of Public Programs at Arizona State University. I am conducting a research study that examines the use of CT within the Arizona House and Senate as part of my doctoral dissertation.

I am recruiting Arizona House and Senate Legislators to participate in an online survey, which will take approximately 6-10 minutes. The survey is located at [http://www.\[fill in remainder of link once survey is ready\]](http://www.[fill in remainder of link once survey is ready]).

Your participation in this study is voluntary. If you have any questions concerning the research study, please call me at (480) 522- 6186. Please note that you can opt-out of any future contact by replying to this E-Mail with the text opt-out in either the subject line or the body of the email.

Thank you so much for your support. I will send you an electronic copy of my dissertation with the research results once I defend it.

Kind Regards,

Joe West  
Doctoral Candidate  
Arizona State University

## Second Phase Survey Recruiting E-mail

To: [insert recipient name]  
From: Joe F. West <jfw@asu.edu>  
Subject: Arizona State University Research on the Arizona Legislature

Dear [Representative or Senator] [Name],

Approximately a week ago, I sent you an E-Mail notifying you that I would need your help to complete a brief survey that forms a component of my dissertation. Because I know you are busy, I have provided a brief executive summary and verbose, all the gory details summary.

### **Brief Summary**

I have been a resident in Arizona since 1969, and I am completing my doctoral dissertation at Arizona State University. You can help me with my research by completing the following 6-10 minute survey located at:

[http://asupublicprograms.us.qualtrics.com/SE/?SID=SV\\_eqYPExvcCj5twcB](http://asupublicprograms.us.qualtrics.com/SE/?SID=SV_eqYPExvcCj5twcB)

I do not collect any personally identifiable information, the results are completely confidential, and the topic is limited to the use of CT in the Arizona Legislature. Because my sample size of 90 legislators is small, I need your help to ensure I have statistically significant results.

### **All the Gory Details**

I have been a resident of Arizona since 1969, and am contacting you to request your assistance in the completion of the second phase of my doctoral dissertation research at Arizona State University. My dissertation research examines the links between CT (face-to-face conversations, phone calls, webpages, Facebook™, Twitter™, etc.) and legislator and legislator staff behavior. The second phase of my dissertation is extremely limited in scope, focusing only on Arizona House and Senate senior staff, approximately 24 individuals.

The second phase of my dissertation involves a 30 to 45 minute one on one interview with your most senior staffer. During this phase, I would very much appreciate your help by **forwarding this E-Mail to your most senior assistant that you deem capable of answering questions about your use of technology**. Please ask your most senior staffer to contact me at [jfw@asu.edu](mailto:jfw@asu.edu) if they are willing to participate in the interview process. The interview focuses on the use of CT by Arizona legislators. The interview questions will be provided to your most senior assistant in advance.

As you might imagine, the sample size of my phase one research is relatively small, requiring that I have a fairly high response rate in order to obtain significant results. In effect, your response to this E-Mail is crucial to the success of my dissertation.

Because you are a legislator, I recognize that even seemingly innocuous information such as the use of CT can be sensitive in nature. Because of this, **no personal data will be collected** during **any** phase of my research. In addition, the confidentiality of my research is protected under Arizona State University's Institutional Review Board (IRB), who has reviewed and approved every phase of my research.

In closing, I would like to thank you for considering the possibility of participating in my research. If you wish to participate, please forward this E-Mail to your most senior assistant that you deem capable of answering questions about your use of CT. Please ask your most senior staffer to contact me at [jfw@asu.edu](mailto:jfw@asu.edu) if they are willing to participate in the interview process.

Please note that you can opt-out of being contacted by me in the future by simply replying to this E-Mail with the subject line "opt-out". I would like to thank you in advance for your time and effort to help me with this important research on the Arizona House and Senate.

Best Regards,

Joe F. West  
Doctoral Candidate  
Arizona State University

### Third Phase Survey Recruiting E-mail

To: [insert recipient name]  
From: Joe F. West <jfw@asu.edu>  
Subject: Arizona State University Doctoral Candidate Needs Your Help

Dear [Name],

I have been a resident of Arizona since 1969, and am contacting you to request your assistance in the completion of the third and final phase of my doctoral dissertation research at Arizona State University. My dissertation research examines the links between CT (face-to-face conversations, phone calls, webpages, Facebook™, Twitter™, etc.) and legislator and legislator staff behavior. The third phase of my dissertation is extremely limited in scope, focusing only on Arizona House and Senate legislators, approximately 24 individuals.

The third phase of my dissertation involves a 30 to 45 minute one on one interview with you. The interview focuses on the use of CT by Arizona legislators. The interview questions will be provided to your most senior assistant in advance. If you are willing to participate in the interview process, please reply to this E-Mail and let me know that you are willing to participate. I will make schedule arrangements with your staff (or with you if you would prefer).

As you might imagine, the sample size of my phase one research is relatively small, requiring that I have a fairly high response rate in order to obtain significant results. In effect, your response to this E-Mail is crucial to the success of my dissertation.

Because you are a legislator, I recognize that even seemingly innocuous information such as the use of CT can be sensitive in nature. Because of this, **no personal data will be collected** during **any** phase of my research. In addition, the confidentiality of my research is protected under Arizona State University's Institutional Review Board (IRB), who has reviewed and approved every phase of my research.

In closing, I would like to thank you for considering the possibility of participating in my research. If you are willing to participate in the interview process, please reply to this E-Mail and let me know that you are willing to participate.

Please note that you can opt-out of being contacted by me in the future by simply replying to this E-Mail with the subject line "opt-out". I would like to thank you in advance for your time and effort to help me with this important research on the Arizona House and Senate.

Best Regards,  
Joe F. West  
Doctoral Candidate

**First Phase First Follow-up E-mail**  
(Sent one week after initial recruiting e-mail)

To: [insert recipient name]  
From: Joe F. West <jfw@asu.edu>  
Subject: Arizona State University Doctoral Candidate Needs Your Help

Dear [Name],

Approximately one week ago, I e-mailed you a request for your assistance with the first phase of my Arizona State University doctoral research. As of this date, I have had an extraordinarily good response to my request for assistance. If you are one of the individuals who have participated in my dissertation research, I would like to thank you for your time.

Although the response to my request has been exceptional, not everyone has yet participated. While there are numerous explanations why the response has been less than 100%, the explanation that concerns me the most is that the initial e-mail was not received. Because of the possibility that you may not have received my initial e-mail, I have duplicated my initial request below.

Initial e-mail request

I have been a resident of Arizona since 1969, and am contacting you to request your assistance in the completion of the first phase of my doctoral dissertation research at Arizona State University. My dissertation research examines the links between CT (face-to-face conversations, phone calls, webpages, Facebook™, Twitter™, etc.) and legislator and legislator staff behavior. The first phase of my dissertation is extremely limited in scope, focusing only on Arizona House and Senate senior staff, approximately 90 individuals.

The first phase of my dissertation involves the completion of a short (less than 10 minute) online survey of the most senior staff of Arizona House and Senate elected officials. During this phase, I would very much appreciate your help by **forwarding this E-Mail to your most senior assistant that you deem capable of answering questions about your use of technology**. The survey questions focus on the frequency and importance of various CTs that you may or may not use, as well as a few basic demographic questions.

The link to the Arizona State University Qualtrics Survey on CT use is: [Insert Link]

As you might imagine, the sample size of my phase one research is relatively small, requiring that I have a fairly high response rate in order to obtain significant results. In effect, your response to this E-Mail is crucial to the success of my dissertation.

Because you are a legislator, I recognize that even seemingly innocuous information such as the use of CT can be sensitive in nature. Because of this, **no personal data will be collected** during **any** phase of my research. In addition, the confidentiality of my research is protected under Arizona State University's Institutional Review Board (IRB), who has reviewed and approved every phase of my research.

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Please note that you can opt-out of being contacted by me in the future by simply replying to this E-Mail with the subject line "opt-out". I would like to thank you in advance for your time and effort to help me with this important research on the Arizona House and Senate.

Best Regards,

Joe F. West  
Doctoral Candidate  
Arizona State University

**First Phase Second Follow-up E-mail**  
(Sent two weeks after initial recruiting e-mail)

To: [insert recipient name]  
From: Joe F. West <jfw@asu.edu>  
Subject: Arizona State University Doctoral Candidate Needs Your Help

Dear [Name],

Approximately two weeks ago, I e-mailed you a request for your assistance with the first phase of my Arizona State University doctoral research. As of this date, I have had an extraordinarily good response to my request for assistance. If you are one of the individuals who have participated in my dissertation research, I would like to thank you for your time.

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The first phase of my dissertation involves the completion of a short (less than 10 minute) online survey of the most senior staff of Arizona House and Senate elected officials. During this phase, I would very much appreciate your help by **forwarding this E-Mail to your most senior assistant that you deem capable of answering questions about your use of technology**. The survey questions focus on the frequency and importance of various CTs that you may or may not use, as well as a few basic demographic questions.

The link to the Arizona State University Qualtrics Survey on CT use is: [Insert Link]

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The link to the Arizona State University Qualtrics Survey on CT use is: [Insert Link]

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Doctoral Candidate  
Arizona State University

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The second phase of my dissertation involves a 30 to 45 minute one on one interview with your most senior staffer. During this phase, I would very much appreciate your help by **forwarding this E-Mail to your most senior assistant that you deem capable of answering questions about your use of technology**. Please ask your most senior staffer to contact me at [jfw@asu.edu](mailto:jfw@asu.edu) if they are willing to participate in the interview process. The interview focuses on the use of CT by Arizona legislators. The interview questions will be provided to your most senior assistant in advance.

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Doctoral Candidate  
Arizona State University

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Best Regards,

Joe F. West  
Doctoral Candidate  
Arizona State University

**Second Phase Third Follow-up E-mail**  
(Sent four weeks after initial recruiting e-mail)

To: [insert recipient name]  
From: Joe F. West <jfw@asu.edu>  
Subject: Arizona State University Doctoral Candidate Needs Your Help

Dear [Name],

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The second phase of my dissertation involves a 30 to 45 minute one on one interview with your most senior staffer. During this phase, I would very much appreciate your help by **forwarding this E-Mail to your most senior assistant that you deem capable of answering questions about your use of technology**. Please ask your most senior staffer to contact me at [jfw@asu.edu](mailto:jfw@asu.edu) if they are willing to participate in the interview process. The interview focuses on the use of CT by Arizona legislators. The interview questions will be provided to your most senior assistant in advance.

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Best Regards,

Joe F. West  
Doctoral Candidate  
Arizona State University

**Third Phase First Follow-up E-mail**  
(Sent one week after initial recruiting e-mail)

To: [insert recipient name]  
From: Joe F. West <jfw@asu.edu>  
Subject: Arizona State University Doctoral Candidate Needs Your Help

Dear [Name],

Approximately one week ago, I e-mailed you a request for your assistance with the third phase of my Arizona State University doctoral research. As of this date, I have had an extraordinarily good response to my request for assistance. If you are one of the individuals who have participated in my dissertation research, I would like to thank you for your time.

Although the response to my request has been exceptional, not everyone has yet participated. While there are numerous explanations why the response has been less than 100%, the explanation that concerns me the most is that the initial e-mail was not received. Because of the possibility that you may not have received my initial e-mail, I have duplicated my initial request below.

**Initial e-mail request**

I have been a resident of Arizona since 1969, and am contacting you to request your assistance in the completion of the third and final phase of my doctoral dissertation research at Arizona State University. My dissertation research examines the links between CT (face-to-face conversations, phone calls, webpages, Facebook™, Twitter™, etc.) and legislator and legislator staff behavior. The third phase of my dissertation is extremely limited in scope, focusing only on Arizona House and Senate legislators, approximately 24 individuals.

The third phase of my dissertation involves a 30 to 45 minute one on one interview with you. The interview focuses on the use of CT by Arizona legislators. The interview questions will be provided to your most senior assistant in advance. If you are willing to participate in the interview process, please reply to this E-Mail and let me know that you are willing to participate. I will make schedule arrangements with your staff (or with you if you would prefer).

As you might imagine, the sample size of my phase one research is relatively small, requiring that I have a fairly high response rate in order to obtain significant results. In effect, your response to this E-Mail is crucial to the success of my dissertation.

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Best Regards,

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Doctoral Candidate  
Arizona State University

**Third Phase Second Follow-up E-mail**  
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Best Regards,

Joe F. West  
Doctoral Candidate  
Arizona State University

Interview Information Letter

**The Impact of CT on the Behavior of Elected Officials, their Staffs, and their Organizations: A Mixed Methods Study**

Date: March 7, 2013

Dear Participant:

I am a graduate student under the direction of Professor Elizabeth Corley in the School of Public Affairs at Arizona State University. I am conducting a research study that investigates the relationships between CT and the behavior of elected officials, their staffs, and their organizations.

I am inviting your participation, which will involve a 30 to 45 minute interview. You will receive a copy of the interview questions prior to the interview. You have the right not to answer any question, and to stop the interview at any time.

Your participation in this study is voluntary. If you choose not to participate or to withdraw from the study at any time, there will be no penalty. You must be 18 years or older to participate in this research.

Participants may benefit from the study by being made more aware of their CT habits by participating in the survey. All participants will be offered an electronic copy of the study, once defended, which may provide legislators and staff an insightful overview of the relationship between CT and behavior in the Arizona House and Senate. There are no foreseeable risks or discomforts to your participation.

Because no personally identifiable information is being collected in this survey, your responses will remain confidential. The results of this dissertation research may be used in reports, presentations, or publications but your name will not be known. The results of this survey will only be shared in the aggregate form, regardless of publication format.

I would like to audiotape this interview. The interview will not be recorded without your permission. Please let me know if you do not want the interview to be taped; you also can change your mind after the interview starts, just let me know. The researcher will examine the recordings for any personally identifiable information and any personally identifiable information found on any of the recordings (either regarding the interviewee or any other persons mentioned during the interview) will be erased prior to transcription. After transcription, the digital recordings will be destroyed using DoD standard 5220.22.M overwriting techniques.



If you have any questions concerning the research study, please contact the research team: Dr. Elizabeth Corley (602.496.0462, [elizabeth.corley@asu.edu](mailto:elizabeth.corley@asu.edu)) or Joe West (480.522.6186, [jfw@asu.edu](mailto:jfw@asu.edu)). If you have any questions about your rights as a subject/participant in this research, or if you feel you have been placed at risk, you can contact the Chair of the Human Subjects Institutional Review Board, through the ASU Office of Research Integrity and Assurance, at (480) 965-6788.

Please let me know if you wish to be part of the study.

Sincerely,

Joe F. West  
Doctoral Candidate  
Arizona State University

APPENDIX B  
INSTRUMENTS

# Phase One Survey Instrument

Arizona House and Senate Communication Technology Survey

3/26/13 4:13 PM

## COVER LETTER The Impact of Communication Technology on Legislators

March 25, 2013

Dear Legislator:

I am a doctoral candidate under the direction of Professor Elizabeth Corley, Professor James Svava, and Professor Erik Johnston in the School of Public Affairs at Arizona State University.

I am conducting a research study that examines how legislators use communication technology. I am inviting your participation, which will involve responding to a 12-question survey that should take approximately 6 minutes to complete.

Your participation in this study is voluntary. You can skip questions if you wish. If you choose not to participate or if you choose to withdraw from the study at any time, there will be no penalty. You must be 18 years old or older to participate in this survey.

Participants in this survey may benefit from the study by learning more about their use of communication technology. All legislators will be sent a summary of the findings of my research.

No personally identifiable information is being collected; therefore your responses will remain confidential. The results of this dissertation research may be used in reports, presentations, or publications but your name will not be known. The results of this survey will only be shared in the aggregate form, regardless of publication format.

If you have any questions concerning the research study, please contact the research team: Joe West (480.522.6186, [jfw@asu.edu](mailto:jfw@asu.edu)) or Dr. Elizabeth Corley (602.496.0462, [elizabeth.corley@asu.edu](mailto:elizabeth.corley@asu.edu)). If you have any questions about your rights as a subject/participant in this research, or if you feel you have been placed at risk, you can contact the Chair of the Human Subjects Institutional Review Board, through the ASU Office of Research Integrity and Assurance, at (480) 965-6788.

Responding yes to the question below signifies your consent to participate in the research.

Sincerely,

Joe F. West  
Doctoral Candidate  
Arizona State University

Yes, I consent to participate in the confidential survey portion of this study.



Are you currently a legislator elected to the Arizona House or Senate?

- Arizona House of Representatives
- Arizona Senate
- I would prefer not to answer



What political party are you affiliated with?

- Democrat
- Republican
- Independent
- Libertarian
- Green
- I would prefer not to answer
- Other



How many years have you been an Arizona Senator and/or Representative? If you have worked in both the House and Senate, please indicate your total years as a legislator by combining your years in the House with your years in the Senate to produce a single number.

Number of years: (Type in the number)

I would prefer not to answer



In the following four questions, you will be asked about the frequency of use and the importance of various communication technologies. Frequency refers to how often you use a technology. Importance refers to how much value you assign to information sent and received via a communication technology.

With respect to communicating with OTHER LEGISLATORS IN THE UNITED STATES, please rate how FREQUENTLY you use the following communication technologies in your work as a legislator. If you do not use a particular communication technology, please indicate "Do Not Use".

	Do Not Use	Use Annually	Use Monthly	Use Weekly	Use Daily	Use Hourly
Face-to-Face Meetings (includes meetings with one or more legislators)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Telephone Communications	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Non-Electronic Written Communications (Letters, Memos, etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Electronic Mail (E-Mail)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Twitter	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Facebook	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Web pages	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Blogs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other: (Please write in)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

<< >>

With respect to communicating with OTHER LEGISLATORS IN THE UNITED STATES, please indicate how IMPORTANT the following communication technologies are for your work as a legislator. If you do not use a particular communication technology, please indicate "Do Not Use".

	Do Not Use	Not Important	Slightly Important	Moderately Important	Important	Very Important
Face-to-Face Meetings (includes meetings with one or more legislators)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Telephone Communications	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Non-Electronic Written Communications (Letters, Memos, etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Electronic Mail (E-Mail)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Twitter	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Facebook	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Web pages	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Blogs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other: (Please write in)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>





With respect to communicating with CONSTITUENTS, please rate how FREQUENTLY you use the following communication technologies in your work as a legislator. If you do not use a particular communication technology, please indicate "Do Not Use".

	Do Not Use	Use Annually	Use Monthly	Use Weekly	Use Daily	Use Hourly
Face-to-Face Meetings (includes meetings with one or more constituents)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Telephone Communications	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Non-Electronic Written Communications (Letters, Memos, etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Electronic Mail (E-Mail)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Twitter	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Facebook	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Web pages	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Blogs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other: (Please write in) <input type="text"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

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With respect to communicating with CONSTITUENTS, please indicate how IMPORTANT the following communication technologies are for your work as a legislator. If you do not use a particular communication technology, please indicate "Do Not Use".

	Do Not Use	Not Important	Slightly Important	Moderately Important	Very Important
Face-to-Face Meetings (includes meetings with one or more constituents)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Telephone Communications	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Non-Electronic Written Communications (Letters, Memos, etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Electronic Mail (E-Mail)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Twitter	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Facebook	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Web pages	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Blogs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other: (Please write in)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

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How frequently do you use the following devices?

	Do Not Use	Use Annually	Use Monthly	Use Weekly	Use Daily	Use Hourly
Basic cell phone (non smart phone)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Tablet device (iPad, Google Nexus, Kindle Fire, Samsung Galaxy Note, etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Desktop Computer	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Smart-watch or other computerized wrist device that performs a function other than time and date or in addition to time and date	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Laptop Computer	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pocket Digital Media Player (MP3 player, iPod, etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Smart phone (Android phone, iPhone, Blackberry, etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other: (Please write in) <input type="text"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Net-Book or other sub-laptop sized computer (Macbook air, etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

<< >>

What is the highest level of education that you have completed?

- Less than High School
- High School
- Associates Degree
- Bachelors Degree
- Masters/Professional Degree
- Doctorate
- I would prefer not to answer



What is your gender?

- Female
- Male
- I would prefer not to answer



In what age category do you fall?

- 25-29
- 30-34
- 35-39
- 40-44
- 45-49
- 50-54
- 55-59
- 60-64
- 65-69
- 70-74
- 75-79
- 80-84
- 85-89
- > 90
- I would prefer not to answer



**Phase Two Interview Questions**  
(Three sections, estimated interview time: 40 minutes)

**Approved Study Phase Two Question**

What is the impact of CT on the behaviors, roles, responsibilities, and understanding of constituents of the staff of Arizona House and Senate legislators?

***SECTION 1: INTRODUCTION AND RECORDING AUTHORIZATION*** (5 minutes)

*(Present consent form and ask interviewee to sign. Tape recorder will be started if the interviewee finds recording acceptable and hand notes will be used if the interviewee does not wish to be recorded).*

***Read the following statements to the interviewee. Not necessarily verbatim, but get the points across.***

1. Certain questions in the following interview will ask about the legislator you currently work for. Do your work for more than one legislator? [If so] The following questions should be connected to the ONE legislator you feel you know the best, but if you have observations about differences among the legislators you work for, that would be useful to know.
2. For the purposes of the following interview questions, CT is defined as the technology you or the legislator use to communicate with constituents and/or peers. Examples include: face-to-face communications, telephone conversations, e-mail communication, webpages, and social networking sites such as Facebook™ and Twitter™.

***SECTION 2: OPEN-ENDED INTERVIEW QUESTIONS*** (30 minutes, unstructured)

**CT USAGE AND PREFERENCES**

- Could you please describe your use of CT on a *typical* day working for the legislator?  
***(This question will be highly interactive and probing)***
  - *A typical day?*
- Of the CTs you and the legislator use, which do you feel are *most* important, and which do you feel are the *least* important and why?
- Are there any CTs you and the legislator prefer to use, or prefer not to use? [If so] Why?

## THE PERCEIVED RISKS AND BENEFITS OF CT

- In your opinion, are there political risks and benefits to the legislator associated with various CTs? [If so] What are they?
- If applicable, could you please describe an incident where the official use of a CT resulted in an undesired outcome for the legislator?
  - For you?

## BEHAVIOR

- Does the CT a constituent uses to reach out to the legislator impact your willingness to assist them? [If so] How?
  - The likelihood that you or the legislator will satisfy the request?
  - The priority assigned to that request by you or the legislator?
- How does the legislator categorize constituent feedback and requests? For instance, are policy requests categorized or treated differently than service requests or general constituent feedback? (*Give brief examples of a policy request and a service request*)

## ROLES AND RESPONSIBILITIES

- What CT related roles or duties do you have? Please include any screening and/or filtering duties you may have. (*Explain if necessary*)
  - Could you please describe how these screening and/or filtering processes occur?

## NEW CTS

- What, if any, CT (or technologies) has the legislator added to communicate with constituents or other legislators during the time you have worked for him/her?
  - Please describe how the legislator defined the processes associated with, and the staff roles and responsibilities related to, this new technology.

## CONSTITUENTS

- Which CTs do you feel the legislator considers to be *most* useful for the legislator's broad understanding of the concerns, requests, and feelings of constituents? Why?
  - Least useful? Why?
- Are constituents categorized into different "types" based on the forms of CT they use? [If so] Please describe the constituent type and the form of CT associated with that type.
- How are constituent communications synthesized and processed by the legislator or staff to extract and summarize information?
- Are there extensive communications with persons who do not live in the legislator's district? In Arizona? [If so] Who initiates the communications—the citizen or the legislator? How would you describe the kinds of persons who contact the legislator and the technologies used?.



## COMMUNICATION STRATEGY

- Does the legislator have a communication “strategy”? [If so] Could you please describe the following aspects of the legislator’s communication strategy:
  - What is the strategy?
  - In your opinion, how rapidly does the strategy change?
  - In your opinion, what are the strengths of this strategy?
  - In your opinion, what are the weaknesses of this strategy?
  - Where do you see this communication strategy in 2 and 5 years?

## CONCLUDING OPEN-ENDED QUESTION

- As an insider, and in your opinion, do you think that there are other important aspects of the relationship between legislators and CT that I have not touched upon in this interview? [If so] What are they?

### ***SECTION 3: DEMOGRAPHIC QUESTIONS*** (5 minutes)

***Read the following introduction to the demographic section to the interviewee.***

Thanks for your responses so far. I’m finished with the general questions section of the interview now, but I’d like to ask a couple of quick, final demographic questions before we complete the interview. If any of the questions below make you uncomfortable, please feel free to ask me to skip the question.

- What political party do you belong to?
- What political party does the legislator belong to?
- Was the legislator elected to the House or Senate?
- How long have you worked for the legislator in the House and/or Senate (total years if both)?
- How long has the legislator worked in the House and/or Senate (total years if both)?
- What is the highest educational degree you have completed?
- Are you an intern or other temporary hire?
- What is your gender?
- What is the gender of the legislator you work for?
- Would you like to report your age, or age range (20s, 30s, 40s, 50s, etc.)?
- Would you like to report the age, or age range, of the legislator (20s, 30s, 40s, 50s, etc.)?

**Phase Three Legislator Interview Questions**  
(Three sections, estimated interview time: 30 minutes)

**Approved Study Phase Three Question**

What is the impact of CT on the behaviors, roles, responsibilities, and understanding of constituents of legislators in the Arizona House and Senate?

***SECTION 1: INTRODUCTION AND RECORDING AUTHORIZATION*** (4 minutes)

**Thank the legislator for taking the time to meet with me.**

*(Present the consent form and ask interviewee to sign. Tape recorder will be started if the interviewee finds recording acceptable and hand notes will be used if the interviewee does not wish to be recorded).*

***Read the following statements to the interviewee. Not necessarily verbatim, but get the points across.***

1. For the purposes of the following interview questions, CT is defined as the technology you use to communicate with constituents and/or peers. Examples include: text messages, face-to-face communications, telephone conversations, e-mail communication, webpages, and social networking sites such as Facebook™ and Twitter™.

***SECTION 2: OPEN-ENDED INTERVIEW QUESTIONS*** (25 minutes, unstructured)

**CT USAGE AND PREFERENCES**

1. Could you please describe your staff (number of assistants, etc.) and the CT related services they provide.
2. Could you please describe your use of CT on a *typical* day? (***This question will be highly interactive and probing***)
  - Do any examples come to mind of uses of technology that were not typical for you? [For example, a day without use of any technology or a day where you use technologies that you do not normally use.]
3. Of the CTs you use, which do you feel are *most* important, and which do you feel are the *least* important and why?
4. What CTs do you prefer to use and/or not to use, and why?

**THE PERCEIVED RISKS AND BENEFITS OF CT**

5. In your opinion, are there political risks and benefits associated with various CTs? [If so] What are they?
6. If applicable, could you please describe an incident where the official use of a CT resulted in an undesirable outcome for you?
  - [If the legislator does not have an example related directly to them...] For a legislator you know?

### BEHAVIOR

7. Does the CT a constituent uses to contact you impact your willingness to assist her or him [If so] How?
  - Does the CT chosen by the constituent impact the **likelihood** that you will satisfy their request? [if so, how]
  - Does CT chosen by the constituent impact the **priority** you assign to their request? [if so, how]
8. How do you categorize constituent feedback and requests? For instance, are policy requests categorized or treated differently than service requests or general constituent feedback? (***Give brief examples of a policy request and a service request***)
  - a. How do you categorize the importance of each of the above types of constituent feedback and requests? [For example, are service type requests more important than policy feedback (or vice versa)?]

### ROLES AND RESPONSIBILITIES

9. What CT related roles or duties do you handle yourself and what CT roles or duties do you delegate to staff? Please include any screening and/or filtering duties you may assign. (***Explain if necessary***)
  - Could you please describe how these screening and/or filtering processes occur?

### NEW CTs

10. What, if any, CTs have you added to communicate with constituents or other legislators during your time in office?
  - Please describe how you defined the processes associated with, and the staff roles and responsibilities related to, this new technology.

### CONSTITUENTS

11. Which CTs do you feel to be ***most*** useful for your broad understanding of the concerns, requests, and feelings of constituents? Why?
  - **Least useful? Why?**
12. Are constituents categorized into different “types” based on their communications with you? Does the form of CT they use to communicate with you affect your perception? [If so] Please describe the constituent type and the form of CT associated with that type.
13. How are constituent communications synthesized and processed by you or your staff to extract and summarize information?

14. Do you have extensive communications with persons **who do not live in your district**? In Arizona? [If so] Who tends to initiate the communications—you or the other persons?
- How would you describe the kinds of out-of-district persons who contact you and the CTs they use?

### COMMUNICATION STRATEGY

15. Do you have a communication “strategy”? [If so] Could you please describe the following aspects of your communication strategy:
- What is the strategy?
  - In your opinion, how rapidly does the strategy change?
  - In your opinion, what are the strengths of this strategy?
  - In your opinion, what are the weaknesses of this strategy?
  - Where do you see this communication strategy in 2 and 5 years?

### CONCLUDING OPEN-ENDED QUESTION

16. As an insider in the legislative process, what are some other important aspects of the relationship between legislators (yourself as well as other legislators) and CT that I have not touched upon in this interview?

### ***SECTION 3: DEMOGRAPHIC QUESTIONS*** (1 minute)

#### ***Read the following introduction to the demographic section to the interviewee.***

Thanks for your responses so far. I’m finished with the general questions section of the interview now, but I’d like to ask a couple of quick, final demographic questions before we complete the interview. If any of the questions below make you uncomfortable, please feel free to ask me to skip the question.

1. How long have you worked in the House and/or Senate (total years if both)?
2. What is the highest educational degree you have completed?
3. Would you like to report your age, or age range (20s, 30s, 40s, 50s, etc.)?

**Phase Three IT Department Interview Questions**  
(Three sections, estimated interview time: 40 minutes)

**SECTION 1: INTRODUCTION AND RECORDING AUTHORIZATION** (7 minutes)

*(Present consent form and ask interviewee to sign. Tape recorder will be started if the interviewee finds recording acceptable and hand notes will be used if the interviewee does not wish to be recorded).*

**Brief Interviewee with the following statements:**

- For the purposes of the following interview questions, CT is defined as the technology that the Arizona House and Senate use to communicate with their constituents or other legislators. Examples include: face-to-face communications, telephone conversations, e-mail communication, webpages, and social networking sites such as Facebook™ and Twitter™.

**SECTION 2: OPEN-ENDED INTERVIEW QUESTIONS** (30 minutes, unstructured)

JOB FUNCTION AND LEGISLATOR TRAINING

1. Could you please describe your job responsibilities?
2. Would you please describe the job related tasks you perform on a typical day?
3. What CTs are officially supported in the Arizona House and Senate and in what ways are they supported?
  - a. Unofficially supported?
4. Please describe the legislator training your (or another) department provides for the supported CTs.

IT SUPPORT AND INFRASTRUCTURE

[The following questions will be phrased appropriately for role of the interviewee]

5. Please describe the types of legislator support provided by your department.
6. Does the types of support your department [you] provide to legislators seem to vary as a function of the following legislator demographics, and if so, how:
  - a. Age
  - b. Gender
  - c. Institution (House or Senate)
7. What new CTs have been added since you began working here?
  - a. Please describe the implementation process
  - b. What unexpected problems arose?
  - c. How did legislators and staff react to the addition of the new technology?

8. How do changes in the way legislators use CT impact the support your department provides?
9. How do changes in the way legislators use CT impact IT infrastructure?
10. What communication filtering does the IT department do? [spam suppression, foreign IP address filtering, etc.]

#### BEHAVIOR

11. What role do you feel your support (or your department's support) plays in a legislator's use of CT? [elaborate if necessary]
12. Are there various "types" of legislators who use CT and if so, how would you categorize them? What behaviors do you associate with these categories? [elaborate if necessary].

#### CONCLUDING OPEN-ENDED QUESTION

13. In your opinion, as an IT insider, do you think that there are other important aspects of the relationship between legislators and CT that I have not touched upon in this interview? [If so] What are they?

#### ***SECTION 3: DEMOGRAPHIC QUESTIONS*** (3 minutes)

##### ***Read the following introduction to the demographic section to the interviewee.***

Thanks for your responses so far. I'm finished with the general questions section of the interview now, but I'd like to ask a couple of quick, final demographic questions before we complete the interview. If any of the questions below make you uncomfortable, please feel free to ask me to skip the question.

- How long have you worked for the legislature?
- What is the highest educational degree you have completed?

APPENDIX C  
INTERVIEW CONSENT FORM

Dear Participant:

I am a graduate student under the direction of Professor Elizabeth Corley in the School of Public Affairs at Arizona State University.

I am conducting a research study that examines the relationships between CT and elected officials, their staffs, and their organizations. I am inviting your participation, which will involve participating in an interview that should take no longer than 40 minutes to complete.

Your participation in this study is voluntary. You can skip questions if you wish. If you choose not to participate or to withdraw from the study at any time, there will be no penalty. You must be 18 years old or older to participate in this interview.

Participants may benefit from the study by being made more aware of their CT habits by participating in the survey. All participants will be offered an electronic copy of the study, once defended, which may provide legislators and staff an insightful overview of the relationship between CT and behavior in the Arizona House and Senate. There are no foreseeable risks or discomforts to your participation.

**Because no personally identifiable information is being collected in this survey, your responses will remain confidential.** The results of this dissertation research may be used in reports, presentations, or publications **but your name will not be known.** The results of this survey will only be shared in the aggregate form, regardless of publication format.

If you have any questions concerning the research study, please contact the research team: Dr. Elizabeth Corley (602.496.0462, [elizabeth.corley@asu.edu](mailto:elizabeth.corley@asu.edu)) or Joe West (480.522.6186, [jfw@asu.edu](mailto:jfw@asu.edu)). If you have any questions about your rights as a subject/participant in this research, or if you feel you have been placed at risk, you can contact the Chair of the Human Subjects Institutional Review Board, through the ASU Office of Research Integrity and Assurance, at (480) 965-6788.

Signing and dating this form signifies your consent to participate in the research.

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date



APPENDIX D

WORD CLOUD GREP FILTER LIST

—	how	that
—	if	the
.	in	then
•	interviewer	there
...	into	they
”	is	thing
about	it	this
actually	just	those
always	know	through
an	let	to
and	like	um
any	little	up
anything	lot	use
are	make	usually
as	may	very
at	maybe	was
back	mean	way
be	more	we’re
because	most	well
been	much	were
but	no	whatever
can	not	when
come	now	where
could	of	whether
day	oh	which
did	okay	who
do	on	why
does	one	will
doing	or	with
down	other	would
even	our	wow
first	out	yeah
for	over	yes
from	probably	you
get	put	you’re
give	really	your
gonna	respondent	able
got	so	absolutely
had	some	after
has	something	again
have	sometimes	ah
here	still	am
hmm	stuff	NAME DELETED
	than	before

being  
big  
bit  
both  
by  
cause  
certain  
comes  
coming  
done  
either  
end  
every  
everything  
exactly  
example  
far  
few  
find  
gets  
getting  
go  
goes  
going  
guess  
ha  
instance  
keep  
last  
least  
makes  
many  
mm  
nancy  
never  
new  
next  
off  
once  
ones  
own  
part  
NAME DELETED  
pretty  
real

said  
same  
set  
started  
these  
they're  
things  
three  
times  
too  
trying  
two  
typical  
uh  
umm  
used  
NAME DELETED  
you're  
you've  
anyway  
away  
better  
came  
dr  
during  
each  
else  
forth  
four  
gone  
great  
half  
happen  
hard  
having  
hey  
hour  
inaudible  
long  
looking  
lots  
month  
open  
percent  
second

since  
soon  
themselves  
true  
type  
unless  
uses  
via  
week  
went  
years  
account  
across  
actual  
added  
ago  
all  
almost  
along  
already  
alright  
also  
another  
applications  
around  
based  
basically  
basis  
become  
best  
between  
blah  
bring  
bulk  
bunch  
certainly  
check  
couple  
course  
cut  
NAME DELETED  
days  
de  
department  
depending

depends  
difference  
different  
differently  
direct  
directly  
door  
drive  
easier  
easy  
em  
enough  
especially  
ever  
excellent  
figure  
fine  
five  
hit  
hold  
hours  
huh  
matter  
means  
might  
mind  
minutes  
mostly  
move  
my  
NAME DELETED  
myself  
necessarily  
night  
non  
nothing  
occasionally  
often  
only  
onto  
others  
outside  
overtalking  
particular  
past

pay  
NAME DELETED  
percentage  
perfect  
pick  
place  
play  
please  
plus  
point  
possible  
post  
prefer  
primarily  
primary  
program  
programs  
pull  
purposes  
quite  
rather  
ready  
reason  
reasons  
receive  
regular  
rest  
right  
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says  
school  
seat  
seem  
seems  
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side  
sit  
situation  
six  
snail  
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they're  
they'll  
they've  
third  
though  
thought  
today  
together  
told  
took  
top  
topic  
touched  
track  
tucson  
turn  
unintelligible  
useful  
using  
various  
versus  
ways  
we  
we're  
we'll  
we've  
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while  
word

words  
yourself  
yuma  
ahead  
anybody  
associated  
aware  
case  
categorize  
category  
changed  
changes  
city  
create  
desk  
device  
devices  
education  
expansion  
final  
form  
found  
full  
general  
generally  
hand  
handle  
happened  
happens  
high  
home  
house  
huge  
important  
interview  
keeping  
knew  
knows  
language  
later  
leave  
left  
less  
look  
love

made  
making  
material  
me  
medicaid  
mentioned  
miss  
morning  
obviously  
project  
recorded  
related  
say  
saying  
see  
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share  
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sounds  
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approach  
appropriate  
area  
aspects  
basic  
became  
becoming  
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board  
bottom  
break  
brought  
build  
built  
button  
carry  
categories  
choice  
choose  
class  
clean  
close  
code  
com  
compared  
completely  
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details  
drop  
eagle  
early  
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extent  
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happening  
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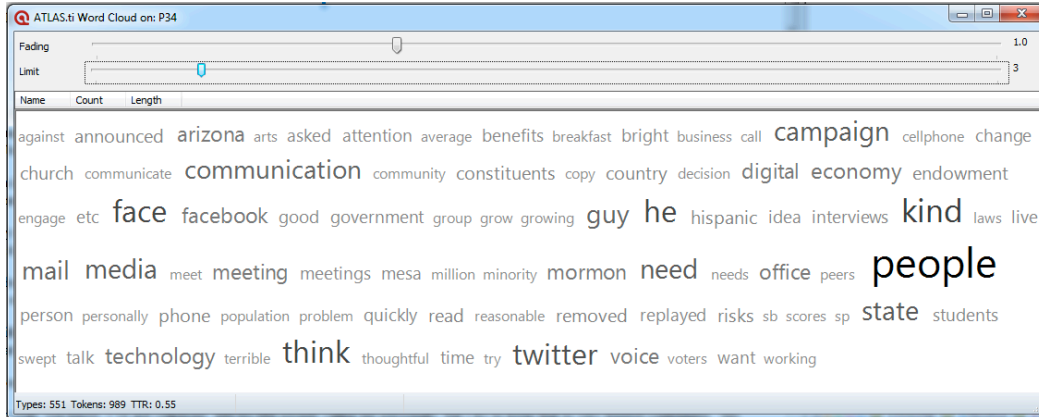
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familiar  
fifteen  
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funny  
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given  
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giving  
gun  
guns  
health

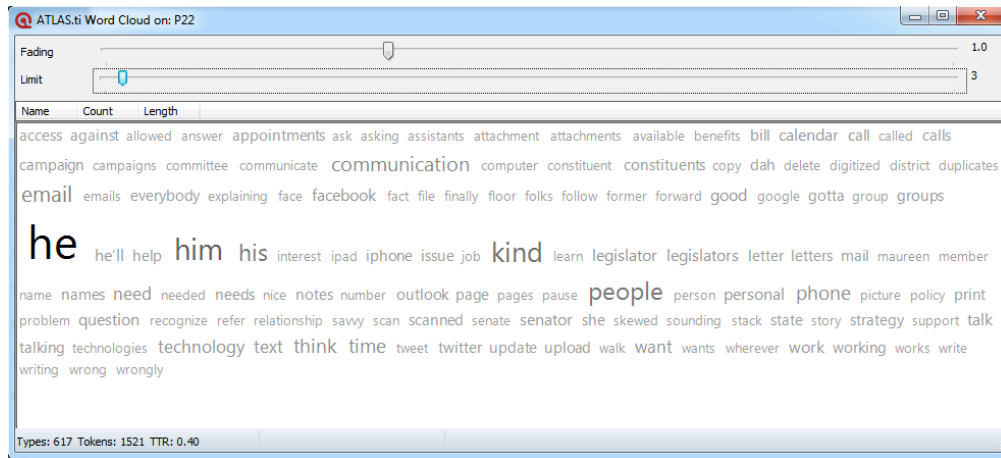
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otherwise  
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puts  
re  
reach  
realize  
recently  
record  
red  
sensitive  
separate  
teach  
teacher  
unusual  
updates  
view  
vision  
wise  
wi

APPENDIX E  
WORD CLOUDS

## Paired Word Clouds



Legislator G Word Cloud

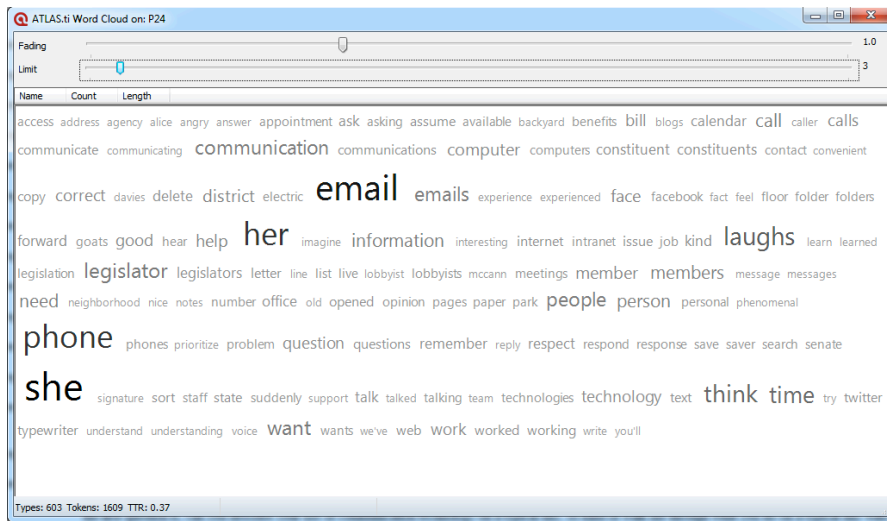


Assistant G Word Cloud

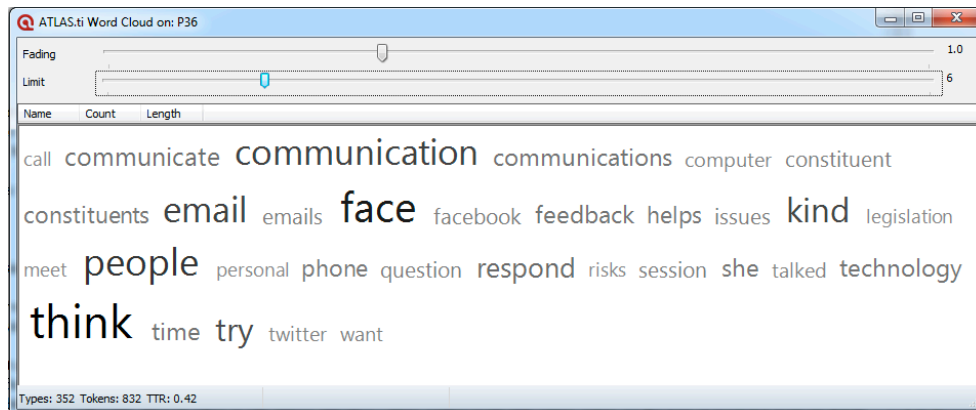


Legislator B Word Cloud

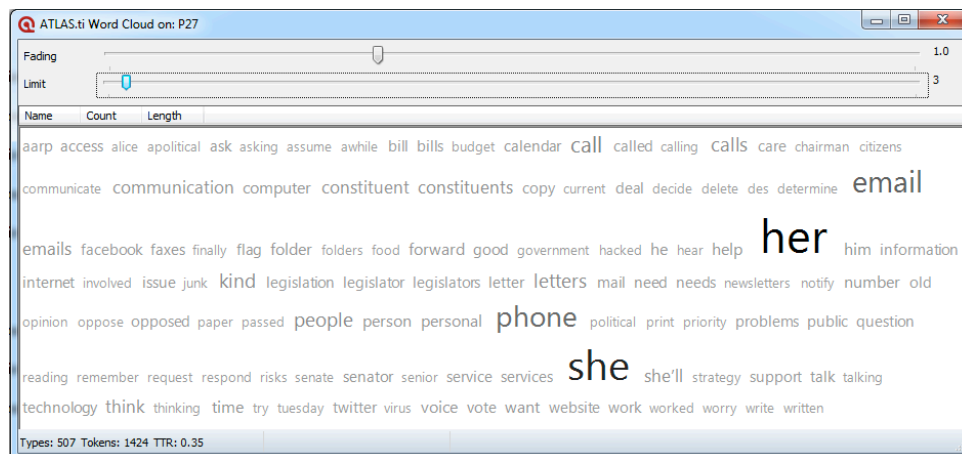




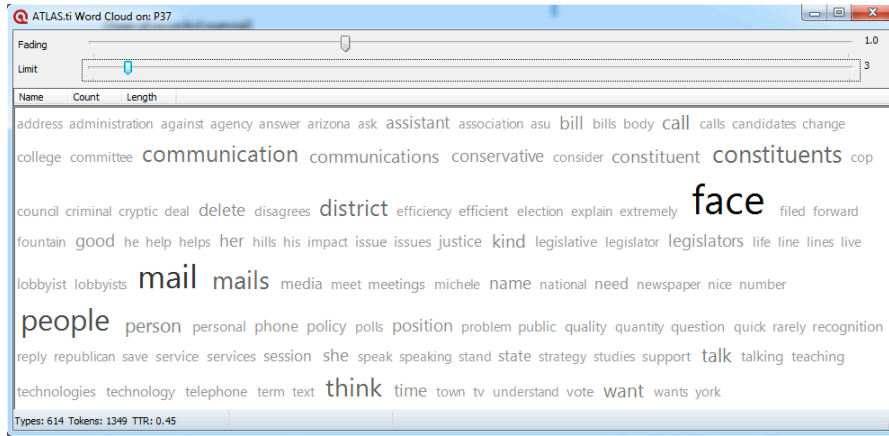
Assistant B Word Cloud



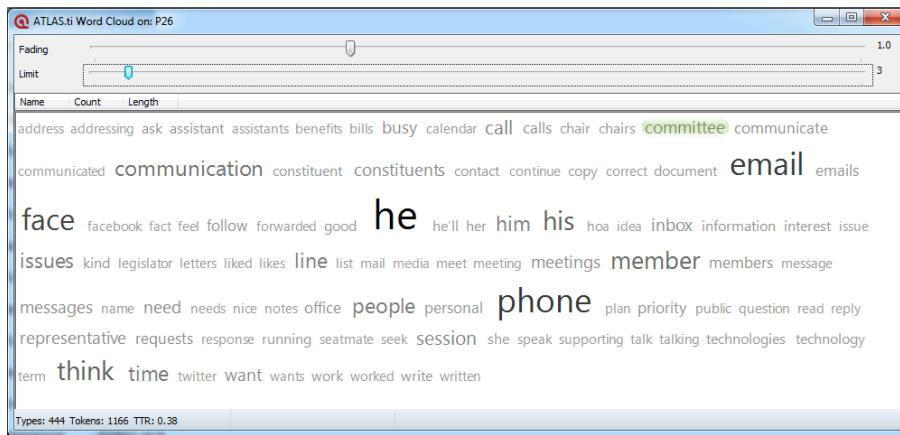
Legislator D Word Cloud



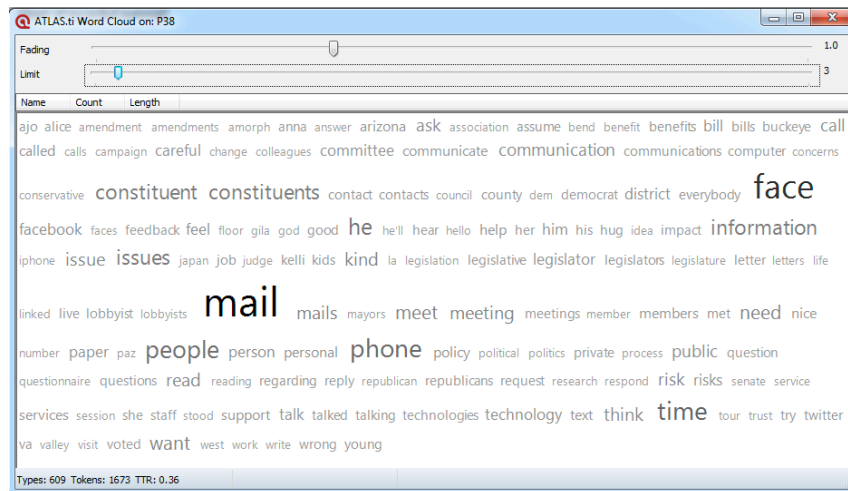
Assistant D Word Cloud



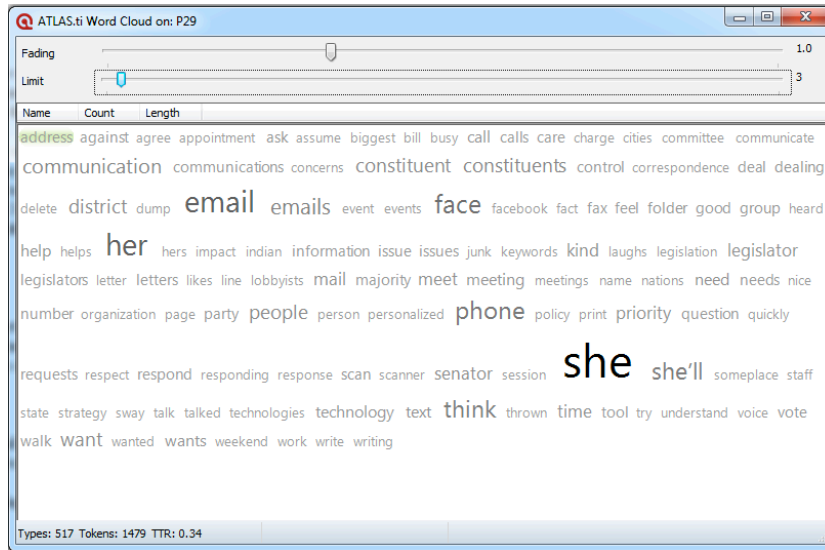
Legislator E Word Cloud



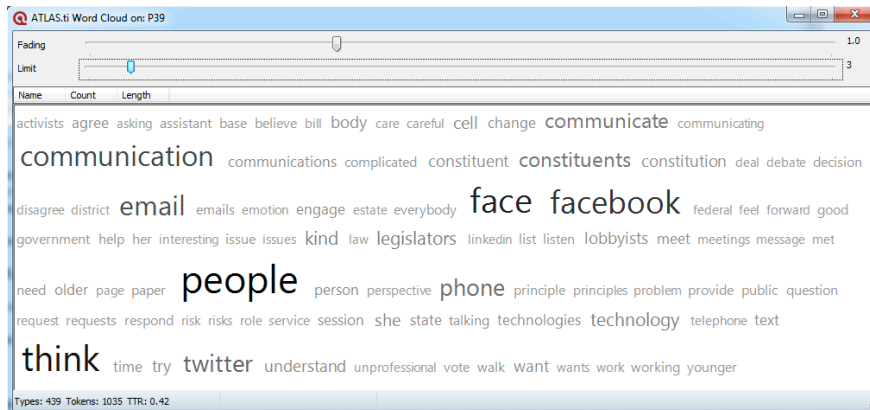
Assistant E Word Cloud



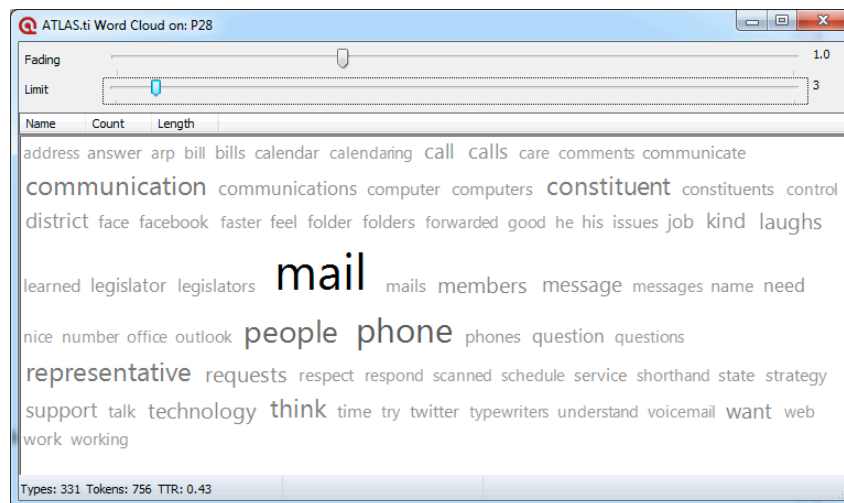
Legislator H Word Cloud



Assistant H Word Cloud

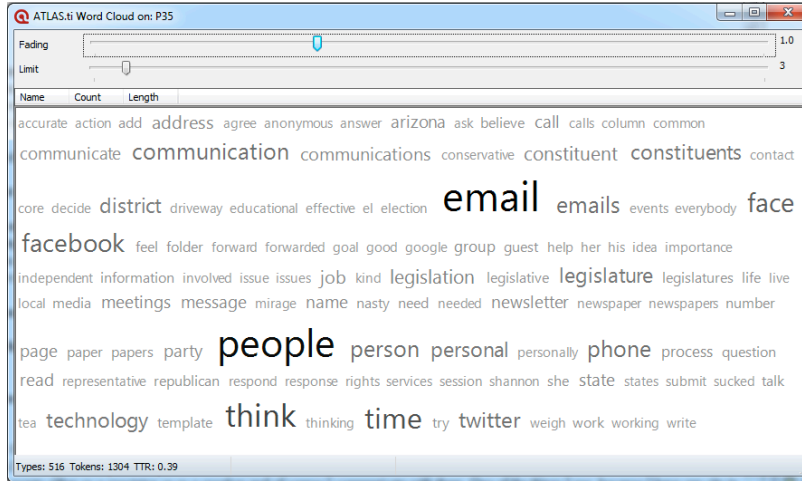


Legislator I Word Cloud

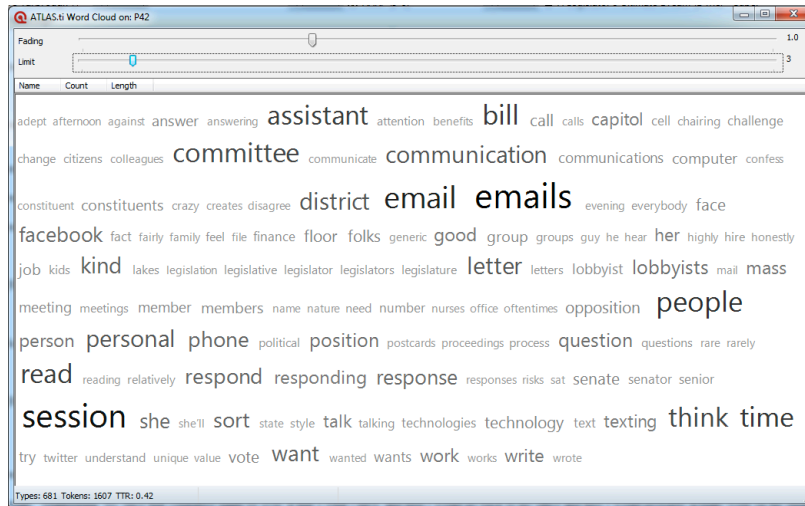


Assistant I Word Cloud

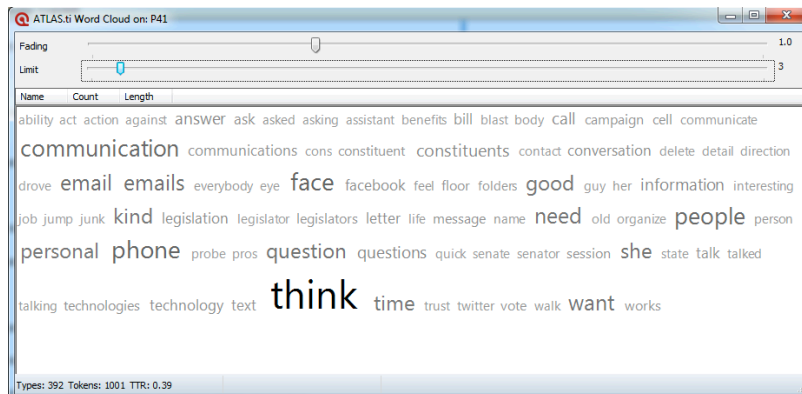
## Unpaired Legislator Word Clouds



Legislator J Word Cloud

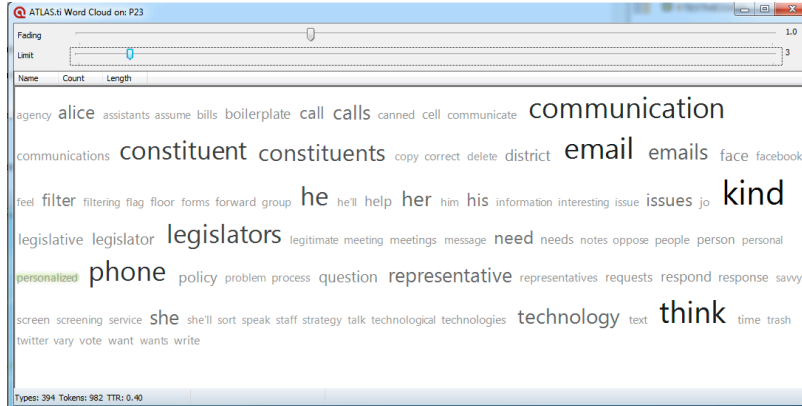


Legislator K Word Cloud

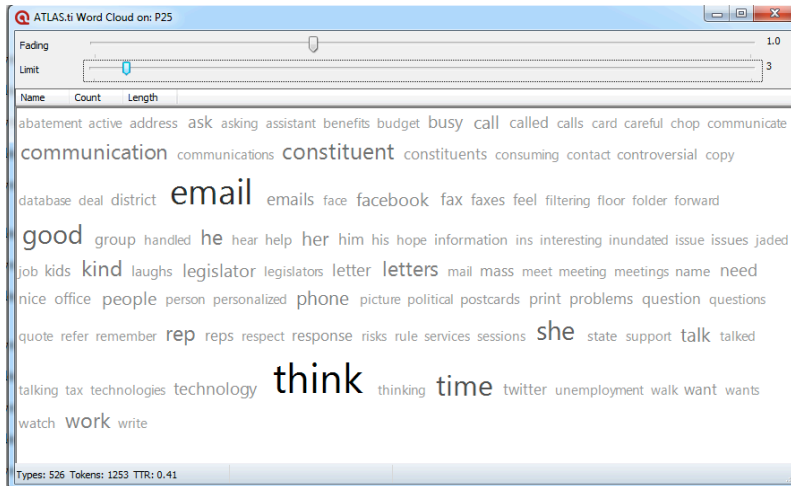


Legislator L Word Cloud

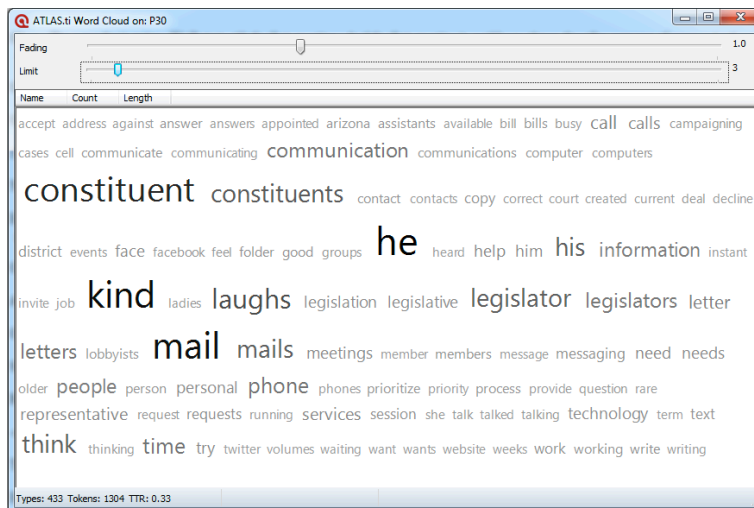
## Unpaired Assistant Word Clouds



Assistant A Word Cloud

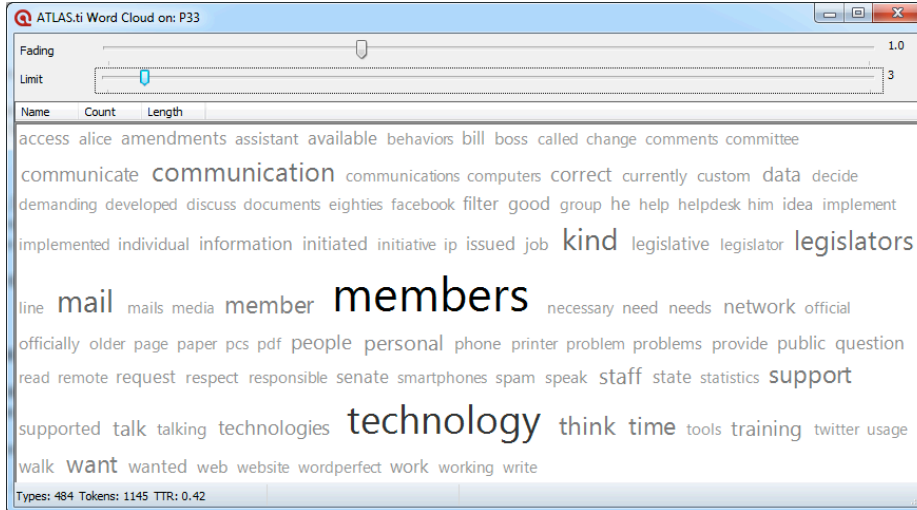


Assistant C Word Cloud

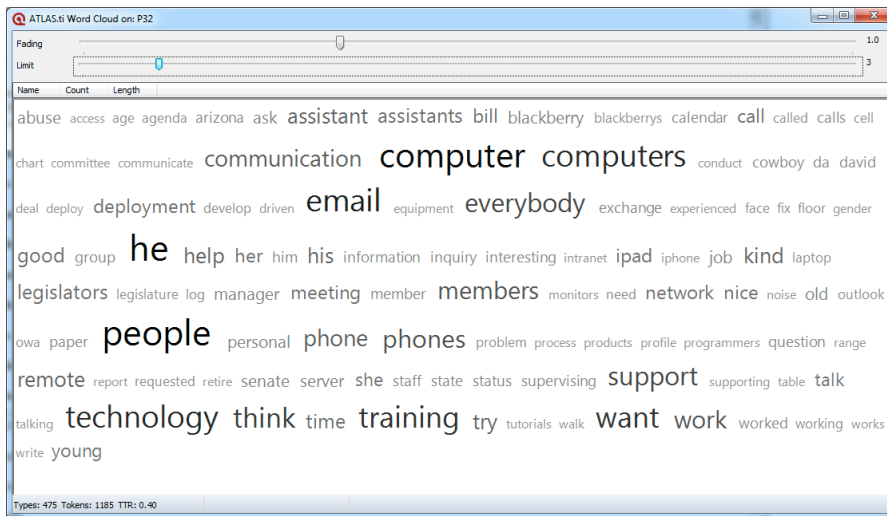


Assistant F Word Cloud

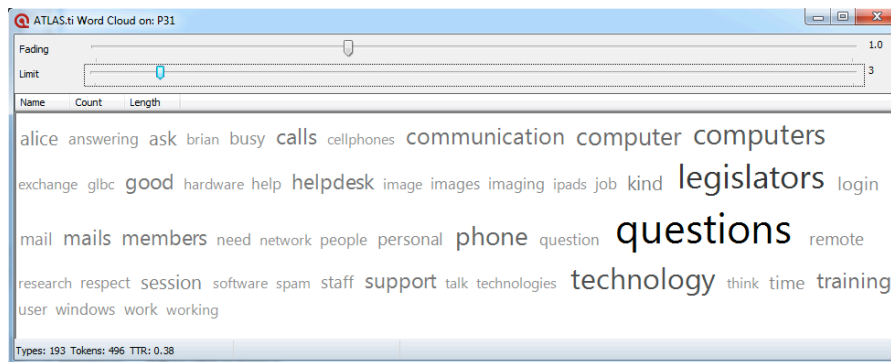
## IT Department Word Clouds



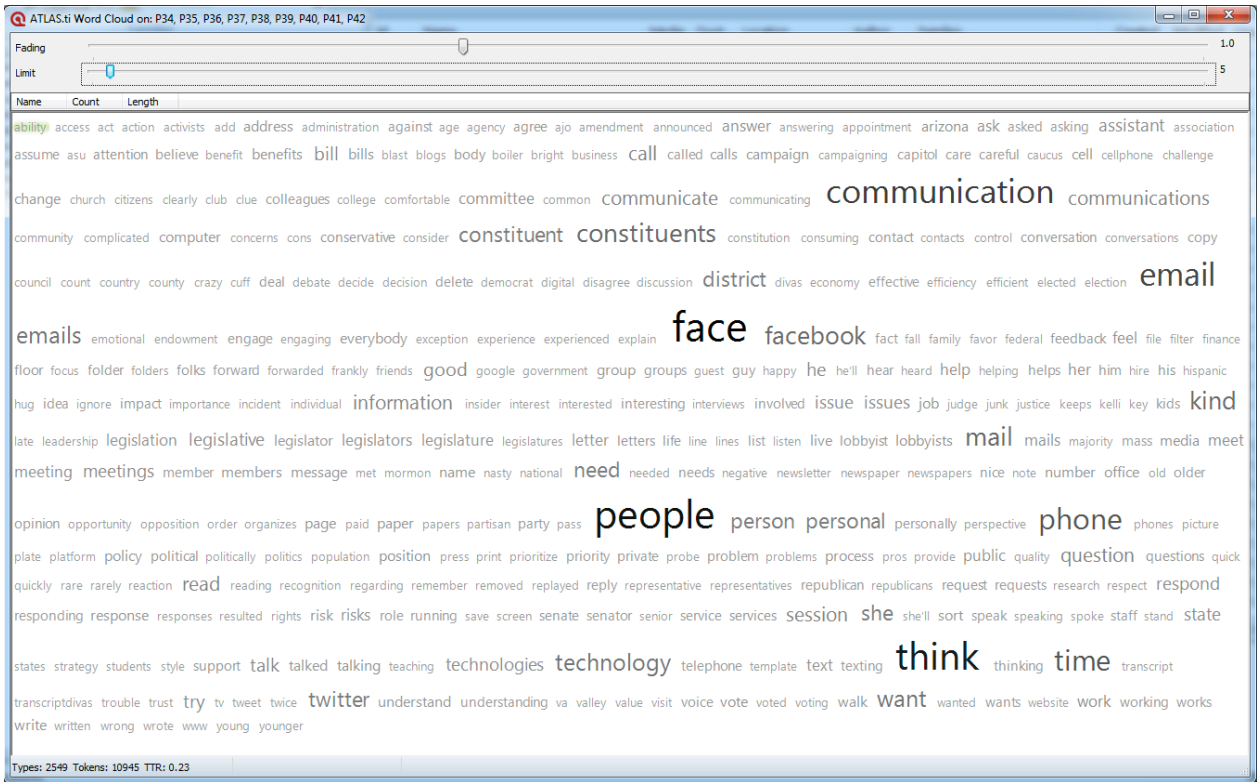
IT A Word Cloud



IT B Word Cloud



IT C Word Cloud

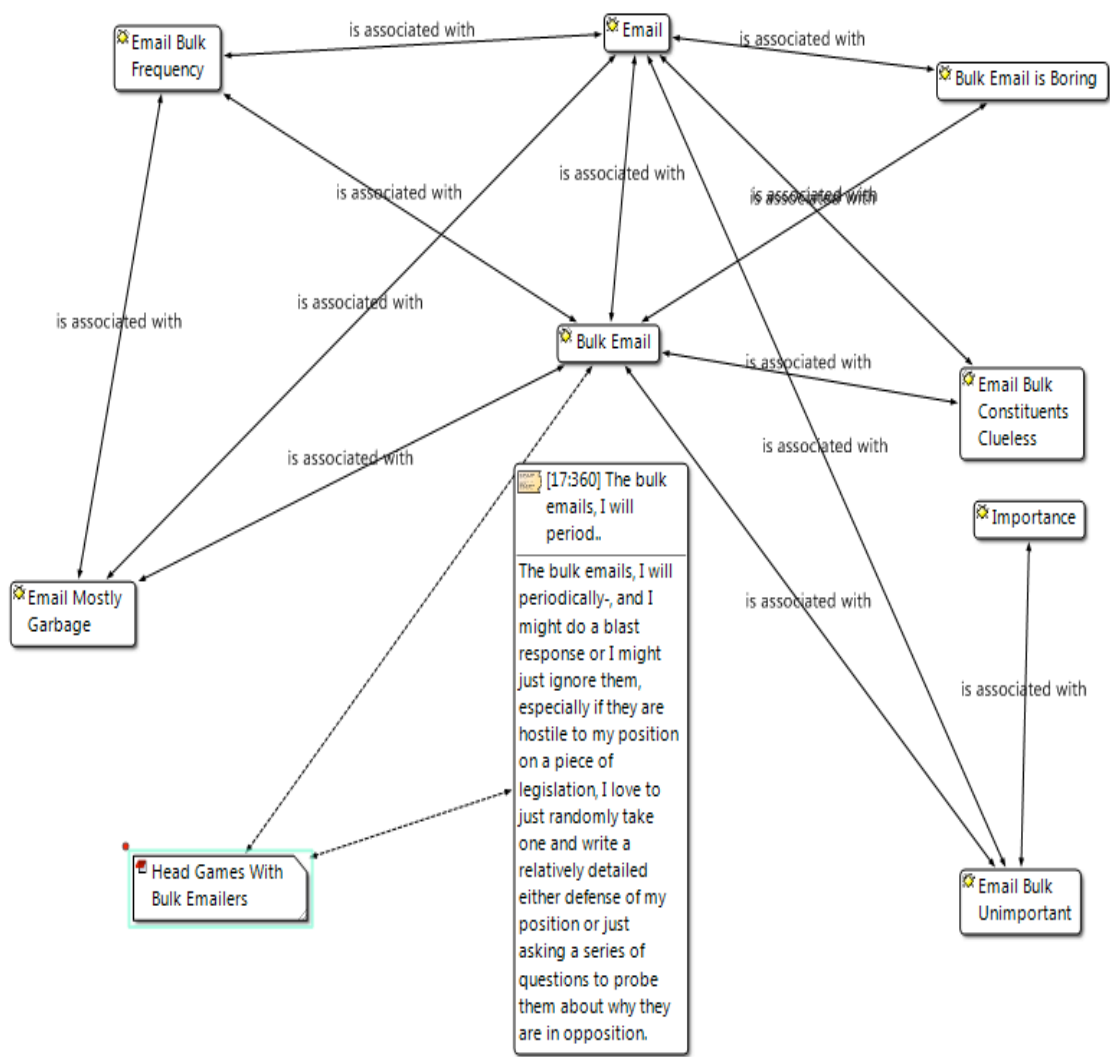


Legislator Word Cloud

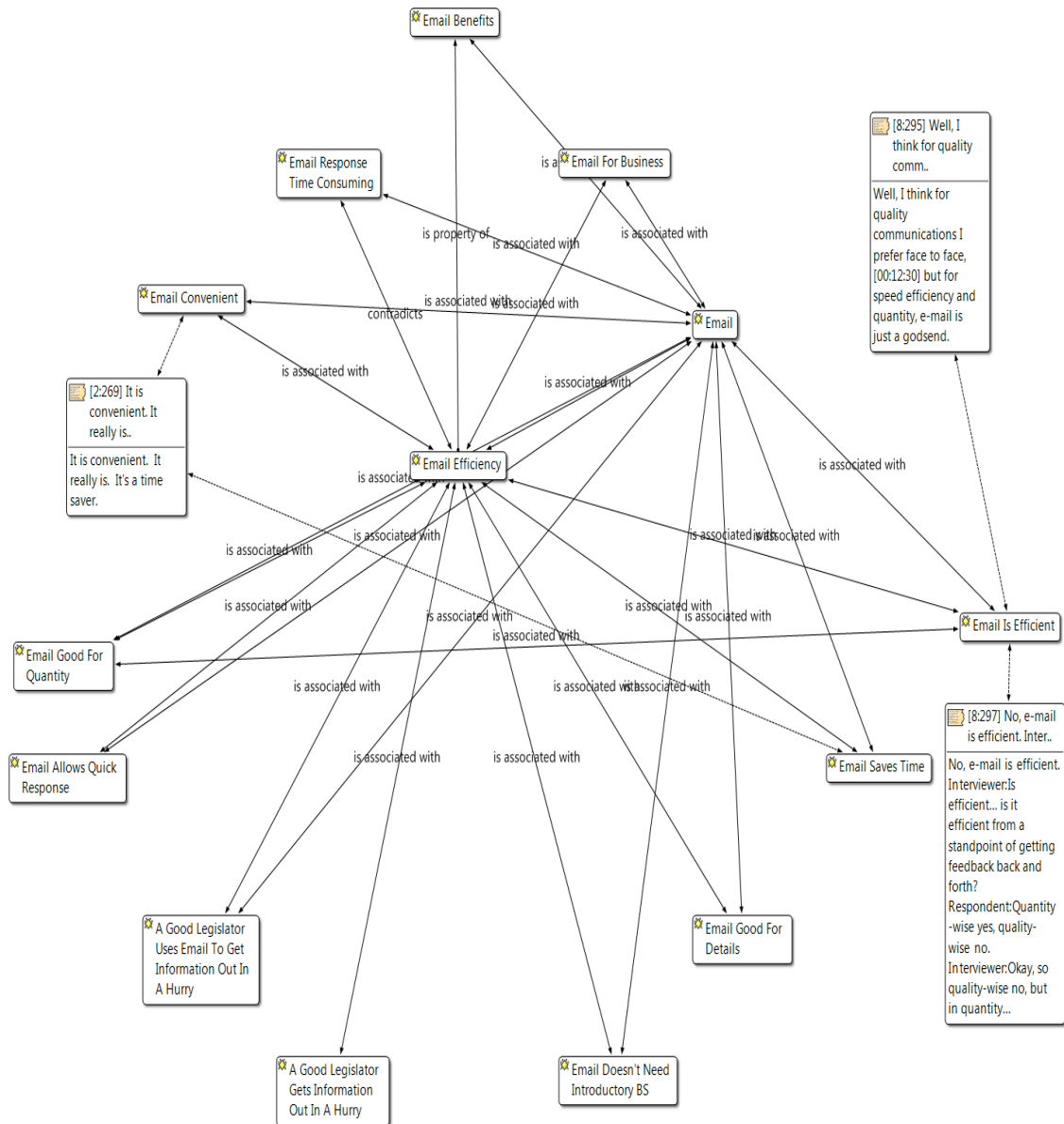
APPENDIX F  
EMAIL NETWORK DIAGRAMS



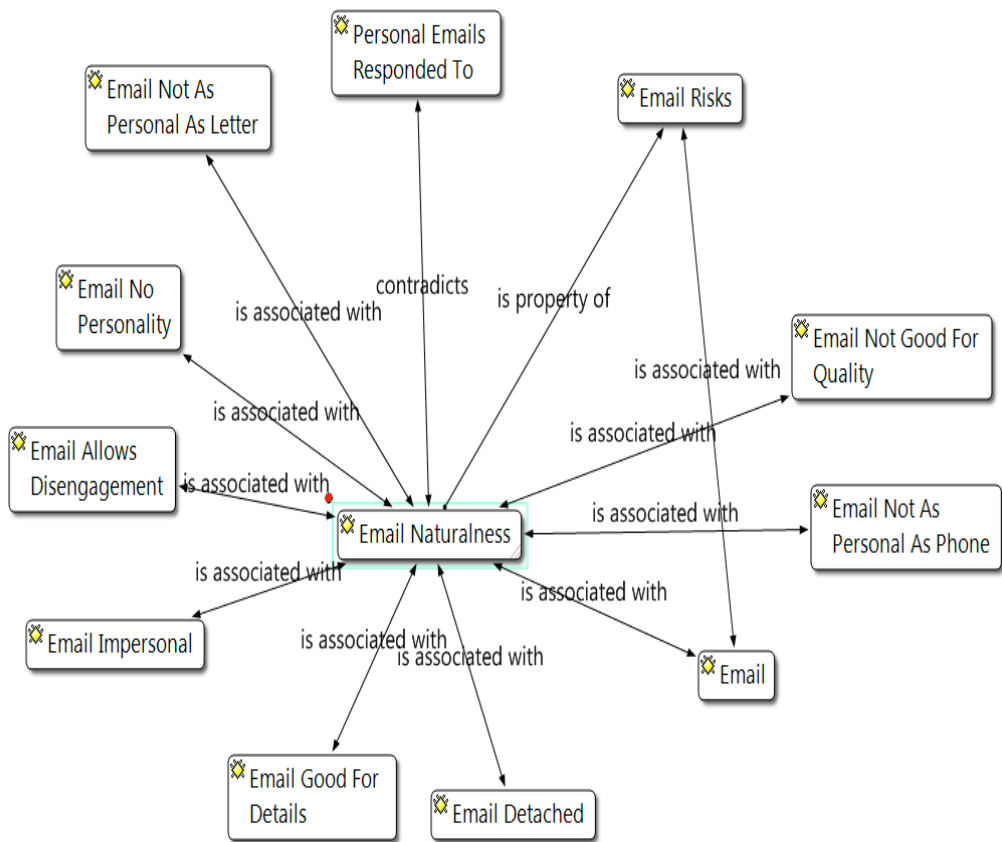




Bulk E-Mail Network Diagram

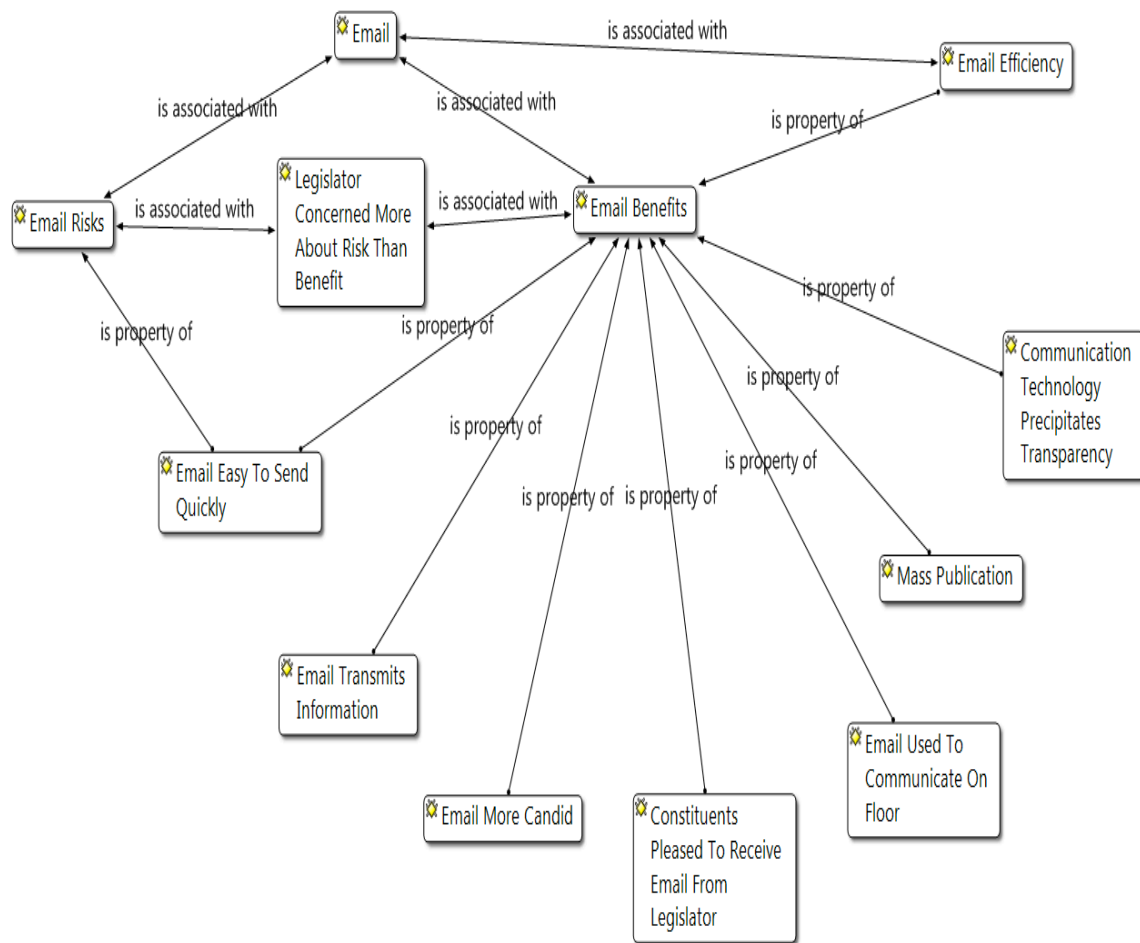


E-Mail Efficiency Network Diagram

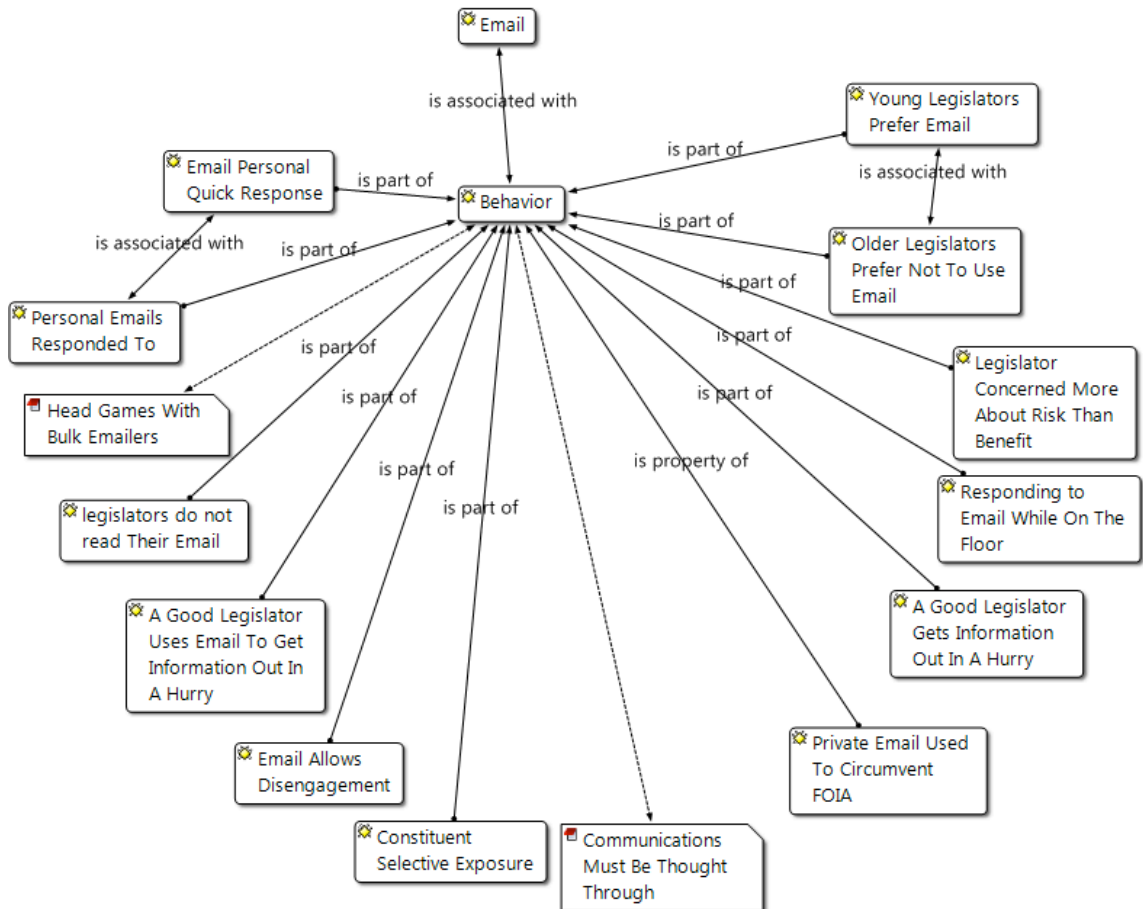


E-Mail Naturalness Network Diagram





E-Mail Benefits Network Diagram

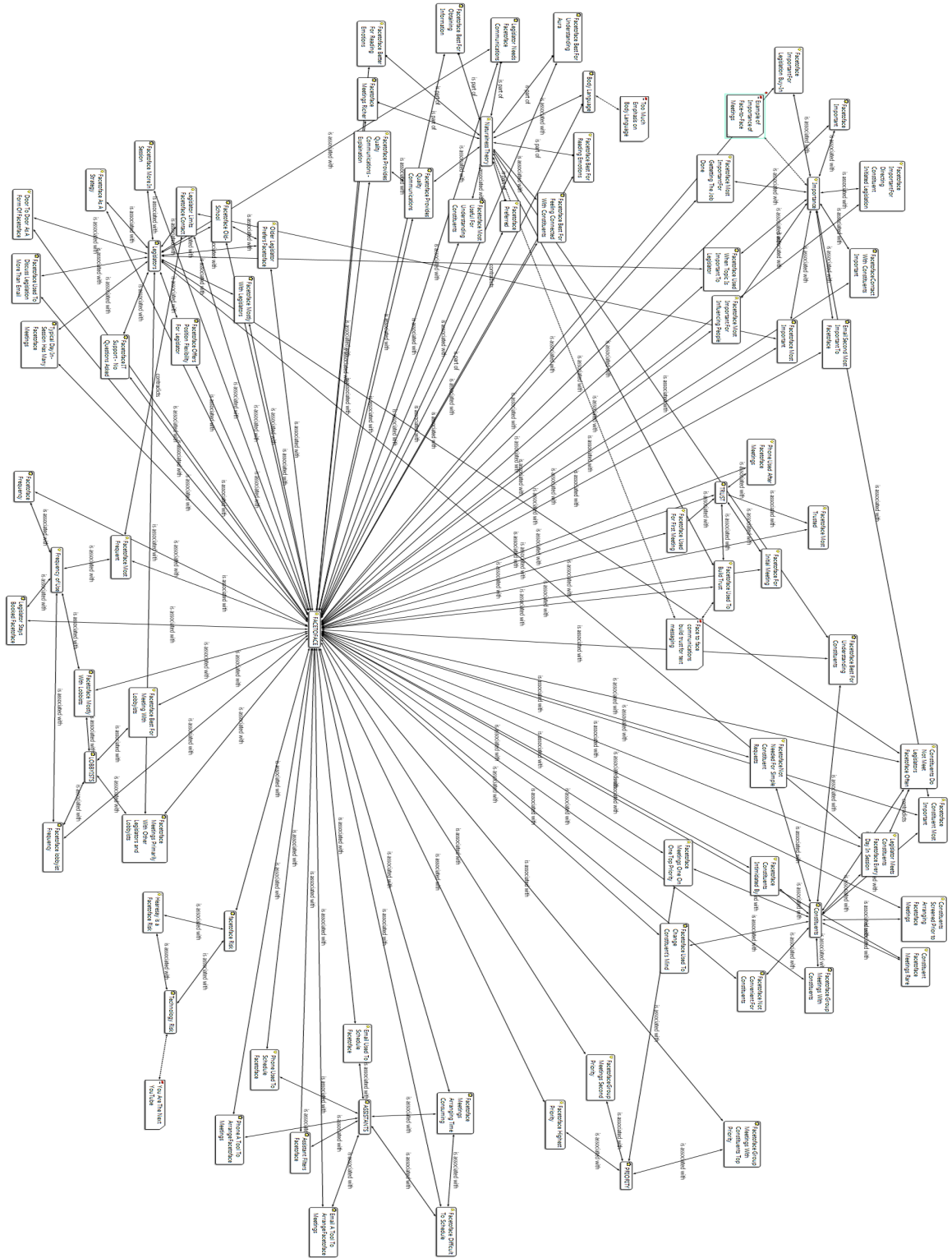


Legislator E-Mail Behavior Network Diagram

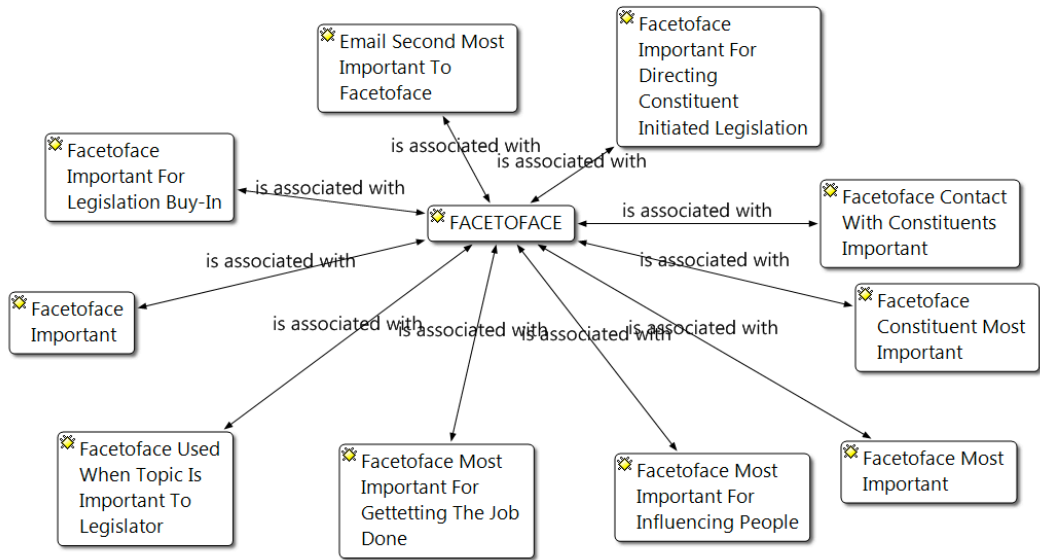
## APPENDIX G

### FACE-TO-FACE NETWORK DIAGRAMS

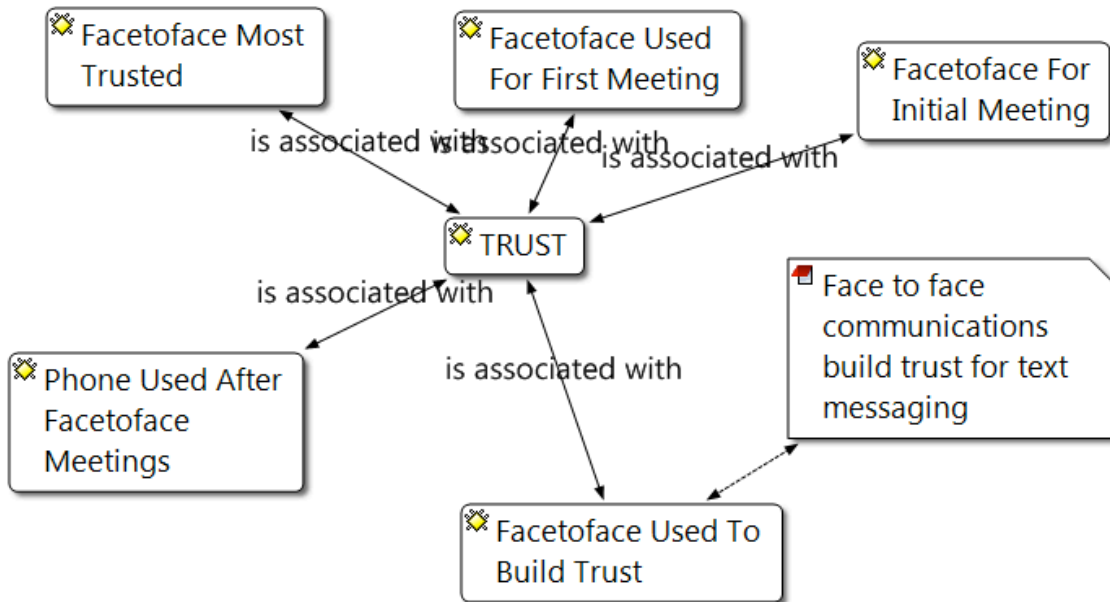




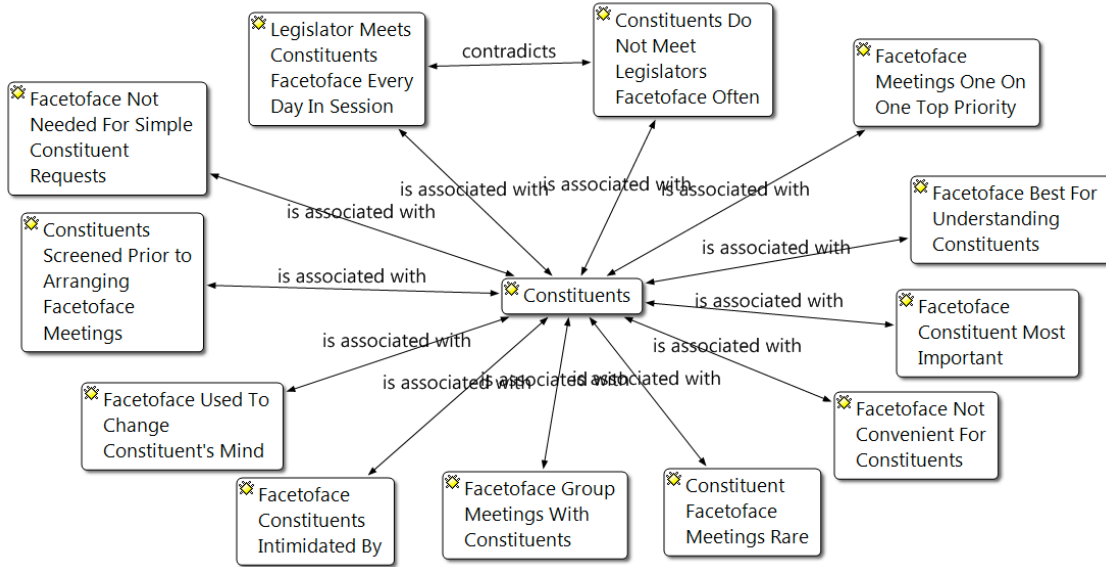
Face-to-face Communications Network Diagram



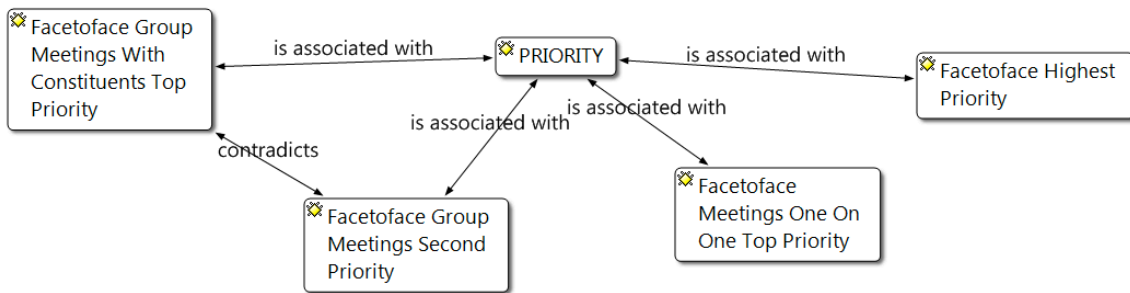
Face-to-face Importance Network Diagram



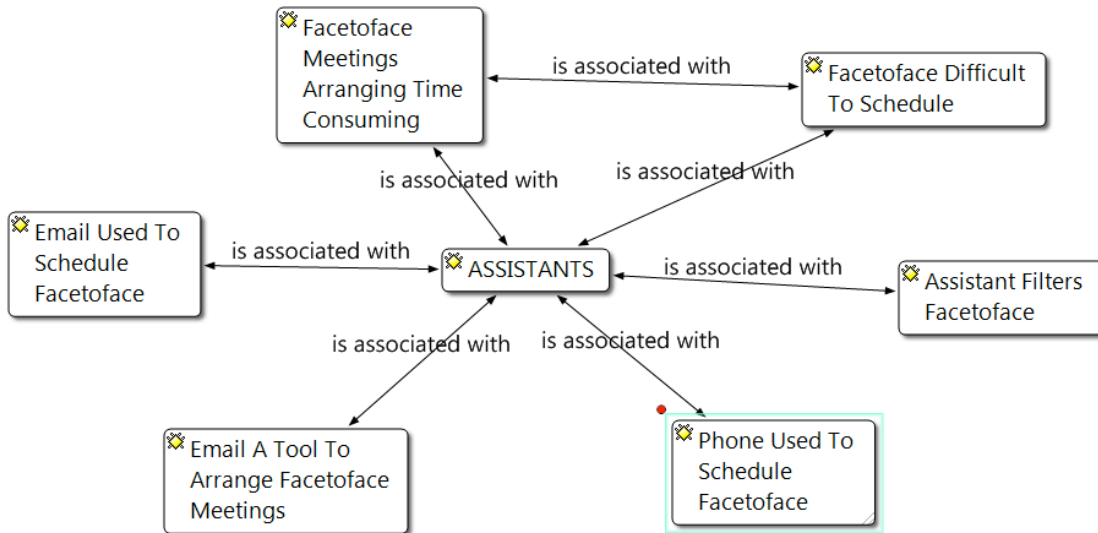
Face-to-face Trust Network Diagram



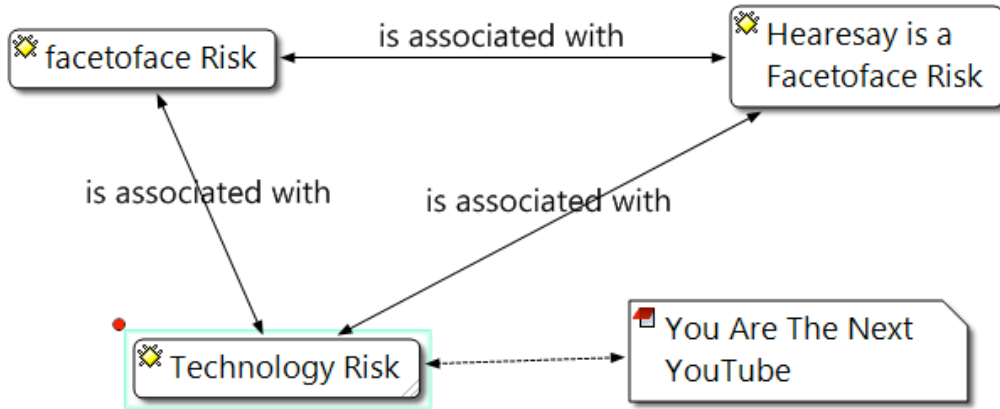
Face-to-face Constituents Network Diagram



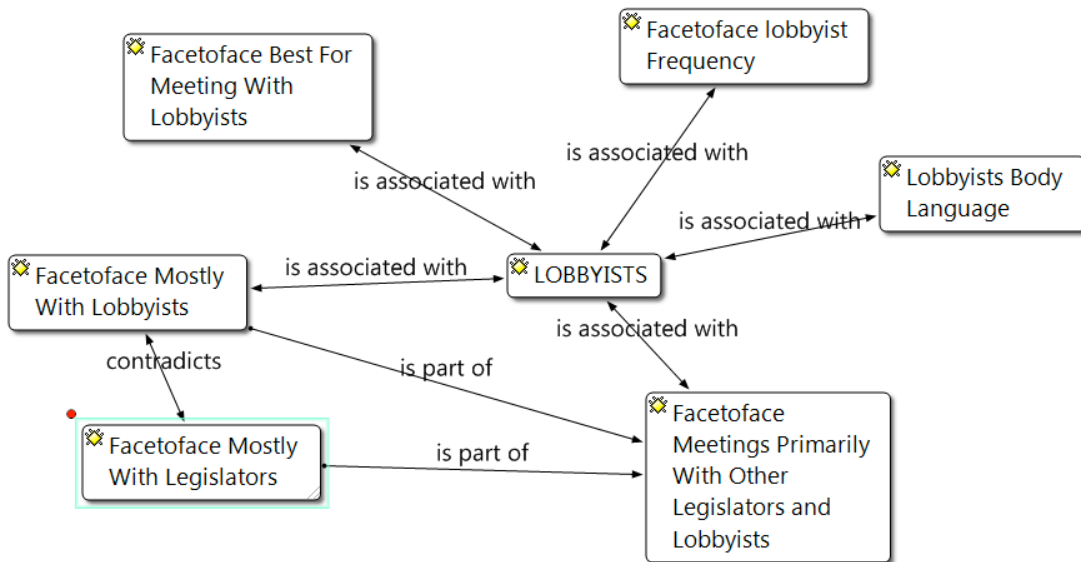
Face-to-face Priorities Network Diagram



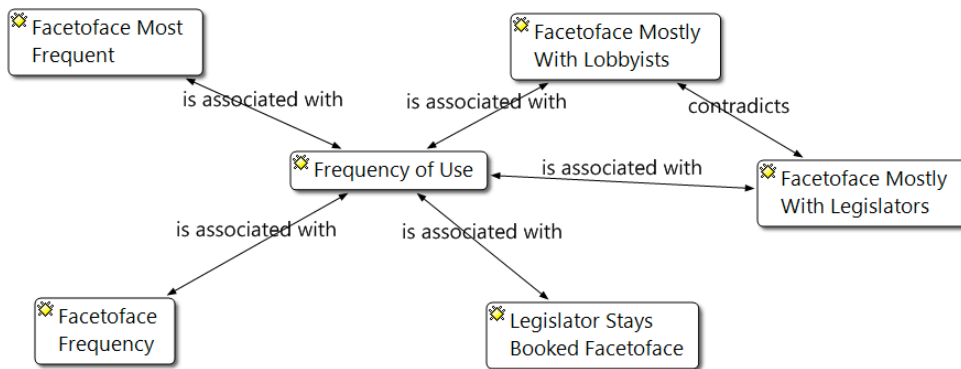
Face-to-face Assistants Network Diagram



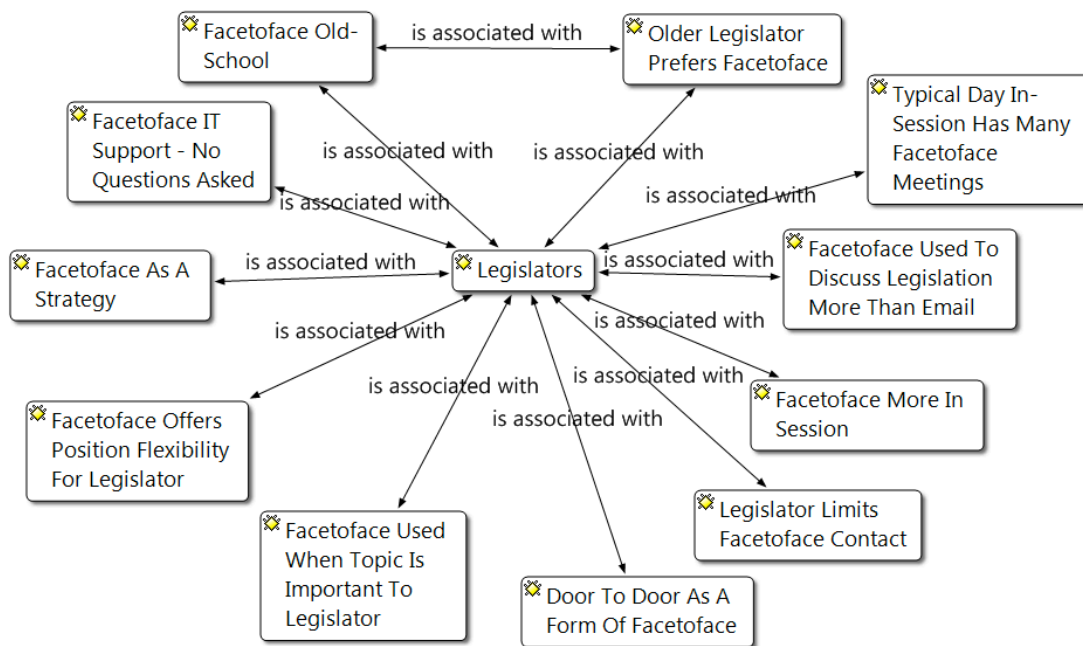
Face-to-face Risks Network Diagram



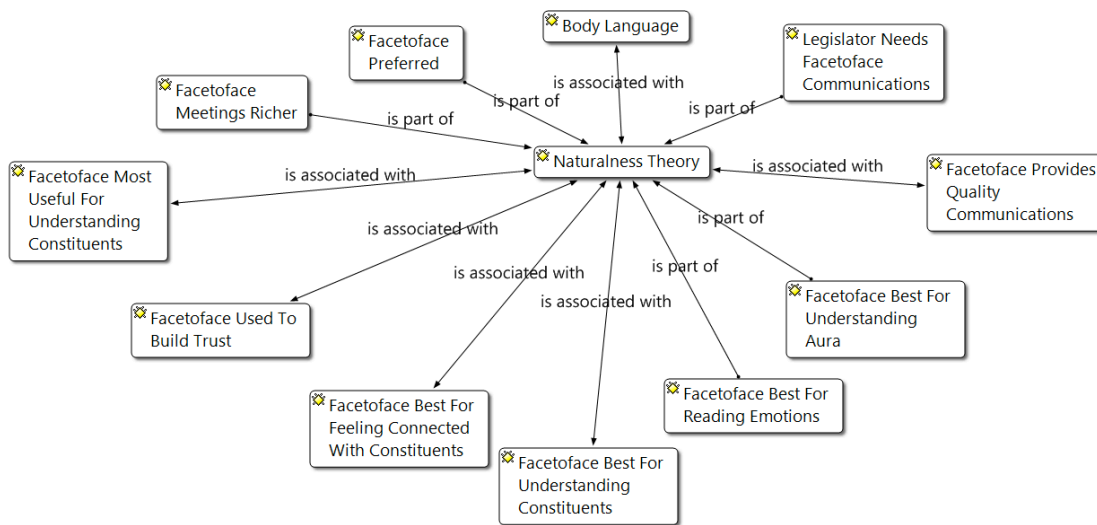
Face-to-face Lobbyists Network Diagram



Face-to-face Frequency of Use Network Diagram



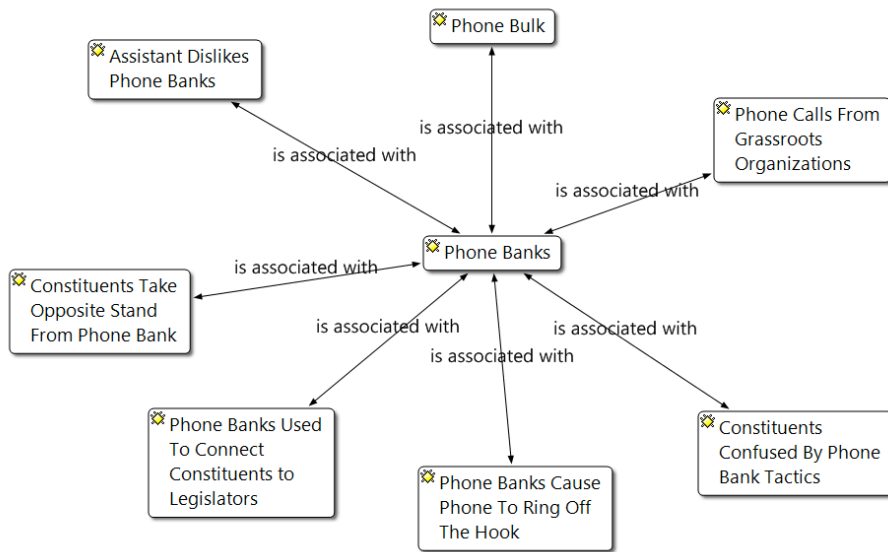
Face-to-face Legislator Behavior Network Diagram



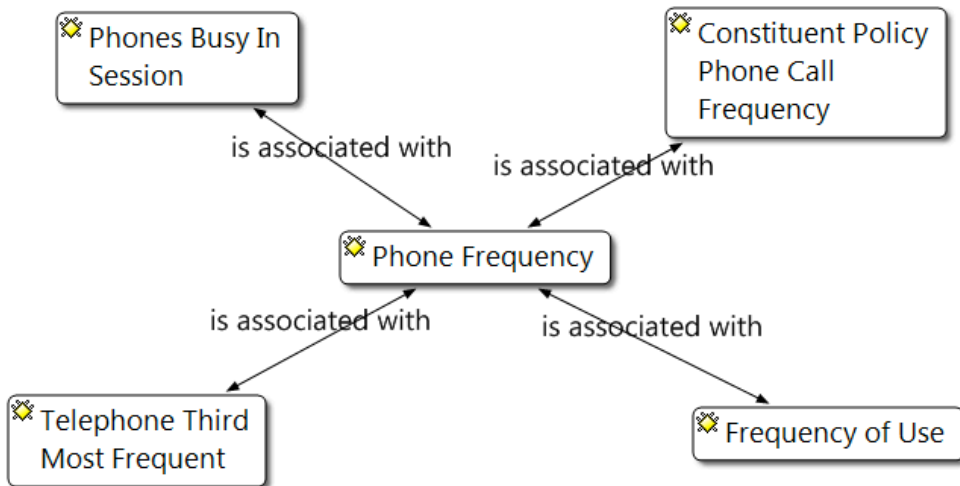
Face-to-face Naturalness Theory Network Diagram

APPENDIX H  
TELEPHONE NETWORK DIAGRAMS



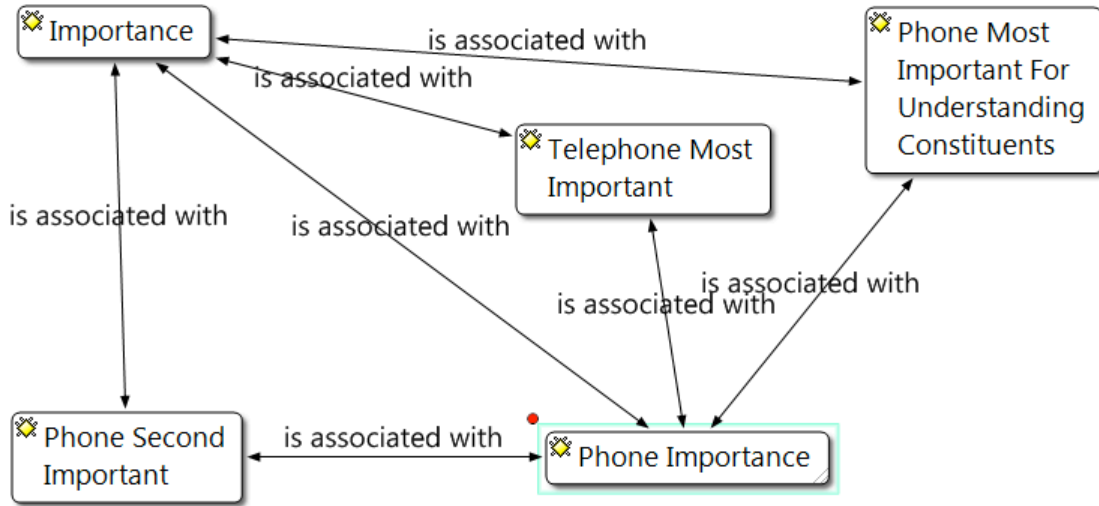


Phone Bank Network Diagram

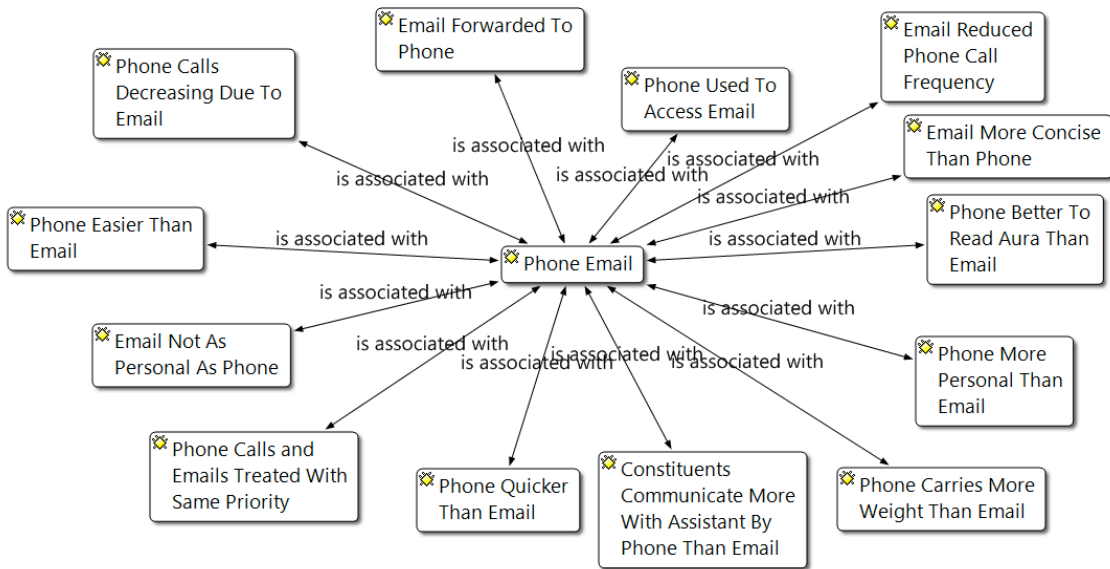


Phone Frequency of Use Network Diagram

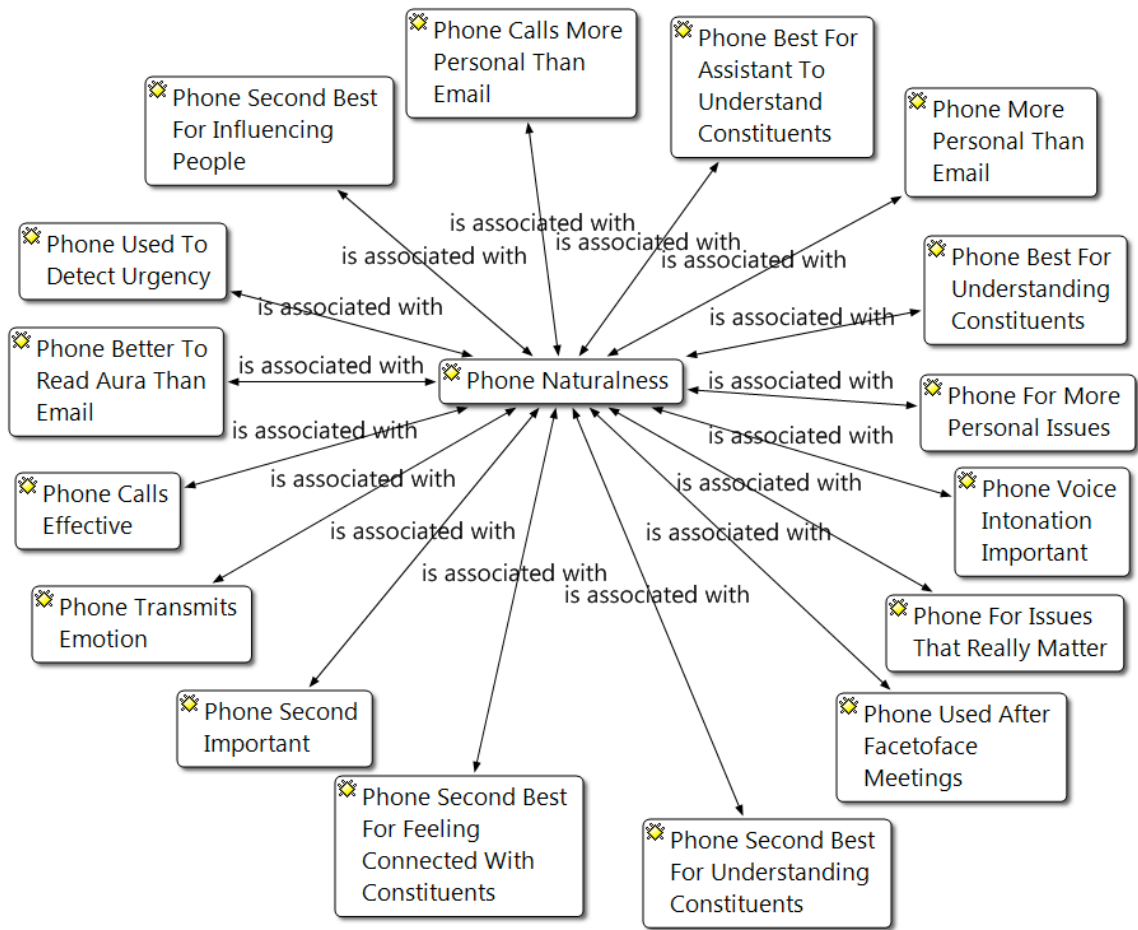




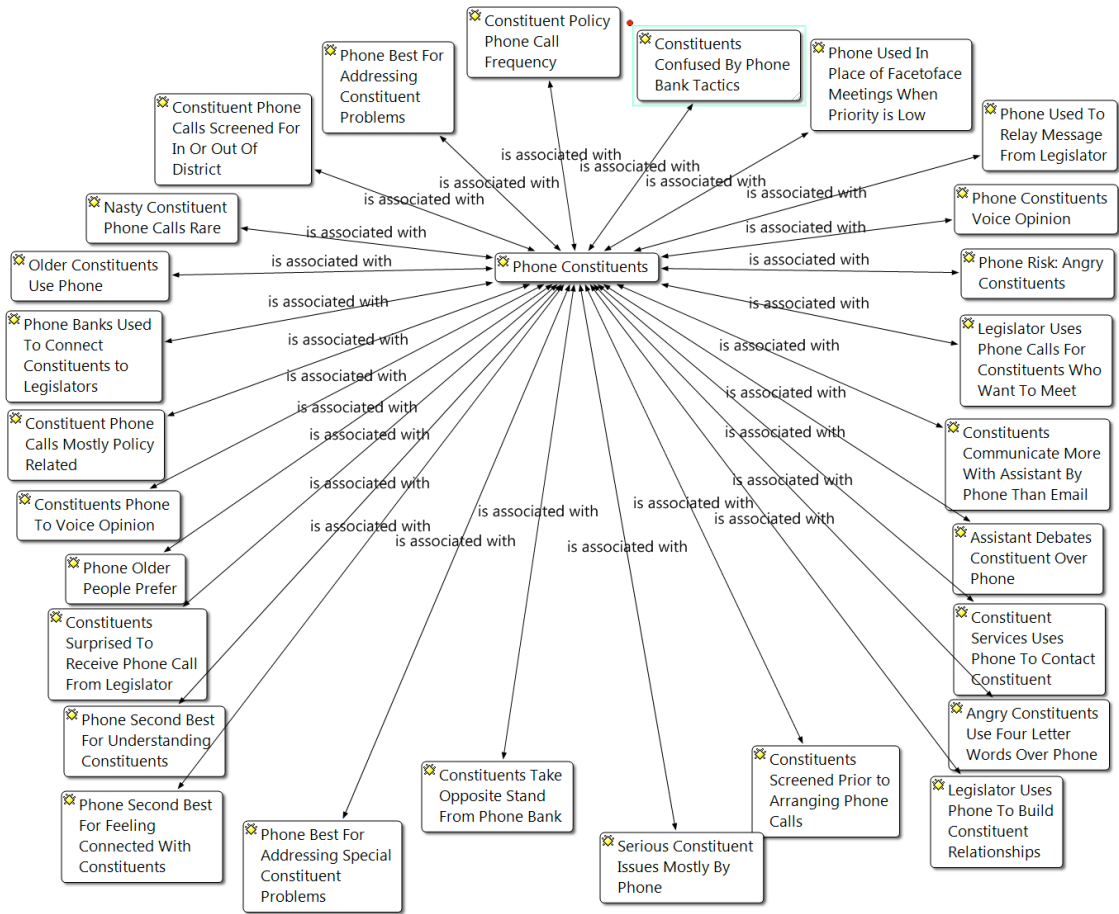
Phone Importance Network Diagram



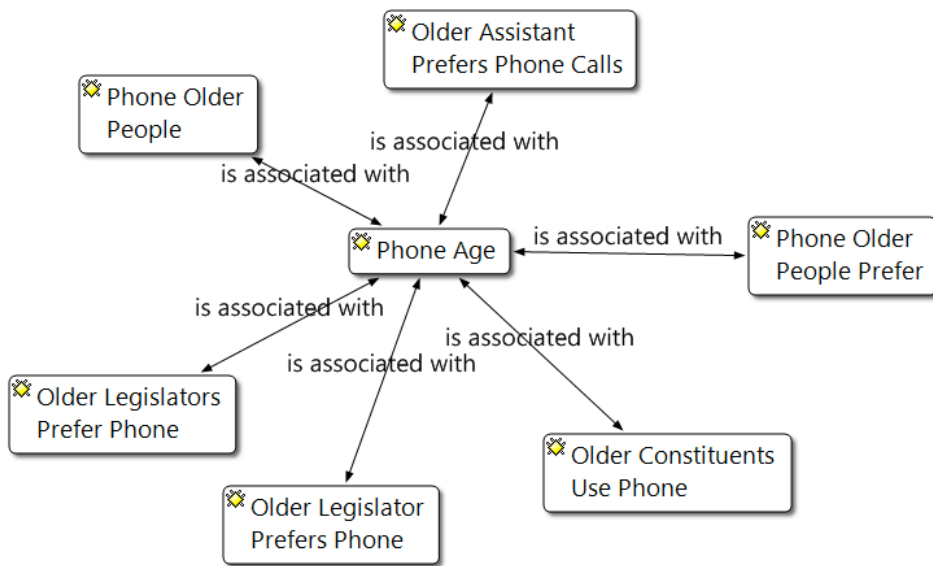
Phone vs. E-Mail Network Diagram



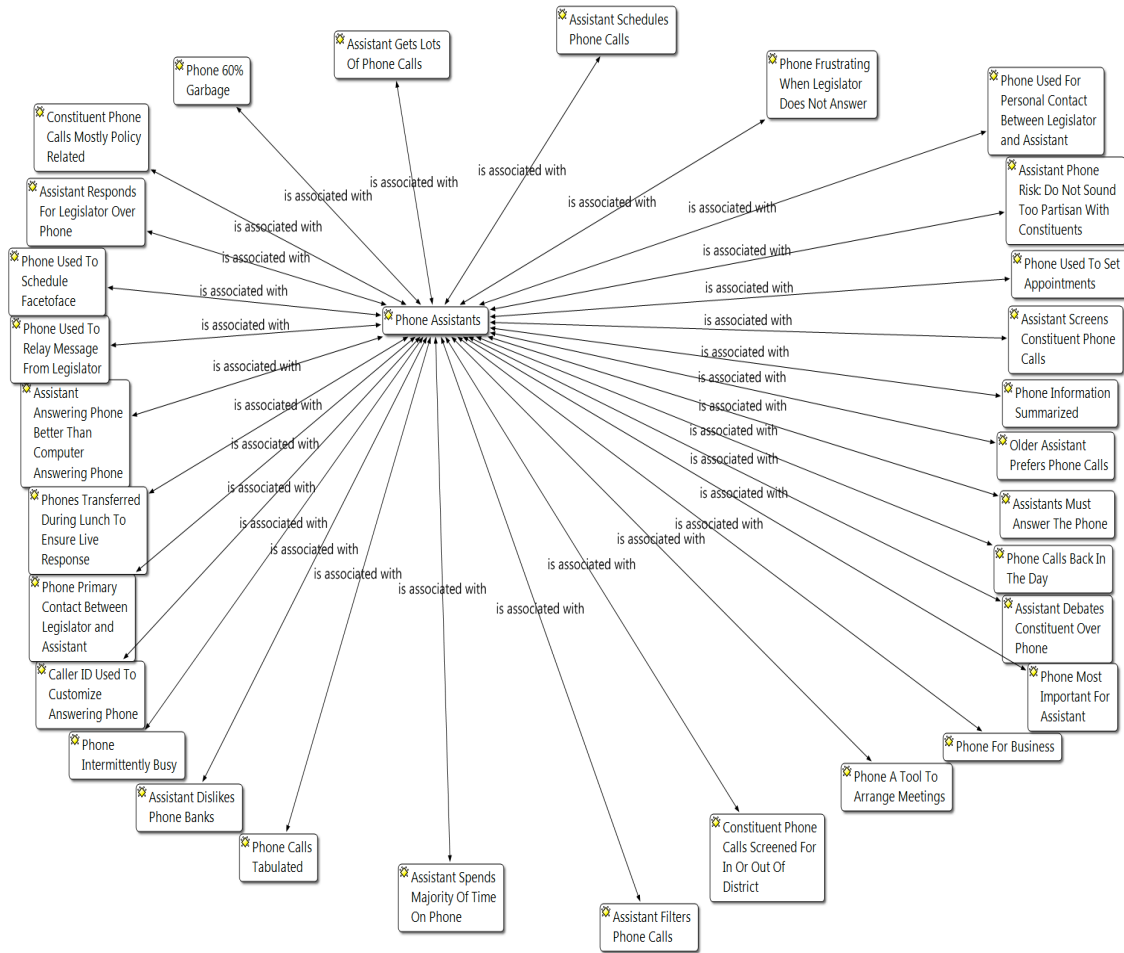
Phone Naturalness Network Diagram



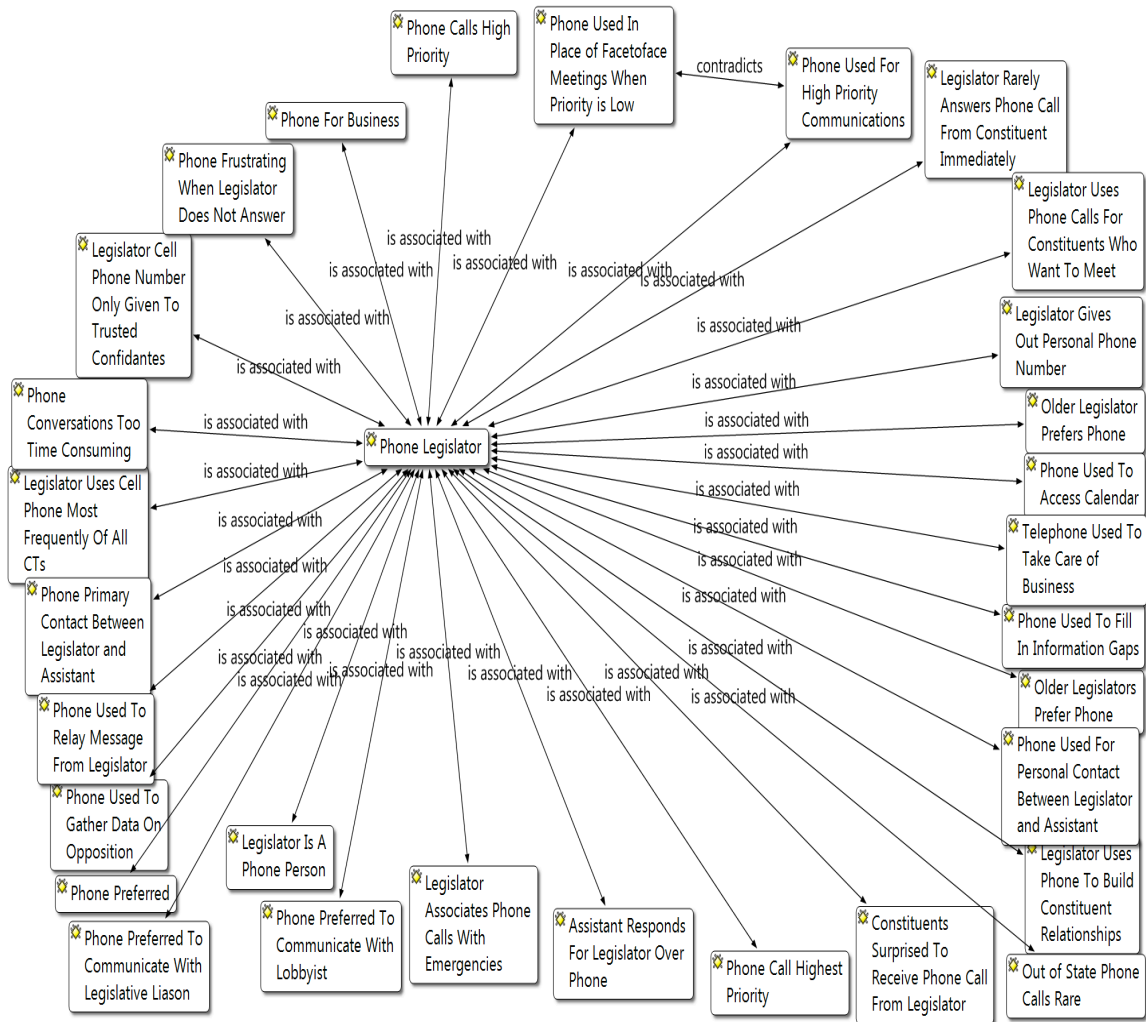
Phone Constituents Network Diagram



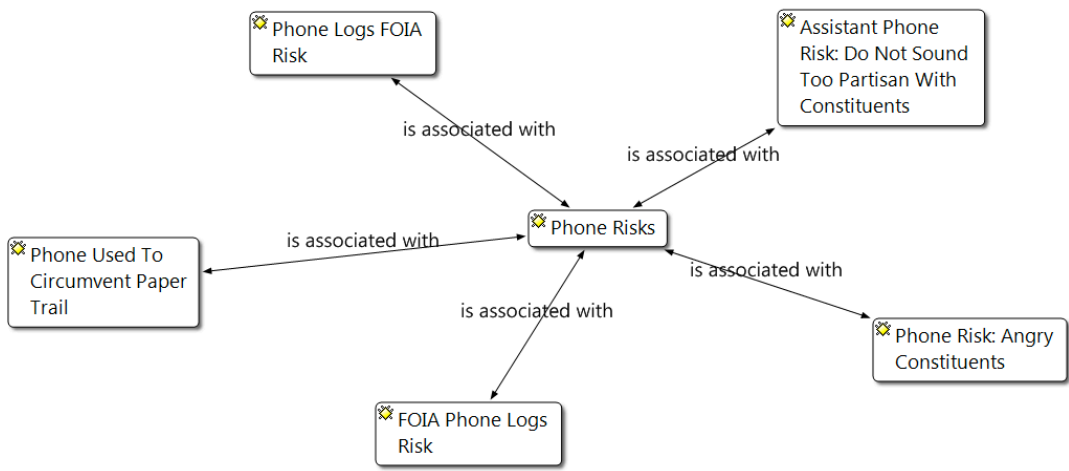
Phone Age Network Diagram



Phone Assistant Network Diagram

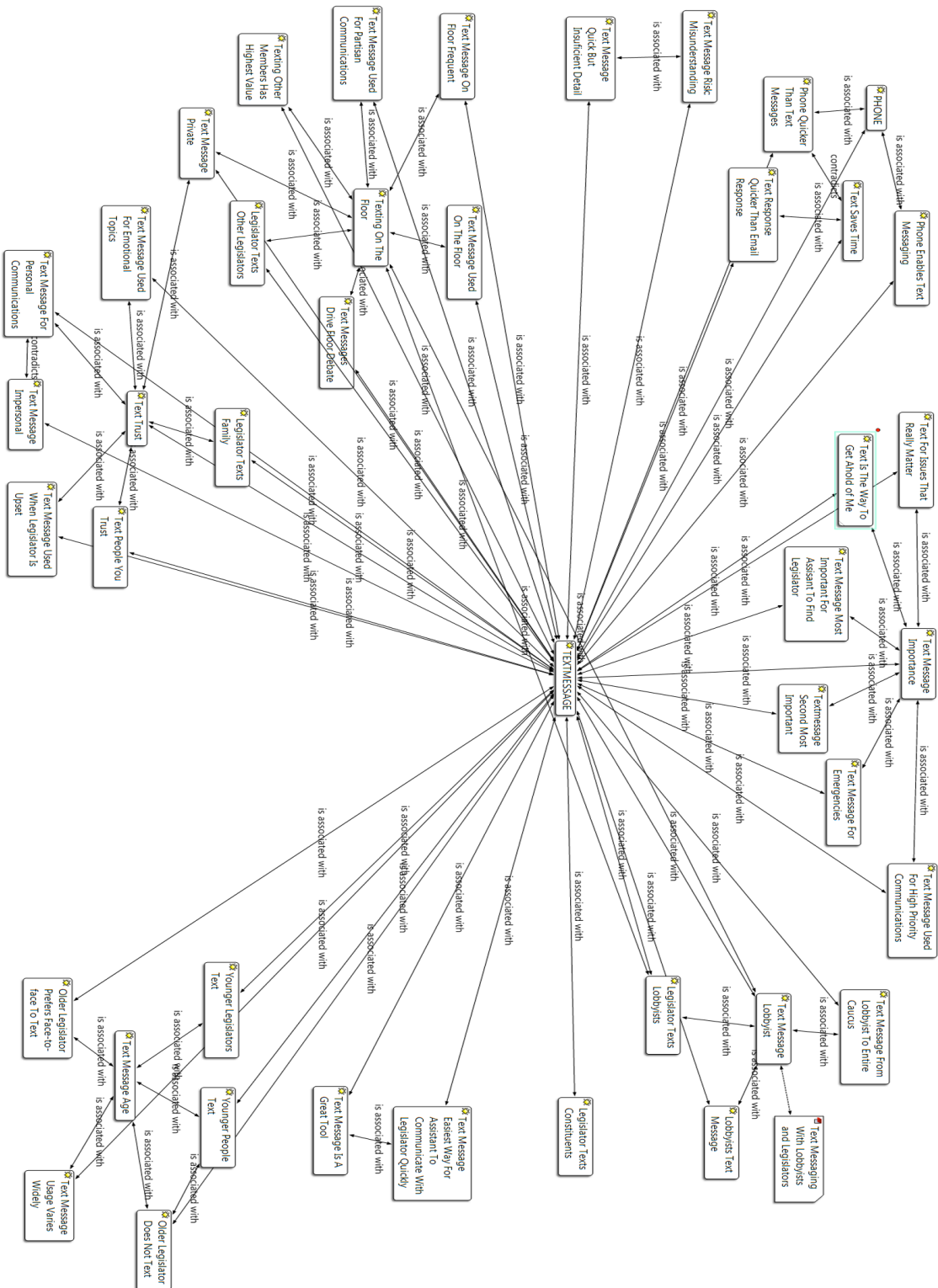


Legislator Phone Network Diagram

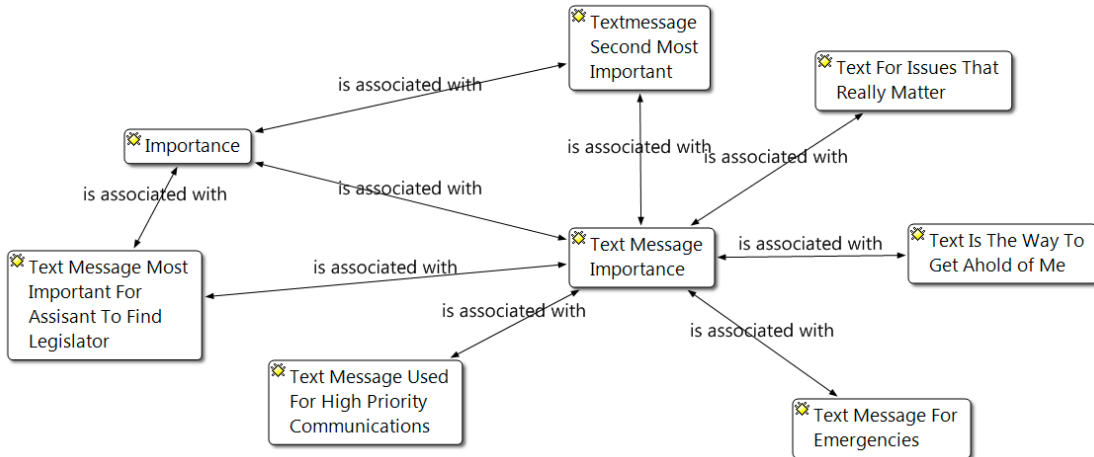


Phone Risk Network Diagram

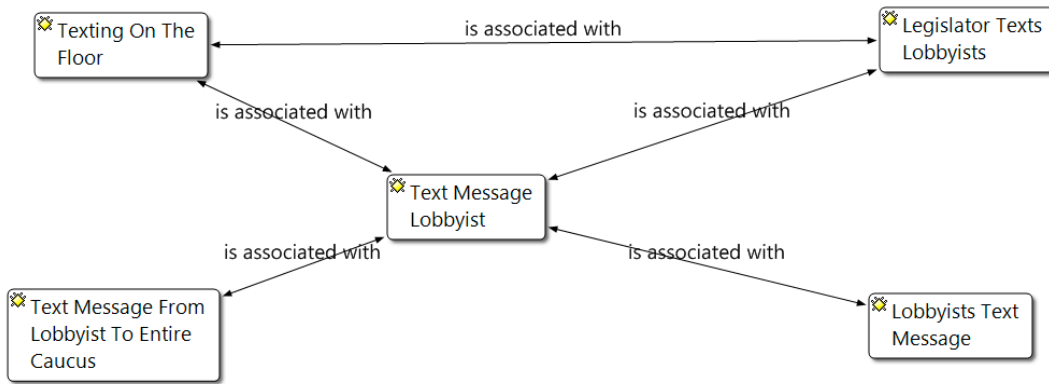
APPENDIX I  
TEXT MESSAGE NETWORK DIAGRAMS



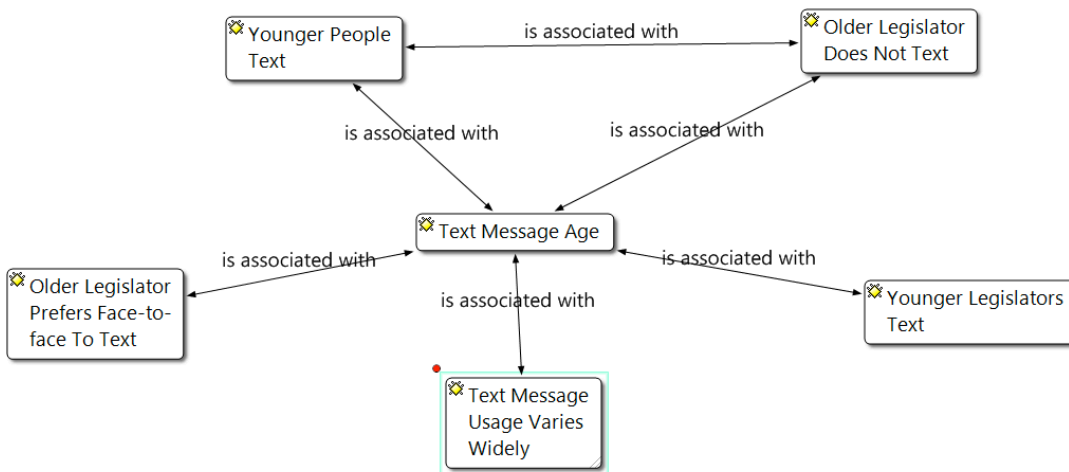
Text Message Network Diagram



Text Importance Network Diagram

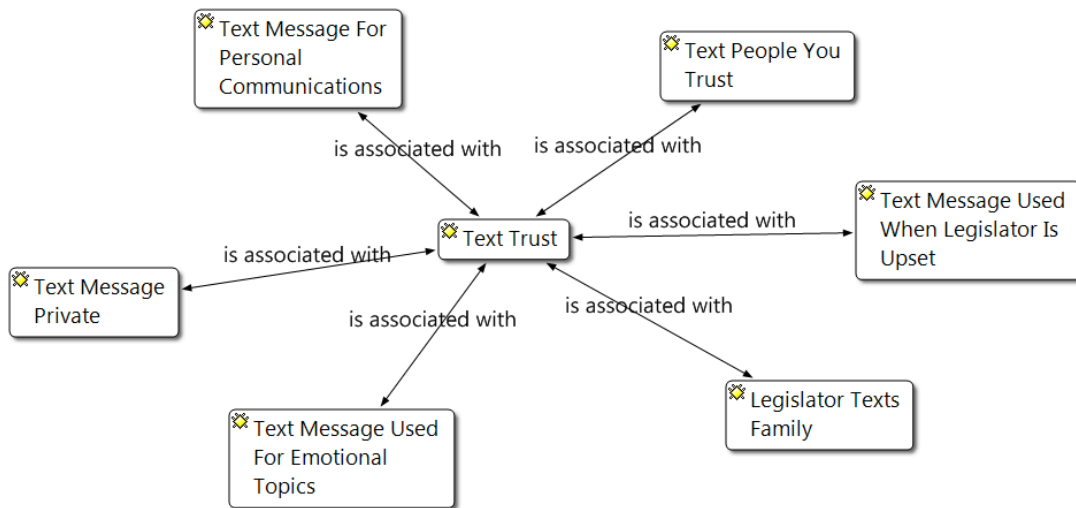


Text Lobbyist Network Diagram

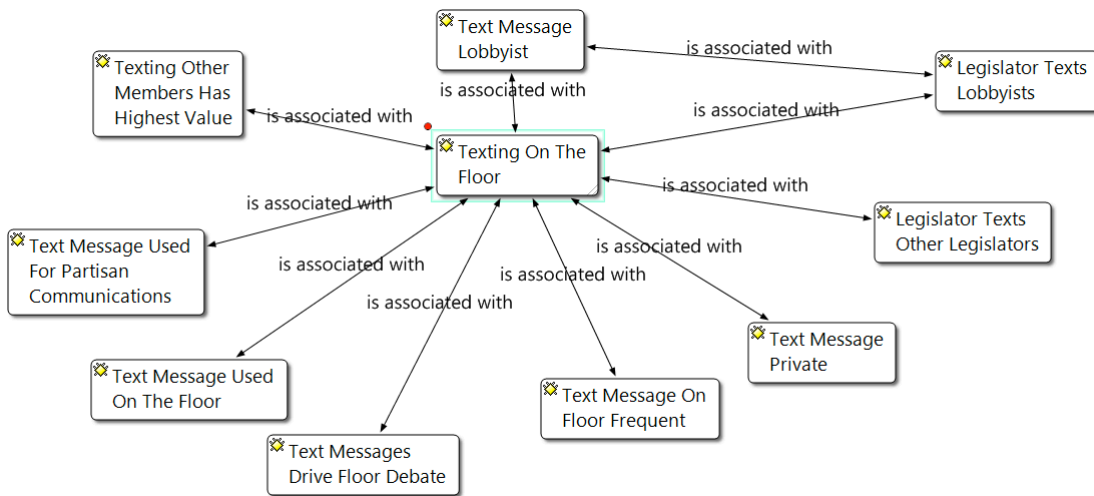


Text Age Network Diagram

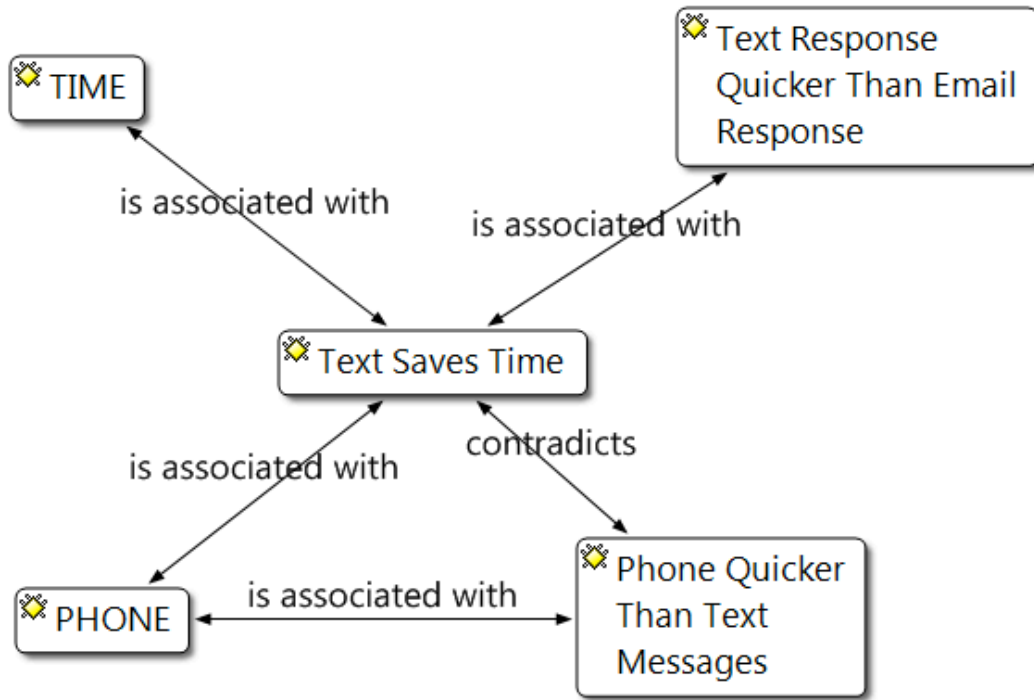




Text Trust Network Diagram



Text Messaging Floor Network Diagram



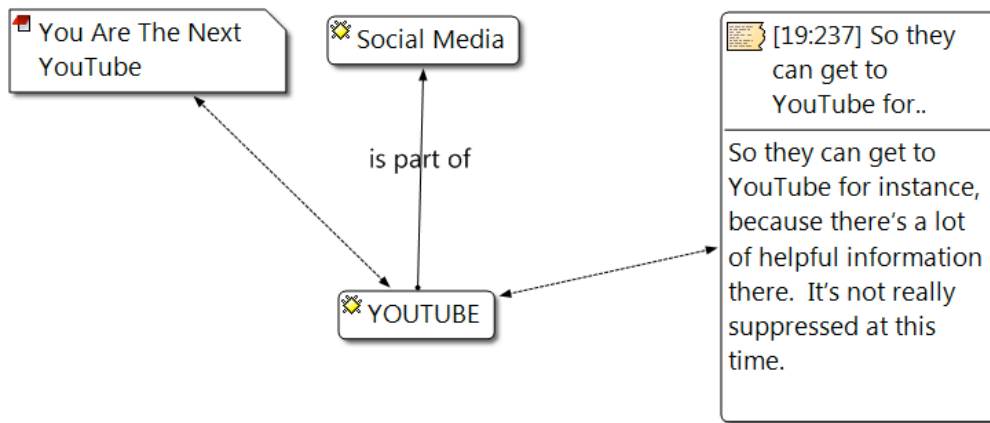
Text Time Network Diagram

APPENDIX J

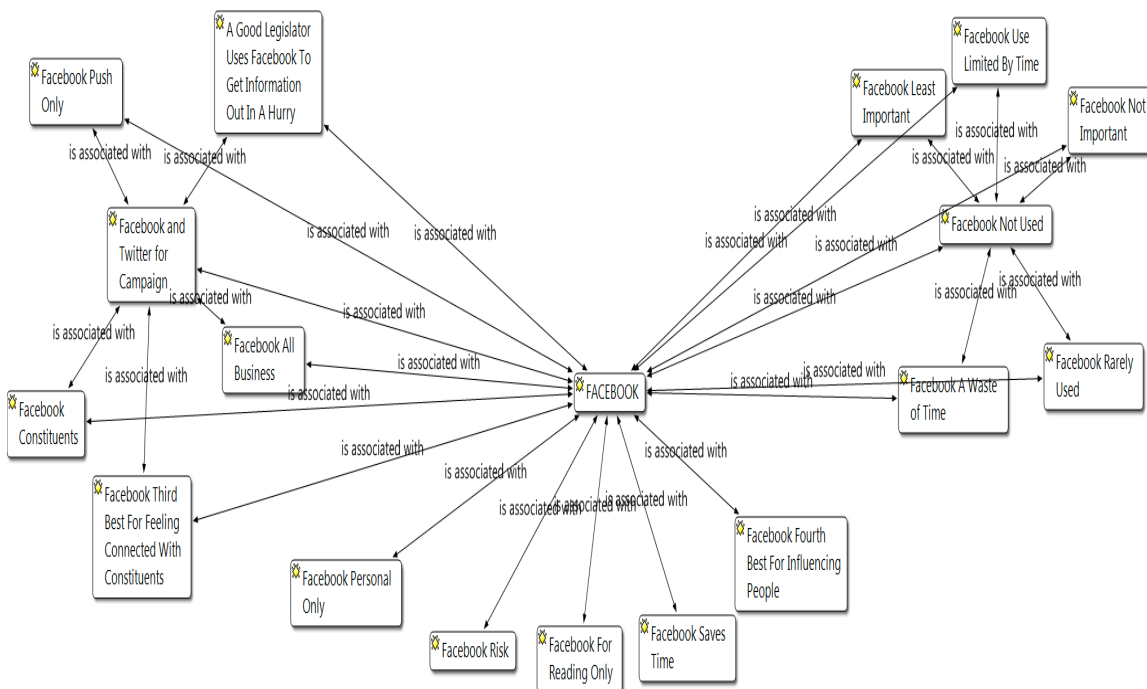
SOCIAL MEDIA NETWORK DIAGRAMS



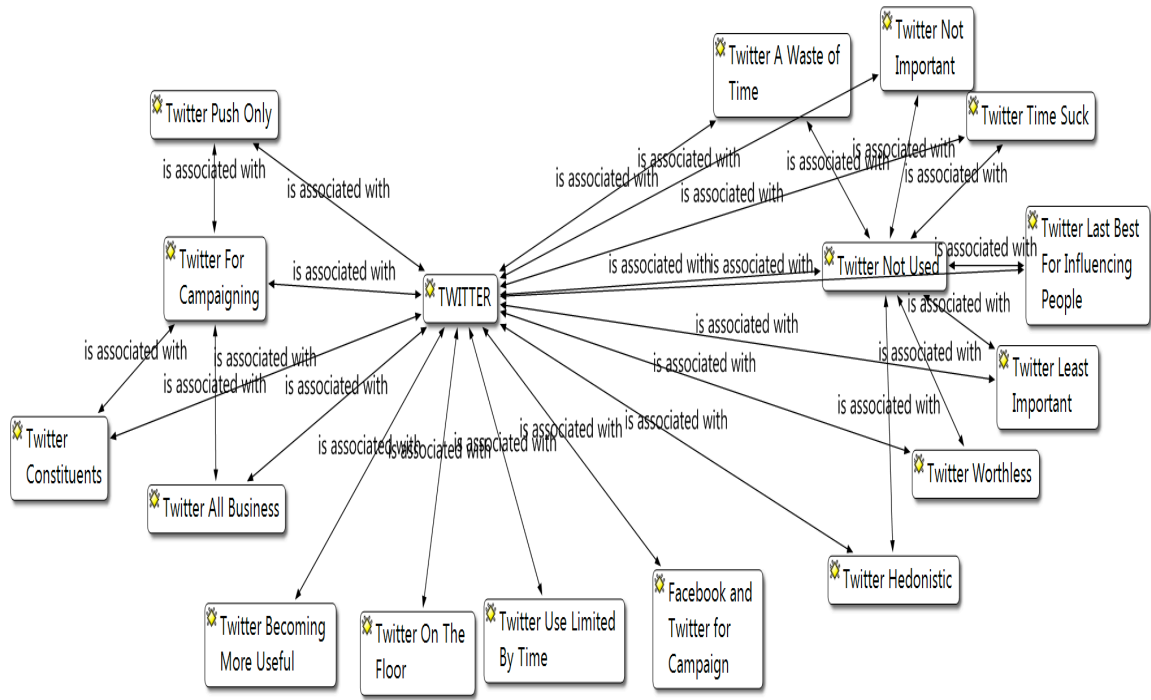
Social Media Network Diagram



YouTube™ Network Diagram



Facebook™ Network Diagram



Twitter™ Network Diagram

APPENDIX K  
PAIRED NETWORK DIAGRAMS

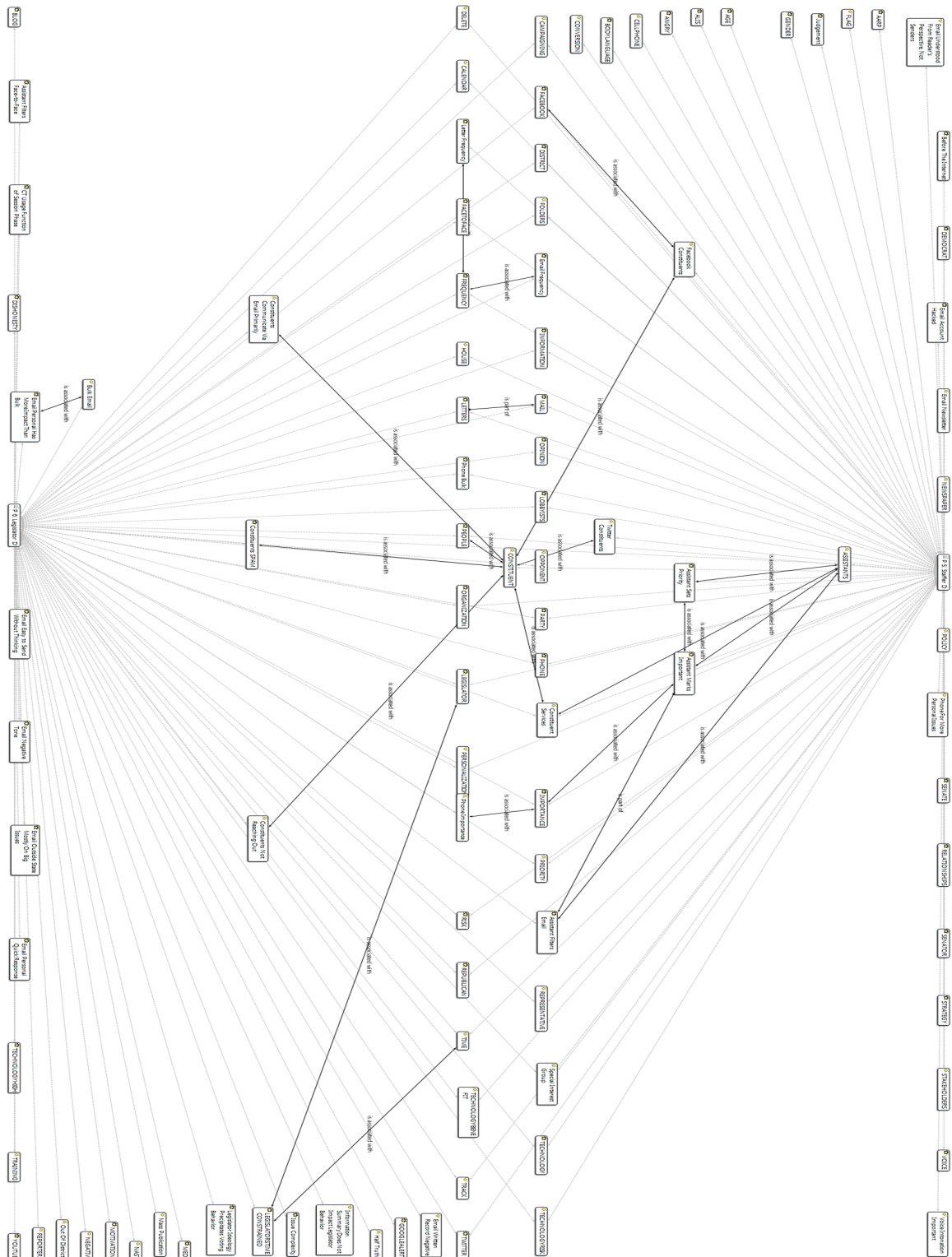
### **Paired Coding Network Diagram Interpretation Instructions**

Paired assistant legislator network views contain two rows of codes running horizontally along the center of the figure. These two rows contain codes that are common to both the assistant and legislator. At the center top of the network diagram, with relationship lines fanning out from it, is the code indicating the staffer. At the center bottom of the network diagram, with relationship lines fanning out from it, is the code indicating the legislator. Codes above the top horizontal common code line are legislator assistant exclusive codes and codes below the bottom horizontal common code line are legislator exclusive codes. Codes shown radiating from the center horizontal lines are codes that are linked to common codes. Codes shown radiating between the center horizontal lines are codes linked between common codes.

Interpretation of positional meaning in the network diagram may be more clearly outlined with a couple of examples. If for example, a legislator's interview were coded identically to the assistant's interview, only two horizontal lines listing the common codes would appear. There would be no other codes along the top and side edges above or below the upper horizontal common code line. In a second example, if a legislator's interview shared no codes with an assistant's interview, there would be no horizontal lines, only codes listed around the circumference of the network diagram. In effect, this positional scheme communicates coding differences quickly by simply examining differences in code position.

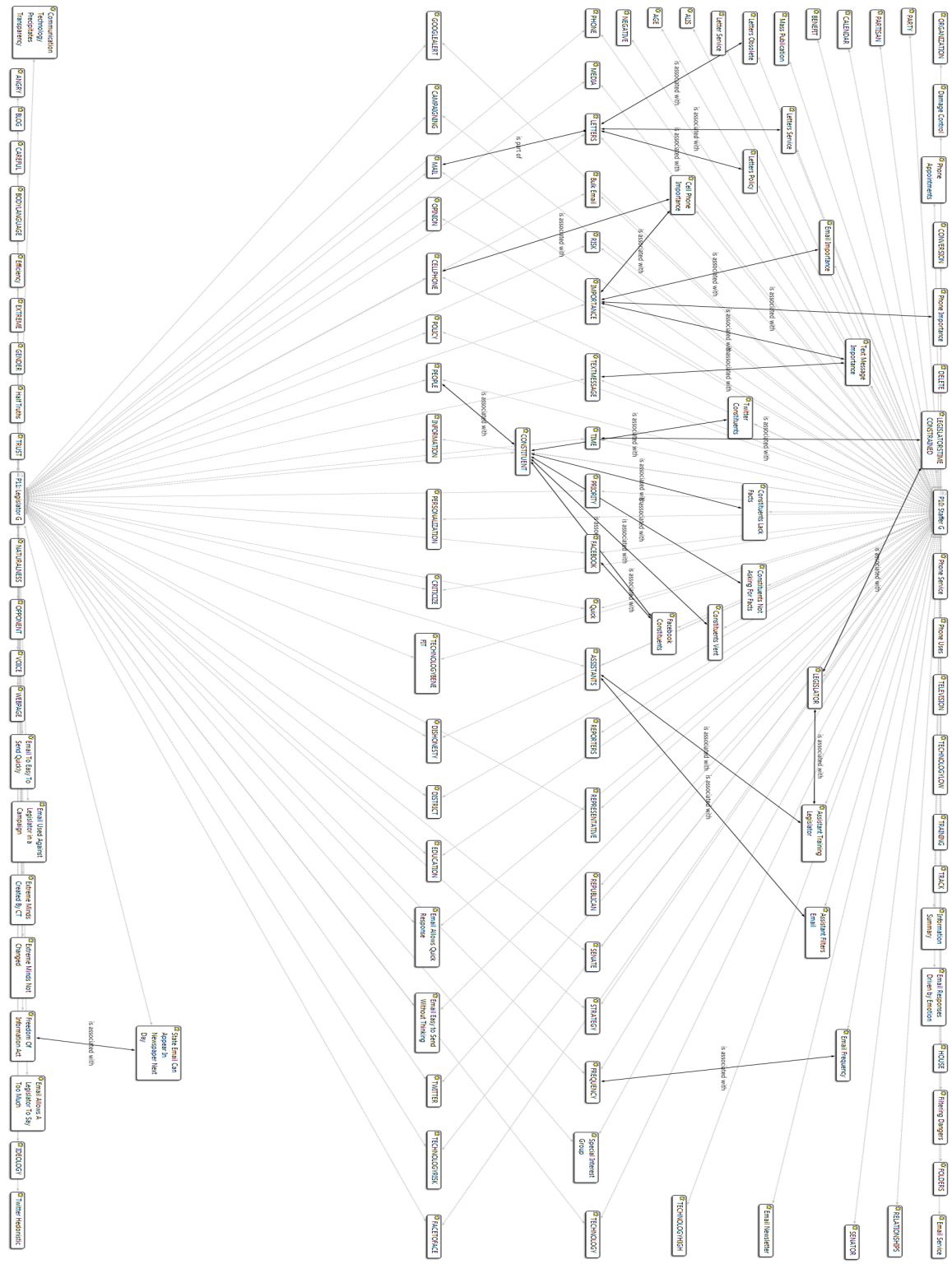




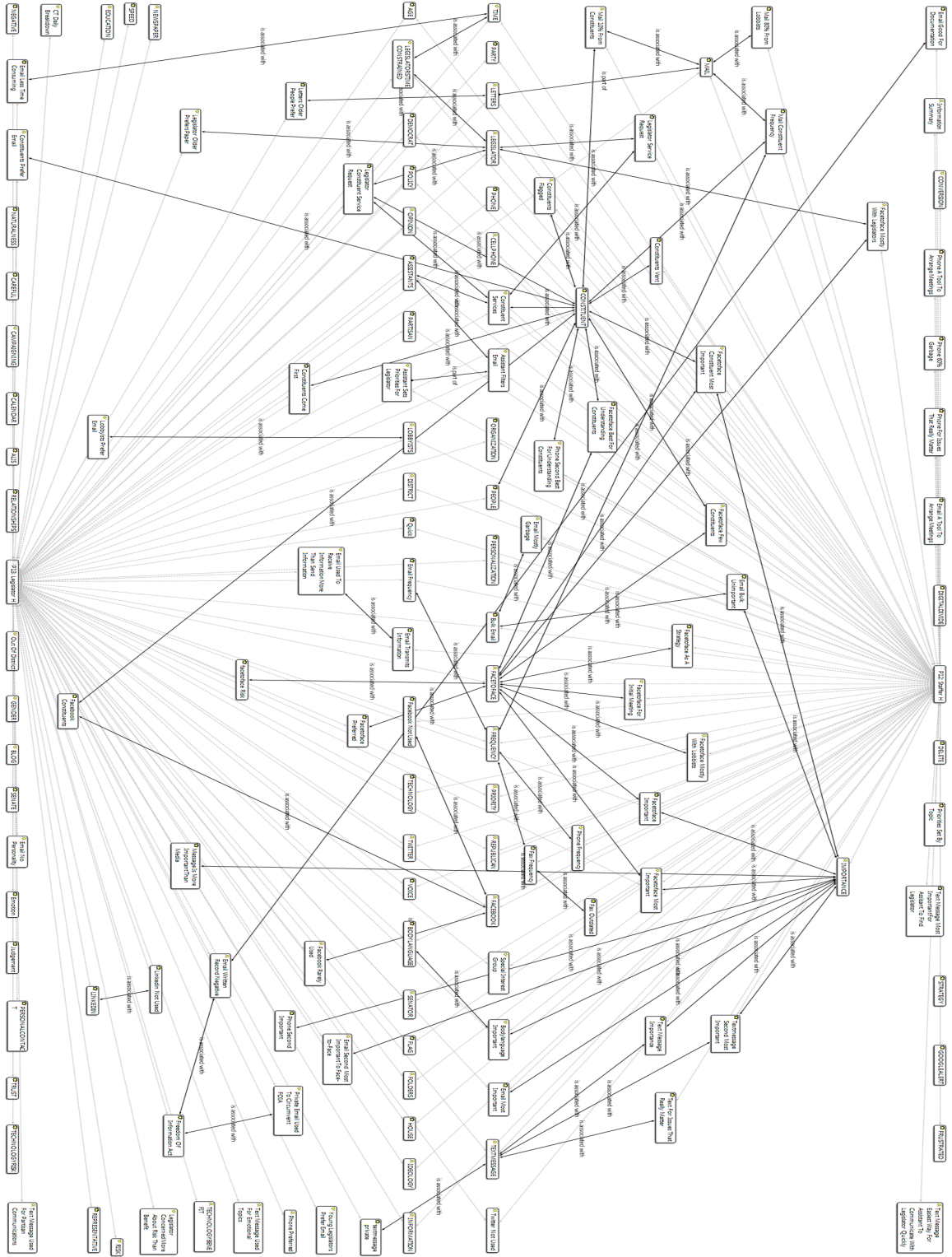


Pair D Network Diagram





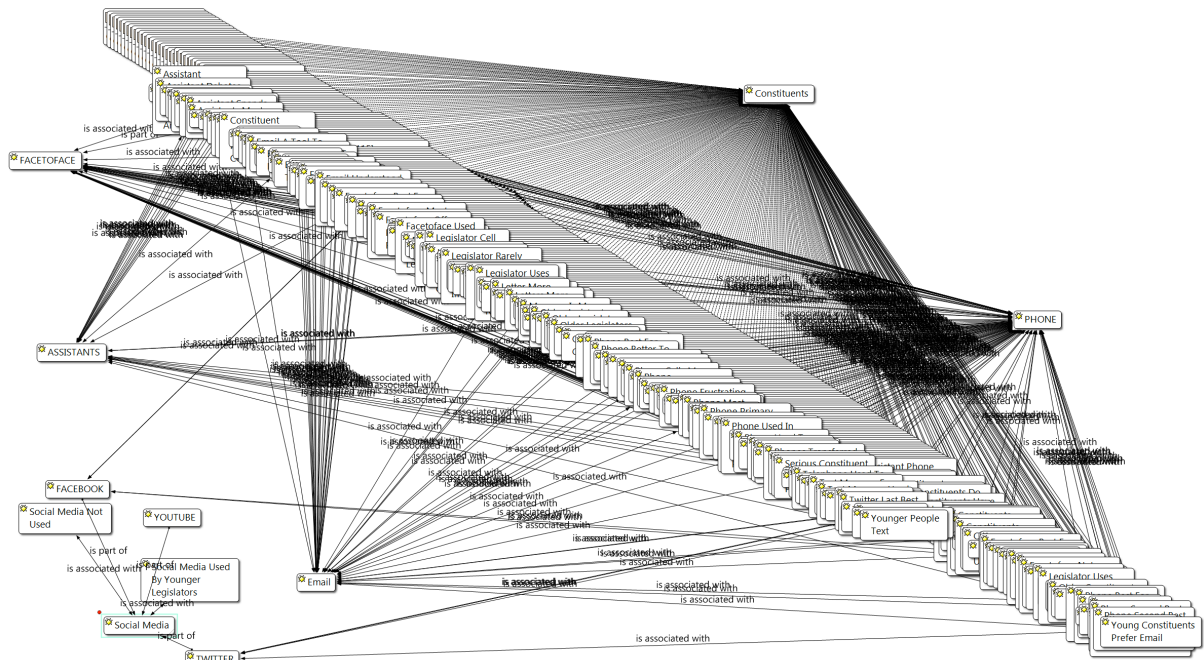
Pair G Network Diagram



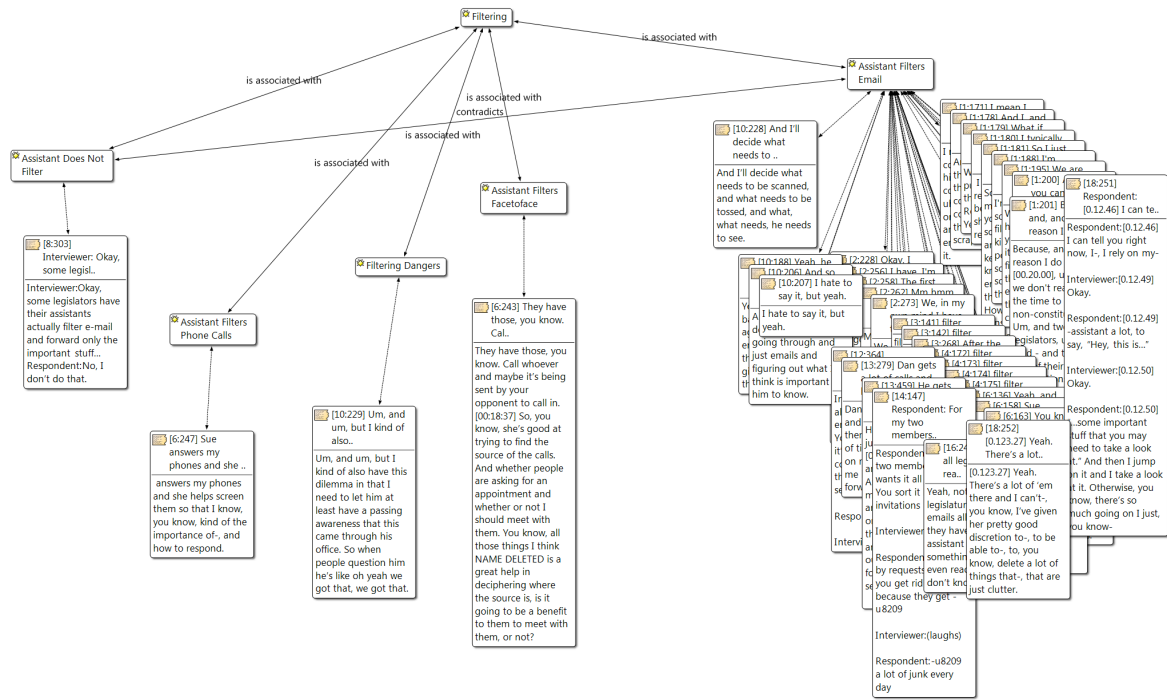
Pair H Network Diagram



APPENDIX L  
ASSISTANT NETWORK DIAGRAMS



Assistant Constituent Network Diagram



Assistant Filtering Network Diagram



APPENDIX M

ATLAS.TI SCREENSHOTS

1078 Respondent: [00:07:00] Yeah. The rising generation is all on Twitter, so I think as they... I think it's coming. It's just interesting. We're in this weird phase where you have older people who don't use any of this stuff. You have younger people that use everything. And trying to know when to use what can be difficult.

1080 Interviewer: So, that actually raises a good issue that I was going to ask you about. Have you noticed age groups using certain types?

1082 Respondent: Yeah.

1084 Interviewer: What have you noticed?

1086 Respondent: [00:07:30] I notice that the younger people all Tweet and Facebook and text. The older people do more emails, more paper, and more phone calls.

1088 Interviewer: So, you actually do see paper like letters from older constituents, maybe? Or not very often?

1090 Respondent: Yeah, I'll get something in the mail. And I was just thinking of legislators, too. The older legislators versus the younger legislators.

1092 Interviewer: Good point.

1094 Respondent: [00:08:00] [yawns] Excuse me. But, yeah, so.

1096 Interviewer: So, older legislators do you notice any differences in how they communicate with you? What might you notice?

1098 Respondent: Well, just that Email, phone, face-to-face. Younger legislators you'll have more of the text, Twitter, you know, Facebook.

1100 Interviewer: Talk to me a little bit about the risks and benefits of technology. And let's focus in on the risk, first. What do you perceive are the risks?

1102 Respondent: [00:08:35] Well, it's interesting. I think Facebook has changed the way everyone looks. I have people I've known forever and then once you friend them on Facebook you're like, when this person is weird, or... and you've known them for 14 years, but until you saw them on Facebook you had no clue how crazy they were, you know.

1104 Or, you've had somebody that you even... you didn't really care too much for, but once you're friends with them on... you really like them on Facebook. [00:09:01] It's almost like another identity. So, I think there is risk there. If you post something and it's hard to tell what the emotion is. And so people read it and they may misinterpret it another way. So, there's definitely risk, there, of alienating people.

1106 And, especially, Facebook can come across as very unprofessional. And if you are trying to be professional, but the way you're presenting yourself is unprofessional, you could lose, you know, that image of you could be, "Oh, wow, this is a unprofessional, childish, juvenile--"

1108 Interviewer: [00:09:39] So, just what you said about Facebook opening another avenue or a side of a person you didn't know. That other side could be you if you make a mistake, I guess, or say something that maybe you don't think about?

1110 Respondent: Yeah. They may start thinking of you as this, who knows? There is a small difference between hobby and mental disorder. So, you know, you got to be careful with that.

1112 Interviewer: [00:10:01] So, how do you think about what you're about to communicate before you do it? Do you think about the risks?

1114

115: Legislator I -> @Warren Petersen 138620\_002

#Word Phase #PEOPLE #AGE #AGE #TWITTER  
#PEOPLE #AGE  
#Special Interest Group #AGE  
#Young Vs. Old #TEXTMESSAGE #PEOPLE #NEWSPAPER #FA  
#FREQUENCY #NEWSPAPER #LETTERS #AGE  
#MAIL #AGE #AGE  
#AGE  
#FACEFACE #TEXTMESSAGE #TWITTER #FACEBOOK #PHONE #  
#RISK #RISK #RISK #TECHNOLOGYRISK #TECHNOLOGYRISK #TECHNOLO  
#TECHNOLOGYRISK #FACEBOOK #FACEBOOK #PEOPLE  
#PEOPLE #FACEBOOK  
#RISK #TECHNOLOGYRISK #Emotion #Email Understood From Reader's Pe  
#TECHNOLOGYRISK #FACEBOOK  
#FACEBOOK #PEOPLE  
#CAREFUL  
#RISK #TECHNOLOGYRISK

## Atlas.ti Coding Example

CC-Link: Facebook Constituent.. --> Email Account Hacked..

== : is associated with

[] : is part of

=> : is cause of

<> : contradicts

isa : is a

: noname

\*} : is property of

Open Relation Editor

## Network Relationship Functions

APPENDIX N  
LEGISLATOR DEMOGRAPHICS

<b>Demographic Variable</b>	<b>Frequency</b>	<b>Summary Statistics</b>
<b>House</b>	32 (57.14%)	
<b>Senate</b>	24 (42.86%)	
<b>Democrat</b>	21 (37.5%)	
<b>Republican</b>	35 (62.5%)	
<b>Male</b>	37 (69.81%)	
<b>Female</b>	16 (30.19%)	
<b>Years In Office</b>		Mean = 5.63 Std. Dev. 5.17
.33 years	3 (5.56%)	
.50 years	4 (7.41%)	
1.0 years	8 (14.81%)	
2.0 years	3 (5.56%)	
2.5 years	1 (1.85%)	
3.0 years	5 (9.26%)	
4.0 years	2 (3.7%)	
5.0 years	5 (9.26%)	
7.0 years	9 (16.67%)	
8.0 years	1 (1.85%)	
8.5 years	1 (1.85%)	
9.0 years	3 (5.56%)	
10 years	1 (1.85%)	
11 years	4 (7.41%)	
13 years	1 (1.85%)	
20 years	1 (1.85%)	
21 years	1 (1.85%)	
22 years	1 (1.85%)	
<b>Age</b>		Mean = 50.24 Std. Dev. = 13.64
25-29 years	4 (7.41%)	
30-34 years	3 (5.56%)	
35-39 years	9 (16.67%)	
40-44 years	5 (9.26%)	
45-49 years	5 (9.26%)	
50-54 years	4 (7.41%)	
55-59 years	5 (9.26%)	
60-64 years	10 (18.52%)	
65-69 years	6 (11.11%)	
70-74 years	3 (5.56%)	
75 or >	0	
<b>Education</b>		Mean = 17.44 Std. Dev. = 3.16
High School	5 (9.26%)	
Associates Degree	2 (3.70%)	
Bachelors Degree	21 (38.89%)	
Master/Professional Degree	16 (29.63%)	
Doctorate	10 (18.52%)	

APPENDIX O

FREQUENCY OF USE FREQUENCY TABLES

<b>CT</b>	<b>Do Not Use</b>	<b>Use Annually</b>	<b>Use Monthly</b>	<b>Use Weekly</b>	<b>Use Daily</b>	<b>Use Hourly</b>
Face-to-Face Meetings	0	0	7 12.50%	30 53.57%	15 26.79%	4 7.14%
Telephone	1 1.79%	1 1.79%	5 8.93%	23 41.07%	24 42.86%	2 3.57%
Written Letters (Hardcopy)	2 3.57%	3 5.36%	19 33.93%	23 41.07%	8 14.29%	1 1.79%
E-Mail	0	0	4 7.14%	6 10.71%	23 41.07%	23 41.07%
Twitter	29 51.79%	1 1.79%	2 3.57%	9 16.07%	11 19.64%	4 7.14%
Facebook	16 28.57%	1 1.79%	4 7.14%	13 23.21%	16 28.57%	6 10.71%
Web Pages	16 29.09%	7 12.73%	10 18.18%	14 25.45%	6 10.91%	2 3.64%
Blogs	39 69.64%	2 3.57%	8 14.29%	5 8.93%	2 3.57%	0

Constituent CT Frequency of Use

<b>CT</b>	<b>Do Not Use</b>	<b>Use Annually</b>	<b>Use Monthly</b>	<b>Use Weekly</b>	<b>Use Daily</b>	<b>Use Hourly</b>
Face-to-Face Meetings	5 8.93%	16 28.57%	3 5.36%	5 8.93%	15 26.79%	12 21.43%
Telephone	4 7.14%	9 16.07%	11 19.64%	5 8.93%	20 35.71%	7 12.5%
Written Letters (Hardcopy)	13 23.64%	11 20.00%	11 20.00%	11 20.00%	7 12.73%	2 3.64%
E-Mail	4 7.14%	5 8.93%	10 17.86%	4 7.14%	16 28.57%	17 30.36%
Twitter	30 54.55%	3 5.45%	4 7.27%	8 14.55%	8 14.55%	2 3.64%
Facebook	21 37.50%	1 1.79%	9 16.07%	10 17.86%	10 17.86%	5 8.93%
Web Pages	23 41.07%	8 14.29%	9 16.07%	8 14.29%	6 10.71%	2 3.57%
Blogs	38 67.86%	3 5.36%	11 19.64%	2 3.57%	2 3.57%	0

Peer CT Frequency of Use

APPENDIX P

CT IMPORTANCE FREQUENCY TABLES

CT	Do Not Use	Not Important	Slightly Important	Moderately Important	Important	Very Important
Face-to-Face Meetings	0	0	0	1 1.79%	10 17.86%	45 80.36%
Telephone	0	0	1 1.82%	9 16.36%	18 32.73%	27 49.09%
Written Letters (Hardcopy)	1 1.79%	1 1.79%	8 14.29%	18 32.14%	14 25.00%	14 25.00%
E-Mail	1 1.79%	0	0	6 10.71%	11 19.64%	38 67.86%
Twitter	27 48.21%	4 7.14%	3 5.36%	9 16.07%	6 10.71%	7 12.50%
Facebook	16 28.57%	2 3.57%	3 5.36%	16 28.57%	7 12.50%	12 21.43%
Web Pages	15 27.27%	1 1.82%	11 20.00%	18 32.73%	5 9.09%	5 9.09%
Blogs	32 57.14%	3 5.36%	10 17.86%	7 12.50%	2 3.57%	2 3.57%

Constituent CT Importance

CT	Do Not Use	Not Important	Slightly Important	Moderately Important	Important	Very Important
Face-to-Face Meetings	3 5.36%	0	7 12.50%	7 12.50%	7 12.50%	32 57.14%
Telephone	3 5.36%	1 1.79%	6 10.71%	5 8.09%	23 41.07%	18 32.14%
Written Letters (Hardcopy)	10 17.86%	4 7.14%	9 16.07%	17 30.36%	10 17.86%	6 10.71%
E-Mail	3 5.36%	0	5 8.93%	8 14.29%	12 21.43%	28 50.00%
Twitter	27 48.21%	7 12.50%	8 14.29%	4 7.14%	6 10.71%	4 7.14%
Facebook	21 37.50%	4 7.14%	12 21.43%	6 10.71%	8 14.29%	5 8.93%
Web Pages	22 40.74%	4 7.41%	15 27.78%	6 11.11%	5 9.26%	2 3.70%
Blogs	34 60.71%	7 12.50%	10 17.86%	3 5.36%	2 3.57%	0

Peer CT Importance



APPENDIX Q  
QUALTRICS SURVEY RESPONSE HISTOGRAMS

1. Responding yes to the question below signifies your consent to participate in the research.

Code	Answer	Responses	% Response
1	Yes, I consent to participate in the confidential survey portion of this study.	57	100%

2. Are you currently a legislator elected to the Arizona House or Senate?

Code	Answer	Responses	% Response
1	Arizona House	33	58%
2	Arizona Senate	24	42%
33	I would prefer not to answer	0	0%
Total		57	100%

3. What political party are you affiliated with?

Code	Answer	Responses	% Response
2	Democrat	21	37%
4	Republican	36	63%
3	Independent	0	0%
5	Libertarian	0	0%
1	Green	0	0%
33	I would prefer not to answer	0	0%
66	Other	0	0%
Total		57	100%

4. How many years have you been an Arizona Senator and/or Representative? If you have worked in both the House and Senate, please indicate your total years as a legislator by combining your years in the House with your years in the Senate to produce a single number.

Code	Answer	Responses	% Response
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1	Number of years	55	96%
33	I would prefer not to answer	2	4%
Total		0	100%

5. In the following four questions, you will be asked about the frequency of use and importance of various CTs. Frequency refers to how often you use a technology. Importance refers to how much value you assign to information sent and received via a CT. With respect to communicating with OTHER LEGISLATORS IN THE UNITED STATES, please rate how FREQUENTLY you use the following CTs in your work as a legislator. If you do not use a particular CT, please indicate “Do Not Use”.

Code	Answer	Do Not Use	Use Annually	Use Monthly	Use Weekly	Use Daily	Use Hourly	Responses	Mean Response
1	Face-to-Face Meetings (includes meetings with one or more legislators)	5	16	3	5	15	13	57	2.84
2	Telephone Communications	4	9	11	5	20	6	57	2.91
3	Non-Electronic Written Communications (Letters, Memos, etc.)	13	11	11	12	7	2	56	1.91
4	Electronic Mail (E-Mail)	4	5	10	4	16	18	57	3.35
5	Twitter	30	3	4	8	9	2	56	1.45
6	Facebook	21	1	9	10	11	5	57	2.07
7	Web Pages	23	8	10	8	6	2	57	1.51
8	Blogs	39	3	11	2	2	0	57	.68
9	Other	2	0	0	0	0	1	3	1.67

6. With respect to communicating with OTHER LEGISLATORS IN THE UNITED STATES, please indicate how IMPORTANT the following CTs are for your work as a legislator. If you do not use a particular CT, please indicate “Do Not Use”.

Code	Answer	Do Not Use	Not Important	Slightly Important	Moderately Important	Important	Very Important	Responses	Mean Response
1	Face-to-Face Meetings (includes meetings with one or more legislators)	3	0	7	7	7	32	56	3.98
2	Telephone Communications	3	1	6	5	23	18	56	3.75
3	Non-Electronic Written Communications (Letters, Memos, etc.)	10	4	9	17	10	6	56	2.55
4	Electronic Mail (E-Mail)	3	0	5	8	12	28	56	3.96
5	Twitter	27	7	8	4	6	4	56	1.41
6	Facebook	21	4	12	6	8	5	56	1.84
7	Web Pages	22	4	14	6	5	2	56	1.52
8	Blogs	34	7	10	3	2	0	56	.79
9	Other	2	0	0	0	0	1	3	1.67

7. With respect to communicating with CONSTITUENTS, please rate how FREQUENTLY you use the following CTs in your work as a legislator. If you do not use a particular CT, please indicate “Do Not Use”.

Code	Answer	Do Not Use	Use Annually	Use Monthly	Use Weekly	Use Daily	Use Hourly	Responses	Mean Response
1	Face-to-Face Meetings (includes meetings with one or more legislators)	0	0	7	30	15	4	56	3.29
2	Telephone	1	1	5	23	24	2	56	3.32

	Communications								
3	Non-Electronic Written Communications (Letters, Memos, etc.)	2	3	19	23	8	1	56	2.63
4	Electronic Mail (E-Mail)	0	0	4	6	23	23	56	4.16
5	Twitter	29	1	2	9	11	4	56	1.71
6	Facebook	16	1	4	16	13	6	56	2.54
7	Web Pages	16	7	10	14	6	2	55	1.87
8	Blogs	39	2	8	5	2	0	56	.73
9	Other	1	0	1	0	0	1	3	2.33

8. With respect to communicating with CONSTITUENTS, please indicate how IMPORTANT the following CTs are for your work as a legislator. If you do not use a particular CT, please indicate “Do Not Use”.

Code	Answer	Do Not Use	Not Important	Slightly Important	Moderately Important	Important	Very Important	Responses	Mean Response
1	Face-to-Face Meetings (includes meetings with one or more legislators)	0	0	0	1	10	45	56	4.79
2	Telephone Communications	0	0	1	9	18	27	56	4.29
3	Non-Electronic Written Communications (Letters, Memos, etc.)	1	1	8	18	14	14	56	3.52
4	Electronic Mail (E-Mail)	1	0	0	6	11	38	56	4.50
5	Twitter	27	4	3	9	6	7	56	1.71
6	Facebook	16	2	3	16	7	12	56	2.57
7	Web Pages	15	1	11	18	5	5	55	2.22
8	Blogs	32	3	10	7	2	2	56	1.11
9	Other	2	0	0	0	0	1	3	1.67

9. How frequently do you use the following devices?

Code	Answer	Do Not Use	Use Annually	Use Monthly	Use Weekly	Use Daily	Use Hourly	Responses	Mean Response
1	Desktop Computer	17	0	2	3	20	14	56	2.91
2	Laptop Computer	4	0	0	0	16	36	56	4.36
3	Net-Book or other sub-laptop sized computer (Macbook air, etc.)	40	2	0	3	4	7	56	1.11
4	Tablet device (iPad, Google Nexus, Kindle Fire, Samsung Galaxy Note, etc.)	23	1	2	3	14	12	55	2.36
5	Smart Phone (Android phone, iPhone, Blackberry, etc.)	1	0	0	0	10	45	56	4.73
6	Basic Cell phone (non smart phone)	50	0	0	1	2	2	55	.38
7	Smart-watch or other computerized wrist device that performs a function other than time and date or in addition to time and date	54	0	0	0	0	1	55	.09
8	Pocket Digital Media Player (MP3 player, iPod, etc.)	40	1	5	7	2	1	56	.80
9	Other	1	0	0	0	0	0	1	0.00

10. What is the highest level of education that you have completed?

Code	Answer	Responses	% Response
10	Less than High	0	0

	School		
12	High School	5	9%
14	Associates Degree	2	4%
16	Bachelors Degree	21	38%
18	Masters/Professional Degree	16	29%
23	Doctorate	10	18%
33	I would prefer not to answer	2	4%
Total		56	100%

11. What is your gender?

Code	Answer	Responses	% Response
0	Female	16	29%
1	Male	37	66%
33	I would prefer not to answer	3	5%
Total		56	100%

12. In what age category do you fall?

Code	Answer	Responses	% Response
27	25-29	4	7%
32	30-34	3	5%
37	35-39	9	16%
42	40-44	5	9%
47	45-49	5	9%
52	50-54	4	7%
57	55-59	5	9%
62	60-64	10	18%
67	65-69	6	11%
72	70-74	3	5%
77	75-79	0	0%
82	80-84	0	0%
87	85-89	0	0%
90	>= 90	0	0%
33	I would prefer not to answer	2	4%
Total		56	100%

APPENDIX R  
DEFINITIONS AND TERMS



Legislator – A member of the Arizona House or Senate.

Legislative Staff – A full or part time employee of a legislator in the Arizona House and Senate whose efforts a legislator directs, and whose efforts are intended to assist a legislator in their official capacity. Examples of legislative staff include (but are not limited to) assistants, administrative assistants, professional partisan and non-partisan policy analysts, and student interns.

IT Staff – A staff member of the Arizona House and/or Senate IT department responsible for providing first level (direct) support to legislators and/or legislative staff in the Arizona House and Senate.

IT Manager – A staff member of the Arizona House and/or Senate IT department responsible for managing IT staff.

IT Director – A staff member of the Arizona House and/or Senate IT department responsible for directing IT managers.

CT – Any information transmission protocol used by research participants to communicate with other individuals in an official capacity. Examples include phone calls, face-to-face meetings, E-mail, Facebook™, webpages, blogs, Twitter™, etc.

ALIS – Arizona Legislative Information System. ALIS (pronounced Alice) is a dedicated software tool used by Arizona legislators to manage information related to legislation as well as legislator activities such as constituent services.

Constituent Services – Constituent services is a small department in both the Arizona House and Senate whose duties consist of resolving constituent service requests.

APPENDIX S  
LEGISLATOR ASSISTANT DESCRIPTIONS

Assistant A – Assistant A is a male assistant who works for two Representatives in the House. He is the youngest male legislator assistant interviewed and has less than five years of experience as a legislator assistant in the House.

Assistant B – Assistant B is a female assistant who works for two Representatives in the House. She has more than 20 years experience as a legislator assistant in the House. Assistant B works for legislator B, who was interviewed in phase three.

Assistant C – Assistant C is a female assistant who works for two Representatives in the House. She is middle-aged and has less than five years of experience as a legislator assistant in the House.

Assistant D – Assistant D is a female assistant who works for one Senator in the Senate. She is an older assistant who has more than 15 years experience in both the House and Senate. Assistant D works for legislator D, who was interviewed in phase 3.

Assistant E – Assistant E is a female assistant who works for two Representatives in the House. She is an older assistant and has more than 15 years experience as a legislator assistant in the House. Assistant E works for legislator E, who was interviewed in phase three.

Assistant F – Assistant F is a female assistant who works for two Representatives in the House. She is the youngest female assistant interviewed and has less than five years of experience as a legislator assistant in the House.

Assistant G – Assistant G is a female assistant who works for one Senator in the Senate. She is an older assistant and has more than 15 years of experience as a legislator assistant in both the House and Senate. Assistant G works for legislator G and belongs to the political party opposite the legislator she assists.

Assistant H – Assistant H is a male assistant who works for one Senator in the Senate. He is the oldest male assistant interviewed, and has less than five years experience as a legislator assistant in the Senate. Assistant H works for legislator H and belongs to the political party opposite of the legislator he assists.

Assistant I – Assistant I is a female assistant who works for two Representatives in the House. She is the oldest female assistant interviewed and has more than 15 years experience as a legislator assistant in the House. Assistant I works for legislator I and belongs to the political party opposite the legislator she assists.

APPENDIX T  
LEGISLATOR DESCRIPTIONS

Legislator B – Legislator B is a female Representative in her early 60s. She has less than five years of experience as a legislator.

Legislator D – Legislator D is a female Senator in her early 50s. She has between five and ten years experience as a legislator.

Legislator E - Legislator E is a male Representative in his early 60s. He has between five and ten years experience as a legislator.

Legislator G – Legislator G is a male Senator in his early 50s. He has less than five years experience as a legislator.

Legislator H – Legislator H is a female Senator in her late 50s. She has between five and ten years experience as a legislator.

Legislator I – Legislator I is a male Representative in his mid 30s and is the youngest Representative interviewed. He has less than five years experience as a legislator.

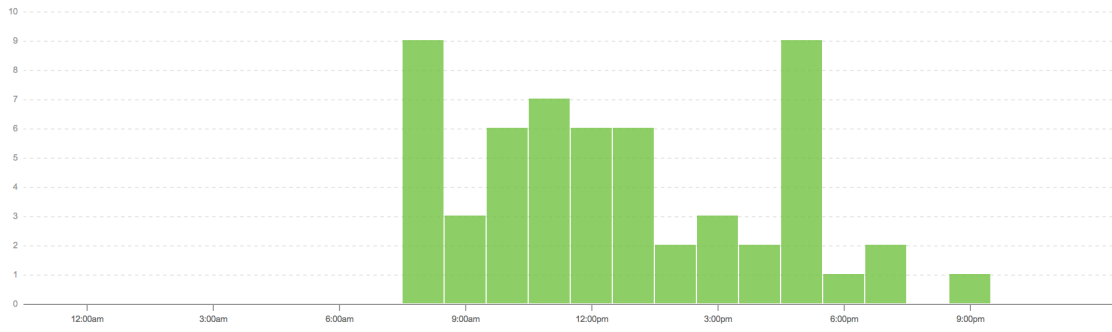
Legislator J – Legislator J is a female Representative in her early 50s. She has between five and ten years experience as a legislator.

Legislator K – Legislator K is a male Senator in his late 60s and is the oldest legislator interviewed. He has between ten and 15 years experience as a legislator.

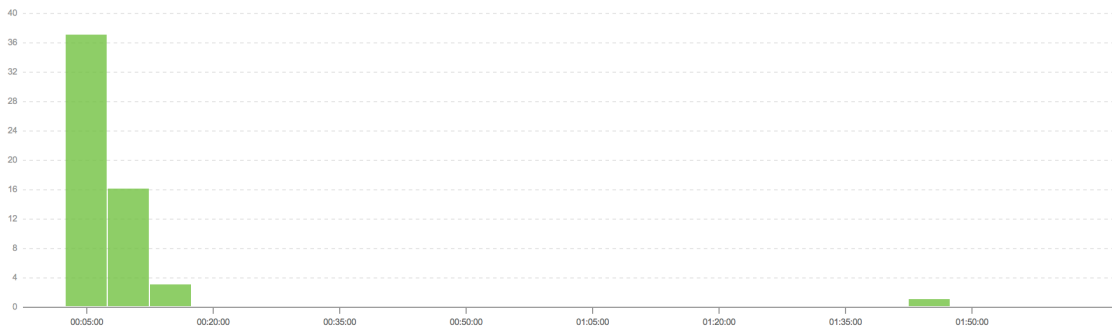
Legislator L – Legislator L is a male Senator in his late 60s. He has less than five years experience as a legislator.

APPENDIX U  
SURVEY STATISTICS

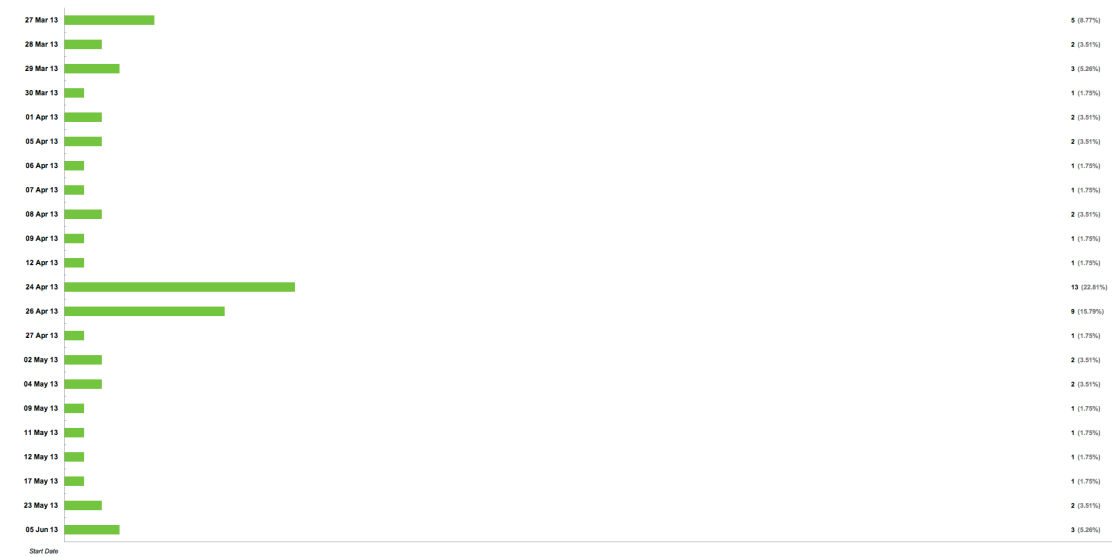
Survey Start Times



Survey Durations



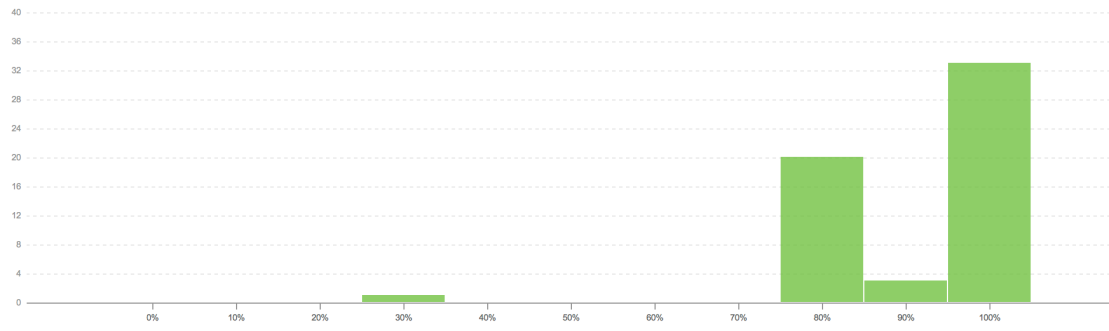
Survey Start Dates



Total Responses 57

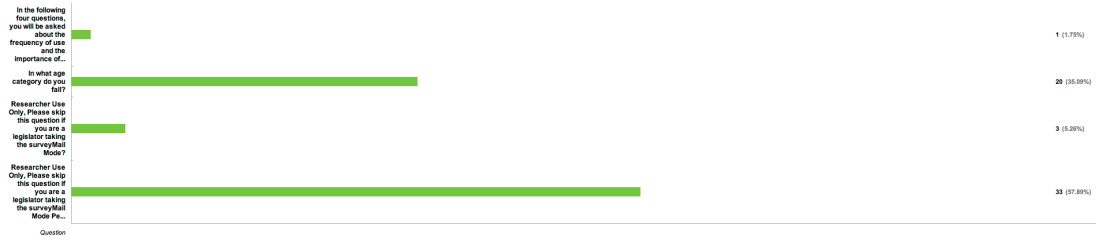


Survey Completion Percent



Drop Outs

Last answered question counts



Total Responses 57

## CURRICULUM VITAE

Joe F. West

Faculty Associate, School of Public Affairs  
Arizona State University

### CONTACT INFORMATION

649 South 30<sup>th</sup> Circle  
Mesa, AZ 85204  
Cell: 480-522-6186  
Fax: 480-502-2430  
Email: jfw@asu.edu  
Website: <http://www.joewest.org>

### EDUCATION AND DEGREES

Ph.D., Public Administration and Public Policy, Arizona State University, **expected graduation May 2014**. Dissertation: *rEvolutionary Changes: The Complex Relationships Between Legislators and Communication Technology*.  
Committee: Dr. Elizabeth Corley (Chair), Dr. James Svava (member), Dr. Erik Johnston (member).

M.B.A. Master of Business Administration, Arizona State University, May 2009

B.S. Electrical Engineering, Arizona State University, May 1992

A.A.S. Electrical Engineering Technology, Phoenix College, May 1982

### RESEARCH INTERESTS

Influences of technology on: democratic institutions, legislator and citizen behavior, and the policy process • Agent-based modeling

### TEACHING INTERESTS

E-Governance and E-Public Administration • Quantitative, qualitative, and mixed research methods • Public policy and policy analysis • Technology and public policy • Private sector influences on the policy process

### RESEARCH ACTIVITIES

#### 1. FUNDED RESEARCH GRANTS AND CONTRACTS

National Institute of Justice Grant 2008-WB-GX-002 (OSU-ASU), \$581,232  
July 2010 to May 2012 (Role: Program Manager)

#### 2. VOLUNTEER RESEARCH PROJECTS

Morrison Institute – Piper Project. *Dropped?: Latino Education and Arizona's Economic Future* (ASU) 2011 (Role: Analyst, Methods Author)

City of Gilbert Arizona – Community Action Network. *Public and Private Community Needs Assessment*. 2012 (Roles: Analyst, Research Program Evaluator, Final Report Author)

Saint Paul Foundation – *Recommendations for Recruitment, Preparation, Licensing and Certification, and Professional Development for the School Administrator Preparation System* 2012 (Role: Research Information and Communication Technologist)

WEST 1

**PUBLICATIONS 1. PATENTS**

West, J.F. (1999). U.S. Patent No. 5936523. Washington, DC: U.S. Patent and Trademark Office. 113 citations.

**2. REFEREED ARTICLES**

Wilson, J. S., West, J. F., Messing, J. T., Brown, S., Patchell, B., & Campbell, J. C. (2011). Factors Related to Posttraumatic Stress Symptoms in Women Experiencing Police-Involved Intimate Partner Violence. *Advances in Nursing Science, 34*(3), E14.

**3. WORKS IN PROGRESS**

West, J.F., & Corley, Elizabeth (2013) State Legislators and Communication Technology: An Exploratory Mixed-Mode Study of the Arizona House and Senate.

West, J.F. (2015) Doubling State Legislator Survey Response Rates: An Anonymous Sequential Mixed-Mode Survey Technique.

**4. INVITED LECTURES**

West, J.F. (2009) Implementing Electronic Healthcare Records in a Small Practice, *Arizona Health-e Connection*, panel guest speaker.

**5. CONFERENCE PAPERS**

West, J.F. (2013) State Legislators and Communication Technology: An Exploratory Mixed-Mode Study of the Arizona House and Senate. Accepted as paper for 2013 Association for Public Policy Analysis & Management (APPAM).

West, J.F. (2014) The Impact of Communication Technology on the Behavior of Elected Officials, their Staffs, and Their Organizations. Submitted as a paper for the 2014 American Society for Public Administration (ASPA) conference.

**EXPERIENCE 1. ACADEMIC**

Arizona State University	2010 - Present Faculty Associate
Arizona State University	2010 - 2011 Graduate Research Assistant
Arizona State University	2010 Graduate Teaching Assistant

## 2. TEACHING

### Instructor

Arizona State University, Research Methods II (PAF 502)	2011 - Present
Online	Fall 2011
Face-to-Face	Spring 2012
Hybrid	Spring 2013

Arizona State University, Research Methods I (PAF 501)	2012
Face-to-Face	

Synopsys Corporation, Integrated Circuit Design I	2002 - 2007
Face-to-Face	

Synopsys Corporation, Integrated Circuit Design II	2003 - 2007
Face-to-Face	

Synopsys Corporation, Clock Tree Synthesis	2002 - 2007
Face-to-Face	

Synopsys Corporation, Integrated Circuit Floor-planning	2006 - 2007
Face-to-Face	

### Assistant Instructor

Arizona State University, Building Leadership Skills (PAF 410)	2010
Online	

## 3. PROFESSIONAL

Administrative Director, Pinnacle Peak Physicians, Scottsdale, AZ	2007 - 2013
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Staff Applications Engineer, Synopsys Corporation	2002 - 2007
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Field Applications Engineer, Arrow, Pioneer-Standard, FAI	1996 - 2002
---	-------------

Principal Engineer, Orbital Sciences Corporation	1992 - 1996
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## FELLOWSHIPS AND GRANTS

Arizona State University Fellowship, \$2,000	2009
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University Grant, College of Public Programs, \$1,500	2010
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University Grant, College of Public Programs, \$1,500	2011
---	------

Arizona State University Dissertation Fellowship, \$5,000	2013
---	------

Graduate Professional Student Association Travel Grant, \$500	2013
---	------

**SERVICE 1. PROFESSIONAL**

Volunteer Program Manager, NIJ grant 2008-WB-GX-0002 2011 - 2012  
Volunteer Consultant/Analyst, City of Gilbert Arizona, CAN Project 2012  
Volunteer Information Technologist, Saint Paul Foundation 2012  
Volunteer Analyst, Piper Project, The Morrison Institute  
2012

**2. UNIVERSITY**

Member, Arizona State University School of Public Affairs Doctoral Committee  
2011 - 2012  
Developed and hosted the 2009 Arizona State University School of Public Affairs  
doctoral cohort website at <http://no-phd-left-behind.com> 2009 - 2012  
Developed and hosted the Arizona State University School of Public Affairs doctoral  
student website at <http://www.phdwiki.org> 2012 - Present  
Developed and taught a remedial statistics class for doctoral students (all cohorts)  
2012  
Developed and taught a EndNote™ class for doctoral students (all cohorts)  
2012

**3. COMMUNITY**

Arizona Virtual Jeep Club Saguaro Lake off-highway trails cleanup 2004 - 2013  
Arizona Virtual Jeep Club Table-Mesa off-highway trails cleanup 2004 - 2007, 2009  
Arizona Virtual Jeep Club Florence Junction off-highway trails cleanup 2005  
Arizona State Land Trust Citizens Meetings 2003 - 2013  
Mesa High School Junior Reserve Officer's Training Corps Volunteer 1997 - 2006

**HONORS AND  
AWARDS**

National Aeronautics and Space Administration (NASA) Orbital Launch Services  
Technical Achievement Award 1996  
NASA Goddard Space Flight Center Award 1995

**PROFESSIONAL  
AND SCHOLARLY  
MEMBERSHIPS**

American Society for Public Administration  
American Political Science Association  
Association for Public Policy Analysis and Management  
Institute of Electrical and Electronics Engineers  
Tau Beta Pi Engineering Honor Society  
Eta Kappa Nu Electrical Engineering Honor Society

**SOFTWARE  
AND SYSTEMS**

**General**

Microsoft Office™ products for Microsoft Windows™

Microsoft Office™ products for Apple OS X™

Adobe CS5™ Applications

**Analytical**

Matlab™, @Risk™, SAS Enterprise Miner™, SPICE, Decision Tree™, Stat Pro™, Stata™, SPSS™, NetLogo™ ABM, Atlas.ti™, EndNote™

**Specialized**

eClinicalWorks™ Electronic Health Record System Administration

Electronic Design Automation (EDA) tools for Integrated Circuit (IC) physical design including IC Compiler™, Apollo™, Astro™, Astro-Rail™, Clock Tree Compiler™, and JupiterXT™

**Systems**

UNIX, Linux™, HP-UX™, Solaris™, Windows™, and Apple OS X™ Systems

Administration

HTML programming and web-hosting

MySQL™ database administration

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## BIOGRAPHICAL SKETCH

Joe West was born in Oceanside, California, on September 3, 1959. He graduated from Phoenix College with an A.S. in Engineering Technology in 1982. Joe continued his education by earning a B.S. in Electrical Engineering from Arizona State University in 1992. In 1999, Joe received a United States Patent 5936523 for developing a novel electronic security device. In 2009, Joe graduated from Arizona State University's W.P. Carey Executive MBA program and was admitted that year into Arizona State University's School of Public Affairs doctoral program. Joe was awarded a graduate assistantship in his second year of the program and taught research methodology classes as a Faculty Associate in the third through fifth years of his doctoral program. Joe is married to Tracy West of Eaglewood, California and has four children and four grandchildren.