

The Thesis committee for Emily Anne Ford

Certifies that this is the approved version of the following thesis:

**Government as Work:
Temporal Communication Design through Genres**

APPROVED BY

SUPERVISING COMMITTEE:

Dawna Ballard, Supervisor

Sharon Jarvis

**Government as Work:
Temporal Communication Design through Genres**

by

Emily Anne Ford, B.A.

Thesis

Presented to the Faculty of the Graduate School
of the University of Texas at Austin
in Partial Fulfillment
of the Requirements
for the Degree of

Master of Arts

The University of Texas at Austin

May 2015

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Emily Anne Ford, M.A.

The University of Texas at Austin, 2015

SUPERVISOR: Dawna Ballard

This thesis describes the current research that has been done on governments in communication and opportunities within organizational communication, then offers an example of research that could expand this area of scholarship. The content analysis of U.S. Digital Services' forums on GitHub, a software development website used for open coding projects, investigates communication genres and genre systems through a codebook of genre norms (Im, Yates, & Orlikowski, 2005) to analyze the temporal aspects of communication design as a theoretical perspective and the practical implications of considering time scale in coordination, collaboration, and idea generation. Temporal landmarks led to four specific patterns in forum participation, and the temporal foci of proposed ideas were overwhelmingly in the present. Third, it calls for a new model of communication, one that does not use a process definition of communication.

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Government as Work: Temporal Communication Design through Genres

John Adams wrote, “Our Constitution was made only for a moral and religious people. It is wholly inadequate to the government of any other” (Adams, 1798). While John Adams, the United States’ first vice president, second president, and one of the great political minds of his time, could not conceive of the problems that the United States government would face today, his philosophy on a document that still forms the foundation of law and organizes the branches of the American government maintains its relevancy. As a democratic republic, the United States government continues to seek new ways to engage with its people, to be open to the needs of its citizens, and to keep them safe.

This thesis consists of three parts. First, it describes the current research that has been done on governments as it pertains to organizational communication and steps that could be taken to better understand both governments and organizational communication. Second, it offers a content analysis of the U.S. Digital Services’ public forums using communication genres to further investigate the temporal elements of communication design. Third, it calls for a new model of communication, one that does not limit communication to a process.

Government as Organizational Communication

Government is everywhere. In just considering the United States for a moment, government organizations permeate most aspects of American life, from Congress to the public school system, from healthcare services like the Center for Disease Control or the Food and Drug Administration to the military. There is a wide diversity of jobs within

public service on the federal, state, and local level, and that does not even count companies that do mostly contract work for the government or careers concerned with government without directly belonging to it, like lobbying, journalism, or entertainment such as *The Daily Show*. A recent report from the U.S. Office of Personnel Management (2014) stated that there are approximately 2,103,806 federal government employees alone, not including government employees at the state or local level, and that the majority of federal employees work outside of the Washington, D.C. area. On top of the employment numbers, the government has a direct influence on every citizen or visitor's actions several times on any given day. The speed limits on the roads and highways, the stamps on the mail, half of the news stories playing in the background as people drink their morning coffee, the copyright symbols on websites and books, the sales tax on the shirt someone just bought, and the safety regulations that went into the way that kitchen appliances are made are all small examples of how the United States government affects the daily life of its citizens, which total at approximately 315 million. Political scholars have long appreciated the institutional nature of government as an organization (Barkanov, n.d.; Lowndes, 2010; Rhodes, Binder, & Rockman, 2008; Selznick, 1948; Selznick, 1996; Schmidt, 2010) so it is intriguing that many Americans may not make this connection. Additionally, all of the examples listed above involve both communication and organizing. Jobs like firefighter, sanitation worker, or public school teacher are all part of the government, but individuals tend to think of them as belonging to separate organizations, organizations that one may not directly associate with the government most of the time. A teacher is part of a school that is part of a county school

system that is part of...ultimately, the United States government.

Are government organizations distinct from other kinds of organizations? When organizational communication has researched the organizations and agencies that are parts of the larger United States government, the work has tended not to consider the organization as possibly different because of its public sector status. However, this type of distinction is used in situations with similar contextual differences for other types of organizations. Corporate and nonprofit organizations are frequently contrasted as having unique struggles, goals, and other qualities as an acknowledgment that nonprofit organizations offer rich sites to begin to explore certain topics. Lewis, Hamel, and Richardson (2001) explore stakeholder relationships in nonprofits, and Waters and Lo (2012) examine social media use as practical application of nonprofits' goals using this argument of unique qualities. There are also subfields developing within the nonprofit realm, such as the growing examination of religion in organizations through faith-based nonprofits (Molloy & Heath, 2014). These articles argue that context is fundamental to analyses of organizational communication and that considering organizations beyond the for-profit, corporate sector helps develop limited areas of scholarship (Ganesh, 2005; Heath & Waymer, 2009; McGee, 1999; Mynster & Edwards, 2014). From a theoretical standpoint, examining government as organizational communication would help to reduce the historic bias in the field toward these corporate settings. From a practical standpoint, government organizations could benefit from additional research that considers its unique context according to these same arguments within the field of organizational communication.

First Steps toward Government Communication

Although government is widely studied as an organization in the field of political science, communication scholars are only beginning to contribute to this topic (see Connaughton, 2004; Soukup, 2014). One group of researchers has published work in the past decade that encourages the development of an area of research they call government communication. Growing out of public relations research, Liu and Horsley (2007) first reviewed existing public relations models in terms of eight attributes that affect government public relations. They note that “the public relations field does not distinguish between the public and private sectors” (p. 378) and establish a need for this distinction for understanding environmental characteristics of the two sectors. Ultimately, they propose the *government communication decision wheel* to consider public relations in the public sector by incorporating multiple models: the *model of the government communication process*, the *synthesis model* of public sector crisis communication, the *public relations process model*, the *two-way symmetrical model*, and *contingency theory*. Their decision wheel offers four contexts of public relations work, intergovernmental, intragovernmental, external, and multilevel, in which communication differs in directness or mediation. They also bring up two valuable points from public administration theory. First, the government communication process model (Hiebert, 1981) that they incorporate into their decision wheel consists of four strategies public officials can use to enhance agency image. While limited to public relations and oriented toward practical applications, there is clear consideration of the organization in this model. Second, they note that many public administration scholars recognize there are differences in

managing profit, nonprofit, and government organizations (Allison, 2004; Beckett, 2000; Lee, 2001).

In the next two studies they draw on surveys with large sample sizes ($N=781$, $N=976$) of “government communicators” to test their decision wheel model (Liu, Horsley & Levenshus, 2010; Liu, Horsley & Levenshus, 2010). In these subsequent articles the goals are directed toward testing different attributes that may affect government communication and reducing the biases toward corporate communication practices in public relations literature. The acknowledgment that the public, private, and nonprofit sectors are different and the empirical testing through these surveys are promising for organizational communication research. While the exploration of communication within government as a context clearly advances communication theory and expands the types of organizational contexts research considers, there is more room for growth.

Organizational communication research has moved toward organizing as a process in addition to looking at organizations as sites or contexts (Putnam & Mumby, 2014). This area of scholarship is uniquely poised to investigate the processes of governing as organizing and as communicating.

Reframing Existing Organizational Communication Research

Just because organizational communication scholars are not considering government organizations in light of their government-ness does not mean that they are not studying government organizations or that existing organizational communication scholarship cannot be brought to bear on this research problem. For example, Barbour and Gill’s (2014) work on nuclear power plants demonstrates a negotiation between the

policies of a private organization operating the plant and a government organization responsible for adhering to regulatory policies. While his communication as design approach focuses on the meetings and how safety is enacted, the government has a clear presence in his work. In a political party example, Connaughton and Jarvis (2004) use identification theory, viewing the political parties as organizations, to examine how campaigns try to foster voters. This approach is an excellent example of organizational communication theory bridging into political communication work. Lammers and Barbour's (2006) call for more macrophenomenological work with institutional theory could also have interesting implications for governmental organization as well.

There are rich opportunities to blend theories and methods from political communication and organizational communication. Current conceptualizations of government communication could be broadened beyond differences in context to view governing as both communicative and organizing processes. Communication as design and institutional theory are a few examples of approaches that could benefit from interdisciplinary work in political science and organizational communication, given the long-term consideration of government-as-organization within political science (Ostrom, Tiebout, & Warren, 1961).

There are many opportunities for re-evaluating government. Consider how practically valuable productivity research could be toward improving government practices, or how the potential for information and communication technologies for civic engagement could be expanded through applying organizational knowledge. By exploring government work as a separate context, organizational communication could

discover previously understudied topics, extend theory, and develop better understandings of government structures. Theoretically, government draws together a wide variety of disciplines, from political science to economics. Critical organizational scholarship in particular could examine power and control within government organizations. For instance, how does materiality factor into government use of resources or into the writing of the United States Constitution? How could intercultural communication intersect with differences in forms of government and add to both intercultural and organizational communication theory?

The pieces of this possible area are scattered across an array of disciplines—in political communication, the public sector, government communication, public administration—and diverse careers in hundreds of government agencies that do not use any of these terms but are clearly incorporated into the United States government, such as the National Aeronautics and Space Administration (NASA) or the Central Intelligence Agency (CIA). While it is a disadvantage when beginning to draw together existing work, this diversity offers strength for future development of robust, interdisciplinary work.

Temporality in Designing Government Communication through Genres

The present study engages organizational communication scholarship in the interest of exploring new directions for the discipline and for government work; this content analysis investigates the request for feedback by U.S. Digital Services on their most recent project, aimed at improving government technological services. By exploring the communication design enterprise through communication genres, this study seeks to

further develop temporal elements of design in U.S. Digital Services' plans for their Playbook and Handbook on GitHub.

The Historical Role of Communication Technologies in Government

In the world of technology, the United States government currently has two major objectives: open government and cybersecurity (Office of Management and Budget, n.d.). These interests belong to the Office of Electronic Government (E-Government), established through the E-Government Act of 2002, within the Office of Management and Budget (OMB).

There is a rich history of the United States government using information and communication technologies (ICTs) to improve their work and connection with the American people (Dahlberg, 2007). In the 1930s and 40s, President Franklin D. Roosevelt's famous "fireside chats" brought the president into living rooms across the country in one of the government's first uses of mass media for direct communication with the public (Kernell, 2006). The first televised presidential debate between Richard Nixon and John F. Kennedy in 1960 had a lasting effect on the nation's history. While Kennedy looked tan and confident, Nixon looked ill and tired. This difference in appearance changed not only who many thought had won the debate (Kennedy according to television viewers; Nixon according to radio listeners), but also possibly changed the outcome of one of the nation's closest presidential elections (Druckman, 2003). In more recent campaigns, President Barack Obama's 2008 campaign employed Twitter, a major social networking site, to stay connected with Americans by sharing personal and policy insights and to respond to breaking news quickly (Issenberg, 2013).

The military has also used communication technologies toward the goal of security (Hugill, 1999). The invention of radar in the United Kingdom, and its subsequent development in the United States Army and Navy, was first used toward tactical advantages in World War II. Alan Turing worked to invent an early version of what came to be known as the computer as a means of breaking the enigma machine used by Germany during World War II to encrypt its messages. The nascent version of the Internet, ARPANET, was also developed by the military as a secure way to transfer information.

Today, open government seems to be mostly a domestic concern, housed within the Office of Management and Budget, though there is a United Nations Open Government Partnership that the United States helped found. In contrast, cybersecurity is currently mostly a foreign policy issue, though it is necessary because of the actions of activists all over the globe with a wide variety of motives, including United States citizens. Open government is working to help share information and data with the public and across agencies, to open up its availability through technology. Cybersecurity is working to protect information and ways of communicating between the government and its constituents to keep Americans safe. Notably, the Pentagon just announced a new strategy for cyberwarfare, which follows several months of talks between President Obama's administration and the technology sector on cybersecurity (Sanger, 2015).

U.S. Digital Services as Emblematic of 21st Century Government Communication

One recent project that the United States has taken on is through U. S. Digital Services, housed within the OMB in the White House. In 2014, the Healthcare.gov

website had multiple technical problems when it was first launched. The White House hired a former Google employee, Mikey Dickerson, to resolve these problems by correcting the design and bringing the website to a working condition. He is now in charge of an initiative that began in August of 2014 called the U.S. Digital Services, whose goal is to remove “barriers to exceptional Government service delivery and remak[e] the digital experiences that citizens and businesses have with their Government” (Scola, 2014). A quote from President Barack Obama sits at the top of the digital government website: “I want us to ask ourselves every day, how are we using technology to make a real difference in people’s lives.” With those aims in mind, U.S. Digital Services has been soliciting feedback on two projects through a publicly available website forum called GitHub. They are working to craft a playbook, which consists of a series of steps that will help the government build effective digital services, and a handbook that will help agencies implement the playbook according to Federal Acquisition Regulation (FAR) (GitHub WhiteHouse playbook, n.d.). To use their language,

The American people expect to interact with government through digital channels such as websites, email, and mobile applications. By building digital services that meet their needs, we can make the delivery of our policy and programs more effective. Today, too many of our digital services projects do not work well, are delivered late, or are over budget.

To increase the success rate of these projects, the U.S. Government needs a new approach. We created a playbook of 13 key “plays drawn from successful

practices from the private sector and government that, if followed together, will help government build effective digital services. (U.S. Digital Services Playbook, n.d.)

This project is building digital services for the long term in a more recent area of governance, and it is focused on the productivity of government interaction and engagement with the public, which shows in the communication technology services that they are creating in their playbook plans. Furthermore, they are demonstrating this interest in the public engagement of ideas right away by requesting feedback on their plans on a public forum website.

The Utility of a Communication as Design Theoretical Perspective

Communication design is a relatively new enterprise (Aakhus, 2005). Notably, a design enterprise allows for communication to be both an object and a process, both part of the fundamentally constitutive and the possible, while seeking new opportunities for refining design processes (Aakhus, 2007). This flexibility has led to a rather wide array of work in a short period of time, including a recent special issue in the *Journal of Applied Communication Research* that used five different theoretical approaches to further explore design as a different path to knowledge and as a different way of knowing (Jackson & Aakhus, 2014).

Aakhus and Rumsey (2010) consider how online communities interact to craft supportive communication, while Leichter, Rudnick, and Edmonds (2010) explore ethnography both as a method to design research methods and as a tool to develop situated theories to use in communication design. Aakhus and Laureij (2012) use the

communicative constitution of organizing (CCO) as a perspective through which to develop the notion of designing preferred courses of action through creativity and materiality. The design enterprise seems capable of addressing every area of the communication discipline, not only in conjunction with other theoretical approaches, but also through examining those theoretical approaches.

Barbour, Jacocks and Wesner (2013) follow communication design's call to further investigate interaction by seeking to understand not only how stakeholders within organizations design messages but how they design their interactions. Teasing apart these two concepts within one article while discussing organizational change allows for theorizing of the relationship between message and interaction (an issue central to the design enterprise), the nature of communication, and the negotiation of meaning.

Within government work, Aakhus (2007, p. 114) offers an example "of public policy professionals who possess important technical expertise about the environment, engineering, health, or law but who routinely find that they make decisions about interactions they create and implement various forms of stakeholder involvement in policy formation" to indicate the importance of design to professional practice. U.S. Digital Services is certainly engaging in these interaction decisions in online environments. Barbour and Gill (2014), in their investigation of safety needs and regulations at a nuclear power plant, employ a practice theory approach along with design to look at interactions between the U.S. Nuclear Regulatory Commission and the Reactor Safety Unit at the nuclear power plant.

When considering time as an element of communication design, Ballard and

McVey (2014) emphasize that temporality is a designable feature of communication through activity cycles. Central to this argument is the notion of considering multiple *time scales* (or intervals of time) to allow time for different kinds of interactions, although this re-framing to review processes can be arduous (Ballard, Tschan, & Waller, 2008). Timing and pacing are also considered designable features of communication in the structuring of status meetings (Barbour & Gill, 2014). Choosing to rush through a meeting is designing the meeting to have a faster pace, which affects other aspects of the meeting and how people relate to it as well. It could increase or decrease satisfaction with decisions, for instance. To offer an example of differing time scales, establishing a budget for a small business may have a time scale of three months (in a quarterly system), while counting the money in the register may occur on a daily basis, far more frequently. These two activities occur at different time scales both in frequency and duration, which affects how the activities are structured and how people relate to those activities.

Communication Genres as an Organizing Framework for Digital Services Playbook

Communication genres, or interaction genres, are typified social actions that are recursively and temporally structured by daily work practices and communication, according to Giddens' (1984) structural perspective (Im, Yates, & Orlikowski, 2005). Because they are enacted social structures that recur and change over time (Yates & Orlikowski, 1992), it is important to consider these genres as part of a larger genre repertoire (Orlikowski & Yates, 1994) that may be drawn upon for different purposes or as part of a genre system (Yates & Orlikowski, 2002). A genre system is a series of communicative actions that occur in a particular sequence and are enacted by a

designated individual role. By viewing individual genres as part of larger systems, this allows for the meaningful viewing of group interactions as well as the enabling or constraining of communication by genres. This has much in common with communication design, which also emphasizes practice and takes into account the recursive changes of communication over time. Kuhn (1997) used genres to examine issues management in arenas where governments may have legitimate authority for decisions, but organizations have influence. In requesting feedback, U.S. Digital Services is inviting participation from loosely organized, interested participants. Work with online development of genres has also revealed that genres from traditional media have been repeated, adapted, and altered into entirely new genres as the needs and potential of the new media environment emerge (Crowston & Williams, 2000).

In further considering timing, Yates and Orlikowski (2001) explored *chronos* and *kairos* as rhetorical concepts that could lead to temporal structuring of communicative interaction. *Chronos* is quantitative, objective, measurable time that is generally taken for granted, while *kairos* is considered the “right time” or appropriate moment to perform an action within an objectively defined situation. By considering these two concepts, the authors delve further into what one means when considering two different ways of enacting time and how time shapes actions. This concept of temporal structuring, which gives rhythm to everyday work practices, has become deeply woven into the work on genres and genre systems (Orlikowski & Yates, 2002). Ballard and McVey (2014) note that different activity cycles evoke different interaction genres, which suggests a difference in temporal structures for different genres.

This content analysis seeks to know what communication genres are commonly used on the GitHub forums. Are they similar to the temporal coordination genres found in Im, Yates, and Orlikowski's (2002) exploratory study? If so, are they being used differently or incorporated into any genre systems? How far into the past or future are participants thinking with their ideas? How long are people engaging with each other on the forums? Do these two designable time scale features affect how the participants are thinking about their suggestions and feedback to U.S. Digital Services?

Method

Aakhus (2007) describes two ways to engage in empirical analysis of communication design. The first is to examine designs for communication by articulating the affordances and constraints then reconstructing the presuppositions about communication in that design. The second is to examine communication-design work by articulating "the tools, ideas, and knowledge of intervention work" and then reconstructing the evident practical theory. GitHub is a free-to-use, publicly available website used mostly for open software development through forum posts. The site allows for anyone with an account to post for collaboration on adding revisions to others' code projects and posting private projects (For more information, see <https://github.com/features>). Because GitHub is designed in a particular way that offers affordances and constraints to the communicative work happening within its forums, when coding it became necessary to distinguish the design work happening in the content of the forum posts and actions from those constraints that belonged to GitHub as a communicative tool. For that reason, GitHub is not analyzed in this study. As described

below, the focus of the analysis is on the design of the Playbook, the Handbook, and the software that those two documents would help to develop.

Key Elements of Analysis

Genre norms. Related to temporality, Im, Yates, and Orlikowski (2005) examine temporal coordination through the use of genres and genre systems with a large sample of emails from a software development team. With a few modifications to better apply to online forums, the present study borrows their same codebook, which emphasizes genre norms and applies them to the U.S. Digital Services' forums on GitHub. The Im, Yates, and Orlikowski (2005) codebook can be viewed in full as an appendix on their study. U.S. Digital Services is using GitHub to request feedback on their plans for improving the federal government's use of technology, which is not too far removed from the software field that communication as design and communication genres research have both considered. This approach is ideally suited for data analysis because genre norms reveal socially recognized expectations for communication such as community purpose, value (through content), participant roles, and conditions like time, place, or form.

Temporal focus and temporal depth. Bluedorn (2002) discusses the temporal focus and temporal depth of individuals and collectivities. Temporal depth is defined as "the temporal distances into the past and future that individuals and collectivities typically consider when contemplating events that have happened, may have happened, or may happen. Temporal focus is the emphasis placed on the past, present, or future. Interestingly, Bluedorn has noted a relationship between the temporal depth of the past and future, at least in American culture. While the future tends to have a longer span

overall, there is a correlation between how far ahead people look and how far behind they look. “The longer the respondent’s past temporal depth, the longer the respondent’s future temporal depth.” For the purpose of this codebook, this was created as two items to replace the temporal references used by Im, Yates, and Orlikowski (2005) used to analyze temporal coordination. Based on the average lengths of time attributed to each depth in Bluedorn’s (2002) study: Past Temporal Depth is (1) Recent past – 1.5 months, (2) Middling past – 9 months, (3) Long ago past – 4.3 years, and Future Temporal Depth is (1) Short-term future – 7 months, (2) Mid-term future – 2.5 years, and (3) Long-term future – 8.5 years.

Safety, productivity, and aesthetic. From the two main government initiatives mentioned earlier, open government and cybersecurity, two new themes were also added to the codebook: safety and productivity. If the post discussed a goal of safety or security, including keeping data safe or privacy, then the theme of safety was coded as present. If the post discussed a goal of improving things to be more productive, effective, efficient, or useful toward a specific goal, then the theme of productivity was coded as present. Given the visual nature of the playbook, posts that discussed the aesthetics of the layout, movement, or display coded as having the aesthetic theme.

Activity on the Forums

For the purposes of this study, only the forums that had three or more comments were coded. These forums showed engagement from multiple participants and were able to reveal more about the interweaving nature of genres (Im, Yates, & Orlikowski, 2005) than those forums that received little attention from other participants. There were 256

total actions taken on the 28 forums that met this criteria, 210 of which were *opening a forum*, *posting a comment*, or referencing the code repository through something called a *commit* which are revisions or changes to files that are saved individually before becoming incorporated into the code (GitHub Glossary, n.d.; GitHub WhiteHouse Playbook, n.d.). These forum actions required participants to share written content and allowed for full coding, beyond descriptive data like time stamps or authors. Other common forum actions included adding or removing a label, referencing another forum, or closing a forum. Forums on GitHub were organized by whether they were issues or pull requests and whether they were open or closed. Issues were generally used for content and feature suggestions and discussions. Pull requests proposed changes to the content directly, often through commits. Of the 28 forums, eight were open issue forums, 12 were closed issue forums, one was an open pull request forum, and seven were closed pull request forums.

Intercoder Reliability

To establish intercoder reliability, the author and a second coder independently coded a sample of the data for the measures *why*, *what*, *where*, *how*, *temporal depth*, *safety theme*, *productivity theme*, *aesthetic theme*, and some additional descriptive information like *time stamps* and *type of forum*. Cohen's kappa was satisfactory for all coded categories of data (Cohen, 1960, 1968). There were six categories with disagreements between the coders (why $K = 0.89$, what $K = 0.78$, reference to a virtual space $K = 0.83$, future temporal depth $K = 0.89$, productivity $K = 0.78$, and aesthetic = 0.83). Cohen's $K = 1$ for all other applicable categories.

Results and Discussion:

Temporal Design in the Playbook's GitHub Forums

“In my experience, part of the reason that everyday Americans don't trust government is that they simply don't see its presence, authority, or resources in their everyday lives.” –Aug 14, 2014, Forum #44

The participant that offered this quote was suggesting that U.S. Digital Services add another play to their playbook – to make sure to inform the public when quality services are available. This request ties into the communication needs between a nation's constituents and its government beyond that lines of communication be available. People need to be told services are there and how to use them in order to best take advantage of opportunities. Woven throughout these forums are the everyday practices of government in American lives as participants discuss new ways that the federal government might improve their practices. First, this section will explore which genres were commonly used on GitHub to discuss these practices and how they were interwoven into two different genre systems over time. Then, it discusses the temporal aspects of design on these forums, both for the feedback work on the forums and for the time scales of ideas. Lastly, this section speculates on the possible relationship between these two designable, temporal aspects and what that might mean for the government's engagement of the public on matters that will influence their everyday lives.

Genres. Because the playbook—including all of the code for the website—was housed on GitHub, often the feedback and suggestions offered through the forums was related to technical coding changes. The same genres used for temporal coordination in

Im, Yates, and Orlikowski's (2005) analysis of software development emails were also used frequently in GitHub forums: update notifications, bug/error notifications, and status reports. Because of the similarities between the types of work in both studies, this finding suggested that temporal coordination was relevant to work done on the forums, as participants tried to synchronize their forum conversations (temporal symmetry) and to divide their work on the coding (temporal complementarity). Note that, while this section contains highly technical content, the analysis centers on the commonly used ways of communicating on GitHub and the ways that these interactions affected the design of the playbook.

Update notification genre. The update notification genre had two different qualities to the content, depending on whether or not the forum action was machine-generated or not. This is a comment post example:

```
Confirmed that "plays" is the only duplicated id (using $('[id]').each(function(){
console.log( $(this).prop('id') ); }); ) (Forum #102)
```

compared to a machine-generated reference from a commit in the same forum:

```
Changed id, and references to it, for the first instance of `[id="pla... ..../...ys"]` (I
decided that the first instance needed adjusting because `

While the two forum actions looked very different, their purpose and the technical and work-related nature of the content were the same. These posts let other participants on GitHub know that the code had been changed within the code repository for the playbook



20


```


or the handbook, which is an example of temporal complementarity as participants coordinated individual edits to the code. When these notifications were posted in the midst of others' recent activity on the forums, they also created temporal symmetry as participants explored technical options together through discussion. These notifications also referenced a virtual space, usually the code repository, though sometimes they focused on the playbook or handbook.

Bug/error notification genre. When problems arose with the code or accessing the website, users notified U.S. Digital Services through a bug/error notification on GitHub. These could be machine-generated, but users tended to post about the problem as an issue forum with more details about the problem, rather than as a reference to the commit with a potential solution. There was also a “bug” label created by Digital Services employees (the owners of this GitHub) to help organize forums and make them easy to find for GitHub participants. Here is an example:

Using ".docx document" link on <https://playbook.cio.gov/techfar/>:

https://playbook.cio.gov/assets/TechFAR%20Handbook_2014-08-07.docx

WARNING -- Access to this file is blocked by security measures for the following reason:

- File type attempted to download not allowed. If you feel you have reached this message in error, you may contact the Service Desk at 5-4357 or the Network Operations Center at 5-7370. File name: TechFAR Handbook_2014-08-07.docx

Don't need the document, just passing it along. (Forum #76)

Bug/error notifications were similar to update notifications in that their content was also both work-related and technical and referenced a virtual space, but they specified a problem and did not usually offer changes to the code.

Status report genre. Unlike the previous two, status reports—while they were work-related—were not always technical on GitHub. This was also a difference from the genre identified in Im, Yates, and Orlikowski’s (2005) temporal coordination analysis. A difference in whether or not the content was technical is not a problem because genres are recursively structured and adapted for new communication tools. Because online forums created different communicative constraints than emails, the status report genre adapted when it was transitioned from emails to forums. GitHub allowed participants to provide technical updates through automatically generated posts on the forums, which means that update notifications were more likely for the technical actions, like changes to the code repository. Here are two technical examples:

Merged! Thanks again! (Forum #7)

Thanks! This is staged for v1.0 (Forum #35)

A non-technical example would be:

Thanks for reporting, we are investigating. (Forum #76)

Sometimes, a status report post was not about the technical aspects of the playbook, handbook, or relevant software, even though it was reporting the progress of work being done on a technical project. These status reports were also much less likely to reference a virtual space than the previous two. Specifically, they rarely referenced the code repository compared to the update or bug/error notifications.

Proposal genre. There was a fourth genre commonly used in this data. Proposals offered ideas or solutions for procedures and projects. Given the nature of the creative, crowd-sourced work on GitHub and that the site was created by U.S. Digital Services as a resource for generating feedback, this was not surprising. The opening posts of forums tended to be proposals, though they also often occurred after queries or solicitations by other users. The content was work-related and sometimes technical or administrative as well. They often referenced the playbook as a virtual space, rather than including a direct change to the code repository through the commit, though this happened sometimes as well. Many of the participants who offered ideas were knowledgeable about current technology and coding practices, so they made changes in the code repository instead of or along with an explanatory proposal in a comment. They were very rarely machine-generated because of the need to explain an idea to others who might wish to implement it or respond. Here is a typical example from the beginning of a forum:

Great site, first of all.

The only issue I have is that the numbered play links give no indication of what the play's title/content is. This makes it hard to semantically navigate the massive amount of content. At present, the link's title attribute shows on hover, however these simply say something like "View Play 2", and only appear after hovering for nearly 1 sec (in Chrome at least).

My suggestion would be to create an immediate hover effect that displays the actual title of the chapter (you could use something akin to [Bootstrap's Tooltips](#)).

Something like:



Genre Systems. Two genre systems evolved over time on the GitHub forums for U.S. Digital Services. Because of the highly structured nature of the forums, both of these genre systems evolved within forums (as forum genre systems) and could be seen through the interrelated communication actions, identified by the type of forum action taken (open a forum, post a comment, add a label, reference the code repository, etc.) and the purpose (proposal, update notification, bug/error notification, status update, query/solicitation, or response), as described below.

Proposal Management Forum. In a proposal management forum, the user opened the forum with a work-related proposal that was either technical or administrative. Then, other participants responded to the proposal with suggestions for changes or discussion of that topic through posting comments. Next, one of the owners of the code repository created a reference through a commit that implemented the change by altering the playbook or handbook content or code to fit the proposal. This served as an update notification to the participants in the forum, and was often accompanied by a status report with additional details about the specific changes posted as a comment shortly after the reference to the commit. Once this reference had been made, the forum was closed by the same owner. One GitHub user, a Digital Services employee, was

responsible for almost all of these code repository changes. These proposals varied widely in technical needs and knowledge as well as in the scale of the idea. Some asked for small grammatical fixes to the website language, and some asked for more sustainable government practices overall or for better ways to safely identify users of digital government services. These differences in scale led to differences in implications for the future of the playbook that are discussed fully below as temporal design elements.

Forum #7 is a great example of a proposal management forum. The author is a GitHub employee who was recommending rearranging the files that organize all of the code for the playbook to better address a particular technical standard. Other participants responded with questions and changes to the proposal, and then a U.S. Digital Services employee tackled making the changes:

Stricter adherence to Jekyll best practices #7

Merged

[cew821](#) merged 3 commits into [WhiteHouse:gh-pages](#) from [benbalter:jekyllification](#) on Aug 12, 2014

[Conversation](#) 6

[Commits](#) 3

[Files changed](#) 27

[benbalter](#) commented [on Aug 11, 2014](#)

This pull request moves the files within the repository around a bit to better follow Jekyll design patterns and best practices, but **does not make any changes to the content itself**. Specifically:

- Move plays from `_includes` to a "plays" collections
- Store play ID and title as YAML front matter. This prevents the title in the index, the number, and the title on the play itself from getting out of sync, and DRYs up the layout. Not to mention, by *separating presentation from content* we can expose the information in a machine readable format
- Creates `plays.json` which is an API of the plays
- Move `404.html` from `_includes/404.md` to `404.md` and better leverage 404 layout
- Dynamically generate the "plays index" from the play titles and IDs

- Move pages from `_posts` to `pages`, store as `pages` rather than `posts`
- Move `techfar` from to its own layout (rather than stuffing the layout in a post and then including the content as a partial)
- Use `jekyll-redirect-from` to create a case-insensitive redirect, rather than maintaining two pages
- Remove the unused `test` and `about` pages as well as page layout.

Ideally, content should live in `.md` files in a logical folder structure with the presentation information living in `_layouts`, but with only two templates right now, `index.html` contains its own presentation information. A common header/footer may be a better long-term solution if there are going to be additional pages.

/cc [@gbinal](#) on the API and [@parkr](#) on the Jekyll best practices

[benbalter](#) added some commits [on Aug 11, 2014](#)

-  [page sanity](#) [2153f31](#)
-  [use collections](#) [08e1b02](#)
-  [Merge branch 'gh-pages' into jekyllification](#) [2d0472a](#)

[gbinal](#) commented [on Aug 11, 2014](#)

Thanks, [@benbalter](#) - do you mean the references to APIs throughout the document or something in your edits?

[benbalter](#) commented [on Aug 11, 2014](#)

[@gbinal](#) sorry, to be explicit, I thought you would appreciate that the pull request stores the information in a machine-readable way, and then exposes the data as `plays.json`.

[parkr](#) commented on the diff [on Aug 11, 2014](#)

[View full changes](#)

`_layouts/techfar.html`

```
@@ -25,23 +22,22 @@
<div id="introduction" class="techfar_intro">
  <div class="outer_container">
    <div class="inner_container">
-   {% capture introduction %}{% include TechFAR_intro.m
```

		- {{ introduction markdownify }}
		- <div class="button">
		-
		- </div>
		- <div class="button">
		-
		- </div>
		+ {{ content }}
		+ <div class="button">
		+

parkr added a note [on Aug 11, 2014](#)

Why are you linking to an include here rather than linking to a page on the Jekyll site?

Add a line note

parkr commented [on Aug 11, 2014](#)

Great work, **@benbalter!** 👍 A couple quick fixes:

```
diff --git a/_layouts/techfar.html b/_layouts/techfar.html
```

```
index fe09bad..e97171e 100644
```

```
--- a/_layouts/techfar.html
```

```
+++ b/_layouts/techfar.html
```

```
@@ -30,7 +30,7 @@
```

```
<a href="https://github.com/whitehouse/playbook#readme" title="Link to
Comments and Discussion">SUBMIT COMMENTS</a>
</div>
```

```
-<p class="download_links">You can also <a
href="https://github.com/WhiteHouse/playbook/raw/gh-
pages/assets/TechFAR%20Handbook%208%207%2014.pdf" title="Link to
download the TechFAR Handbook as a PDF">download the handbook as a PDF
file</a> or <a href="https://github.com/WhiteHouse/playbook/raw/gh-
pages/assets/TechFAR%20Handbook%208%207%2014.docx" title="Link to
Download the TechFAR Handbook as a .docx document">.DOCX
document</a></p>
```

```
+<p class="download_links">You can also <a href="/assets/TechFAR%20Handbook%208%207%2014.pdf" title="Link to download the TechFAR Handbook as a PDF file">download the handbook as a PDF file</a> or <a href="/assets/TechFAR%20Handbook%208%207%2014.docx" title="Link to Download the TechFAR Handbook as a .docx document">.DOCX document</a></p>
```

```
</div>
```

```
</div>
```

```
diff --git a/index.html b/index.html
```

```
index 21618b4..d2ccb1f 100644
```

```
--- a/index.html
```

```
+++ b/index.html
```

```
@@ -52,7 +52,7 @@
```

```
<div class="columns">
```

```
<ul>
```

```
{% for play in site.plays %}
```

```
- <li><a href="play{{ play.id }}" title="View Play {{ play.id }}">{{ play.title }}</a></li>
```

```
+ <li><a href="#play{{ play.id }}" title="View Play {{ play.id }}">{{ play.title }}</a></li>
```

```
{% endfor %}
```

```
</ul>
```

```
</div>
```

```
diff --git a/pages/techfar.md b/pages/techfar.md
```

```
index 7e91cfb..2c39b10 100644
```

```
--- a/pages/techfar.md
```

```
+++ b/pages/techfar.md
```

```
@@ -1,6 +1,5 @@
```

```
---
```

```
permalink: /techfar/
```

```
-redirect_from: /techFAR/ # this caused a redirect loop for me
```

```
layout: techfar
```

```
---
```

```
diff --git a/plays.json b/plays.json
```

```
index 20490e8..7f9de22 100644
```

```
--- a/plays.json
```

```
+++ b/plays.json
```

```
@@ -1,4 +1,4 @@
```

```
---
```

```
---
```



```
-{{ site.plays | jsonify }}  
+{{ site.plays | map:"to_liquid" | jsonify }}
```

Owner
cew821 commented [on Aug 11, 2014](#)

Thanks to you both; working on this now and will aim to have things in order tomorrow.

parkr referenced this pull request in [jekyll/jekyll on Aug 11, 2014](#)

Merged

Call #to_liquid before calling #to_json in jsonify filter. #2729

 **cew821** merged commit [2d0472a](#) into [WhiteHouse:gh-](#) pages from [benbalter:jekyllification](#) [on Aug 12, 2014](#)

Owner
cew821 commented [on Aug 12, 2014](#)

Merged! Thanks again!

WhistleBlower commented on [_includes/plays_index.md](#) in [08e1b02](#) [on Nov 15, 2014](#)

Especially if the data contradict the politics behind the issue

This was a closed pull request forum that started with a set of technical suggestions for the file organization of the code that created the playbook and handbook. The poster then created those proposed changes as commits to the code repository and discussed those proposed changes with other participants through changes in the code and inclusion of code in comments on the forum. A U.S. Digital Services employee then provided status reports and an update notification before closing the pull request.

Code Management Forum. In a code management forum, the user opened the forum with a bug/error notification that was work-related and technical. It almost always referenced a specific virtual space, such as the playbook. Again, other users may have

responded with discussion about what might be causing the problem, and/or a Digital Services employee may have posted a status report about their current knowledge of the situation. Then, there was an update notification through a reference to the code repository that was often followed by another status report on the completion of the work. The same U.S. Digital Services employee as in the proposal management forums was also responsible for most of these changes and for closing these forums. Because of the specificity of the virtual space and the consistent involvement from one U.S. Digital Services employee, this genre system allowed for quick repairs once one user noted a problem. These problems usually required quick responses and had concerns for the short-term future of the playbook.

Forum #76 offers a clear example of a code management forum. The participant was having trouble downloading a file from the handbook, and a U.S. Digital Services employee responded with status reports about fixing the problem:

Problem downloading docx version of TechFAR

Handbook #76

Closed

bronx72 opened this issue on Nov 10, 2014 · 3 comments

bronx72 commented [on Nov 10, 2014](#)

Using ".docx document" link on <https://playbook.cio.gov/techfar/>:

https://playbook.cio.gov/assets/TechFAR%20Handbook_2014-08-07.docx

WARNING -- Access to this file is blocked by security measures for the following reason:

- File type attempted to download not allowed. If you feel you have reached this message in error, you may contact the Service Desk at 5-4357 or the Network Operations Center at 5-7370. File name: TechFAR Handbook_2014-08-07.docx

Don't need the document, just passing it along.

Owner

cew821 commented [on Nov 10, 2014](#)

Thanks for reporting, we are investigating.

cew821 added the **bug** label [on Nov 10, 2014](#)

cew821 referenced this issue from a commit [on Nov 13, 2014](#)

[Removing broken link while troubleshooting on #76 continues](#) [10d3ae1](#)

PaulSD commented [on Dec 12, 2014](#)

This has been fixed since 11/19 ... Sorry, I guess the message that it was fixed never got forwarded to you guys.

Owner

cew821 commented [on Jan 20](#)

This is fixed as of [#101](#).

cew821 closed this [on Jan 20](#)

A GitHub user posted a comment as a bug/error notification that stated that the playbook was not downloading properly because of a security measure error message. It is worth noting that the forum was also labeled with the tag “bug.” This initial post was followed by a status report from U.S. Digital Services. Then, there was an update notification through a commit to the code repository followed by two status reports and the closing of the forum. Closing these forums signified that the changes requested had been addressed or redirected to another forum or project.

While both issues and pull requests could be either proposal management or code management forums, GitHub and U.S. Digital Services tailored issues more toward

proposal management and pull requests toward code management. However, in practice it appeared that the type of forum chosen had more to do with the author's technical knowledge than what was required by the proposal or notification. The participant roles and the interaction capabilities in these public forums were fluid enough to allow for the participants to choose the type based on their comfort level with coding and personal preference. This is shown in the examples of forums offered for these genre systems. Forum #7 was a pull request proposal management forum, and forum #76 was an issue code management forum. While these forum genres allowed for successful implementation of ideas or corrected coding problems, GitHub's design features provided little structure to the work beyond the particular affordances in the design of the overall forums. The participants crafted these sequences of communication interactions to fit their needs, not the communication tool. The public offered ideas or let U.S. Digital services know about problems, and U.S. Digital Services was able to quickly add those changes or respond with suggestions for other places to better explore those ideas. Not every forum received attention from other GitHub users or U.S. Digital Services employees, and not every forum that did receive attention became a proposal management or code management forum that successfully implemented changes into the playbook or re-directed participants to a related project. This may have been due to the time scales of the design or the time scales of the ideas that were suggested by the proposals.

Temporal Aspects of Forums. The data illustrate temporal aspects of design through time spans, temporal landmarks, and temporal depth. These are designable

elements of communication related to activity cycles and time scale (Ballard & McVey, 2014) that are evident through the genres and genre systems.

Time Scales of Feedback Work. Time stamps were automatically created by GitHub for each forum action. These time stamps showed the overall length of time spent on managing each proposal or bug (best measured in days), and the frequency of activity by participants.

There were three temporal markers, or landmarks, that superseded the individual forums and influenced the temporal map (Zerubavel, 1985) on the U.S. Digital Services GitHub site. A temporal map helps to develop structure in one's social environment. On a weekly cycle, Thursday morning meetings or Sunday brunches with friends may act as landmarks that help to map out the week in meaningful ways. All three of the GitHub temporal landmarks created periods of intense activity in the surrounding days. First, there was the launch of the playbook and handbook on GitHub along with the open, corresponding request for feedback and ideas on August 11, 2014. Second, there was a large number of forum actions by one of the owners of the GitHub site, a U.S. Digital Services employee. He commented and responded to a large number of forums around September 25, 2014, which also created more involvement from other participants active on those forums. Third, U.S. Digital Services implemented a set of sweeping changes to the playbook that they called Version 1 on January 20, 2015. There were multiple references leading up to Version 1 of changes that would be made at that point, rather than making those changes throughout that period of time. These forums have all been inactive for at least two months. The last forum was opened on March 17, 2015, and there

has been no activity on the GitHub site for over a month.

Only one of the temporal landmarks had an intentional date established in the design. The opening of the forum, which created the first surge of forum comments, was chosen by U.S. Digital Services when they were ready for feedback and was launched on a Monday. Mondays are the beginning of the work week, a day of starting work, and it is unlikely that U.S. Digital Services did not intentionally choose a Monday to open the playbook to the public. The second temporal landmark was created by the participation of one GitHub user on several GitHub forums. This day may have been intentionally chosen or planned by the participant as a U.S. Digital Services employee, but this date was not shared in advance as a deadline or way to orient the work for the other participants. The third temporal landmark was planned and discussed as a future event on the forums for a period of time after the second landmark, but this event was not given a specific deadline or launch date for others to use in offering feedback either. This meant that participants did not have any temporal direction on when their feedback might be used or for how long they might be able to engage with others on their ideas.

Within the forums, there were four general temporal patterns that varied from less than a week to six months long. This variation occurred for both genre systems and for forums that did not fit into the same organized patterns, but the wide range suggests that there was a timing mismatch in the temporal symmetry of the conversations on the forums. Even though the online forums were available for six months before Version 1 was added in January, 2015, the development of genre systems that incorporated temporal coordination genres shows that temporal coordination was necessary in this

feedback work. The genre systems occurred across all of the time scales described below, but the ones with longer time scales did not receive more participation. The periods of intense participation around U.S. Digital Services' landmarks were much more important to creating participation than the time spans of the forums.

The first pattern lasted approximately one to five days. There was an intense period of activity when a proposal or bug was posted as part of a forum genre system. The proposal or bug was then addressed, and the forum was closed within that short period of time, or the forum became inactive but was left open and unaddressed. The second pattern lasted about a month. There was a flurry of activity at the opening of the forum, then the U.S. Digital Services employee responded around September 25, 2014, which brought forth another period of activity and closed the forum. The third pattern also lasted about a month. There was a period of activity at the opening that addressed the proposal or bug, and then another participant responded to the forum after a period of inactivity. These lagging responses tended to occur on forums left open after the proposal or coding was addressed, and they tended to go unanswered by any subsequent activity. The fourth pattern lasted up to six months. Opening the forum generated participation and references to the code repository, then the change was slated for Version 1 and finalized on or around January 20, 2015.

In designing the playbook and handbook, there were periods of intense activity around particular posts or events happening within Digital Services that influenced the lengthy time span of forums (compared to traditional industry norms) and the participation of others in the work. All of the forums that had three or more responses

experienced a more intense period of activity at the opening of the individual forum with other periods of participation and interaction around finalizing changes. These finalizing periods usually occurred around September 25, 2014 or January 20, 2015 in accordance with the most direct involvement by U.S. Digital Services. The period of increased activity around September 25th was spontaneous due to the large number of posts by one U.S. Digital Services employee, but the changes made on January 20th were intentionally planned for that day.

The design for making changes in a Version 1 on January 20th allowed for a slower pace of work toward developing the changes in the code repository and encouraged more participation by offering a specific time for suggesting changes, even if that deadline was not explicitly stated as a future calendar date. Six months is a fairly large time scale to encourage and respond to feedback before making a large change in the technology sector. Although there were three main temporal landmarks, U.S. Digital Services and other participants did engage with the forums in less intense frequencies throughout the eight months of activity. This time scale seems more in line with the traditional, longer time scales for government work and may indicate the large scope of the project in this design process. The average time span for a forum's activity was 58 days. The maximum was 163 days (approximately 5.5 months) and the minimum was one day.

Because the genre systems occurred in all four of these temporal patterns, GitHub participants were able to create coordinated work that was temporally flexible. This flexibility was made possible by the longer time scales and the openness of the call for

feedback by U.S. Digital Services. However, the lack of explicit information about the plans for implementing any feedback or specific U.S. Digital services involvement led to a timing mismatch in the coordination of the work between the public and the government work. Individual posts and longer conversations happened within one or two days, and sometimes it took over a month for participants to receive a status report because of the less frequent periods of intense activity from U.S. Digital Services. This may have limited collaboration opportunities on ideas and created confusion for participants, particularly those participants who were also new to GitHub or who lacked technical knowledge but were invested in the goals of the playbook.

Temporal Depth: Time Scales of Ideas. The temporal focus of these posts was overwhelmingly in the present. There were few comments that referenced the recent past and almost none that extended beyond the previous two months. Bluedorn (2002) notes that there is a significant relationship between how far one thinks into the past and the future. The further one looks back, the further they also tend to look forward, so it is disappointing that there were so few ideas that considered what has worked well (or not) in former projects when offering proposals that would hopefully be implemented or impact the future. There were more comments that referenced the recent future and even the mid-term future, which extends to two or three years, but again hardly any references to the long-term future, implications of changes, or projects that may reach into the next decade. This seems strange when one considers that many of these forums were open for several months, and authors' ideas did not often reach even one week into the past. It is also strange that a project which solicited feedback on an overall plan for six months

showed very little temporal depth in its implications beyond another six or seven months. Stranger still, many of these forums were opened as proposal management forums or code management forums for ideas for the playbook and to address problems that could foreseeably have long-term effects.

This present focus may have been due to the nature of GitHub, writing code as an activity, or the lack of explicitly stated deadlines or time scales in the playbook and the call for feedback by U.S. Digital Services. This is certainly not the only work that they were doing, and they did emphasize incremental change with flexible deadlines for deliverables to allow for flexibility in the scopes of projects. Because the process of proposing a change to the design process was brief, perhaps that also narrowed the temporal depth of ideas. This disconnect suggests a need for more research on temporal depth and its relationship to the time scales of design processes. Additionally, ideas that were thinking farther ahead may not have received as much participation because they may not have been viewed as relevant yet. This was not explicitly stated anywhere, but it could have been. By explicitly asking for feedback that would influence a particular time scale, such as six months of focusing only on the design of the playbook itself, U.S. Digital Services could have helped to temporally focus participants on the ideas that they would have found most useful. This would have created stronger feedback and more positive experiences of engaged participation with the government for more participants.

Code management forums tended to have short time spans and short-term temporal depth. They also tended to be implemented quickly, possibly because they often revealed urgent technical problems. Proposal management forums tended to vary more

widely on both time spans and temporal depth. The forums with shorter temporal depth, such as those that offered suggestions for changes to the playbook website's aesthetic design or the inclusion of new plays, tended to receive responses from U.S. Digital Services, but longer temporal depths, which may have led to longer projects than the scope of the feedback cycle, often went unanswered and were not substantially integrated into the playbook plans. Furthermore, participants rarely considered the time scale of their ideas beyond vague implications. If U.S. Digital Services had been more explicit, this may have led to clearer timelines in proposals, which would have led to better, clearer designs in the playbook.

The time scale of the feedback work does not match the time scale of the ideas. The feedback work usually lasted longer. On top of that, there is very little symmetry for the temporal coordination, and they could have leveraged temporal coordination to better encourage participation, create moments of positive engagement with the public, and generate stronger ideas. Be explicit about time scales for both design processes and the implications for the products or processes that are being designed. Consider how long they might last, how long they would ideally last, and how far into the future to be planning at each step. Be consistent with the time scales for ideas and for the process of generating ideas. The ideas that were taken and used in this case study were the ones that could be implemented within the time span of the request for feedback. More temporal coordination is needed for the ideas that extended farther into the future, and these ideas have much bigger implications for the work that would be done on that larger time scale. They are useful but may not be used because they do not fit the time scales that U.S.

Digital Services were considering and using for their work on GitHub forums. Create temporal frameworks for implementing ideas and keeping them relevant in order to make use of sustainable, big ideas that are generated in open calls for feedback. Thinking across multiple time scales creates new ways to look at large problems and new possibilities for solutions while still allowing temporal flexibility in distributed work. Focusing too much on the present and near future creates short-sighted insights. Focusing too much on the future creates visions of what could be but ignores the steps that need to take place in the present for change to occur.

Conclusion and Future Directions

Government Communication as Organizational Communication

The charge that organizational communication scholarship must consider how government communication is similar to or different from the corporate and nonprofit sectors that dominate our research seems contrary to Burleson's (1992) arguments about why there are so few communication theories. Central to his argument is that communication as a discipline should not be organized on the basis of contexts. However, examining a particular context offers the same affordances as any other specialization. It highlights certain questions or phenomena and allows for deeper or more innovative scrutiny within the communication field, as long as that is not the only way that scholars organize the discipline. That would focus minds too narrowly on seeing a certain way; it would diminish the potential of the communication perspective as a larger community. Communication scholars are particularly proud of the scope of their discipline and the degree to which they draw from other fields and are also

interdisciplinary in their work. As scholars continue to establish the nature of human communication, as called for by Burleson (1992), they should maintain this openness to new ideas, knowledge, and perspectives. They should encourage its development in other fields, as they continue to draw on others' insights to improve their own. By encouraging multiple ways of seeing, all can hope to see the larger picture a bit more clearly.

In the present study, the public demonstrates enthusiasm in its engagement with government plans for online interaction with its constituents. The work accomplished on the forums extends beyond politics and public relations. While the request for feedback was largely successful in engaging technical experts' opinions, there are additional opportunities to improve this open feedback and design process through applying organizational communication research. Participants on the GitHub forums commonly used four communication genres to share ideas with each other. Update notifications, status reports, and bug/error notifications are temporal coordination genres that were used in this situation to establish sequences of activity across varying time scales. Proposals were also used on GitHub to begin new conversations that led to the other genres. Two genre systems, proposal management forums and code management forums developed over time in these feedback cycles and created meaningful exchanges between the public and U.S. Digital Services employees that were heavily influenced by the temporal landmarks created by Digital Services' actions on the forums. The time scale of the feedback work on the forums was longer than the temporal depth of many of the ideas that generated participation. By explicitly stating the temporal design of plans for feedback and for desired ideas, U.S. Digital Services could have more successfully

encouraged collaboration and incorporated the requested ideas.

Directions for Future Research

More work on the relationship of temporal depth to time scales and the influence of the times that one considers on the design of work could create further insight on communication as design. McGrath (1990) discusses temporal ambiguity as not knowing when events will occur or how long they will last. This seems to be one of the problems when time scales are not explicitly developed, and his possible solutions, such as scheduling of activities, could also yield further insight. There are many other areas of government work on the federal, state, local, and international level that could be explored. This is one very small part of governance.

There is also something unusual about the way that the activities unfurled around the three temporal landmarks established by U.S. Digital Services. This may be inconsistent with Gersick's (1988) punctuated equilibrium model and other group process models and warrants further investigation. Gersick found that most groups wait until halfway to a deadline to begin work. The lack of clear deadlines in this work or the loosely structured, low investment relationships between the participants and the work may have influenced their interactions differently than shown in existing models. Or, there might be very little group process in this type of distributed work, which could alter communication and temporal practices.

Limitations. While this project utilizes a previously developed codebook, builds on the genres of another temporal study of software development, and responds to the call for examining temporal structuring in other types of distributed work (Im, Yates, &

Orlikowski, 2005), it is limited as a single case study of one area of federal government work. It is also exploratory in nature, with little information available about the online participants. The organization of the project was unique in that the work was distributed across participants that may have posted once or several times over the course of the feedback work. There were probably also many others who read some of the posts but did not engage. There was no hierarchical structure established on the forums except for the title “Owner” attributed to one or two U.S. Digital Services employees, and many participants had high levels of technical expertise, which may have discourage participation from less technically savvy individuals. The GitHub site may have also limited participation from individuals with less technical knowledge because it is most often used in software development and is not as commonly used for general calls for feedback on ideas. Finally, the participants that did not work for Digital Services did not share work relationships or investment in the playbook beyond their involvement on the forums. This may have led to lack of participation that would be uncommon in work with more accountability or interdependence.

Reprise. As Aakhus (2007, p. 117) observes, “A communication design enterprise is interested in what is possible.” With communication design’s treatment of communication as both an object and a process, a clear new possibility arises. The forum website GitHub and the Playbook that the participants are designing through GitHub are communication objects. They are being created through design processes, and communication processes are being crafted in them, but not all communication in this design enterprise is process. Another future area of research would be to explore beyond

the processes of design. What aspects of design could be explored by considering the playbook as a communication object, instead of as the input and output of the design process? “The most important thing that can be learned from really creative design is *how else communication can be constituted*” (Jackson & Aakhus, 2014, p. 127).

Communication does not seem to be exclusively a process. There are certainly communication processes, but there are not only communication processes. Communication can exist outside of and within processes. If one were to hypothetically stop time and look at communication within a single instant, processes would disappear, but communication would not. If communication were a process, it would exist as part of the change that occurs over time in a process, not as something else existing within those processes. That communication exists within a moment is one of the reasons why cross-sectional, snapshot studies have held so much value to the discipline.

When breaking down a process to its fundamental elements, it becomes reduced to essentially a sequence of actions. While examining the temporal design of communication, one might begin to wonder: Could there be a model of communication that is not based on sequences of actions, that is not a process? Could one conceptually remove the temporal elements and still have communication? It seems possible, because wherever meaning is present, so is communication. “Communication, and the observation of it, provides a conduit, comprehensive, but, admittedly, not exhaustive, for learning about individual and communal meaning” (Leighter, Rudnick, & Edmonds, 2013).

Consider a design, like a blueprint for a house. What is the blueprint’s relationship to the house? It is not physically part of the house, but it is also everywhere

in the house at once. All joists, all electrical sockets, all pipes are physically where they are according to that blueprint. That seems to make a blueprint more than a mere representation of a house, more than a plan for a house when the physical house exists. Maybe it is a plan for the process of constructing a particular house, but it is not just a part of that process. It holds meaning separate from any house-creating process, and it also changes as the house is built and changed throughout the house's existence, as technology is updated and pieces of the house are rearranged for new purposes. Maybe it is the conceptual idea of the physical house, represented on special paper to share with each other. Communication is sometimes the conceptual idea of the physical thing, designed and modified to fit arising needs and changes. It does not have to be part of a meaning-making process to have meaning or value, even if it sometimes is.

Communication is the physics of the symbolic (social) world. Just as physics seeks to understand the movement of particles and their processes, communication seeks to understand the movement and processes of meaning. This requires a new model of communication, a model that does not limit communication to its processes. The discipline needs an atomic model of communication that whittles communication down to its essence to better understand its processes, to see value beyond processes. Some things hold communicative value beyond their existence as inputs or outputs of a process. It would be an unfortunate and unnecessary limitation to only consider them as such.

That does not mean that research should ignore the role of time in communication. On the contrary, time is absolutely crucial to the world and to how humans relate to each other as communicative beings. But, in the human, limited ability

to perceive the world, any individual only knows the nature of things by what they are not. How would one know light if not for the knowledge of darkness? If communication scholars are better able to see what communication is like without change over time, they will be better equipped to see the changes.

To that end, here is one final analogy. The atom is the building block of all matter. Atoms are built into structures called molecules that compose the outstanding variety of elements and compounds that form knowable physical reality. The movement of the protons, neutrons, and electrons that compose these atoms are at any one time unknown to us. Physicists can only estimate the location of an electron at any moment in time. That is the best that physics can do. Electrons do not cease to exist if they are not moving, but they are always moving, just like atoms are always moving.

Meaning is the atom of communication. It is composed of symbols, references, and referents (Ogden & Richards, 1923), and it builds into structures that form a symbolic, social reality. No one may know where these constantly moving or changing bits are at any one time, but they can estimate, see their paths, and know that they exist. This raises another question: What is the relationship between communication and meaning? If it is similar to the relationship between physics and atoms, then communication is the study of the movement of meaning through the symbolic world.

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