Volume 4 Issue 2
Winter 2016

Communication Design Quarterly

Published by the Association for Computing Machinery
Special Interest Group for Design of Communication
ISSN: 2166-1642

SIGDOC Special Interest Group on Design of Communication

Association for Computing Machinery
Advancing Computing as a Science & Profession

Communication Design Quarterly

Communication Design Quarterly (*CDQ*) is the peer-reviewed research publication of the Association for Computing Machinery (ACM) Special Interest Group on Design of Communication (SIGDOC). *CDQ* seeks to be a premier source on information and communication design for individuals in industry, management, and academia. *CDQ* contains a mix of peer-reviewed articles, columns, experience reports, and research summaries on topics of communication and information design, and it is archived in the ACM Digital Library.

We invite you to contribute to *CDQ* by submitting a manuscript in any of the following areas:

- *Peer-reviewed articles.* Articles that cross discipline boundaries as they focus on the effective and efficient methods of designing and communicating information. Disciplines will include technical communication, information design, information architecture, interaction design, user experience design, and human-computer interaction.
- *Experience reports*. Experience reports present project- or workplace-focused summaries of important technologies, techniques, or product processes.
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Communication Design Quarterly

CDQ Editors

Editorial Board

Notes from the SIG

by Liza Potts, Stephanie Vie, Sarah Gunning, and Dawn M. Armfield

Welcome to our new column! We've retired the "Notes from the Chair" and have instead created a more open space for our volunteer leaders and members to contribute to this column. If you have news for us, please contact Liza Potts (email: lpotts@msu.edu), who will continue to coordinate this column as part of her role as our Chair.

Upcoming Conference News

Over 100 proposals, a significant increase from 2015, were submitted for SIGDOC's 2016 conference, scheduled for September 21-23 in Arlington, Virginia. The 2016 conference asks how contexts affect how we design communication experiences. Researchers from sixty universities in nine countries submitted a diverse range of research, technical papers, experience reports, posters, workshops, and panels for the three day conference.

Type of submission	
Research or technical paper	57
Experience Report	23
Poster	13
Workshop	3
Panel	5

Distribution of proposal topics

The most popular conference topics included user experience, technical communication, and design methods, but a significant number of proposal studies reported work in intercultural communication, digital humanities, and learning systems/environments. A number of proposals reported accessibility studies for diverse user groups, particularly from a medical usability standpoint. Many of the proposal topics overlapped across several categories, as indicated in the table below.

69	User Experience
54	Technical communication
48	Design methods and principles
36	Information design and information architecture
36	Computer-mediated communication
26	Content strategy
22	Learning systems/environments
20	Collaborative platforms
17	International and intercultural communication design
16	Digital humanities and design
11	Project management
10	Open source design solutions
10	Experience architecture
4	Visual communication
3	Medical rhetoric
1	Technical editing

Proposal acceptance notifications were sent during the first two weeks of March. Authors will then have until April 18 to submit their full-length papers and extended abstracts. Looking forward to seeing many of you in Arlington this September!

The conference site

The conference will be held in Arlington, Virginia. We are currently in negotiations for the conference hotel. We hope to be able to get a block of rooms that is as inexpensive as possible to keep costs down. In addition, we will be working with local businesses for outings during the conference. Additional information will be distributed on the SIGDOC conference website, Facebook, Twitter, and other venues as it is updated.

Student Research Competition

2016 is an exciting year for the SIGDOC conference, as we are hosting our second annual Student Research Competition (SRC). This is a nationwide competition hosted by Microsoft, who generously sponsors travel funding and prize monies for students who compete. The SRC is an opportunity for undergraduate and graduate students to present their current or ongoing research projects before a panel of faculty judges. They compete for prize money ($500, $300, and $200, respectively, to the first-, second-, and third-place winners in each category, undergraduate and graduate) and receive $500 in travel money from Microsoft, the SRC sponsor.

2015 was our inaugural SRC year, and we hosted 14 students (10 graduate students and 4 undergraduate students) at the University of Limerick in Ireland. Student participants hailed from a diverse pool of institutions, including Marist College, Michigan State University, Saint Leo University, the University of Central Florida, the University of Illinois Urbana-Champaign, the University of West London, and Worcester Polytechnic Institute. Last year's winners are as follows:

Graduate Category

First Place

Laura Gonzalez, Michigan State University

Portable Pedagogy: How Interaction Design Made Us Better Teachers

Second Place

Daniel G. Cabrero, University of West London

User-Created Persona: Namibian Rural Otjiherero Speakers

Third Place

Joseph Yun, University of Illinois Urbana-Champaign

What's a Better Category? Shavers or Father's Day Gifts?

Undergraduate Category

First Place

Angelia Giannone, Worcester Polytechnic Institute

Picturing Information for Money: Visual Usage in Humanities-based Grant Applications

Second Place

Elizabeth Oderkirk and Kimberly Jung, Michigan State University

From Connect-Exchange to ConnectX: The (Iterative) Story of a Mobile App

Third Place

Mikal Post, Marist College

The Impact of the Interface: Responding to Student Writing in CMSs

In 2015, we worked to increase participation in the SRC, and we have succeeded with 28 student proposals for the SRC (20 graduate students and 8 undergraduate students). We will accept up to 15 graduate and 15 undergraduate presentations each, based on the successful review of the students' proposals by faculty reviewers. Each proposal is reviewed by three faculty members (none of whom are from the student's own institution), and it is assessed for the soundness of the student's discussion of their problem and motivation for the research, their explanation of the background work of their research, the approach and uniqueness of their project, and their project's expected contribution to the field.

Those individuals who are accepted to the conference will present their research in two stages. First, there is a poster session where students speak with faculty judges about their research. These poster presentations are judged for their visual appeal (10 points), ability to explain the research methods (15 points), and the significance of the student's research contribution (10 points). From the poster session, the judges' scores are tallied and the top five presenters in each category (undergraduate and graduate) move forward to the second round of competition.

In the second round of competition, the oral presentation session, the top five presenters in each category give a ten-minute oral presentation followed by a five-minute question-and-answer period. The judges attend this session – as can any interested conference attendees. The judges evaluate the oral presentations on the student's knowledge of their research area (15 points), the contribution of their research (10 points), and their overall presentation style (10 points).

From these top five presenters, the winners of the SIGDOC Student Research Competition are chosen. The first place, second place, and third place winners in the undergraduate and the graduate categories are presented with medals at the SRC awards ceremony. First place winners go on to compete in the SRC Grand Finals.

This is an amazing mentoring event available to students, and we hope that you will encourage your students in the future to submit a proposal to the SRC. Even if each SIGDOC member encouraged just one of their students to submit a proposal, our numbers would swell! Please contact the Student Research Competition Chair, Stephanie Vie, at Stephanie.Vie@ucf.edu if you have any questions or would like to get involved with next year's SRC.

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We’re all looking forward to an exciting 2016!

Online Networks, Social Media, and Communication Design

Kirk St. Amant

Interim Editor

In less than a decade, social media have transformed almost every aspect of our lives. Now, most of us check our Facebook accounts more frequently than we check our watches, and it is not uncommon for one's Twitter following to encompass dozens – if not hundreds – of individual. The broad reach and the interactive nature of such media allow us to exchange ideas across vast distances and engage in conversations with broad audiences in the blink of an eye. As such, social media have become a central component of the communication practices of almost every kind of organization. But as with any technology, there are considerations one should keep in mind.

The disembodied and interface-based nature of social media can result in one forgetting how public of a forum individuals can now access. Similarly, the ability to share information quickly and broadly though such technologies can be a benefit or a liability. Thoughts posted in the heat of the moment, for example, can be shared (and copied and forwarded) with ease – and can lead to a range of unintended consequences. Moreover, the speed with which individuals can interact and the number of individuals who can participate in such exchanges can affect the presentation of ideas. When combined with the limitations many social media impose on the length of messages (e.g., 140 characters per tweet), the prospects for communication problems seem manifold.

The question becomes "What should communication designers consider when using social media to share information?"

The answer is far from simple, but that does not mean we should shy away from it. Rather, we should seek to work together on different aspects of this complex context to find solutions and develop best practices. The contents of this issue represent a step toward achieving such ends. As such, these entries raise items for consideration and present ideas for interacting more thoughtfully and effectively via social media.

The issue begins with Jordan Frith's study of how online forums play a role in offering effective online help in different situations. Emily January Petersen's entry examines how one kind of online community – mommy bloggers – uses online social networks to exchange ideas around themes relating to motherhood. Chris Lam and Mark Hannah, in turn, review how different organizations use Twitter to offer technical support to users. Next, Michael J. Faris and Kristen R. Moore share the results of a study on how academics perceive (and use) social media in shaping their professional identities. The issue then concludes with two book reviews: Stacy L. Pigg's review of *Intertwingled: Information Changes Everything* and Sarah K. Gunning's review of *All Edge: Inside the New Workplace Networks.*

Each of these entries – from the articles to the book reviews – represnets a different perspective on or contribution to our understaning of social media in the contexts of our lives. As such, each entry also asks us to re-consider how these technolgies affect the ways in which we balance different aspects of our lives – from the personal to the professional and from what we do to who we are online. Through examinig such ideas, these entreis can help us better undersand the roles online social networks can play in modern society.

Forum Design and the Changing Landscape of Crowd-Sourced Help Information

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ABSTRACT

The help documentation landscape has changed with the growth of various forms of social media. People now post how-to videos to YouTube, they write crowdsourced documentation for open-source software, and they participate in and draw from a wide range of help forums. These forums are a form of crowdsourced help information in which experts and amateurs come together to address questions and explain materials. While these online forums can be thought of as a threat to the roles of technical communicators, they also present opportunities for professionals to adapt their skills to new roles as "community managers" of professionally sponsored forums. This article examines that point by showing how communication design is important for developing online help forum communities. Through the analysis of ethnographic and interview data, the article covers different areas of design important for understanding help forums as networked forms of technical communication.

Categories and Subject Descriptors

H.0 Information Systems: General

General Terms

Documentation, Design

Keywords

Social media, Documentation, Online forums, Moderation, Crowdsourced help

INTRODUCTION

Developing help documentation has been a key area of expertise for technical communicators (Swarts, 2012). However, the help documentation landscape has changed, especially with the growth of online help forums. Today, help and discussion forums exist for just about any topic (Rheingold, 2012), and major companies such as Apple, Microsoft, and Home Depot have built forums for people to create and share user-generated help information. Technical communication researchers have, in turn, warned about help forums as venues for "contraprofessionalization" (Carliner, 2012), but they have also identified forums as an important opportunity for future employment in our field (Gentle, 2009). Despite the growth of online help forums, little research in the field of technical communication has examined the importance of design for establishing productive forum environments.

This article examines help forums as a form of networked technical communication, particularly focusing on how technical communicators can influence the design of various forums. The article begins by discussing online forums and then reviewing literature on the links between technical communication and social media. The article then discusses data gathered from six months of participant observation and 23 interviews performed with forum participants. In so doing, the article expands upon research linking social media practices to technical communication skills (Frith, 2014; Gentle, 2009; Mackiewicz, 2010; Swarts, 2015a). The main contribution of the article that differs from earlier research is the specific focus on how technical communicators can help design forums to promote productive user-generated content. As multiple researchers have argued (Gentle, 2009; Lanier, 2011), companies increasingly need people to work with professional help forums, and this article examines different forum design elements technical communicators should consider.

AN OVERVIEW OF ONLINE HELP FORUMS

Writing an article about the "design" of online help forums could seem strange. After all, a company webpage from 1995 would only marginally resemble a company webpage from 2015. One would likely be text-heavy and contain relatively simplistic display of information while the other would likely include images, possibly video, stabilized design standards, and consistent navigation. Online forums, on the other hand, have not gone through the same aesthetic changes. Rather remarkably, many popular online forums today do not look significantly different from threaded discussion forums from the 1980s.

Online forums of one type or another are one of the oldest forms of online communication. Bulletin Board Systems (BBS) were developed throughout the late 1970s and 1980s and were in many ways precursors to the later World Wide Web (Baym, 2015). BBSs prominently featured public message boards people could use to socialize, begin discussion threads, and ask for help information (Myers, 1987). Around the same time, Usenet gained in popularity throughout the 1980s and early 1990s and featured online topic forums (called "newsgroups") that included the same types of threaded conversations seen in contemporary forums (Baym, 1994). Then, with the development of the World Wide Web in the 1990s, traditional Internet forums became more popular.

Within this historical context, an important point to remember is that BBS, Usenet, and early Internet forums (e.g., the famous Delphi forums) all existed side by side throughout the 1980s and early 1990s, and Internet forums eventually won out over BBS and Usenet (Sternberg, 2012). From the 1990s onward, we have seen the increased popularity of various online forums (Rheingold, 2012), a popularity that closely mirrors the growth of Internet usage in the general public. Currently, there are online forums for almost any topic imaginable, ranging from popular forums on sewing techniques to specialized forums on how to assemble RFID systems. As discussed throughout this article, a significant number of these forums focus on delivering help information to users.

An important point to remember is the actual layout of forums has remained fairly static over the last thirty years. In most forums, people post content that starts a thread (often a question in online help forums) and other posters then comment on the thread. The comments are displayed in different ways depending on the forum, but they generally follow a vertical orientation with the most recent reply appearing at the bottom. This brief discussion of online forum design, however, raises an important question:

Why discuss the design elements of an online artifact that has barely changed over the last thirty years?

The reason is because—while forums may be one of the most enduring forms of online communication—much goes in to building healthy forum communities.

In effect, technical communicators who moderate forums must understand the following:

- How to motivate people to participate
- How to spur discussion
- How to shape community dynamics
- How to choose from available design elements
- How to organize content

Understanding these dynamics is increasingly important for the field of technical communication because major companies now sponsor official forums and employ people to run these forums. Additionally, researchers have argued technical communicators are uniquely suited to step in as professional moderators (Lanier, 2011; Frith, 2014).

Before examining design choices in detail in my data analysis, I first review relevant literature in two areas:

1. Technical communication and user-generated help information

2. Multidisciplinary research on online forums

Such an overview is important because this article builds upon research on how practices of technical communication have changed with the growth of new forms of networked communication. In addition, to fully understand forum interaction, one must also examine how forums have been researched by other disciplines.

TECHNICAL COMMUNICATION RESEARCH ON USER-GENERATED CONTENT

Online help forums are a popular form of social media, and they are also a reminder that the term "social media" is problematic in the way it implies that pre-early 2000s media was not social. After all, letter writing, book publishing, and pre "Web 2.0" forms of online communication—including online forums—were all media forms that very much focused on the social. Regardless of the much longer (and too often ignored) history of "social" media, research in the field of technical communication has increasingly addressed what we contemporarily label "social" media—broadly defined as online media forms that allow non-expert users to contribute user-generated content (Hea, 2014). This research includes

- Exploring which forms of social media people use in professional settings (Ferro & Zachry, 2014)
- Preparing technical communication students to understand the rhetorical situation of social media (Hurley & Hea, 2014)
- Using social media to strengthen ties in humanitarian projects (Longo, 2014)
- Embracing wikis as a form of collective knowledge making (Manion & Selfe, 2011)
- Developing best practices for using social media in disaster response (Bowdon, 2014; Potts, 2013)

At the same time, industry publications in the field also began to examine the importance of and the role of social media in relation to the work technical communicators do. For example, Singleton and Meloncon (2011) published a primer to help companies understand how to create social media plans. St.Amant (2015), in turn, published a guide to the international contexts of social media that reminds technical communicators that not all cultures engage with social media in the same ways. These are a few of the many examples of the more general ways in which technical communication researchers have explored the social, pedagogical, and professional impacts of social media.

More relevant to this article is the growing body of research linking technical communication skills to behaviors people engage in on social media. An early example of this work was Gentle's (2009) book on adopting social media for professional communicators. Her work shows how technical communicators were uniquely suited to create wikis to facilitate group communication and evaluate new social media tools. Most importantly, Gentle has argued technical communicators must become the "community managers" who use their communication skills to facilitate crowdsourced materials in online forums. In these ways, Gentle was an early voice for pointing out how social media offer opportunities for technical communicators to adapt their skills to new professional settings.

In a related strand of research, scholars such as Mackiewicz (2010 and 2015) establish links between more general social media practices and technical communicators. Her work specifically highlights the roles of online reviewers, showing how user-generated reviews require technical communication skills. She analyzes how reviewers established ethos in much the same way as communication professionals (Mackiewicz, 2010), examines how volunteer reviewers "take on a role quite similar to that of a technical editor" (Mackiewicz, 2011, p. 423), and discusses criteria technical communicators can use to evaluate the user-generated content of online review sites (Mackiewicz, 2015).

Technical communication researchers also began taking seriously the links between technical communication and the explosion of user-generated video tutorials. Articles established frameworks for assessing YouTube tutorials (Morain & Swarts, 2011), created best practices for creating video tutorials (Swarts, 2012), explained how to teach imperative mood in online help videos (Pflugfelder, 2013), and developed criteria for understanding the shared characteristics of popular instructional videos on YouTube (ten Hove & van der Meij, 2015). Whether examining online reviews or amateur video tutorials, the thread uniting these studies is the recognition that technical communication has become increasingly networked and crowdsourced.

As mentioned, online forums are an older form of networked help than online amateur video, digital user reviews, or newer social media like Facebook and Twitter. Despite the fact that people used online forums to engage in fundamental practices of technical communication as far back as the early 1980s (Baym, 1994), only fairly recently has our field begun empirically examining the practices of forum participants. An early example was the work of Berglund and Priestlett (2001) who back in the early 2000s argue that technical communicators can work as gatekeepers in online forums. Yet not much research built on their point in technical communication journals.

Gentle (2009) did write a book targeting working professionals that looked at why technical communicators are suited to work as community moderators, but her work was written more for practitioners than researchers. The technical communication research that did engage with forums also occasionally viewed them with unease. Carliner (2012), for example, argues that companies' moves towards crowdsourced help information represented a form of "contraprofessionalization" that "circumvent paid technical communicators and engage others in preparing technical content for publication" (p. 55).

The last few years, however, have seen an increase in technical communication research that focuses on the use of online forums. Building on Gentle's argument that communication professionals can step in as community managers, Lanier (2011) discusses peer-to-peer forums and pointed out that "In some cases, especially in the case of open source software (OSS), these forums have become the best resource for users who need to find information that can help them use certain software" (p. 347). He also argues, "technical communicators should become virtual, global community builders" (p. 362).

Similarly, Frith (2014) argues that forum moderation "closely resembled the roles many technical communicators play in the workplace" (p. 180). As he (2014) points out, moderators often help people translate complicated information and set the overall tone of online help forums. He uses that argument to show how technical communicators are uniquely situated to step in as professional moderators to manage social dynamics for companies' official forums. Swarts (2015a, 2015b) extends this argument through two articles reporting on online help forums. Swarts argues, "technical communicators will contribute [on forums] by making possible knowledge or the conditions in which such knowledge can be created through an exploration of task shifted situations" (p. 27).

The four articles cited here focus on the social practices of moderators; however, none of them specifically focus on how professionals can design online help forums to enhance productive participation. Consequently, this article fills that gap in the literature by showing in detail in the data analysis section many of the design choices involved in growing forums. As the data reveals, many of the design choices have more to do with the social than the aesthetic, with fostering strong community dynamics and positive feedback than layout. Before moving on to my qualitative data, I first briefly review literature from other disciplines on forum dynamics to show the importance of understanding how online communities function in practice.

MULTIDISCIPLINARY RESEARCH ON ONLINE FORUMS

While technical communication research has recently begun focusing on the importance of online forums, other disciplines have a longer history of research useful for understanding the functioning of these online spaces (Baym, 1994; Myers, 1987). Most of this research did not look specifically at the help forums of interest in this article, but multiple studies from other fields do provide important background on various forums that inform the research reported here. Sociologists and cultural theorists, for example, have examined political forums as a new type of public sphere (Dahlberg, 2001; Janssen & Kies, 2005). Anthropologists, in turn, have analyzed the role forums play in the development of open source software (Coleman, 2013); and health researchers have identified online forums as an important way in which people can seek support from peers (White & Dorman, 2001). While these studies made different arguments and had different goals, almost all of them touched on the importance of design in understanding forum dynamics, which is the thread I take up here.

A consistent theme running through online forum research in technical communication and in other fields is the importance of moderation (i.e., having the forum moderated or overseen by an individual). As Barab et al. (2001) argue, online forums are shaped just as much by individuals' interventions as they are by their interfaces. Others made similar arguments in regard to feminist forums (Herring, Job-Sluder, Scheckler, & Barab, 2002), political forums (Janssen & Kies, 2005; Wright, 2006; Wright & Street, 2007), and health forums (White & Dorman, 2001). In such cases, these different studies advocate for the importance of moderator choices in shaping community dynamics.

A few of these studies also examined different approaches to forum moderation. Coleman (2013), for example, discusses how moderator choices in open source communities sometimes foster an environment that is unwelcoming to outsiders. Such an approach serves as a way forums can focus interactions on sharing expertise rather than providing education. Ultimately, the ways in which moderator choices shape forums is an example of the expanded effects of communication design that moves past interface questions to understand deeper social dynamics.

A few other studies looked more specifically at technical design functions in forums. Wright (2006), for example, performed a comparative study of different types of forum moderation, comparing active moderation, silent moderation, and a reliance solely on the mechanical filtering of posts. He found active moderation worked best and that an overreliance on mechanical filtering could discourage posts because viable content was restricted by the filtering mechanism. Taking a different track, Jain, Chen, and Parkes (2014) use an experimental study to show that forums could design various incentives (e.g. helpfulness votes and points) to encourage people to respond to questions.

In conclusion, the multidisciplinary research into forums has covered multiple areas, including how moderator choices affect dynamics and how incentives can encourage participation. This article builds upon that research by looking more specifically at the design of help forums, a type of forum not typically examined in much research outside of technical communication. The article then makes an original contribution by analyzing how forum designers can work with and design different incentive structures to encourage participation.

METHODS

This project began in an informal manner when I started participating regularly in and observing interactions on a variety of forums. This more informal stage of the project took place from July 2012-November 2013, and after this period, I began my participant observation in a more formal manner. To do so, I first received approval from my University's Institutional Review Board and then engaged in a six-month observation of different forums, including Google's Android forum, Reddit's r/techhelp, Stack Overflow, and three forums devoted to do-it-yourself (DIY) home projects. I selected these specific online forums because of their diversity and popularity. The forums covered a variety of topics and all had active user communities and frequent postings and responses. During that six-month period, I took extensive notes on forum interactions and dynamics, studied how information is organized on different forums, and began noting the roles actors play in forums.

After six months of observing forums, I began contacting forum participants for interviews. I contacted people from different forums as a form of "theoretical sampling" (Glaser & Strauss, 1967), which is a concept from grounded theory methodology that refers to the targeted recruitment of participants to build a denser theoretical understanding of the object of study. Consequently, I targeted frequent forum posters (i.e., individuals who participated in threads multiple times a week). After transcribing and coding early interviews, I slightly shifted my focus to target people who moderate forums. I do not list the names of the forums I recruited from because some of the forums only have two or three moderators, so identifying the forums would identify the people I interviewed.

I conducted 23 interviews for this project, and all interviews were done over the phone or on Skype. Nineteen of my 23 research participants had either previously moderated an online forum or were currently moderating an online forum. Twenty of the 23 research participants were male, and participants' ages ranged from 19 to 58 years in age. For this project, the interviews took between 30-100 minutes, and before the first interview, I assembled a rough script based on my observational notes. (See Appendix for a copy of this script.) However, drawing from the tenets of naturalistic grounded theory, the script was designed more as a guide than a defined set of questions to follow in each interview (Charmaz, 2006).

While I used the early script for these interviews, I did so only in a semi-structured way and encouraged participants to branch out in ways not addressed in the initial script. For example, participants brought up issues I had not considered, including the potential downsides of "likes," the long history of forums and how dynamics have changed since the 1980s, and how certain forums choose to be less welcoming. During such situations, I would depart from the script and let people speak freely on those topics.

In addition, drawing from the iterative nature of grounded theory, I also changed the script of later interviews because of categories that emerged in prior interviews. Consequently, I added informal notes to the original script that directed me to areas to address in later interviews (e.g., the roles moderators may play in intentionally encouraging a more exclusionary forum environment). These informal notes were not formulated as direct questions; rather, they served as reminders of codes that had emerged informally in earlier interviews that were worth addressing. While I do include the script in the Appendix as a reference point, it is important to stress that this script was designed more as a template to roughly shape the interviews instead of as a strict guide to follow. Ultimately, the interviews followed Charmaz's (2006) urging to let the research participants speak for themselves rather than restrict themselves to my predetermined set of questions.

I used a Sony Digital Audio Recorder to record each interview, and a student assistant transcribed them within days of their completion. I had the interviews transcribed so I could use the naturalistic grounded theory methodology outlined by Charmaz (2006) to code initial interviews as soon as I had the transcription. Part of naturalistic grounded theory involves using the constant comparison method outlined by Huberman and Miles (1994) to iteratively go through the text and look for thematic similarities and groupings and form categories out of these groupings. To perform the constant comparison, I used the qualitative software Atlas.TI to code each interview repeatedly until I was confident of thematic linkages present in the data. (I used Atlas.TI to manage the significant amount of interview data and facilitate the process of creating, linking, and combining categories.) I also used the coding of the first set of interviews to shape the interview script I had assembled.

For the coding process, I began by working through the early interview data and noting categories that emerged. I had initially decided to focus on questions of forum design to better understand how forums work, though categories quickly emerged that suggested links between practices of technical communication and experiences of forum moderation (see Frith, 2014). From that point, I coded the data particularly for areas in which participants discussed either practices of moderation or elements of design. For this article, I focus on the design categories that emerged from my coding process. Importantly, because of the iterative nature of grounded theory, certain design categories emerged only through coding performed after initial interviews, so I then focused on those categories in more detail in later interviews. For example, as discussed later, certain moderators had reservations about incentivization structures, so I asked later participants about those issues.

To code the data for the design categories, I began by breaking the data into many distinct codes. For example, I had separate codes for "badges," "likes," "downvotes," and "user tiers." I proceeded with this process to better organize the data and conceptualize what the data revealed about these codes. I then performed the important process of grouping distinct codes by thematic similarity, with the eventual goal of forming overarching categories (Charmaz, 2006). At that point, for example, the different codes mentioned earlier in this paragraph became the "Developing voter systems and tiers" category I report upon in this article.

I went through a similar process for all four overarching categories covered in this article, which are

- Developing voter systems and user tiers
- Creating explanatory textual materials
- Understanding subforums as information architecture
- Engaging in community building through moderation

I supplemented the coding with a detailed memoing process (Clarke, 2005) in which I noted links between categories, explained why I combined categories, and worked through the conceptual value of different categories. I then altered my semi-structured script to focus on categories from earlier interviews, guiding the discussions towards interesting theoretical areas that emerged from the data.

Finally, I wrote vignettes about each of my research participants that described their experiences on online help forums. These vignettes were descriptions of people's demographic background and experiences participating in online forums. For example, a vignette may include someone's age, their job, the length of time they have participated in forums, the forums they participate in, and particular issues they brought up within the interview. The vignettes enabled me to understand the participants more holistically, which can be difficult to do when breaking interview data into discrete categories.

DATA ANALYSIS

In this section, I describe the design-related categories that emerged from my observational and interview data. This description begins with me discussing the different design choices the online forums I studied use to create incentives for participation and to help users evaluate material. The section next examines the importance of developing FAQs and the challenges moderators face organizing information into subforums. The section then concludes with a discussion that focuses on the "softer" forms of design involved in building forums (e.g., how to shape user dynamics rather than aesthetic or informational choices) and does so by showing how moderators make choices that shape the interaction dynamics that take place between users.

Developing Voting Systems and User Tiers

Online help forums take different approaches to incentivize participation. Some do little and do not award points or "upvotes" for posts or responses. This approach is fairly traditional and somewhat follows models popularized on BBS and Usenet. However, most online help forums I observed use different design elements to incentivize participation. Moreover, in follow-up interviews, a few moderators explained that choosing a proper incentive system is an important design choice moderators make because multiple research participants felt that users were more likely to contribute if they received recognition in the form of points, badges, likes, or levels.

A design choice present on almost all the forums I observed is some variation of "likes," which are similar to the "likes" found on sites like Facebook. For example, on the Google Android forum or the Plumber's forum, anyone who is logged in can "like" a post. Other people then see how many likes a post or a response earns, and they can make decisions about what to do based on those likes. This feature can have important implications and consequences within the contexts of different online forums.

As one participant told me, the biggest problem with some of the forums he is on is trying to tell whether a post contains good information or not. He relies heavily on the "likes" as a form of crowdsourced support that gives credibility to an answer. Importantly, on the many forums that use the simple "likes" model, the likes are also aggregated on people's user profiles. This factor means that when an individual response may not yet have received "likes," users can click on a profile and see that the poster has an established, valuable presence in the community. Multiple people I spoke with reported using people's profile information (particularly # of posts and # of likes) to make decisions about whether a post is useful. No one I spoke with had anything negative to say about a straightforward "like" design. Thus, likes are an important design feature of online forums because they enable people to evaluate how the community regards a post and separate low quality content from valuable content.

Another similar design approach, though one with potentially different consequences, is a combination of an "upvote" and "downvote" system. The "like" system described here only allows people to like a post; they cannot "dislike" it (similar to Facebook). Other forums, including all of Reddit's thousands of subreddits and the prominent programming forum Stack Overflow, enable people to upvote (similar to a "like"—or approve of) and downvote (i.e., disapprove of) posts. The bidirectional model enables disagreement on the value of the post in situations in which posts receive fairly equal number of down and upvotes, bringing the total close to zero (with the unidirectional "like" model, a similar post would receive only likes).

The difference between the two design choices (i.e., likes vs. upvotes and downvotes) described here may seem minor, but it can have subtle consequences for forum dynamics. For example, one person I spoke with told me he dislikes the upvote and downvote model used on StackOverflow. He explained that some people just downvote everything, and he has seen people receive a few undeserved downvotes and then post that they are never going on Stack Overflow again. Another person told me a forum he participated in had a controversy that involved a group of users supposedly colluding to downvote another clique's posts, and people got in arguments over downvoting. My data suggest that downvoting can cause conflicts that are not as likely when people's only option is to either ignore or like a post.

On the other hand, some moderators preferred the downvote-upvote models for various reasons. For one, downvotes enable the community to clearly mark unhelpful information, so other users are able to differentiate between a post that had no likes because no one saw it and an unhelpful post that received downvotes. Some moderators I spoke with also felt downvotes were a deterrent that discouraged offensive and uninformed posts because the downvote added consequence to the action. As one forum moderator told me, “We added the downvotes and I think people liked it. I didn’t measure it or anything, but I’m pretty sure there were less bad posts. People didn’t want to get downvoted and have that go on their profile.”

Finally, another incentivization design choice I observed and that moderators discussed are levels of recognition for participants. One of the most extensive examples is “Stack Overflow,” which includes participants’ information in their post signature. In other words, when someone responds on Stack Overflow, their username is included along with their overall “Reputation” score and the number of badges, which are basically digital artifacts that serve as rewards and can be found on users’ profiles, they earned. Other forums include similar reputation measures, including “Karma” on Reddit and overall number of “likes” on many other forums. In addition, some forums feature various titles participants can earn. The Android online help forum, for example, enables people to earn titles such as “VIP member” and “Guide,” and these labels are designed to give participants something to strive for while simultaneously marking them as trusted members of the community. Other online help forums simplify the titles by assigning “Junior” and “Senior” labels to participants.

Most of the forums I observed used either (or both) badges or tiers to differentiate levels of users. For the most part, the people I interviewed approved of creating tiers of users, though a few did complain about people “chasing” higher tiers. For example, one forum a research participant moderates determines “senior” and “elite” users based solely on the number of posts an account has. This individual felt this system encourages people to post frequently even when they had little useful to contribute. A Stack Overflow participant (not a moderator), in comparison, felt like he performed “useless” tasks just to get badges, so he would look better to his peers. Finally, two moderators warned me that, while they like the different “levels” of users on their forums, people should not put too much stock in the labels. Both moderators I interviewed explicitly told me that some of the most productive forum participants were still at the junior level, while some senior members earned that status more for their longevity than their technical knowledge.

Few design choices come without drawbacks, and establishing labels in help forums is no different. Yet, despite the occasional minor criticism from my participants, people felt there were far more advantages to labels than drawbacks. Participants felt tiers incentivized people to participate more by giving them a higher-level “status” for which to strive. Participants also argued that displaying “helpfulness” scores under posts helped users determine what information to trust while also encouraging people to post high quality content. Other participants told me that, while earning “senior” or “trusted” status was not a thing of great importance, they did enjoy the reward for the hours of free labor they put into answering people’s questions. In conclusion, while developing labels may lead to a few minor problems, my research data suggest it is a helpful tool—in whatever form a forum designer chooses—to positively shape forum dynamics.

Creating Explanatory Textual Materials

A common problem that arises on help forums is a lack of clarity when someone asks a question. For example, on Reddit’s r/programming forum devoted to teaching people how to code, participants frequently had to ask follow up questions to clarify an original post. In a DIY flooring forum I observed, participants often had to ask if the original poster was laying tile over hardwood or cement. People also tended to ask the same basic questions over and over again, which occasionally annoyed forum participants who felt the material was already covered. Multiple moderators and forum participants I interviewed told me learning how to ask proper questions and learning how to tell which questions had already been answered were two major challenges they faced when first entering a new help forum community.

Forum moderators address this challenge in multiple ways. An obvious one is by acting as a “translator” who steps in to ask for clarification or provide clarification so other participants can address the original post (a topic covered in detail in Frith, 2014). Another, more permanent way in which moderators address the problem of improperly formed questions is by creating materials to address the issue. A few of the forums I observed, for example, included a “How to ask a question” resource for all new posters. Likewise, the forum rules often encouraged new posters to read the resource before asking for help. The documents explain what information people need to include if they want others to be able to address their question without asking for further clarification. For example, an IT forum might include a guide encouraging people to include information about the programming language they are using, their platform version, their operating system, and information about any unusual constraints shaping the project. A plumbing forum, in contrast, might encourage people to include information about the tools they have available, the amount they are willing to spend, and the time they have to complete the project.

Another design choice moderators make is creating a frequently asked questions (FAQ) resource for new posters. Unsurprisingly, many new posts ask questions that have already been answered many times. Based on my interviews with both moderators and participants, this situation remains true regardless of the topic in the help forum. As a result, some forums encourage participants to be receptive of these questions, but others—including Stack Overflow—often feature responses with some variation of “Search the forum for your answer. Don’t waste our time.” Moderators, in turn, often address this problem through FAQ documents that collect posts that come up again and again. The FAQ works as a resource that can help new posters avoid repeating questions because they can easily find answers to their questions without relying on forum participants.

The moderators I spoke with and who had created or linked to FAQs and “How to ask a question” pages doubted many new posters read the documents. A few moderators noticed a slight decrease in repeat questions and poorly constructed posts after creating these resources, but they felt this decrease was minimal. However, they still saw value in these documents. Most importantly, the moderators felt these documents gave other forum participants a resource to give to new posters: Rather than answer the same question again and again, forum participants could instead respond to a post by linking to the FAQ. Rather than asking people to clarify a question, participants could link to “How to ask a question” and save time. So even if people ignore the documents at first, the documents do potentially save the time of other forum participants, enabling them to devote their time elsewhere.

Understanding Subforums as Information Architecture

Most sizable help forums feature subforums that cover different topics. For example, Google's Android forum features more than ten general subforums as well as subforums for every type of Android phone. The Plumbers Forum features eleven subforums, ranging from "General Help" to "Water Heaters" and "Softeners." While there are exceptions to this model (e.g., Stack Overflow does not prominently feature subforums), most forums I observed broke help topics into discrete, smaller entities.

The forum moderators I interviewed identified organizing subforums as an important design task. Breaking down content into appropriate subforums can be beneficial because it adds structure to the site and enables participants to devote their attention to their areas of expertise. In the quote that follows here, a participant talks about how he created new subforums (he refers to them as "forums") when he became moderator. He did so because he felt it was difficult for people to find questions they wanted to answer because every question, regardless of topic, was grouped together:

> Yeah, when I became a moderator of _____, there were only two forums: General and professional. It was a mess. We had a bunch of posts, but they didn't have anything to do with each other and it's not like one person could answer most of them. So ___ and I reorganized the whole thing. We just moved stuff around and, I think, created like 8 other forums. It helped a lot. No one wants to log in to look at a bunch of posts they can't answer, so it worked to specialize things a bit and we ended up with a couple people who mostly just hang out on one or two of the forums cuz that's where they can help the most. I think we've added like three or four new ones since then.

While moderators I spoke with identified the importance of structuring subforums to make it easier for people to participate, they also warned me about the dangers of doing too much.

Two moderators shared experiences on help forums that became too fractured or too spread out into discrete subforums. In effect, the moderators of those forums made the content so specialized that there were too few people to make the subforums vibrant places for help information. Take a flooring forum as an example (a participant who made this point moderates a prominent flooring forum). It makes sense to break the forum down into subforums covering topics like ceramic tile, hardwood, laminate, etc. Different people might have expertise in only one or two of those areas. However, if a moderator decided to break the subforums down further into topics like grouting, floor layouts, applying mortar, and so on, it could create too many dead subforums that no one ever clicks on. Software forums face the same problem of determining just how fine-grained moderators should make the subforums, and as participants told me, choosing the number of subforums is a subtle yet important design choice forum designers must make.

Engaging in Community Building through Moderation

The previous sections covered more traditional design elements that emerged in my observational and interview data. My interviews with both moderators and forum participants, however, revealed that some of the most important "design" choices made in shaping forums focus on setting the overall tone of the forum. As covered in research discussed previously, forum moderators play a significant role in shaping how forums work. The category I cover in this section covers choices moderators must make about how "professional" a forum should feel.

Moderators have a wide range of responsibilities in online help forums, whether amateur or professional forums. One of their main roles is setting the tone for the forum. Many of the people I spoke with told me one of the things they like about participating in online forums is the sense of community they find there. Participants get the chance to help people while chatting with others interested in similar topics, and 10 of the 23 people I interviewed had met up face to face with at least one person they met through the forum. Based on both my observational and interview data, this sense of community was not consistent across forums. Certain forums often featured posts that were answered and then followed by long threads of individuals chatting, joking, and sharing stories. People on more social forums would also sometimes refer to posters by their first name, even when the name was different than their forum username.

The camaraderie I observed was not consistent across forums. Other forums, in particular Stack Overflow, featured fewer off topic, more social conversations. Posts were typically answered directly, and I never observed a primarily personal conversation break out on a Stack Overflow thread. According to help forum moderators I interviewed, the differences in the social dynamics between forums are, in part, a choice shaped by moderators. One moderator I spoke with, for example, encouraged a sense of community by intentionally starting conversations in posting threads and asking frequent posters about their individual projects. He, along with eight other research participants, felt that fostering a sense of community was crucial to encouraging people to participate because participants felt a strong attachment to the community.

Research participants also gave me examples of content they would post to encourage people to build friendships. They would, for example, ask questions about people's background, share inside jokes, intentionally reference older material, request updates on projects, and ask people how their kids were doing. Once a healthy, casual dynamic was established, moderators told me that other frequent users would organically engage in similar behaviors. In so doing, they turned the help forums into a social site as well as a site for finding help information.

Based on these findings, any technical communicator charged with taking over as "community manager" for a professional help forum must decide whether or not to follow this more social model or set terms to keep posts more on topic. After all, a few of the moderators I spoke with did not prefer the off-topic conversations, in-jokes, and relationship building that occurred in other forums. To these moderators, a help forum should feature questions and answers; nothing else. One person told me he left a forum because

> the posts just made it seem like an "in crowd" thing, like high school or something. I want to learn how to root a phone. I don't care about someone's kids or who's friends with who.

So, on forums like Stack Overflow or Reddit's r/techhelp, posts stay on topic far more frequently and fewer people seem to build relationships through forum posts. To some degree, as participants told me, forum moderators play a significant role in shaping this dynamic. They can, for example, encourage (though not force) people to keep posts on topic or they can engage members with informal questions and encourage social interaction.

My goal in differentiating between these two approaches to shaping forum dynamics is not to determine which is better. Each has advantages and disadvantages. More social forums may encourage people to participate more and form attachments to the community. Less social forums may stay on topic more easily and may not discourage new posters uncomfortable with entering what seems like a fully formed community. One item that did arise in my research was that participants reported that professionally sponsored forums (the Home Depot, Microsoft, and Apple forums were all mentioned specifically) tended to involve much less social interaction and community building. For a few people I spoke with, that was the primary reason they did not participate on more "official" forums.

DISCUSSION

People increasingly turn online to find help information and bypass traditional documentation to search for user-generated content (Rheingold, 2012). While organizations still need technical communicators to produce traditional documentation, major companies are also devoting resources to professionally sponsored help forums. While this shift towards user-generated content challenges a primary role for technical communicators (Carliner, 2012), it also represents an opportunity for our field (Gentle, 2009; Swarts, 2015b). As research has shown, successful forum moderation requires many of the skills required by technical communication practitioners (Berglund & Priestley, 2001; Lanier, 2011; Frith, 2014; Swarts, 2015b). Consequently, technical communicators are uniquely suited to step in as moderators and designers of professional forums.

As this article shows, forums require design choices, and those choices also play into the strengths of technical communicators. Most of these design choices are relatively minor, which is not surprising considering that the basic design of forums has not changed significantly over the past three decades. However, while the choices are often subtle, they do make a difference and are important to consider when designing a forum, especially a professional forum intended to supplement traditional help documentation. Just as Mackiewicz (2015) has shown how technical communicators can work with amateur product reviewers to add value to companies, I have attempted to show why understanding the design and dynamics of help forums offers an opportunity for technical communicators to facilitate valuable user-generated content. The following subsections discuss the findings in more detail.

Incentivization Structures

The different categories discussed in the prior sections of this entry cover different aspects of design. The first focused on understanding how different voting models and "tiers" of users can incentivize participation and give new members ways to determine the value of content, a point made in earlier research about how point systems could incentivize participation (Jain et al., 2014). My research did not reveal a definitive "best practice" for this model. Some moderators and forum participants I spoke with preferred systems that enabled downvoting and upvoting as a way to discourage subpar content and better alert users to misleading information. However, others pointed out how downvoting could lead to conflicts and preferred a unidirectional system in which users can only "like" a post.

Similar conflict emerged regarding bestowing specialized status to posters, with most people praising these systems for incentivizing participation and enabling people to build ethos through their posts. Others, by contrast, felt such systems encouraged people to contribute less than helpful content primarily to reach "senior" status. Anyone in charge of stepping in as a community manager of a professional forum should be aware of the benefits and drawbacks of the incentivization and ranking schemes of online help forums.

Help Content and Information Architecture

The other areas of design that emerged from my data focused more on content and organization than traditional interface elements. For example, the data suggests that technical communicators should create materials to assist forum participants. One of the strength of technical communicators is their ability to communicate technical material in an accessible manner. Practitioners can use those skills to create FAQs and "How to ask a question" documents for forums. Many moderators I spoke with doubted many first-time posters read the documents, but the materials still added value to forums because they gave frequent posters resources to link to rather than spending their free labor on repeat questions. The value in these documents comes from the clarity of the writing, serving as a reminder that despite the rather standard interfaces of most help forums, there are textual elements that can add value to user-generated help information.

The next category covered earlier represents a subtle form of information architecture, an area covered extensively in technical communication literature (Salvo, 2004). While creating a subforum architecture might seem straightforward, my data suggests it requires a solid understanding of both the subject material and the community dynamics. As multiple people told me, a lack of subforums can discourage people from participating because the topics are too broad. Too many subforums, on the other hand, can fracture a community and create "dead zones" in which questions frequently go unanswered. Many prominent professional support communities, including Apple and Microsoft, feature a subforum structure, and my data suggests determining the proper organization is an important design challenge faced by forum moderators.

Community Dynamics

Technical communicators who step in as community managers on professional forums must make important choices about how a community should operate (Gentle, 2009). As research suggests, "setting the tone" for a forum is one of the primary tasks of moderators (Frith, 2014; Swarts, 2015b). The data discussed earlier shows different ways in which moderators set that tone. Some try to keep conversations on topic, which people told me was especially common in professional forums. Others attempt to build a strong community by asking questions and making the content more personal. My interviews did not reveal a definitive best tactic to shaping community dynamics, but it did show different approaches moderators can take when creating or taking over a forum for a company.

CONCLUSION

Ultimately, online help forums are crowdsourced forms of technical communication. They supplement, and in some cases may someday replace, more traditional forms of documentation. Just as Mackiewicz (2015) has shown in the realm of online reviews, technical communicators have much to add to the design and functioning of both amateur and professional forums. But for these forums to run as well as possible, we will need more research into how moderators and administrators can design environments conducive to active, valuable participation. Existing research in technical communication has increasingly recognized the importance of help forums and argued that technical communicators have the professional skills to contribute to various online help forums (Lanier, 2011; Frith, 2014; Swarts, 2015b).

This article has filled gaps in that growing body of research by specifically examining the design choices people make when developing online help forums. This topic is important because major companies are turning to crowdsourced forms of documentation (Gentle, 2009). As I hope to have shown, just because forums are one of the oldest, most stable forms of online communication does not mean that they operate completely organically. Instead, design choices must be made, and as earlier research has suggested, technical communicators will likely play a role in making those future choices as companies devote more and more resources to networked, crowdsourced documentation.

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APPENDIX

I am conducting a study on user participation in online help forums. I have sent you a consent form. Please make sure that you have read the form in detail. Please take special note that you must be 18 years or older to participate in the study. If you have any questions about the consent form or the study you are being asked to participate in, please do not hesitate to ask.

Demographic and other site participation information

1. Age?
2. Profession?
3. Frequent internet user?
4. Do you participate in any other internet forums?
5. Look up help info on YouTube, etc.?
6. Do you lurk in any other internet forums?
7. Do you go to other forums when you're looking for help?
8. Is so, how long have you been going to these types of forums?
9. Do you ever participate in various open source projects?

Specific site

1. How long have you been a participant in the Android forum?
2. How did you get started?
3. Do you often go to the forum when you're looking for help information?
4. How much time do you spend looking through the forum?
5. Do you have a system for keeping track of the questions asked or do you just answer questions when you happen to see them?
6. At the most basic level, why do you participate in the forum?
7. Do you get enjoyment out of your participation?
8. Do you feel any attachment with the pseudonym you use on the forum?
9. Have you ever started any relationships, even just in chat rooms, etc. because of your participation in the forum?

Specific user

1. Do you read much documentation? Manuals? Books about coding, etc.?
2. Do you consider what you're doing as a type of documentation?
3. Do you consider yourself a strong writer?
4. Do you ever find it difficult for you to answer questions in a clear way?
5. Do you spend much time in situations in which you help people/give instruction?
6. If yes, do you think that experience has helped you on the forum?
7. Do you think the amateur nature of the responses (in other words, not trained technical communicators) is a problem on the site?
8. Does the lack of communication experience seem like a problem that could be improved?
9. Do you think it's difficult for the more expert participants to communicate information to some of the more beginner participants?
10. Can you think of any specific examples?

Design of the site

1. Have you read the posting rules and the terms of service on the site?
2. Do you take these rules seriously?
3. Do people seem to follow the rules?
4. Does flaming or fights between participants seem to be a problem?
5. Can you think of any examples?
6. Have you ever had tension with another participant?
7. Does the moderator ever step in or delete posts if people are being inappropriate?
8. Would you rather the moderator take a more or less active role in the forum?
9. Do you think there are ways a forum can be designed to reduce hostility?
10. Do you think there are ways a forum can be designed to increase participation?
11. Gaming elements? Recognition?
12. Do you think you're less likely to post because you don't get enough recognition?

Empathetic User Design: Understanding and Living the Reality of an Audience

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ABSTRACT

Motherhood is often a source of guilt, conflict, and ambivalence, and any communication about motherhood must be governed by an ethic of care and principles that take into account the fraught nature of such an identity. Social media provide individuals with new ways to discuss aspects of and share information about motherhood in different communication settings. Within this context, this article presents the results of 18 qualitative interviews of "mommy bloggers" and reports on the communication design principles and techniques these individuals employ to reach audiences of women. It also takes into account the contexts of users through social media. Overall, these bloggers use communication strategies such as identification, a rejection of perfectionism, an ethic of care, stories and narratives, branding, interactions with users, and a conversational tone to reach the target audience of women. These women act as professional communicators online by understanding this audience, living the reality of this audience through their own experiences, and designing communication that appeals to and ultimately improves the lives of their users. A study of their communication patterns can provide communication designers with insights on what I call empathetic user design and the importance of lived experience as authority.

Categories and Subject Descriptors

H.0 Information Systems: General

General Terms

Documentation, Design

Keywords

blogging, audience, social media, women, user experience design, online communities

INTRODUCTION

Technical and professional communication (TPC) and communication design scholars are increasingly paying attention to social media and its uses within these fields (see, for example, Potts, 2013; Bowdon, 2014; Hurley & Kimme Hea, 2014; Longo, 2014). Social media, in turn, can be thought of as electronic communication that consists of a public or semi-public profile, a list of other users that share a connection, and the ability to view connections within the platform (boyd & Ellison, 2008, p. 211). Accordingly, social media often create online communities in which content is shared and people are connected (Singleton & Meloncon, 2011, p. 7). As such, they often represent a site of "tension between technologies and users [and are] integral to the ways in which we" teach, research, and use social media (Kimme Hea, 2014, p. 1). That is to say, social media are everyday mediators in our interactions with each other and often define and shape how we communicate.

The use of such technologies requires critical participation in and interaction between communication designer and user in order to achieve an effective exchange of information and ideas. By examining the ways in which bloggers connect with audiences, we – as technical and professional communicators – can assess methods for sharing information with audiences through blogs and methods for researching and understanding audience expectations related to social media in TPC.

This article, based on qualitative interviews with 18 "mommy bloggers," addresses how women (specifically mothers) connect and design communication for each other on social media, particularly blogs. This entry reveals how mommy bloggers use communication design principles and techniques to reach audiences of women. The entry also notes how these bloggers use social media to account for the contexts of their interactions. They do so by engaging in identification through authenticity, the rejection of perfectionism, an ethic of care, narratives and stories, branding, interactions with users, and a conversational tone. In sum, we know that "weblogs are a social networking technology that . . . [has] interactive, reflective, and collective qualities" (Baird & Fisher, 2005, p. 15). By examining such qualities through mommy blogging, individuals in TPC can gain a better understanding of how communication design for women occurs in social media contexts. Doing so can provide important insights for using social media to connect with and convey information to similarly focused audiences in online environments.

LITERATURE REVIEW

Women's Communication Design

In TPC, historical examinations of communication design by and for women has been done through Tebeaux and Lay's (1992) scholarship on the English Renaissance, Neeley's (1992) attention to female science and technology writers in the eighteenth and nineteenth centuries, and Thieme's (2010) examination of the public rhetoric of Canadian suffragists, to name a few examples. While such historical studies give us a foundation of communication design for women, we have not fully researched how communication design by and for women occurs in contemporary social media contexts. A lack of research on this topic ignores a large portion of social media use. In truth, as Abraham et al. (2010) note, women represent today's digital mainstream, and social networking is central to women's experiences related to online environments (p. 3).

Within this context, Lopez (2009) notes a connection between blogs and other forms of women's writing, such as diaries, which are often dismissed or treated as if invisible. She argues that such connection "cements the necessity of examining the contributions of women to the blogosphere, as their exclusion must be noted and remedied" (pp. 735-736). If social media

> provides both a forum for the broadcasting of women's voices and the community to support that voice, then we should be paying much more attention to the work that is happening on these websites (p. 736)

especially since such work can be characterized as a form of extra-institutional TPC (Petersen, 2014). Such communication design and amplification of women's voices has been successful and effective. It should thus be applied and transferred to other contexts and users in TPC, especially given the proliferation of social media.

Mommy Bloggers

Mommy bloggers have reached an influence through social media that previously has been unseen, and mommy blogging has been called a "radical act" (qtd. in Friedman, 2013, p. 34). Today, marketers and companies increasingly turn to mommy bloggers in order to reach their target demographic, knowing that their promotion of a product or service will get more traction than an advertisement without the backing of another trusted mother (Belkin, 2011). These mommy bloggers know themselves to be powerful in some measure by recognizing the influence they have over others and the far-reaching effects of their social media presence. Such impact in social media contexts should be of interest to communication designers, as social media is a permanent part of the Internet landscape. Such prevalence means, "All users are now product reviewers, journalists, and stockholders who can immediately impact a company's reputation" (Singleton & Meloncon, 2001 p. 8). Communication designers must therefore be aware of the reach and impact of social media (Singleton & Meloncon, 2011). They must also be able to guide a company in a social media strategy that addresses user preferences, global and cultural factors, connecting with users socially, and immediate responses (St. Amant, 2015).

Overall, mommy bloggers use the rhetorical technique of identification to successfully reach and engage with readers. According to Burke (1966), identification is, "ways in which we spontaneously, intuitively, even unconsciously persuade ourselves," and "Identifications can also be deliberately established" (p. 301-302). Additionally, mommy bloggers accomplish what they called "genuine" or "authentic" identification by rejecting perfectionism, performing an ethic of care, telling stories and narratives, branding, responding to and interacting with readers, and employing a conversational tone. Interviewee Willa Jean, for example, recounted this notion of authenticity via conversational tone when she responding to a reader by saying, "How cute are you!?!?" (personal communication, December 2012). In this response, Willa Jean does not filter her enthusiastic reactions to her audience, nor does she worry about writing formally. These techniques reach the target audience in ways that resonate with them and meet certain expectations. As such, they represent designing communication that is accessible and identifiable to users.

Within this context, empathetic user design is necessary given that motherhood is often a site of guilt, conflict, and ambivalence (Rich 1976; Douglas & Michaels 2005; Brown 2010). Thus, any communication about motherhood must be governed by an ethic of care and principles that take into account the fraught nature of such an identity. As Tebeaux and Lay (1992) suggest, "[W]ith women assuming many roles, both public and private, writers need to consider once again that women readers may bring an entirely different context to the reading process than men readers" (p. 200-201). Mommy bloggers act as TPC designers online by understanding their audience, living the reality of the audience through experience, and designing communication that appeals to and ultimately improves the lives of their users.

Empathetic User Design

In every way, mommy bloggers are user experience design experts. While user experience design has been defined as focused on a person's perceptions and responses, Bevan (2009) suggests extending that to include "the way user experience evolves from expectation, through actual interaction, to a total experience that includes reflection on the experience" (p. 1). Mommy bloggers have lived the experience of motherhood, undergoing its challenges and joys, consequently understanding just what other users will face. They use blogs to reflect on those experiences and to interact with other mothers who are also reporting on their experiences with motherhood. Women who have experienced postpartum depression, for example, approach the topic as an expert, designing their communication to help others who might be experiencing it and working to ensure that nobody else will go through what they have already been through.

This approach to designing communication to meet the experiences of users and their feelings as related to these experiences is what I call empathetic user experience design. It is empathetic as it highlights the importance of designers understanding an audience by living through common experiences or facing the same challenges with usability. According to this perspective, mommy bloggers have a natural sense of this approach to communication design because of their lived experiences. That is, motherhood is experienced twenty-four hours a day and seven days a week. Women constantly engaged in this work and integrate it into their lives, learning a new normal and constantly engaging with her own techniques to test which ones work most effectively. As a result, these practices of mothering become inherent and ingrained, meaning that women learn by doing and it may become routine.

Such user-centered design has been discussed in terms of producers and consumers. Salvo (2001), for example, suggests participatory design creates ways for users and workers to be involved (p. 281). We witness this in social media contexts where communication occurs within communities and is a dialogic process centered on the interaction between the producer and the consumer. This situation is especially true for mommy blogs, where the comments readers make in response to a blog post engage users to participate in creating knowledge. This is a dialogic interaction that, as Salvo (2001) suggests, blurs the lines between design and testing (p. 289). This blurred distinction means users are included as participants in the design process of mommy blogs. The comments, community, and interactions on a mommy blog serve as a bridge among those engaged in the work of mothering. In so doing, they demonstrate Spinuzzi's (2005) idea that, "participatory design studies typically require continuous critical participation by workers" (p. 169). Such design must take into account web contexts, especially social media given its ability to connect users and engender participation.

Technical and Professional Communication

TPC is broad, and the field has moved toward embracing definitions that take into account the complex and various situations in which such communication can occur. As Albers (2008) proposes

> technical communication is about creating communications that properly conform to human behavior in complex situations. Technical communication does not operate within a clean, simple world; a faulty assumption which has lead to many impossible-to-read texts and endless jokes about computer manuals. Instead, it operates within a highly complex and dynamic world. Now and in the future, a goal of everyone involved with communicating information must be to move away from presenting text to generating information which [sic] leads to knowledge. (p. 122)

In essence, Albers notes the complexity of the contexts in which TPC occurs. TPC must thrive within these varied environments, including social media, by engaging in communities and networks that share, create, and combine knowledge. Accordingly, knowledge creation and collaboration have become a central part of what TPC can and should do.

Participation is central to the social media form of blogging. This factor requires bloggers to create a profile and content, connect with other bloggers and users by commenting and interacting with each other's content, and maintain connections with other bloggers through this interaction. It is as Jones (2012) "argue[s] that communication researchers and designers need to theorize participation as a crucial element of the research and design of social web experiences" (p. 243). According to this perspective, one way women engage in social media communication design is through blogging. My article answers Jones's call with particular attention to mommy bloggers and their use of participation, both of their audiences and themselves, in designing communication for social media through blogs.

METHOD

In October 2012, I obtained IRB approval (protocol #4818) from Utah State University to conduct a qualitative study that involved interviewing 22 mommy bloggers. For this research, I defined "mommy bloggers" as bloggers who self-identified as women and mothers and who also wrote/blogged about parenting and children or other domestic topics (e.g., cooking, crafting, or decorating). My targeting of participants focused on women who self-identified as stay-home moms; while this group included women who monetized their blogs, not all blogs were a source of income for the women I interviewed.

For this project, I solicited participants via social media (Facebook) and my personal blog on Wordpress (thebookshelfofemilyj.com). I also used snowball sampling, asking participants to share their blogging contacts with me. Such sampling resulted in contact with a few women who were not primarily stay-home mothers; however, I included them in the study given their expertise and knowledge about mommy blogging. For this project, I initially contacted 27 women for interviews, and 22 of those individuals (81%) agreed to be interviewed. (Of the 22 persons I interviewed, only 18 provided germane data—or data that was relevant to communication design—and I will focus on the data from these 18 sources in the analysis presented later in this entry.)

Six of the interviews were conducted in face-to-face settings when possible (i.e., I visited the homes of interviewees), but I also included 12 women who lived outside of my immediate geographical area and conducted 11 of these interviews by phone and one by email. The interviews were recorded via a digital audio recorder, which was used for all interviews (except the one conducted through email). I then transcribed the resulting recordings, and all participants were given pseudonyms in the results reported here. The individuals involved in this kind of activity vary, as does the followers of their blogs. For a range of their backgrounds and participations (see Table 1).

All of the interviews were coded by themes, which I identified through color coding (see Appendix B). These themes were based on interview questions and research questions on what makes these women professionals, and participants provided me with a broad sense of how mommy bloggers worked and characterized themselves.

After that initial coding and a publication of those findings (Petersen, 2014), I identified communication design data from the interviews and used grounded theory to allow themes associated with design practices to emerge as I made notes. The grounded theory approach permitted me to review the interviews several times, allowing themes to emerge across the documents. Several of the themes overlapped with one another. (Consequently, I distilled these items into the major headings found in the "Findings" section of this entry.) From these new concepts, major themes emerged from my notes. (See Table 2 for a listing of minor themes and the major themes that emerged from them.)

All of these techniques work toward identification and empathetic user design, using lived experience to design communication for readers.

FINDINGS

Identification

Identification is a rhetorical technique that builds connections among those individuals who have experienced the same phenomenon (Burke, 1966). Mommy bloggers employ this technique effectively because they have lived the experience of ambivalent, difficult, joyful, and challenging motherhood. That is, they are mothers, identify themselves as mothers, and recognize they have lived through these various experiences and sensations of motherhood. Because their audience is likely composed of mothers as well,

Table 1: Backgrounds of Mommy Bloggers Who Participated

Pseudonym	Blog Size	Blog Topic(s)	Monetized	Work Situation
Laura	< 100 followers	Family	No	Stay-home mom
Diana	< 100 followers	Mothering and family	No	Full-time work outside of home
Mary	< 100 followers	Family and faith	No	Stay-home mom
Maude	< 100 followers	Family and books	No	Stay-home mom
Ellen	< 100 followers	Family and personal experiences	No	Stay-home mom
Anne	< 100 followers	Family and mothering	No	Stay-home mom
Betty	< 100 followers	Education and mothering	No	Stay-home mom
Beverly	100 to 1,000 followers	Education and mothering	Yes	Full-time work outside of home
Caroline	100 to 1,000 followers	Family, faith, and mothering	Yes	Stay-home mom
Maggie	100 to 1,000 followers	Recipes	Yes	Stay-home mom
Ramona	100 to 1,000 followers	Mothering and children	Yes	Full-time work outside of home
Willa Jean	1,000 to 10,000 followers	Mothering and kindness	Yes	Stay-home mom
Lucy	1,000 to 10,000 followers	Crafts and recipes	Yes	Stay-home mom
Shirley	1,000 to 10,000 followers	Recipes	Yes	Stay-home mom
Nellie	1,000 to 10,000 followers	Crafts and mothering	Yes	Stay-home mom
Beatrice	1,000 to 10,000 followers	Crafts and mothering	Yes	Stay-home mom
Carrie	> 10,000 followers	Recipes and crafts	Yes	Stay-home mom
Jane	> 10,000 followers	Recipes, crafts, and mothering	Yes	Stay-home mom

identification is an effective rhetorical tool these bloggers use for captivating and connecting with that audience (Burke, 1966). Such approaches can be seen in the way one interview subject, Anne, described how blogging helped her feel reassured as a mother because many individuals "struggle with certain things" (personal communication, October 2012); identification also helps describe interviewee Nellie's practice to "take pictures of my messy kitchen or my craft room . . . [and] people think . . . that looks like mine too" (personal communication, November 2012).

As a rhetorical technique, identification becomes part of the integral communication design of a mommy blog, for the lived experience of motherhood is required in order to enter that community. That is, if one is not a mother, other members of that community will not view the individual as a credible contributor to this community. This is because medical professionals or experts in psychology, no matter how well trained, often lack credibility unless they hold the title of "mother." Mommy bloggers, for example, consciously post about issues that are most familiar to their readers. Such posts include ambivalence over the motherhood experience and identity, failures and disasters, depression, and the real-life occurrences of being a mother. Participant Beatrice, for example, said she and five other women started their blog after having postpartum depression: "We found the site really helped us by creating and making something. It helped us feel better about ourselves and feel like we could accomplish things that we didn't think we could before" (personal communication, November 2012).

Sixteen of the 18 bloggers directly expressed being concerned with being authentic, genuine, and real. During our interview, for example, mommy blogger Laura explained, "It's a way for me to communicate things that are bothering me sometimes or things that are personal to me that I think other people would relate to" (personal communication, December 2012). She has written about her disinterest in housework and said her blog helps her to know that she is, "not the only one who doesn't want to go exercise or doesn't want to do the dishes" (personal communication, December 2012).

In addition to the items noted here, bloggers do not wish to deceive other mothers or to present themselves in a favorable light for fear of hurting another woman's mothering experience. As one interviewee, Beatrice, noted in relation to her experience

Table 2: Major Themes that Emerged from the Research

Themes that Emerged from Notes	Major Themes
Authenticity: telling the truth and showing both positive and negative sides of motherhood **Personal**: sharing thoughts and concerns that may not get vocalized in a face-to-face setting **Depression**: sharing difficulties and mental health problems associated with motherhood **Outlet for women**: using social media as a way to relax and perform an identity other than mother **Genuineness**: presenting an accurate picture of the messiness of life **Honesty**: telling the truth about emotions	Engaging Authentically
Mistakes: presenting experiences imperfectly **Rejecting perfection:** embracing the messiness of life and avoiding idealized content **Simplifying**: eliminating extra curricular activities in favor of family time	Rejecting Perfectionism
Ethic of care: creating content with the emotional circumstances of the user in mind **Inspiring**: posting content that will uplift and encourage other mothers **Support**: interacting with other mothers to find emotional support for difficult circumstances **Affecting others**: using content to help, inspire, or reach users	Performing an Ethic of Care
Stories: using stories of experience to explain technical content or processes **Documentation**: writing down life experiences for future memory	Telling Stories and Narratives
Branding: highlighting the unique features of content or experience in order to make one's work memorable **Controversy**: using difficult topics to gain attention or avoiding difficult topics to avoid conflict **Positivity**: presenting the positive features of an experience **Social media**: using many forms of social media to broadcast content	Branding
Meeting in person: connecting through social media that leads to face-to-face interaction **Validation**: using interaction with others through social media to find meaning and purpose **Writing for readers:** posting content with the audience in mind **Connection**: finding new friends through the interaction of social media **Responding**: acknowledging readers by interacting with them **Community**: interacting with users in order to bond and create ongoing connections **Isolation**: writing about the loneliness of being an at-home parent and using social media to alleviate social isolation **Being accessible:** responding to users and messaging them privately if possible **Interaction**: responding to users and joining a conversation	Responding to and Interacting with Readers
Humor: presenting difficult moments in a light and fun way **Woman's voice**: writing in a way that appeals to other women **Tone**: writing in a friendly and casual voice	Employing a Conversational Tone

with postpartum depression, "You have to remember that there are people behind all of it and there are things that happen, and I had to remember not to compare myself to everybody else's perfect image" (personal communication, November 2012). Beatrice wrote about this issue on a friend's blog, essentially issuing a call for bloggers to be ethical with regard to their audience. The following entries in this overall section elucidate what those ethics look like for mommy bloggers.

Authenticity

For purposes of this study, I define authenticity in blogging as willingly posting imperfect content or experience and doing so self-consciously in an effort to be true to one's lived experiences. I arrived at this definition because participants consistently described being "authentic" or "real" in such terms. While this might superficially seem to be a communication design technique that might push diverse readers away (i.e., it is counterintuitive to form a community of people from different and various cultural, ethnic, political, or geographical backgrounds, as we tend to gravitate toward those who are most like us), it has the opposite effect. Mothers, while all different in context, background, parenting, and beliefs, share the motherhood experience, which has striking similarities. As Battarbee and Koskinen (2005) explain, "The concept of co-experience builds on the understanding that experiences are individual, but they are not only that. Social interaction is to the experiences of the individual the same as a sudden jolt is to a jar of nitroglycerine: it makes things happen" (p. 15). In other words, shared experience overrides the differences women may encounter in terms of culture or belief. Therefore, one mother might share her authentic experience with readers in an attempt to be true to herself. In so doing, however, she is designing unique communication that can reach across these boundaries because of broad shared experience.

In relation to these ideas, Friedman (2013) explains, "[The] breadth of experience allows readers access to both the diversity and commonality of experiences" (p. 57). A unique experience becomes familiar to the audience because of this connection. For example, one interviewee (Willa Jean) explained, "I can't worry about what everybody's going to think because I have a very diverse readership and . . . I have to be true to myself so I try to do that first and foremost" (personal communication, December 2012). Willa Jean recognizes that her authenticity might not appeal to all of her readers (i.e., "I can't worry about what everybody's going to think"), but that attention to it is actually what connects them (i.e., "I have to be true to myself"). Her experiences will be different than others' experiences, but the overall message behind that communication will ring true.

This authenticity is also described as "keeping it very real" (Willa Jean, personal communication, December 2012). In other words, the content is not made up in order to evoke pathos (emotion), but instead, the content actually occurred and readers get a first-hand account of what happened through a lens of another actual mother's experiences, not a fictionalized version from a character in a book or on a television show. The "real" experience shared by a mommy blogger might not be the same way a reader has experienced motherhood. However, the feeling of it and the familiarity of it will ring true. As interviewee Willa Jean shared, "[I]f the day sucks and my kids are chimps and acting crazy, I'll talk about it" (personal communication, December 2012). Another interviewee, Caroline, re-enforced these ideas when she noted, "I feel like the blogs that get a lot of comments are usually talking about how hard their day was and you know more relatable things as a mom" (personal communication, November 2012). Caroline echoed Willa Jean's sentiments of keeping content on the blog "real." Yet, at the same time, Caroline expressed ambivalence for this sort of content, as she wants "an escape" from some of the grittiness of mothering.

In these self-consciously "authentic" postings, mommy bloggers demonstrate how the personal becomes authentic by sharing and discussing. Ramona, for example, explained she has drafted a post called "Do Throw the Audience Out the Window." As a public school teacher, she knows this is contrary to what she teaches her students about writing; however, she has seen the value of writing one's "real" experiences and being authentic in documenting those experiences instead of stylizing it for an imagined audience. Polishing up a motherhood experience until it is bright and shiny and unrecognizable might reflect the way a communication designer strives to impress an audience by taking into account the rhetorical situation. Unfortunately, it fails to recognize that audiences are real and might identify more readily with the messiness and abandon that comes through posting about motherhood and hard days. For Ramona, "blogging is a very personal thing," but by being personal, she engages her audience more effectively (personal communication, December 2012).

Laura, another blogger, recognized the value in relating personal and authentic information. She described her blog as "a way for me to communicate things that are bothering me sometimes or things that are personal to me that I think other people would relate to" (personal communication, December 2012). In attempting to identify with her audience, she reaches for the personal and the authentic, rather than the glossy and glamorous. The nature of motherhood is often messy; therefore, one form of identification is the attempt to portray "reality" in an authentic and personal way. Laura disdained the perceived notion that "mommy blogging is a chance for people to toot their own horn and make themselves look better than they really are" (personal communication, December 2012).

The personal and authentic portrayal of motherhood then becomes a political act as we know the personal is political. Women who attempt to identify with those whose lives are not magazine-worthy make a statement of empowerment for women to claim both the authenticity and the importance of that authenticity in their lives. They reject stereotypes of domestic goddesses and instead embrace the fact that motherhood and living real life can be difficult. They seem to understand what Albers (2008) clarifies about TPC design –that "Information is not a commodity to be transferred from person to person. It is inherently value laden and the social and political framing of the source strongly influences the overall presentation" (p. 119).

Interestingly, not all blog postings are meant to be political statements. These mommy bloggers use their blogs for personal strength and use humor to get through the problems they face. Laura, for example, described, "I've had to laugh at myself. I've had to laugh at the situations I get in with my children or the things that they do. . . . Being able to write those things down and look at things in a new way has helped me enjoy being a mom" (personal communication, December 2012). She recognized the value to her own emotional health that being authentic through humor can bring.

Another mommy blogger, Maggie, remembered sharing a humorous story about her son putting the laundry on the stove and setting the kitchen on fire. She said it was "one of the funniest things that happened while I'm working" (personal communication, November 2012). Through this humorous description of these events on her blog (and readers' reactions to it), Maggie was able to "release" and "put what I'm feeling into my writing and kind of get it out and it's like, 'Okay, that was actually really funny'" (personal communication, November 2012). In these cases, the act of sharing it with her readers helped her to find the humor in the situation for herself, and it relieved the stress of mothering children who set things on fire.

Additionally, Beatrice (another mommy blogger) saw her blog as a way for her and her collaborators to overcome postpartum depression. As she explained, "The site really helped us by creating and making something. It helped us feel better about ourselves and feel like we could accomplish things that we didn't think we could before" (personal communication, November 2012). In some ways, the identification through blogging allows the blogger to find personal identity. In this case, Beatrice might share her experiences in an attempt to understand them and to reach out to others. Yet this identification ultimately occurs inwardly, with a woman understanding her own emotions, her own struggles, and her own ways of dealing with them. Beatrice additionally found, "there's something about putting yourself out there and getting a response, a slight pat on the back, that you don't get as a mother that can just build you up and make you feel okay" (personal communication, November 2012).

Identifying with readers through authentic experiences leads to validation for these women. This sort of communication design is not just for users, but it is communication designed for the writer as well. Maude, for example, stated motherhood "is very isolating, so there's this need to reach out to other people and as women we need to express, and so it helps with that, and that helps me become a more calm and focused mother" (personal communication, November 2012). Anne, by comparison, said blogging has "reassured me as a mother to know that I'm not the only one out there who struggles with certain things or who has these issues come up with their kids, so it's nice to read that there are people who I think highly of who also struggle with certain things" (personal communication, October 2012). Beverly, in turn, said, "I've just learned a lot myself by writing the blog" (personal communication, November 2012). These women have thus experienced "dialogic ethics, [in which] the self is constituted through its interactions with the other. Identity is created in the interplay between self and other, a making of one's self through communication" (Salvo, 2001, p. 276).

Rejection of Perfectionism

A large part of authenticity and therefore identification means not presenting perfection to the audience and even rejecting the notion that life can be perfect. One interviewee, Beverly, called the portrayal of perfection online "dangerous for women, because it doesn't allow a full picture of what motherhood actually looks like." Vulnerability builds relationships, and Beverly said it is important to "share what you struggle with" (personal communication, November 2012).

All 18 participants condemned the type of blogs that are hyper-focused on perfection and tidy images that portray clean homes and well-behaved children without showing the chaotic side of life. The interviewees noted these factors when I asked them about their social responsibility, particularly to their audiences, or when I asked, "Do you assimilate to or rebel against a typical form of womanhood/motherhood? In what ways?" Betty, for example, explained her distaste with the "perfect" portrayal of life on blogs: "It's like, 'Here I am and here's my mister out doing the work, and I'm cleaning the floors.' It's just like, no! . . . It's negative. It infers a sense of patriarchy that I reject, and it infers that women are supposed to be at home in the kitchen and barefoot" (personal communication, November 2012). Similarly, Mary explained

Figure 1: Carrie dropped a jar of pickle relish and shared the mess with her social media followers.

> I want to show people that I don't have to be miss happy Mormon Mom all the time. I want to show you that I get angry, and I'm not happy as a mom sometimes. . . . I do think for the most part [perfect blogs] are fake, because it's just a fact of human nature that we're not happy all the time, not patient all the time, and . . . it's not doing any good to see a lot of glossed-over images. (personal communication, November 2012)

Mary's words reveal a concern for readers through rejecting perfection and being authentic. She does not want her blog to serve as an ideal for other women to achieve; instead, she presents the way her life really is in order to connect with other women whose lives are not perfect either.

If mommy bloggers have this awareness and concern for their readers, it makes sense that few blogs perhaps actually present a stylized and perfected version of life all of the time. Even those that tend to have professional photography and carefully crafted projects throw in failure posts to appeal to their audiences. This sort of communication design that takes the gilding off of what we think of as "standard" when referring to mommy bloggers is concerned with identification and an ethic of care. This design takes into account the user experience and realizes that users will not be fooled by the false perfection portrayed by some. What follows is an image of imperfection that Carrie shared on Facebook for her blog followers (see Figure 1).

This image connects to ideas of imperfection by showing that Carrie's perfected recipes on her blog are not perfect in process. In this way, the bloggers are using multiple modes of communication (e.g., visual and verbal) to establish a rejection of perfection and identification with readers.

Other social media sites play into this pressure of perfection. The mommy bloggers I interviewed realize women are receiving various messages about how to be a better or a perfect mom from multiple sources. In my interview with Lucy, she explained an attempt to counter expected perfection in a blog post for cupcakes, as women may find themselves making cupcakes for birthdays, holidays, or other types of parties. She said, "We've made these store bought cupcakes, [as] moms can get overwhelmed by Pinterest. . . . We just got little Christmas tree cupcakes and a cute printable and tied it on with some baker's twine. Cute presentation, but little to no effort" (personal communication, December 2012). In noting these things, Lucy recognizes her audience wants to participate in creating the stylized crafts and treats from Pinterest, but that they may not have the time or expertise to do so. She offers them a solution by finding store-bought version to save time but that still has the flair of a homemade project. Women can participate in projects without doing everything perfectly from scratch. Lucy received a thank you from a mother who said the treat took five minutes to make for some preschoolers. She liked, "helping to simplify somebody's life. It's fun and rewarding to see" (personal communication, December 2012). Anne, in turn, explained,

> I don't want to create this rosy picture that our family's perfect, because I feel like most of the things I put on there are like, "Look at how much fun we had doing this, and then we did this". . . [but] I don't want people to think that . . . they just have a perfect life, because that's not the way it is. (personal communication, October 2012)

In effect, Anne understood her blog tends to focus on the highs of her mothering rather than her lows, as evidenced by her use of the words “rosy,” “perfect,” and “fun.” She tempered this situation by recognizing that her readers may only be getting a singular depiction and consequently presenting the other side when necessary. For example, she shared a post about a time when her family was sick with pink eye, croup, and had to go to the emergency room all in the same few weeks. She also highlighted the death of a relative and when her oldest daughter found out that the Easter Bunny was not real. In this project to present life as disorganized and ultimately normal, there is an ethic of care. That is, Anne recognized others might have different experiences than hers and “nobody’s perfect.” She therefore did not want to cause hurt feelings for her readers. Another interviewee, Nellie, expanded on this idea when she explained that posts about the problems she encounters or the mistakes she makes are the most popular (personal communication, November 2012).

Ethic of Care

Identification as a form of communication design for both writer and reader can be explained through the conscious use of an ethic of care (i.e., the acknowledgement that “women’s capacities for care as a human strength rather than a human weakness”)(Tong, 2009, p. 163). Mommy bloggers, in turn, may design their sites in an attempt to care for and reach out to women who might be struggling, and as a result end up benefitting from that care as well. Gilligan (1995) explains,

> Listening to women’s voices clarified the ethic of care, not because care is essentially associated with women or part of women’s nature, but because women for a combination of psychological and political reasons voiced relational realities that were otherwise unspoken or dismissed as inconsequential. (p. 123)

Noddings (2013) further suggests, “[A]n ethic of caring arises, I believe, out of our experience as women” (p. 8).

All 18 bloggers I interviewed enacted care for others through empathetic user design that focuses on personal connection and positivity. Ellen, for example, was careful not to step “on anybody’s toes or to make them uncomfortable” (personal communication, November 2012). Tronto (1987) wrote that the ethic of care is focused on responsibility and relationships, “tied to concrete circumstances,” and “best expressed not as a set of principles but as an activity” (p. 648). Mommy bloggers’ caring activities are virtual and attend to the audiences needs by taking into account their circumstances.

We see this caring and its actions through Willa Jean’s experiences. She reaches “out to each person individually when they comment or when they email” (personal communication, December 2012). She even meets them in person, once inviting a woman she had met from another state to fly out and visit her. Willa Jean said her audience is “very special to me, very dear to me, and I appreciate all of the love and support that I get” (personal communication, December 2012). She explained this give and take as a way for women to support and inspire each other. Her purposeful design of care on her blog has set a tone for her audience. As a result, the caring has become cyclical, reaching her audience and herself through a community. She called it “a beautiful community of women” (personal communication, December 2012).

Consequently, mommy bloggers have designed communication with the awareness that their audiences might be struggling and might need some care, given the shared experience of motherhood. One particular interviewee, Maude, applied this ethic of care more generally:

> It’s really important to be aware that everything you say or write can affect and will affect other people. And you can be a source of good, but you can also spread things that aren’t true, misinformation, that could end up hurting people. (personal communication, November 2012)

Diana, another blogger, focused her care on women who might be struggling with the busyness of life and some depression, as she was. She found this a struggle for her and her family, so she “blogged because I wanted to help other people simplify and know that they weren’t alone” (personal communication, November 2012). For many of the interviewees, the motherhood experience can be lonely and isolating. Mommy bloggers realize this and have used the blogging platform as a way of designing communication for women who are experiencing isolation to connect.

Such a situation is highlighted in Willa Jean’s observations of another blogger who had posted a picture. A group that advocated for homeschooling saw it and “attacked.” Willa Jean described, “It was just this huge mess of a thing where at one point I had to just walk away from following all of it. . . . It was turning into this war between these home school moms and the public school moms. It got really ugly” (personal communication, December 2012). Willa Jean was saddened by this battle, as her blogging goal is to foster connection and empathy. Her experience demonstrates how an ethic of care might backfire if the audience does not agree with the rhetorical messages.

While authenticity and messiness is necessary for identification, the bloggers also described the importance of being positive as a way of caring for their readers. Willa Jean shared:

> Other women are not alone. The fact that another mother could be out there feeling so lost or alone hurts my heart. I want to reach out to those other women and say, “Hey, look! I’m in it with you, and it’s okay.” Like the day was hard but tomorrow will be better. So I think the biggest thing is just to be putting that positivity and love out there. (personal communication, December 2012)

As Willa Jean aptly noted, social media connection allows women to cross geographic and sociocultural divides to reach each other and care for each other.

Positivity

Positivity plays an important role in this ethic of caring. Ellen is most proud of her miscarriage post, in which she explained how a poem helped her “go through hard times, but they don’t have to bring you down” (personal communication, November 2012). She realized that this experience was one of the lowest of her life, but she turned it into a positive learning experience and hoped that her readers could apply that positivity to their own difficulties. Interestingly, 12 of the 18 bloggers described presenting a positive side to the problems they present and hoped to encourage other women to find good in the difficulties they may face.

Such design is a way of encompassing women’s experiences within a digital public space. An ethic of care emphasizes the positive aspects of women’s relationships within a digital space. It also suggests communication design for social media would benefit from including these caring techniques as a way of engaging in empathetic user design. As Day (2000) explains, "Care is not a personality disposition, but an activity of sustaining relationship, of maintaining a connection" (p. 105). This factor suggests that empathetic user design is useful in all social media circumstances (as the goal of communication design is to connect with users), not just in reaching audiences of women.

While Day (2000) recognizes that the ethic of care has the potential to constrain women's experiences, "when women prioritize caring for other over caring for themselves," the dialogic nature of blogs and other social media spaces circulate caring and allow the communication designer to receive reciprocation (p 109). The comments made on blogs and in social media discussion threads create a community of ideas, meaning that designers engaged in empathetic user design through social media will likely see the return effects of such design. Empathetic user design has the potential to sustain relationships and practice caring among users within a community. This aspect suggests communication designers ought to consider specific user audiences within social media contexts, focus on the importance of creating and maintaining relationships through the connectivity of social media, and make design choices based on care. Approaching communication design through this ethic of care displayed by mommy bloggers will attract users and create active and interactive online communities.

Stories and Narratives

A key component of identification is sharing personal information, especially in the form of stories. Interviewee Shirley suggested that sharing stories is one of the best ways to build a loyal following. Research indicates bloggers use stories and anecdotes to connect with readers and engage them in content, as blogs emphasize "the personal over the corporate" (Friedman, 2013, p. 30). According to Gruen et al. (2002), "designers and engineers need a deep understanding of the people for whom they are designing . . . Stories capture this understanding in a rich and meaningful way" (p. 503). In essence, telling stories is an effective way to understand and engage with an audience.

Carrie, whose blog is monetized and focused on drawing views rather than personal connection, said, we, "add a personal touch so they can connect with us. We found that if we have a way to connect with our readers, they'll come back for more" (personal communication, November 2012). The way she and her collaborators have accomplished this is by sharing stories. While they tend to get views by sharing recipes and crafts, they merge these with stories of how their family has interacted with such instructions or memories that they have in order to identify with the audience and sustain views. For example, Carrie said, "My sister did a Malibu chicken recipe . . . so she put a story about this experience she had at Sizzler on a date . . . with this really weird boy" (personal communication, November 2012). After the story, she presented the recipe. Such storytelling seems to be successful as Carrie's blog attracted some 200,000 views a day at the time of her interview.

Stories are a familiar element to all people. They represent "powerful tools not only for capturing the situations in which technologies will be used, but also for encouraging others to recall relevant situations from their own experience" (Gruen et al., p. 507). One interviewee, Maggie, noted she always includes "a story behind the recipe, and then other times I have funny stories" (personal communication, November 2012). Maggie knows no one wants direct advice or mothering/cooking/cleaning instructions. They want to be able to hear how such advice or information played out for the woman giving it, and such stories engage readers in the content. In so doing, she participates in what Albers (2008) calls "communicating information and enabling people to comprehend and use that information" (p. 120). In other words, these women participate in shaping the discourse of motherhood by communicating through the experience.

Communication design and user experience is a way to "design ecosystems wherein people participate with systems, tools, and groups in more contextually-aware [sic] ways" (Jones, 2012, p. 243). Mommy bloggers, in turn, are consistently providing context for the expertise they share through narratives. The information may not be useful if a woman cannot imagine herself employing it in her own life or with her own children. Nellie, for example, explained writing her tutorials with stories is a way of helping the reader to imagine that "I'm sitting next to [you] talking you through a project" (personal communication, November 2012). She wants her audience to succeed and to feel connected to her in doing so. Gruen et al. (2002) outlined how stories and narratives are used by IBM user experience designers. Mommy bloggers, in comparison, are not the only communication designers using narrative to connect with users and audiences. In fact, TPC designers should be employing the same technique, in terms of being aware of user contexts and translating contexts for users, therefore effectively creating communication that is comprehensible and relatable.

Branding

While many of the design discussed so far has been emotionally based, mommy bloggers interested in boosting page views and earning money from ads realize that an important part of communication design is branding. Being relatable, through the previously discussed characteristics of authenticity and rejecting perfection, is a way of branding one's self and reaching an audience of women who might feel the same way. There is a way of being noticed by being authentic that appeals to women over the more idealized versions of life and mothering.

Branding is especially necessary when it comes to defining the type of mommy blogger interviewees considered themselves to be. While the term "mommy bloggers" covers a large area of the blogging world, these women prefer to think of themselves as niche bloggers in food, culture, lifestyle, fashion, or crafting, to name a few. Shirley, for example, said the term mommy blogger "minimizes the women who have made blogging a profession. . . . I also think it is just kind of a silly term for something that probably women take more pride in than just being called a mommy blogger" (personal communication, November 2012). Therefore, identification through mothering, caring, positivity, and storytelling is essential; branding done to target an audience for monetary reasons is wrapped up in all of this as well.

Caroline, new to the blogging world, focused on branding and hoped to make a name for herself through this branding. At the same time, she hoped to use identification and positivity as designs for her communication. In discussing this approach, she explained, "I haven't really found my groove, or for lack of a better word, my territory really. . . . I'm having a hard time finding my place in the blogging world" (personal communication, November 2012). Caroline knows having a place is necessary, no matter how much emotional or caring content she writes. She must brand herself and reach others through that branding in order to monetize her blog.

Branding also reaches into the design of the site. Maggie, for example, noted the importance of putting important advertisers "above the fold." Yet she makes sure to work with advertisers whose brands "I'm passionate about or something that has really made my life easier" (personal communication, November 2012). Part of Maggie's brand is not just to promote her skills and get paid by advertisers, but it is to present the best and most pertinent content to her readers. Maggie cannot simply brand herself and watch the money accumulate. She must appeal to her audience, live through the experiences that advertisers might provide, and then decide which are most useful to her readers/users.

Blogs are a form of interactive social media that see millions of users and readers; however, getting a blog to be noticed requires branding oneself through other social media sites in order to drive traffic back to the blog (Collamer, 2015). Mommy bloggers, in turn, use social media to reach audiences, and they often promote their own posts through multiple venues besides a blog's homepage. Mommy bloggers also know they can draw traffic back to their blog sites and build a name for themselves by constantly updating and sharing to the wide audience on all social media venues. Mommy bloggers do this by posting photos and links of their posts to Pinterest, Instagram, Facebook, Twitter, and other platforms. They find ways to identify with and reach out to women beyond the blog platform, finding those who prefer the crafty and visually based Pinterest, those who appreciate the conversational and community aspect of Facebook, those who find pithy observations informative on Twitter, and those who enjoy photography on Instagram. Lucy, for example, described interacting with readers on Instagram as "more personal" (personal communication, December 2012).

A mommy blogger must then be versatile when it comes to social media in order to make sure the branding of her blog reaches broadly and that it is rewarded through the many avenues of exposure available through social media. She can then interact with many types of users on these different platforms, appealing to their preferred modes of communication and reaching the widest possible audience with tags and trending topics. Various forms of social media support the blogging platform by driving traffic to the site. In addition, the women use other social media platforms to build a presence that is accessible from many sites. They maximize the power of their blog's influence by connecting it across social media sites. Branding is what makes the blogger's work visible on these sites. It must be recognizable, consistent, accessible, and personal.

Interaction with Readers/Users

The far-reaching effects of social media are not their most remarkable feature; rather, social media is effective because the platform design requires that users interact with others. As Oudshoorn et al. (2004) argue, "Technologies may create new identities, or transform or reinforce existing identities, by delegating and distributing specific responsibilities, skills, and tasks to users" (p. 32). One of the most important design features for bloggers is the ability to interact with readers through the comments section and for readers to join in the conversation. This is a built-in function of blogging and other social media sites; most social media platforms have comments, likes, shares, and messages. Bloggers use this to their advantage by following the unwritten rule of always responding to comments. Friedman (2013) notes, "the true power of mommyblogs [sic] rests in the power of multiple voices" (p. 99). They are not only identifying with their users, but they respond to and interact with them.

The most successful blog posts, in terms of views and engagement, create a lot of conversation. This means that not only are women commenting in response to the original blog post and thoughts by the blogger, but the blogger is responding to them and the women are responding to one another. This sort of communication design is a form of polyvocality, which Gergen (2007) says creates

> warmth, spontaneity, and the admission of foibles, all of which draw me to the writer. I am not positioned as an ignorant audience by transparent writing; . . . Rather I am invited into a state of shared subjectivity . . . to think and feel with the writer. Thus the boundary between author and reader is diminished. (p. 121)

Such interaction and collaboration allows the women to build a community and to feel connected because of reciprocity and cooperation; it creates connection.

By reaching out through all sorts of social media platforms, bloggers include their audience in the creation of knowledge. Interaction is a hallmark of social media communication design, and it creates opportunities for networking and connectivity across geographic, cultural, socioeconomic, ethnic, and sexuality lines. Shirley described such interaction as a "social responsibility" (personal communication, November 2012). Carrie, who practices a conservative Christian religion, noted her delight at connecting with lesbian mothers and bloggers and learning to appreciate their differences and the richness their perspectives have brought to her life (personal communication, November 2012).

Bloggers act as hosts for larger conversations; an important feature of social media is that it expects and creates connections among users (boyd & Ellison, 2008). Bloggers start the conversation by sharing an experience, and readers join in by commenting and by interacting with each other. Maggie responds to readers in the comments and on social media because "I want people to feel comfortable" (personal communication, November 2012). She understood the value of this interaction, that if her readers feel comfortable, they will come back. In essence, bloggers must continue to host this social media "party" by being present, making sure everybody's concerns are heard and answered, and mediating among commenters.

Such hosting can be difficult given time constraints, especially if the blog gets a lot of traffic and engagement. Yet bloggers consider this hosting an essential part of the communication design for social media. Fifteen participants in this study, for example, described interaction with users as a priority. In fact, many cited the importance of feedback from readers as well as expressed the importance of responding to reader comments. They also noted enjoying interaction with their audience, and some even noted this hosting extended to meeting one's blog readers in person.

As one interviewee, Lucy, explained, "one of our tricks [is] that we always write back our readers, even if it is a simple thank you, so our readers have been really loyal to us, and so I feel [that we get to know] our audience . . . on a first name basis" (personal communication, December 2012). Lucy's responses to readers are detailed and personal, not just rote, obligatory, or part of a formula of communication design focused on community and knowledge creation. Additionally, three participants described being unable to connect and interact with readers as much as they would like.

Two bloggers explained concern for their audience, but admitted feeling constraints on connecting with users because they have a large collaborative blog with several authors. Maude, for example, had become disillusioned with hosting conversations and connecting with readers. She described having to shut down a blog because of "creepy" comments. She had also realized that in hard times, her readers were not there to support her and that their relationship was "not real" (personal communication, November 2012). Despite such comments, the majority of participants (15 of the 18) described this give-and-take response design of social media as an effective way to interact with users.

Such factors can provide important insights to communication designers working in or with social media. They, for example, can expect to receive consistent and immediate feedback by participating in this part of social media, especially through blogging. In such environments, users have a voice that is more than that of the average consumers. Consequently, social media users are usability testers and producers of their own documentation (Salvo, 2001; Singleton & Meloncon, 2001). Such multivocality is a permanent feature of social media, and communication designers must be aware of this dynamic and be willing to interact with users. In effect, social media allows users to participate in design conversations because of social media platforms, with or without the awareness of communication designers. This aspect makes design more networked and in need of the goodwill of users.

Conversational Tone

A vital part of communication design for women, which has been documented historically, is a conversational tone. Okker (1995) calls it "the sisterly editorial voice," which "often used the rhetoric of intimate female relations . . . [and] assumed equal and personal relationship between editor and reader" (p. 23). Similarly, Maggie shared, "I write with a woman's voice. . . . [and] I think my voice is what attracted the demographics that I have as opposed to the other way around" (personal communication, November 2012). By this, she meant that she knows that 90 percent of her audience is female, and she has appealed to those readers by speaking to them as she would face-to-face or to a friend. Lucy proclaimed, "our posts are not stiff . . . When we start a post, we say, 'Hey guys!'" (personal communication, December 2012).

Part of this style is familiarity, and another part of it is easing the reader into pertinent information, such as sharing a recipe or giving advice. The friendly and familiar communication gradually presents prescriptions, first identifying with a reader through emotions or common experience or sharing a story about how the blogger herself came to understand the information. Tebeaux (1999) notes that this is an "important quality of women's technical writing: the sense that they are talking with their readers rather than simply providing objective, succinct information" (p. 113). Achieving this conversational tone is a blending of storytelling, an ethic of care, and interacting with readers; such communication design makes mommy blogging an effective form of identification and a model of empathetic user design.

DISCUSSION

Mommy bloggers are the quintessential user experience designers. They live through motherhood each day, a never-ending usability test with which users can commiserate and collaborate. They use personal stories, feelings, empathy, and familiar voices to design posts and sites that communicate ways to experience motherhood and how to navigate the difficult cultural and patriarchal systems that affect mothers.

Mommy bloggers also recognize that their users are sophisticated, and may have as much or more knowledge to impart. The user experience then becomes one of community – a context in which women share information with each other and design communication that everybody can benefit from. These benefits come in the form of the actual blog post, the user comments, the blogger's responses, and, intangibly, in the cognizance of other women's struggles, the awareness of other women's joys, the consciousness of support and community. They also come in the form of the realization that mothering does not have to be isolating, and the empowerment to join the conversation and contribute one's own experience to this repository of data about motherhood and its peripheral activities.

The importance of lived experience as a form of authority and guide for communication design cannot be overstated for mommy bloggers. Maggie, for example, recounted engaging her children in cooking and how it ended five minutes later with them pretending the spoons were swords and fighting with each other (personal communication, November 2012). However, it is this unruly lived experience that gives her the authority and expertise to be able to guide her audience through their own practices and to allow them to engage in mothering in individual ways.

Applications to Communication Design

As noted, sharing experiences through stories and anecdotes is an important part of making connections and identifying with others. The experiences TPC designers have with usability, product development, or research and collaboration may be of interest to users, especially if shared through social media as a way of branding a product as accessible and up-to-date and branding a company as caring and authentic. Using identification through storytelling to reach users might be useful to particular kinds of communication designers in TPC, especially if their work requires loyal connections to clients or audiences. Audiences might appreciate hearing the failures encountered during a usability test or the difficulty of arriving at the best instantiation of a new feature. They might also connect with a more casual or friendly tone in particular types of documents, especially in terms of easing them into more technical information.

Narrative is not unheard of in TPC (Blyler, 1995; Perkins and Blyler, 1999). As Forbes (1999) states, "narrative elements [can be introduced] into an objective style (through choice of verbs, for instance, or through metaphor), without sacrificing succinctness or shifting the focus" (p. 80). Employing narrative or identification through social media in TPC may attract users to communication designed with them in mind more effectively than an online help guide or traditional instruction manual.

With these ideas in mind, social media is an effective way of reaching users through their participation experience rather than expecting them to visit a website or register a product with a private email address. TPC designers might consider creating a blog or other social media profile, such as on Twitter, Storify, Tumblr, or Facebook, for their products with periodic updates aimed at engaging users and addressing their concerns. This approach would be especially useful for products that may change or undergo further development. Similarly, online help and instruction guides will be more accessible to users if particular features or difficult maneuvers are highlighted through updates on social media. This could take the form of a blog. Such content, however, would need to be connected to other social networking sites that apprise readers of content through hasthtags and newsfeeds. Users will then have access to important updates while perusing other content on social media.

CONCLUSION

Mommy bloggers' communication design is centered on identification and the rhetorical tools of knowing, feeling, and including one's audience in all aspects of design. Friedman argues, "mommybloggers [sic] are collectively creating a dynamic cyberorganism [sic] that is endlessly evolving" (p. 142). Participant Nellie, for example, wondered just how long social media sites would look like blogs, as new forms of social media will likely be introduced. As such, understanding the success of these women through rhetorical techniques and communication design may change the way TPC successfully interacts with audiences online through social media. What this ultimately comes down to is trust–namely, trust in the sources of information provided on such sites.

The mommy bloggers at the center of this study focused on building trust with readers, and they strive to maintain it. They did so by enacting the design features of being authentic, rejecting perfection and engaging in an ethic of care. They also used stories and narratives to brand themselves via interacting with readers and through employing a conversational tone to claim authority and gain the confidence of the audience. Their writing and advice-giving would be ineffective if readers did not know that the women had experienced it themselves and did not trust that the reader genuinely understood the motherhood experience. In this way, living the experience of the user is vital to gaining the trust of the user, and mommy bloggers do this every day. Communication designers and TPC experts do as well. The success of the techniques reported on here thus suggests TPC practitioners must begin sharing this lived experience with users as a way of gaining their trust.

While this pilot study is insightful into the phenomenon of mommy blogging and its contributions to communication design, especially for women through social media, further research is needed for generalizable results. Further study could include a survey of 100 or more mommy bloggers in order to get a greater sense of how prevalent these design techniques are and just how effective they can be in reaching larger audiences. In addition, the effectiveness of such communication design through social media should be examined from the perspectives of the most successful bloggers. (Babble.com, for example, compiles a list of top ten and top fifty mommy bloggers yearly.)

Individuals in TPC could also benefit from more insight into the communication design techniques of mommy bloggers by interviewing and content analyzing these successful and popular mommy bloggers and their sites. By examining such factors, these individuals could learn more about the effectiveness of these communication design techniques by interviewing the users and audiences of mommy blogs. Several studies have already begun this work in terms of rhetorical genre analysis and description (Morrison, 2010; Petersen, 2015). They have identified diversity and dialogism through a content analysis of hundreds of mommy blogs (Friedman, 2013), the rhetorical resistance of mommy bloggers (Powell, 2010), and blogs as ethical spaces for young women (Lövheim, 2011).

Overall, mommy bloggers use lived experience to design the type of communication that will appeal to the women who will engage with them on blogs and other social media sites. They must find ways to identify by drawing from their experience and linking it to others. They must also include other women in their conversations, without prescribing roles or sharing absolutes. It is empathetic user design informed by the female experience and bound by an ethic of caring, trust, and authenticity.

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APPENDIX A
Interview Questions

Give me a little bit of background information about yourself.

Tell me about how you started blogging.

Why do you blog?

Do you write as a profession or as a hobby?

Do you write for your readers or for yourself?

How would you describe your relationship with your audience? Would you change anything about this relationship if you could?

What, if any, is your social responsibility?

What sorts of ethical considerations do you make in your blogging?

Do you consciously think about your social and ethical responsibilities toward your audience?

What are your social and ethical responsibilities toward those who pay you for advertising space on your blog? How does this influence your writing?

How important are your readers to you?

How would your blog be different if you had fewer readers?

Do you have a sense of your audience's demographics? How does this influence the way that you approach writing, including topics that you do or do not choose to cover?

Are you able to write the way you would like to, or do you have concerns over losing ads/support?

Do your readers affect the way you write? In what ways?

Do you write about motherhood? In what ways?

Do you assimilate to or rebel against a typical form of womanhood/motherhood? In what ways?

In what ways do you build a community through your blog? Can you provide an example?

What makes your blog successful? Or has your blog accomplished what you expected?

Do you consider yourself to be a "mommy blogger"? Do you like this term? Why or why not? Is there a better or more accurate term?

What elements of your blog make you a mommy blogger?

Where do you envision your blog going in the next five to ten years?

How has blogging enhanced your career and/or mothering experience?

APPENDIX B
Coding System

Theme	**Color**
Explanation of how the blog started	Bright yellow
Social responsibility	Dark blue
Relationship with audience	Neon green
Ethical awareness	Red
Resistance to mothering norms and expectations	Dark purple
Self-awareness of identity	Light blue
Home as workplace	Dark turquoise
Perfection, rejection of or difficulty with	Bright pink
Community	Brown
Ethos and authority as a rhetor	Gray

The Social Help Desk: Examining How Twitter is Used As a Technical Support Tool

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ABSTRACT

Technical support, a traditional practice of technical communication, is rapidly changing due to the ubiquitous use of digital technologies (Spinuzzi, 2007). In fact, many technology companies now have dedicated Twitter accounts specifically for providing technical support to end users. In response to this changing technical support landscape, we conducted an empirical study of Twitter-based interactions among six companies and their customers in order to examine the nature of the emerging technical support genre on Twitter. Among other findings, we discovered technical support was widely sought among the customers of the companies studied (Comcast, Verizon, AT&T, Samsung, Hewlett Packard, and Dell) with nearly 200,000 tweets recorded in just a 38-day timespan. We also found a majority of individuals used Twitter to complain about a brand as opposed to seeking support for a specific technical problem. In our entry, we discuss the implications of these and other findings for technical communication practitioners and researchers who design for technical documentation in social media contexts.

Categories and Subject Descriptors

H.0 Information Systems: General

General Terms

Documentation, Design

Keywords

social media, Twitter, technical support, online communities, technical documentation, help desk

INTRODUCTION

The desire to develop beneficial exchanges with customers has been a persistent issue of concern for many technology companies. Historically, technical communicators have played a role in various technical support pathways such as call center help desks (Beldad & Steehouder, 2012; Steehouder & Hartman, 2003; Steehouder, 2007), FAQ sections (Earle, Rosso, & Alexander, 2015; Novick & Ward, 2006), troubleshooting practices (Inaba, Parsons, & Smillie, 2004; Lay, 1982; Mirel, Feinberg, & Allmendinger, 1991), and usability testing (Barnum & Dragga, 2001). Though these support structures have been useful in managing customers' technical information needs, the introduction of social media (SM) has the potential to profoundly alter how technical communicators provide technical support to customers. Most notably, SM (which we define as computer-mediated networks that enable individuals to build, share, and exchange information or knowledge in a global society) changes the context in which technical support work is initiated and eventually delivered. Specifically, by providing users with the opportunity to participate in and alter the delivery of support solutions, SM broadens users' role in technical support exchanges beyond that of the simple information seeker and consumer to the more dynamic and powerful information producer. Because SM is a people-powered space (Potts, 2014), it potentially affects customers' expectations for what technical support even is. In so doing, such media create conditions for an expansion of the very nature and scope of technical support work.

Considering this new social context of technical support work, we were interested in examining and documenting how technical support has been altered in the face of SM. We developed the term "social help desk" to describe this new context. In this entry, we seek to examine how this social help desk provides opportunities for technical communication researchers to better understand an audience's information seeking behavior as they pursue technical support. Developing such an understanding of how users seek technical information via SM provides user-centered insight into needs, behaviors, and attitudes, which can inform technical communicators as they design, develop, or revise support content. Such information can be vitally important to technical communicators because it stems from users' lived experiences with technical products.

In this article, we discuss our analysis of 400 Twitter conversations that occurred on the help desk accounts of six major technology companies (Comcast, Verizon, AT&T, Samsung, Hewlett Packard, and Dell) during the period from June 27, 2015 to August 4, 2015. We chose Twitter for this study because of its potentially unlimited capacity for users to share information. That is, because Twitter does not require users to formally establish a relationship on Twitter before communicating, any tweet by a user can be read by any other user (even strangers) interested in the content of the conversation. In fact, Daer and Potts (2014) note that Twitter (as opposed to other social networks) is particularly useful for interacting with strangers because it does not require knowledge of or personal connections with other users as a basis for communicating with them. This point, in turn, has bearing on the context of customer/company interactions – a context in which one must generally interact with strangers to provide information and updates.

In this vein, we were drawn to aspects of Twitter's infrastructure that allow its users to access all Twitter content because barriers to participation, such as a formalized friend connection or other users' privacy settings for sharing, are less prevalent on Twitter than on other social media (e.g., Facebook). Ultimately, we view Twitter as akin to an "open system" (Spinuzzi & Zachry, 2000; Spinuzzi, 2003) where users not only consume information but can also add to, participate in, and enact change within a system. More specifically, Twitter has four specific functions that can potentially create social environments:

- Retweets (sharing another user's tweet verbatim)
- Quoting tweets (adding to a user's tweet with additional commentary)
- Replying (responding directly to a user's tweet)
- Favoriting (endorsing a tweet but not sharing the tweet)

This openness that Twitter affords provides unique opportunities for users not only to consume information in help desk interactions, but also a means for creating or developing this emerging genre.

Toward that end, we begin the article with an overview of the relevant technical communication literature regarding technical support followed by a detailed outline of research questions that drive our study. Next, we describe and justify our method for the study and present the results for each research question. We then provide a discussion of key findings and note their implications for technical communication scholars and practitioners. Finally, we note the limitations of this study and suggest directions for future research. We believe this organization of information will allow readers to understand the transformative impact SM is having on technical support work and thus will position them well to begin developing design protocols that are attuned to this new reality.

LITERATURE REVIEW

Technical Support's Early Disciplinary Absence

Within the technical communication research literature, relatively little attention has been directed toward understanding the interpersonal dimensions of technical support. (For purposes of this article, "technical support" is defined as the delivery of information and advice to users for addressing emergent and generally ill-defined technical problems.) This lack of attention is unsurprising as technical support generally has been dominated by concerns about procedures and methods for developing instructional materials for users (Lay, 1982; Sanderlin, 1988; Loorbach, Karreman, & Steehouder, 2007). As such, technical support traditionally has been cast as a linear, one-way phenomenon in which users rely on available print materials or online help pages as their primary information source for addressing technical issues they encounter when interacting with technical devices, instruments, or materials (Rude, 1988; Thrush, 1993; Ganier, 2004). Put another way, the provision of technical support is best understood as a one-time or one-way event in which users visit a repository of content that is thought to contain the information necessary to resolve technical issues.

Granted, the provision of technical support expanded and improved over time as technical communicators began to appreciate the value and impact of user-centered knowledge (Johnson, 1998; Salvo, 2001). Therefore, technical communication researchers began actively seeking user information to complement existing technical support materials. Despite the disciplinary turn towards users and the attendant opportunity to examine the influence of their knowledge on expanding the delivery of technical support beyond linear models, we observed little, if any, specific attention to such knowledge's impact on the delivery of technical support in digital contexts.

First Generation Technical Support

Sensing the need to expand on models for delivering technical support, some technical communication practitioners and scholars began searching for additional support systems and information sources. Both Hart (1993) and Wahl (2002), for example, suggest that technical communicators partner with technical support groups because such groups often have direct access to users. More specifically, through hearing first-hand accounts of technical problems, technical support groups have developed insights about the kinds of technical tools that are most difficult to use as well as the types of technical documentation that are unclear to customers. Though helpful in its advice, Hart (1993) and Wahl's (2002) call to engage with customer service groups have generally been ignored in the technical communication academic community. In fact, it was not until 2007 that we see some evidence of the field again directly engaging in technical support help desk research, most notably in the areas of call center support (Steehouder & Hartman, 2003) and customer satisfaction (Downing, 2007; Steehouder, 2007; van Velsen, Steehouder, & De Jong, 2007).

Within this body of literature, Steehouder (2007) argues customer satisfaction in help desk contexts is driven by the quality of the solution offered as well as the experience of the conversation between the customer and the help desk agent. To better understand the latter of these two factors, Steehouder identifies the typical phases of a help desk call (opening, problem analysis, diagnosis, solution, instruction, evaluation, and closing) and describes various strategies used to make the call successful. Of particular interest to our study regarding the social help desk phenomenon was Steehouder's description of the "funnel approach" that typically develops in the problem-defining phase of the help desk call. He notes that customers often begin calls with a narrative full of details – many of which are not relevant to the identification and resolution of the technical issue. In essence, customers "fir[e] a shower of shots" hoping one of them hits the target and makes plain to the help desk agent what the nature and scope of the customer's technical issue is (Steehouder, 2007, p. 7).

Steehouder notes that this funneling of information from customer to technical support specialist is especially true in help desk encounters with customers with low expertise. Specifically, these customers often do not know in advance what facts and/or details are relevant to the problem at hand. To help winnow the "shower of shots," Steehouder explains how help desk agents follow heuristics to help them diagnose a technical problem. He also notes how striking it was that the actual diagnosis and announcement of a solution were often absent in their data. Based on such findings, Steehouder believes the absence of such information is due to the help desk conversation not being framed as a learning process, but instead thought of as an incidental help encounter.

Outside the basic mechanics or structure of help desk calls, research has also been conducted on customer satisfaction with technical support. Downing (2007), for example, reports that just under half of help desk calls do not result in a good solution for the issue posed by a customer. Rather, they tend to result in continued customer dissatisfaction. Van Velsen, Steehouder, and De Jong (2007), in turn, conducted a study to investigate the factors that determine user satisfaction with face-to-face help desks and telephone helplines. They found help desk customers base their overall quality perceptions primarily on their experiences during a consultation. (Interestingly, helpline customers focus mostly on the quality of the solution offered.) Based on the study findings, Van Velsen, Steehouder, and De Jong recommend organizations provide both high quality solutions and a pleasant customer experience to satisfy help desk users.

A more recent study expanded on these ideas by examining technical support in an international context. In this study, Beldad and Steehouder (2012) sought to understand problems that attend to conversations involving nonnative speakers. They found that understanding problems in telephone conversations between two nonnative English speakers are attributable to non-linguistic factors. These include false beliefs, erroneous inferences from the speaker's utterances, and incomplete information.

Second Generation Technical Support

Though outside the context of help-desk support work, recent technical communication scholarship (Mara & Mara, 2012; Potts, 2014) examines how people use media to seek, build, and share information in specific contexts. Potts (2014), for example, documents and analyzes the innovative ways that users draw on SM to share and exchange information to catalyze and organize response actions to disaster situations. In a similar vein, Mara and Mara (2012) document and examine how an Irish tour company designed its online documentation to appeal to users' identity as a way to motivate users to modify online documentation and make it more effective for a wide range of international audiences. In both instances, these scholars argue for the need to enable and/or enlist users to participate in the development and delivery of support information. In particular, they encourage technical communicators to design open systems that empower users to act in ad hoc or unofficial ways. Such behavior, they believe, leads to the innovations or improvements that overcome the "discoordinations" or "break downs" (Spinuzzi, 2003) that occur between technical documentation and the activities they guide. The outcomes, or products of such ad hoc work, are the new genres attuned to the conditions of the specific communication barrier from which they developed (Spinuzzi, 2003). Ultimately, these new genres add to the genre ecology that is the interrelated group of forms used to jointly mediate the activities that allow people to accomplish complex objectives (Spinuzzi & Zachry, 2000). Together, this recent scholarship connects to our study in how it alludes to the potential of help desk encounters to move beyond linear, one-way encounters to more social, multi-way interactions (Singleton & Meloncon, 2013). In particular, this scholarship suggests the most effective technical support advice lies not in the official pages of a company's support documentation. Instead, it lies in the nexus of interaction wherein the combination of customer, user, company, and/or interested bystander(s) merges and develops technical support solutions attuned to the facts and circumstances that give rise to the technical issue in the first place.

Ultimately, the relative lack of recent, specific technical communication scholarship about help desk interactions is unsurprising. This is because much of the existing work examines the documentation of technical issues rather than on the live, dialectical problem-solving or troubleshooting relationship between a user and the company. An explanation for this lack of attention in technical communication scholarship could be that customer service and customer satisfaction generally have not been understood as technical communication concerns. Rather, they have been understood as a business communication concern, particularly in the area of customer relationship management, or CRM (see Ngai, 2005). However, with the rise of SM, the distinction between business communication and technical communication is being blurred as customers become users (or vice versa) and have the ability to participate in the development and delivery of technical support (Singleton & Meloncon, 2013). Therefore, the time is ripe to consider more fully how technical communicators can and ought to design for and deliver customer service as part of the technical support work they do. Our study offers a descriptive account of this understudied and rapidly evolving area of research. As such, it is intended to broaden the field's understanding of how SM affects work in the field.

METHODOLOGY

Research Questions

As a response to the literature, we developed the following research questions organized around four central themes. Each of these questions focused primarily on a descriptive overview of social help desk threads on Twitter:

- Research Theme 1 Questions:
    - How are customers using Twitter as a social help desk? Specifically, what types of content do customers tweet to company help desks?
    - Is there a relationship between content types and a successful resolution of a problem?
- Research Theme 2 Questions:
    - What speech acts do customers use when tweeting at company help desks?
    - Is there a relationship between speech acts and a successful resolution of a problem?

- Research Theme 3 Questions:
    - o Is the social help desk actually social, or do exchanges occur in a linear fashion between customer and company?
    - o What content types or speech acts tend to result in higher levels of community engagement?
- Research Theme 4 Questions:
    - o How are companies responding to customers on Twitter? Specifically, how quickly do companies reply to customer tweets?
    - o What methods do companies use to present technical solutions to customers on Twitter?

By examining these thematically focused questions, we hope to better understand how Twitter is used as a help desk for certain technology companies (i.e., Comcast, Verizon, AT&T, Samsung, Hewlett Packard, and Dell). In so doing, we also seek to outline implications for communication designers and technical communicators engaging in this new mode of technical support.

Rationale for Method

To understand how Twitter is used as a technical support tool, we collected language data from a sample of Twitter conversations between Twitter help desk accounts for specific companies and the customers serviced by these help desks. We collected the initial data by using the Twitter Archiving Google Spreadsheet (TAGS), which automatically archives tweets from a specified Twitter account or keyword. The method has contemporary relevance because of its ability to collect data in real time. (When studying technology-dependent issues, timeliness is always a concern when considering a research method.)

Additionally, the method for collecting and analyzing data does not require specialist expertise in that it does not require any knowledge of coding. Finally, the method is not content specific. That is, a researcher can examine content unrelated to technical support using this same method such as marketing content. While we have used the method to study help desk interactions on Twitter, the method itself is valid for studying any kind of interaction that occurs via Twitter. In the following section, we will discuss the method by first providing rationale for our sample. Then, we discuss the methods for collection and analysis.

Samples

We chose Twitter as the primary venue for our study for three methodological reasons:

1. Certain companies in our sample only had dedicated help desk accounts on Twitter and not other social networking sites like Facebook, as was the case with AT&T.
2. Companies with dedicated help desk accounts on both Twitter and Facebook had significantly more followers on Twitter. For example, the HP Support Facebook page only had 1,275 followers compared to 55,100 followers on Twitter as of October 29, 2015.
3. Because of the TAGS application, it is relatively easy to collect tweets using Twitter's API. While APIs exist for other social networking sites, the process of setting up and archiving via Twitter is relatively easy (as discussed previously).

In sum, Twitter presented us with the most data and a relatively low barrier to entry compared to other social networking sites.

We collected a random sample of 400 Twitter conversations from the help desk accounts of six major technology and telecommunications companies: Comcast, Verizon, AT&T, Samsung, Hewlett Packard, and Dell. To select these six companies, we first compiled a list of the top ten technology and telecommunications companies in the Fortune 500 (from June 2015). The rationale for selecting technology and telecommunications companies stemmed from the higher likelihood that these types of companies provide products or services that require technical support. We realize that non-tech companies also require technical support (e.g., Amana, which is not a "tech" company, would still need to provide technical support for its appliances). However, we argue that limiting the scope to technology and telecommunications companies provides a more uniform population to study. In regards to selecting only the top ten companies, we chose to limit our scope for two reasons:

1. The top companies likely have larger Twitter followings and thus potentially engage in more meaningful discourse with their followers.
2. Limiting the scope of our study allows us to complete our complex coding scheme within a reasonable amount of time.

Our sample, then, focused on large technology-related companies based on our primary research questions.

From the list of ten companies, we naturally eliminated companies that did not have a dedicated help desk account on Twitter, which included Apple, Google, and IBM. Both Apple and Google seem to have support accounts, but these accounts are actually administered by a third party and not affiliated with the company in any way. We eliminated IBM because its support accounts were divided among each of its main products, many of which were not consumer products. Finally, we eliminated any companies whose primary business did not include consumer products or services (as opposed to commercial products or services), which included Intel and Cisco. The rationale for this decision was that it would be less likely for individual consumers to engage with help desk Twitter accounts and thus provide little data to analyze.

Our elimination decisions left us with six companies: Comcast, Verizon, AT&T, Samsung, Hewlett Packard, and Microsoft. From this list, we noted two major types of companies represented:

1. Telecommunications (Comcast, Verizon, and AT&T)
2. Hardware (Samsung and HP)

Microsoft was the only company that didn't fall into the two major categories (i.e., Microsoft is primarily a software company). Therefore, we decided to replace Microsoft with Dell, a hardware company that was consistently in the Fortune 500 until 2014. In the end, we were left with an equal number of telecommunications and hardware companies.

Data Collection and Timeframe

To collect the samples, we used Martin Hawksey's Twitter Archiving Google Sheet (TAGS), which interfaces with Twitter's API to automatically collect tweets and store them in a Google spreadsheet. We began the data collection process by creating six separate spreadsheets, one spreadsheet for each company. Each spreadsheet archived tweets from June 27, 2015 to August 4, 2015—a total of 38 days. We selected this time period for data

Table 1: Companies and Total Number of Unique Tweets

Company	Twitter Handle	# of Unique Tweets
Comcast	@comccastcares	86,309
Verizon	@vzwsupport	64,943
Dell	@dellcares	14,769
Samsung	@samsungsupport	12,770
Hewlett Packard	@hpsupport	12,608
AT&T	@attcustomercare	136
This method of data collection was described in Lam and Hannah, (2016).		

collection because we wanted to cover at least one full month of data, July 2015.

To capture help desk conversations that might have been initiated just before the beginning of the month (July 1) or have extended just beyond the end of the month (July 31), we extended the total number of days to 38. Each spreadsheet was designed to collect a variety of data including the user who posted the tweet, the content of the tweet, the time the tweet was posted, and a link to the original URL of the tweet. We collected these specific kinds of data because they represented what we saw as the base conditions through which companies and users engage in social media environments. As such, they serve as useful criteria for documenting and analyzing how technical support requests are initiated and responded to on Twitter. Table 1 shows the number of unique tweets collected in each spreadsheet in this timeframe.

To keep our coding manageable, we narrowed down our final sample by selecting every thirtieth tweet until we reached a total of 400 tweets. We chose every thirtieth tweet to decrease the possibility of coding repeated threads. That is, if we sampled a smaller interval (e.g., every 15 or 20 tweets), single conversations that consisted of more than 15 or 20 tweets would potentially yield the coding of a redundant conversation. Finally, a power analysis (using G-Power) revealed that our sample was large enough to yield valid results. According to the results of this power analysis, a One-Way ANOVA comparing four groups requires a minimum sample of 280. Therefore, our study's sample of 400 conversations was more than adequate.

Variables

Before coding the sample, we collaboratively created a codebook to define variables of interest based on our research questions. Variables for the codebook were identified and selected based upon the type of data collected and the research questions posed. We–the researchers–discussed each variable and then came up with a set of mutually exclusive categories for the variables we would use for our analysis. (The Appendix at the end of this entry contains a table – Table A – that shows each variable and how it was coded.)

Coding Procedure and Inter-rater Reliability

The first step in the coding procedure was determining whether a Twitter conversation met the criteria for our study. We determined that viable conversations had to

- Be relevant (i.e., not be a spam tweet)
- Be the first tweet in a conversation (i.e., should not start in the middle of a conversation)

This definition of viability was based upon the criteria established in the codebook (e.g., we would not be able to code or categorize tweets that were spam as they would not be a genuine example of a technical support inquiry). To determine viability, we opened the URL of an archived tweet in a web browser. We then clicked the "details" link of the original tweet, which displays an entire threaded Twitter conversation. If you fail to click on the details link, Twitter often appends conversations in a seemingly random fashion. After clicking on the details link, we examined the very first tweet of a thread to make sure it was not spam and that it initiated the conversation. If the archived tweet met these two criteria, we moved on to code the conversation. We recorded our codes for each conversation in a Microsoft Excel spreadsheet.

To establish inter-rater reliability, both researchers coded the same 110 tweets (27.5% of the total sample). According to Boettger and Palmer (2010), two coders should collectively code at least 10% of the total sample to establish inter-rater reliability. Because content type and speech act were the only two variables that required coder judgment (i.e., other variables were objective recordings like time of first response), each researcher coded these two variables for the same 110 tweets to measure inter-rater reliability.

We did an initial round of coding of 30 tweets and compared our codes for the two variables (i.e., content type and speech act). After the first round, we discussed each tweet that we disagreed on and discussed a strategy for better establishing criteria or examples for categorizing tweets. Then, we individually coded the remaining 80 tweets. Using both rounds of coding, we established strong inter-rater reliability for the 110 tweets for both content type (Cohen's Kappa = 0.80) and speech act (Cohen's Kappa = 0.75). We chose Cohen's Kappa as a reliability statistic because it is more robust than simple percent agreement in that it takes into account the possibility of agreement occurring simply by chance. While there is no universally accepted threshold for Cohen's Kappa, most research suggests that any value over 0.7 is acceptable, and some research even suggests that any value over 0.6 is acceptable (Landis & Koch, 1977).

Data Analysis

To answer our research questions and to explore the data, we used several statistical tests. First, in order to describe the overall sample, we examined simple frequencies and averages. To analyze more complex relationships between categorical variables, we used correspondence analysis (CA)—a method that is relatively new to technical communication but utilized in several recent studies (Boettger & Lam, 2013; Lam, 2014a; Lam, 2014b).

CA is a geometric technique used to analyze two-way and multi-way tables containing some measure of correspondence between the rows and columns. The most powerful tool in CA is its ability to visualize row points and column points onto a multi-dimensional graphical map called a biplot. Rows with comparable patterns, also known as profiles, appear in close proximity on the biplot. Similarly, columns with comparable profiles appear in close proximity on the biplot. When plotted together, the visualization allows a researcher to examine associations among row and column points. Finally, we conducted cross tabulations using the chi-square statistic to examine relationships between two variables, one of which being a binomial variable.

RESULTS

In this section, we will present the results of this study in terms of the initial clusters of research questions we sought to answer. We will also present additional exploratory analyses that do not directly answer a particular research question.

Overview of the Sample

Across the six companies, we collected a total of 191,535 tweets. Of those, we analyzed 400 unique Twitter threads comprising 3,808 total tweets from six companies. On average, each Twitter conversation consisted of 9.52 (9.965) tweets. The longest thread consisted of 75 distinct tweets.

Research Question Results

The first set of research questions asked

How are customers using Twitter as a social help desk?

Specifically, we wanted to know what types of content customers tweet to company help desks. Is there a relationship between content types and a successful resolution of a problem? To answer this set of questions, we examined the types of content present throughout the sample. Of the 400 conversations, exactly half of the conversations were coded technical (n = 200), which was coded when a customer posed a specific technical problem with a service or product. Brand complaints made up 36% of the sample (n = 144) followed by customer service (n = 48) and brand praise (n = 8).

The data suggests, then, that users primarily use Twitter for two main reasons:

1. To solve specific technical problems and
2. To complain or express their dissatisfaction with a company.

We also were interested to determine if there was a relationship between content type and a successful resolution to a problem to see if specific types of tweets were solved more often than others. To determine the relationship, we conducted a cross tabulation that revealed a significant relationship between the two variables ($X^2 < 24.63$, $p < 0.001$).

Unsurprisingly, the analysis revealed that brand complaints were resolved at a significantly lower rate (9%) than technical conversations (32.5%) or other customer service tweets (29.7%). This factor seems to imply that the customer's motivation for solving the problem probably plays a factor in whether the problem was resolved successfully. That is, customers who simply pose complaints are likely already upset with the brand/company and are perhaps unmotivated to follow the troubleshooting steps of a customer representative on Twitter. As an aside, it is interesting to note that only 19.25% of our total sample was resolved successfully (n = 77). This factor seems to indicate that across all types of content, the success rate was relatively low.

The second group of research questions asked

What speech acts do customers use when tweeting at company help desks?

We wanted to determine if relationship seems to exist between speech acts and a successful resolution of a problem. To answer this question, we examined the types of speech acts that customers

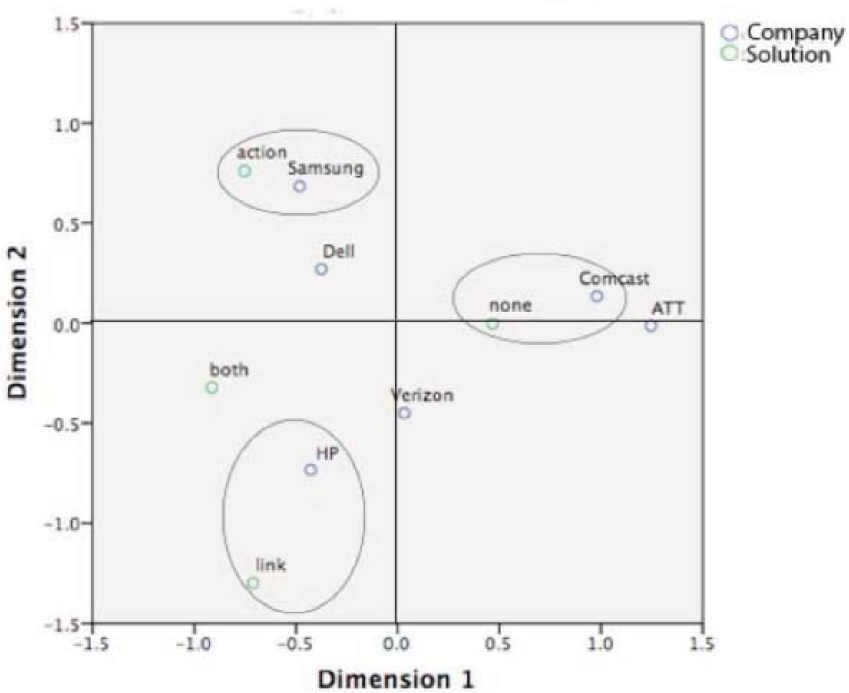

Figure 1. Correspondence Analysis for Company and Solution Type

Table 2: Speech Act Frequency, Percent Distribution, Rate of Successful Resolution

Speech Act	Frequency	Percentage	Rate of Success
Expressive	158	39.5%	10.1%
Question	121	30.3%	28.1%
Representative	72	18.5%	18.9%
Directive	43	10.8%	27.9%
Commissive	4	1%	N/A*
* Commissive sample size is too small for meaningful result			

used in the sample to better understand the customer's motivation for tweeting in the sample. As seen in Table 2, the majority of the sample consisted of expressives (i.e., speech acts where the primary motivation is expressing or conveying emotion) and questions (i.e., speech acts where the primary motivation is to elicit a response to a question).

Representatives (i.e., speech acts where the primary motivation is to make a true or false statement) and directives (i.e., speech acts where the primary motivation is to get the hearer to do something) also made up a decent portion of the sample. Finally, commissives (i.e., speech acts where the primary motivation is to commit or make a promise of some future action) only represented a small portion of the sample. The data seems to suggest that customers are using Twitter to express themselves more often than to actually pose a specific problem. This trend can be seen in Table 2 as 39.5% of the entire sample was coded as expressives while 30.3% were coded as questions.

We were also interested to see if speech act had any relationship with whether a problem was resolved successfully. To examine this, we again ran a cross tabulation of the two variables and found a significant relationship between the two variables ($X^2 = 16.72$, $p = 0.002$). Specifically, questions and directives were resolved at the highest rates and were both resolved at a significantly higher rate than expressives. Not surprisingly, this seems to suggest that when customers ask or request specific help, they are able to resolve their issues more often than if they simply express dissatisfaction or describe a problem. (See Table 2 for a listing of the rate of success for each speech act.)

Table 3: Time of First Response

Time of first response	Frequency
< 1 hour	220
2-5 hours	59
6-12 hours	16
12-24 hours	11
24-48 hours	31
48+ hours	20
No response	43

The third group of research questions asked

Is the social help desk actually social, or do exchanges occur in a linear fashion between customer and company?

Within this context, what content types or speech acts tend to result in higher levels of community engagement? To examine whether a thread exhibited social characteristics, we examined retweets, replies, and favorites. On average, the number of retweets ($M = 0.89$, $SD = 6.613$), replies ($M = 0.57$, $SD = 2.65$), and favorites ($M = 2.44$, $SD = 21.49$) were extremely low. A closer look at the data, along with the relatively large standard deviations, reveals a majority of conversations had zero retweets ($n = 355$), replies ($n = 346$), or favorites ($n = 280$). These results suggest that help desk interactions on Twitter are not very social based on the idea that tweets are social if they result in multiple users engaging with the content by retweeting, replying, or favoriting the content.

In order to determine whether conversations on Twitter were linear between a single customer and a company, we calculated the percentage of company tweets in each thread (46%). Because company tweets are responsible for almost exactly half of all tweets in a conversation, it seems that most conversations tended to be linear and between two parties (i.e., the customer and the company).

To examine whether a particular content type or speech act influenced engagement, we conducted two One-Way ANOVAs, both of which resulted in no significant differences for either of the variables. Therefore, we conclude neither variable influenced engagement in this sample. Put another way, all content types and speech acts seem to result in relatively low engagement (i.e., the number of retweets, replies, and favorites).

The final set of research questions asked

How are companies responding to customers on Twitter?

Specifically, we wished to learn how quickly companies reply to customer tweets. We also wanted to understand what methods companies use to present technical solutions to customers on Twitter. Table 3 shows a breakdown of the time it took companies to reply to a customer tweet.

A majority of the tweets in the sample received relatively quick responses – i.e., in less than an hour ($n = 220$). Additionally, a little more than 10% of the sample received no response at all, and nearly 20% of threads in the sample received a comparatively slow response (i.e., within 24 hours or longer of an initial tweet being posted).

In reviewing these dynamics, we were also interested in the approaches that these companies used to present solutions to questions. To examine this idea, we coded the types of solutions throughout the sample and found that the majority of Twitter threads were coded as none, which indicates that no explicit solutions were presented ($n = 253$). However, 36.8% of the threads in the sample did provide a troubleshooting solution as either a specific action ($n = 70$), a link to a solution ($n = 29$), or both ($n = 48$). Therefore, the results seem to indicate a diversity of practices for using Twitter as a social help desk. In this case, a diversity of practices meant there was not a universal approach that companies in our sample used to engage with customers but rather a few distinct approaches present in the sample.

Table 4: Company Success Rate

Company	Resolved Successfully	Not Resolved Successfully	Success Rate
Samsung	20	47	29.9%*
HP	22	53	29.33%*
Dell	15	82	15.46%
Verizon	8	51	13.56%
Comcast	9	64	12.33%
AT&T	1	21	4.76%
*Significantly higher than companies without asterisk at p < 0.05			

We were also interested to see how each of the four solution types (action, link, both, or none) influenced the length of a Twitter thread. A one-way ANOVA revealed that using both actions and links ($M = 22.88$, $SD = 1.185$) produced significantly longer conversations than any of the other strategies ($F = 63.98$, $p < 0.01$). Unsurprisingly, presenting actions ($M = 13.39$, $SD = 8.97$) or links to solutions ($M = 9.72$, $SD = 7.6$) produced significantly longer conversations than providing no solutions at all ($M = 5.89$, $SD = 5.96$).

Additionally, we wanted to examine if there was a relationship between companies and the types of solutions they presented to determine whether there were particular practices or conventions for solving technical issues associated with each company. To do so, we conducted a CA that revealed a significant relationship between the company and solution type ($X^2 = 79.25$, $p < .001$). As can be seen in Figure 1, the CA revealed three major findings. First, Comcast was closely associated with none as 91.7% of their threads provided no solution. Second, a relationship was found between Samsung and action with 31.3% of Samsung threads providing a specific troubleshooting action to the customer. A third, albeit weaker, relationship was found between HP and links to solutions with 16% of HP threads providing a link to an external resource with a potential solution. Figure 1 shows the CA biplot for these three relationships.

Finally, we were also interested in whether certain companies had more successful resolution of problems than other companies. To test this idea, we conducted a cross tabulation of the company variable and the resolved successfully variable. The cross tabulation revealed a significant relationship between the variables ($X^2 = 17.29$, $p = 0.04$) and a follow-up cross tabulation analysis revealed that two companies, Samsung and HP, resolved issues at a significantly higher rate than all other companies. (See Table 4 for a breakdown of each companies' success rates.) We will discuss further the implications of these results in the "Discussion" section of this entry.

DISCUSSION

In the discussion that follows, we will focus on four major themes that stem from the results of this study:

1. The effectiveness of Twitter as a help desk
2. The sociality (or lack thereof) of Twitter as a help desk
3. The blurring lines between technical support and customer support
4. The various company approaches to technical support on Twitter

For each theme, we will provide a brief overview of the finding and discuss the implications for technical communicators.

The Social Help Desk is Widely Used but Not Particularly Effective

Over the course of just 38 days, there were 191,535 tweets related to the help handles of the six companies we studied. We realize that this figure does not represent the unique number of help requests; however, the sheer volume of tweets is impressive. While it is clear that customers are taking to Twitter for technical support, we also discovered a relatively low success rate of social help desk interactions of less than 20%. Our finding is significantly lower than the 55% success rate recorded in Downing (2007) in a study of computer manufacturer help desk calls. Even if we examine the success rate for only genuine questions from customers in our sample, that rate is still only 28.1%. This number would seem to indicate that Twitter may be less effective than traditional help desks.

One possible explanation for the significantly lower success rate could perhaps be due to a relatively low barrier to entry for engaging in social media interactions. That is, it doesn't take nearly as much effort to post a technical problem via Twitter than to place a call to a customer service line (and potentially be put on hold) or to schedule a face-to-face interaction with a help desk. Furthermore, users who take the time to call customer service help desks or have a face-to-face interaction might be more thoughtful in their queries and pose problems that have a greater potential of actually being solved.

Regardless of the reason for the lowered success rate on social media, technical communicators must adapt to the changing nature of information seeking behavior that the Internet, and in particular social media, affords. First, the simple fact that users have adopted Twitter as a viable means for technical support is something technical communicators must consider. That is, technical support can no longer be a passive activity of writing FAQ sections or diagnostic steps. Instead, the real-time response and solutions needed in a social media environment require us to rethink what it means to write technical support documents and protocols. For example, one tangible area for technical communicators to consider is both content and knowledge management. Because Twitter provides a virtually real-time look into the issues that users encounter, novel technical problems and solutions will likely surface at a rapid rate. Therefore, updating existing documentation and protocols will need to happen more frequently and quickly because of social media.

While it is outside of the scope of this paper to recommend a particular content or knowledge management strategy, there are some key questions to consider given this new help desk medium:

- Who will be responsible for documenting recurring problems and updating effective solutions?
- How will these changes be managed, both technically and procedurally?
- Given the high volume of tweets in the sample, how will companies measure success and ROI for Twitter help desk employees?

Early research by Boling et al. (2000) provides a useful descriptive case for creating a knowledge base; however, newer conceptualizations of managing knowledge could be useful in this new social media landscape.

A second implication for technical communicators is the consideration of a wide variety of users with an even wider variety of background knowledge who may be seeking social media for technical support. That is, it is more important than ever for technical communicators to adopt a user-centered and customer-oriented approach in our work. While Van Velsen, Steehouder, and De Jong (2007) found that customers were most concerned with the quality of a solution on a telephone-based helpline, these findings indicate that technical communicators need to consider more than just an effective solution. Instead, technical communicators also should consider that some users might not even know what their problem is or the nature of their problem at all. Therefore, this context requires technical communicators to be particularly mindful of the technical competencies of users and adapt communication strategies to those competencies.

In addition to this consideration, technical communicators working in social media must consider the technical constraints of those media. That is, the short, text-based format of Twitter requires technical communicators not only to be clear and succinct, but also to develop thoughtful ways to adapt, engage, and display empathy with users. While this study was not a discourse analysis of help desk tweets, we did notice that Samsung in particular seemed to capture the essence of this discussion point. For instance, one help desk employee responded to a customer complaint with the following tweet:

> ”@jellius Oh no, Janet. We’re sorry for the inconvenience. Have you changed any settings or installed any apps prior this to happen? ^Bert□” (SamsungSupport, 2015).

In this example, Bert (the employee) has an empathetic attitude in the first half of the tweet and follows up with a probing question related to the technical issue at hand. While Bert is not employing a novel rhetorical move, we noted several companies who were quite direct with their questions and suggestions without building rapport or showing empathy to the end user. We also noted the opposite with some companies only apologizing for technical mistakes but not providing any real technical solutions to their problems.

The Social Help Desk is Not Very Social

For many interactions, the goal of social media is to engage a variety of people as opposed to more traditional forms of one-to-one communication. In our analysis of Twitter help desk conversations, however, there was virtually no community engagement with an average of less than 1 retweet or reply per thread. While we are not completely unsurprised that most of the social help desk conversations were one-to-one given the nature of troubleshooting, we did expect to see more of a social component to the help desk with customers jumping into conversations to help one another solve issues. This absence of sociality in the social help desk has important implications to technical communicators. That is, technical communicators are known for their expertise in acknowledging and bringing in relevant voices and perspectives related to a technical topic (Grabill & Simmons, 1998; Spinuzzi, 2005; Simmons & Grabill, 2007; Simmons, 2008; Evia & Patriarca, 2012; Agboka, 2013; Ding, 2013). Put another way, they are known for their ability to foster conditions for creating social contexts in which a multiplicity of relevant perspectives can be brought to bear on a complex, technical issue.

As a practical matter then, how might technical communicators draw on this dimension of their expertise and encourage more sociality in the social help desk? Potts (2014) and Mara and Mara (2012) both argue for contexts that enable participation from users. With this in mind, perhaps social media managers can utilize the functions of Twitter that encourage sociality. For instance, perhaps a social media manager for a company should consider retweeting or quoting tweets when a customer helped a fellow customer solve a technical problem. This type of customer to customer troubleshooting did not happen often in the sample, but when/if it does, a company should consider encouraging such interaction, which in turn reinforces the social component of Twitter. It also empowers the customer by giving the customer both credit and recognition for the solution of a technical problem.

Another potential recommendation is rethinking the technical communicators’ primary role in the help desk encounter. More specifically, rather than wait for customers to initiate a technical support issue, as was the case in almost the entire study sample, technical communicators ought to evaluate the benefit of initiating more help desk conversations on Twitter as a means for spurring sociality. By initiating, we mean engaging in acts such as starting a Twitter thread with a tweet about a timely and relevant technical topic, continuing a thread by retweeting, or inviting others to join a thread via the @ symbol or a hashtag (Shin, Pang & Kim, 2015).

In taking on the initiator role, technical communicators could create conditions for moving beyond one-way communication cycles by inviting customers to respond to a tweet that was designed and created to get ahead of a technical issue before it appears and even becomes an issue for a customer to manage. For example, a recent example from the @DellCares Twitter handle demonstrates how a company can take on the initiator role in social help desk environments:

> How to Upgrade to #Windows10 in your #Alienware System: Dell YouTube Support Video. #LearnWin10 http://del.ly/6018BE7Un (DellCares, 2015)

In this tweet, we see the company leverage various means for fostering a community response: the use of hashtags, connecting to a visible social media outlet, and providing a link to a third party support resource. Though the tweet did not spur a high volume of engagement, only 1 retweet and 4 favorites, this example is noteworthy for how it spreads out ethos or credibility for offering technical support. That is, the company did not represent itself as the sole authority for resolving a technical issue. Rather, it distributed the authority for technical problem solving amongst different participants in the social web. In doing so, the provision of technical support was in fact social. Therefore, the company represents itself as a willing participant in the social media landscape who creates the kinds of opportunities that Potts (2014) and Mara and Mara (2012) recommend be made available for individuals to bring their expertise to bear on complex matters.

Technical Support on Twitter Involves Being Technical Specialists and Managing Customer Relationships

Two major findings drive this discussion point. First, we found that the content type variable was dominated by technical topics (n = 200), or tweets in which the primary focus is a specific technical issue, and brand complaints (n = 144), or tweets in which the primary focus is a negative statement about a particular company. This factor seems to indicate that while many customers are using the social help desk in a traditional manner (i.e., seeking help for a technical question or problem), a large number of customers are using social media only as a means to complain or vent about their issues with a brand, which could be either technical or nontechnical. This explanation is further supported by the distribution of the speech act variable in this sample. Expressives dominated the sample (n = 158), which indicates a desire for customers to express themselves via social media. For example, one customer tweeted an expressive:

> "I love my old @Dell, so I get a new one, right? Well, less than a week later and it won't start up. Thanks for disappointing me. (Ballard, 2015).

This type of tweet was representative of many brand complaints where the customer was expressing disappointment with a technical issue, but the issue was not described with enough specificity to actually troubleshoot the problem. Therefore, it seems that technical support specialists need not only be able to communicate technical expertise, but also need to be able to empathize and manage customer relationships.

We believe these findings provide some insights for all technical communicators regardless of whether they work specifically in technical support roles. First, this group of findings reveals the important need to better understand and empathize with audience. While this concept has been examined in the past (Loorbach, Karreman & Steehouder, 2013), this study reveals, in the world of social media, an increased need not only to be an expert technical communicator but also to have empathetic, customer service literacy skills. The call for expanded technical communication literacies is not new (Cook, 2002; Hannah, 2011); however, in the context of technical support, our findings reveal that customer service responsibilities are something that should not be avoided or passed on to another group to manage.

The high incidence of brand complaints and expressive speech acts suggests that non-technical, customer satisfaction issues increasingly are at our doorstep, and thus our training programs. Both academic and workplace programs thus need to account for this dimension. In fact, early research (Beldad & Steehouder, 2012; Steehouder, 2007) has nodded to training enhancement. We, the authors, join in this call. As such, we recommend special attention be directed at understanding and articulating the foundational skills that comprise the literacy practices associated with the delivery of effective customer service.

Lastly, we believe that technical communicators have an opportunity to leverage social media to gain insights into audience in order to better understand the audiences we seek to interact with and to represent when communicating. That is, the very method used in this study to collect and analyze tweets could prove useful in building better audience profiles and understanding the attitudes and sentiments of our users.

Four Distinct Approaches to Providing Technical Support on Twitter Exist

A final interesting finding from this study was the differing approaches to conducting technical support on Twitter. Based on the findings, there appear to be four dominant approaches:

1. **Direct action approach,** which was employed most frequently by Samsung, includes a mix of troubleshooting questions and solutions to the customer that were all contained within the Twitter thread itself.
2. **External linking approach**, which was employed most often by HP, provides links to external sources for customers to try.
3. **Combination approach** that uses both the direct troubleshooting and linking approach.
4. **"Offline" approach**, which occurs when companies moved the conversation off of Twitter. For example, @DellCares tweeted this in response to a technical problem, "@Garetzu Do DM and explain the issues in detail, we will be glad to assist you. ^JG" (DellCares, 2015). They ask the customer to DM, which is shorthand for direct message, essentially taking the conversation off of Twitter.

There are inherent advantages and disadvantages within these four approaches.

The direct action approach, which had a 33% success rate, allowed for the support employee to build rapport with customers because of the conversational nature of this approach. In those instances, the average length for a thread using this approach was 13.39 tweets. One representative tweet from a Samsung support staff member, for example, reads,

> Hey Edgar, thank you for reaching out! We will be happy to help! Can you please send us your model number and carrier? ^Red" (SamsungSupport, 2015)

We see Red, the support staff member, engaging the customer and asking for additional information in the first response tweet of the thread. Because the approach allows for a dialogue between the two, the company employee can continue the conversation and rapport building with the customer throughout the thread.

One disadvantage we noticed, however, is there were often instances when the customer simply stopped responding to the thread. Because social media allow participants to enter and exit conversations without any real social expectation of completing the conversation, this disadvantage often resulted in incomplete troubleshooting experiences. Alternatively, the second approach, which included providing links to external sources, was successful 41% of the time. This approach takes advantage of the 140-character limit of Twitter and keeps conversations shorter (9.72 tweets per thread) than a direct troubleshooting approach. HP employed this method more often than other companies did. For instance, they responded to a tweet by writing,

> @UnDiluted7 You can find a really nice guide for improving performance here: http://support.hp.com/us-en/document/c03340676 …^Brennon" (HPSupport, 2015)

In this example, we see Brennon pointing to an HP resource instead of providing each specific solution to the customer. The disadvantage of this approach is it means fewer opportunities for rapport building.

We noticed that the fourth approach, which involved taking the technical support experience off of Twitter, naturally resulted in the shortest conversations (M = 5.89, SD = 5.96). These short conversations have two major disadvantages in our opinion. First, shorter conversations do not allow for the conversational rapport building that longer conversations do. Therefore, companies that use the fourth approach are missing out on opportunities to be social and connect with customers. Second, and perhaps most interesting, taking the conversation "offline," or away from Twitter, results in a lack of documentation for the troubleshooting process that the other approaches provide. That is, when a company presents actions or links to solutions, those actions or links are archived and exist as a technical communication artifact forever, or at least as long as Twitter is around. Other users could potentially view, and more importantly, share these threads as a means to solve their own problems, much like the way users seek solutions via forums.

When troubleshooting is taken off of Twitter, these artifacts are not created. Instead, only a record of a problem with no real solution is archived. Even if a customer's problem is successfully resolved, it is rather unlikely the customer would come back to the Twitter thread to announce their successful resolution. In fact, in the threads where support was taken off Twitter, only 10% of customers announced a successful resolution to the problem. In comparison, when a thread included a link, customers reported a successful resolution 41.3% of the time.

As a final discussion point regarding the approaches that kept the support discussion on Twitter, we noticed a variety of emotional tensions in the customer's tweets, as was noted earlier in our discussion. Specifically, we noted that the emotional tension evident in a customer's initial tweet often dealt with venting or dissatisfaction about a company. However, tension that appeared later in a thread developed differently. For example, this tension often emanated from frustration over the learning process they were engaged in when following the technical support agent's advice. This latter form of learning tension was notable for the way it reminded us of the potential value of minimalist design approaches (Carroll, 1990; van der Meij, 1995, 2007, and 2008; Pflugfelder, 2013) when designing for social help desk interactions.

Minimalism's four design principles all speak specifically to the need to support users' actions and sense making when working with complex, technical materials (Carroll 1990). The four principles include

1. Choosing an action-oriented approach
2. Anchoring the tool in the task domain
3. Supporting error recognition and recovery
4. Supporting reading to learn and do

In this study, we observed customers struggling to make sense of the technical problem before them and sometimes being overwhelmed by frustration. Accordingly, we see minimalist design approaches as potentially being well suited to lessening customer tensions in the problem solving process as well in fostering customer learning. Perhaps a future research study examining these principles in the social help desk context could be valuable for technical communicators.

CONCLUSION: LIMITATIONS AND AREAS FOR FUTURE RESEARCH

There were several limitations to the current study. First, the sample we chose to study was of a variety of technology and telecommunications companies that offer a variety of services. For the sake of comparison, it may have been helpful to examine an even more specific subset of these companies (e.g., internet service providers). As researchers, however, we were restricted because only a small number of companies have created specific Twitter accounts to manage technical support. As more companies enter this space, a follow-up study that examines subsets of technology companies could yield interesting results.

A second limitation of the study was how a successful resolution to a problem was coded. Because we coded a successful resolution only if the customer explicitly stated that his or her problem was resolved, we may have missed out on successfully resolved problems that were not explicitly stated. This factor was a research design choice we made in order to be as conservative as possible in analyzing the data. A future study might employ a participant-observer methodology and actually ask customers about their experiences using Twitter as a help desk.

Third, the study would have benefited from a closer examination of how companies use specific rhetorical strategies and available means to reach and engage their customers (see Hannah & Lam, 2015). This type of study could provide further insight into the variety of customer relationship management strategies used by these technology companies. A future study might focus on this perspective to examine the overlap between technical support and customer relationship management.

Finally, in light of recent scholarship that examines and discusses SM use in global contexts (Longo, 2014; Potts, 2014; St.Amant, 2015), the study would have benefitted from a closer examination of cross-cultural factors that impact the delivery of technical support. This type of study could provide further insight into the ways that geopolitical and cultural factors shape and influence knowledge creating and sharing in global contexts

In summary, our study revealed a wide adoption of the social help desk on Twitter. We found that users engage the social help desk for a variety of reasons, many of which are not related to a specific technical problem at all. Therefore, this study has revealed the need for technical communicators to rethink the methods we use for technical support and consider unique ways to engage with our end users online.

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APPENDIX
Table A: Variables and Coding Scheme

Variable	Definition	How it was coded
Time of first response	The amount of time that passed from the first tweet in a thread to the company's response	• < 1 hour • 1-2 hours • 3-5 hours • 6-12 hours • 13-24 hours • 24-48 hours • >48 hours
Total # of Tweets	The total number of tweets in a conversation from all parties (customers and company)	Numerical variable
Company Replies	The total number of tweets from the company	Numerical variable
Content Type	The type of information presented in the customer's initial tweet.	• Technical – coded if the initial tweet described a problem that was technical in nature (e.g., poor battery life) • Brand complaint – coded if the initial tweet contains a complaint that is about the company and not about a specific technical issue. • Brand praise – coded if the initial tweet is expressing positive sentiment for a company. • Other customer service – coded for all other customer service-related content, which often included account, billing, and purchasing issues.
Speech Act	The illocutionary force of the customer's initial tweet.coded in an effort to capture the purpose or motivation behind the tweet.	• Representative – coded if the tweet is simply an informative statement. • Directive – coded if the tweet is used to cause the hearer to take a particular action. • Commissive – coded if the tweet commits the writer to a future action, including threats. • Expressive – coded if the tweet expresses the writer's attitude or emotion toward a proposition.
Multimedia Elements	The inclusion of image or video by customer at any time throughout the Twitter conversation.	• Image – coded if the customer included an image in the thread • Video – coded if the customer included video in the thread • Both – coded if both media elements were included • None – coded if no media elements were included

Solution Type	The type of solution(s) a company provides within the thread. The total number of solutions in each thread was also collected.	• Action – coded if the company suggests a specific troubleshooting action within a tweet or tweets • Link – coded if the company provides a troubleshooting step, but the instructions are contained outside of the tweet (linked to a different website) • Both – coded if the company provided both actions and links in their troubleshooting. • None – coded if no solutions were presented in a thread.
Resolved Successfully?	A binary variable coded to determine whether a customer's problem was resolved within the Twitter thread.	• Yes – coded if the customer specifically and explicitly stated that their problem was resolved. • No – coded if the customer did not explicitly state that their problem was resolved.
Community Actions (Retweets, community replies, and favorites)	Numerical counts of community actions that occurred within a Twitter conversation	• Retweets – the total number of retweets throughout the entire thread. • Community replies – the total number of non-company replies in a thread. • Favorites – the total number of favorites recorded in a thread

Emerging Scholars and Social Media Use: A Pilot Study of Risk

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ABSTRACT

The ubiquity of social media for professional and personal purposes has proven both an asset to scholars in writing studies (broadly conceived) and, in some cases, a cause for concern. Recent news events suggest that institutional decision-making surrounding social media is reactionary, severe, and steeped in discussions of "risky behaviors." These events (and others) result in anxiety surrounding social media use among individuals and organizations. In this article, we respond to these concerns with an empirical, mixed methods pilot study that investigates the ways new and emergent scholars might mitigate potential problems associated with social media use. The article presents preliminary findings that destabilize rule-based approaches and introduce uncertainties and vulnerabilities that accompany social media use.

Categories and Subject Descriptors

H.0 Information Systems: General

General Terms

Documentation, Design

Keywords

social media, institutional policies, professional practices, mixed methods research, risk

Communication Design Quarterly. ACM SIGDOC, New York, USA.

INTRODUCTION

"If you don't participate online, you're invisible. You really are." (Becca)

"I think what I really want to say is, 'Everyone reads all of your stupid posts and makes judgments about you...and can't help it.'" (Rose)

The above quotations from two of our participants illustrate a tension that many individuals experience in their daily life: the need to use social media and therefore make visible our lives, personas, and/or experiences, and the need to carefully manicure our personas for social media audiences that we may or may not understand. This tension presents itself in numerous ways—not just in social media. But as scholars in the academy continue to embrace social media as meaningful sites of social, professional, and institutional work, understanding the risks of social media becomes increasingly important for the success and sustenance both of our programs and young professionals. The role of social media in writing studies is increasingly complex, particularly as the overlap between personal and professional networks, personas, and communication increases. For emerging professionals, this complexity and overlap presents a problem for individuals as well as organizations: How can individuals and organizations effectively and smartly interact in online spaces, especially social media, given the differing expectations, communities, and audiences that convene in those spaces?

We argue that the need to effectively engage with social media is particularly important for new and emerging academics because so much is at stake in early career public social media use. The role social media publicity plays is nebulous, at best, but current events (see, for example, the University of Illinois at Urbana–Champaign's reaction to Steven Salaita's comments about Israel on Twitter) suggest that professional use of social media can lead to the retraction of job offers and trouble with tenure and promotion. LoMonte (2014), for example, reports that the University of Kansas suspended "David W. Guth, a University of Kansas journalism professor, for an angry outburst on a personal Twitter account blaming the National Rifle Association for the fatal shooting of 12 employees at the Washington Navy Yard." The need to consider online personas is evident, too, in the ways scholars across writing studies engage with one another online, often times shaping impressions of scholarly acumen and personalities. Without sufficient research surrounding the ways social media imbues our professional lives, decisions about personal use, institutional policies, and mentoring are made upon anecdotal evidence and personal experiences.

We want to pause here to make a note about disciplinary boundaries and the fields we refer to throughout this article. Throughout, we use the term "writing studies," which we take as an umbrella field including rhetoric, composition, technical communication, communication design, and a range of other subfields like writing program administration, computers and composition, and user experience, among others. In some cases, such a blurring of disciplinary boundaries is inappropriate. In this discussion, however, we adopt this umbrella term for a three reasons:

- First, the ubiquity of social media means that scholars across the academy are contending with questions of social media as they move through graduate school and into tenure track positions. Overlaps in tenure and promotion policies and policing suggest that considerations across the discipline are appropriate.
- Second, scholars across these disciplines are often trained to similarly consider discourse, technology, design, and so forth, even when they are not trained in precisely the same the disciplines. That is, we often share theoretical positions, methodological approaches, and epistemological frames, making a shared discussion of social media appropriate.
- Third, and perhaps most telling, our call for participants used the term "writing studies" and in the end many of our participants were members of a range of professional organizations and identified themselves across the disciplines we discuss above.

Therefore, we use the term writing studies as an umbrella term, assuming that many readers will identify with some or all of the study of discourse the term implies.

That said, this article contributes to research on professional uses of social media through a report of both current scholarship and findings from a pilot study involving scholars who identify as members of the writing studies field and users of social media for professional purposes. Using surveys and interviews, we characterize the participants' social media use alongside its potential risks as described by participants and in doing so sketch a series of tensions that serve as a foundation for best practices and further research.

To examine these issues, we begin this article with a review of the current research surrounding social media use in writing studies. Next, we explain the design of our study and present preliminary results of this pilot project. We then present preliminary findings that destabilize rule-based approaches, and subsequently, we introduce uncertainties and vulnerabilities that accompany social media use. We argue that social media are structured with such a degree of flexibility that any use of social media is steeped in uncertainty and vulnerability.** Reframing social media in terms of tensions, uncertainty, and vulnerability provides a way forward for both introducing social media policies at the institutional level and for determining how individuals should best engage with social media as professionals.***

OVERVIEW OF CURRENT DISCUSSIONS OF SOCIAL MEDIA

Before describing the current approaches to understanding social media in writing studies, it is perhaps useful to define the term. Of course, the term social media is in and of itself misleading; after all, all media are social (Papacharissi, 2015). To come clean, we mostly use the term social media colloquially, and following our participants, who define and articulate social media in different ways, we resist an overly stable definition because social media emerge and change daily. We understand social media generally as digital media that disrupt the binary between one-to-one communication and one-to-many communication (Shirky, 2008). But the ways they do that and their perceived affordances vary so greatly that narrowly defining the term mistakenly constrains media which, as current literature illustrates, are so flexible that they seem to defy constraints.

Affordances of Social Media

The affordances and ubiquity of social media have prompted scholars across disciplines to study how social media affects professional, personal, economic, scholarly, and civic engagement. One of the challenges of social media is that users are no longer engaged in more familiar personal (one-to-one) or broadcast (one-to-many) media, but rather in a many-to-many model (Shirky, 2008) that leads to the shifting, blurring, or even collapsing of personal, professional, and civic activities (Spinuzzi, 2007). This convergence of different realms of life on social media leads to what Marwick and boyd (2011) call "context collapse," which makes it difficult, if not impossible, to present different identities to different audiences. Sociality is fundamentally different in social media ecologies than in more traditional media ecologies because of the affordances of social media (boyd, 2014).

Technical communication scholars have identified social media's affordances for networking and relationship building in new ways. As Spinuzzi (2007) argues, knowledge workers now engage in networks "among and across work activities that have traditionally been separated by temporal, spatial, or disciplinary boundaries" (p. 268). McNely (2011) suggests that social media provide opportunities for "*organizational writing work*—interstitial and ambient writing that often carries knowledge assets beyond organizations and everyday organizational contexts" (p. 1). In his study of conference attendees using Twitter, McNely argues participants' posts are the type of knowledge work that creates social and organizational ties. Elsewhere, McNely (2010) argues "that mundane and seemingly ephemeral online communication practices may actually strengthen connections within an information ecology" (p. 103).

In her study of freelance writer "Dave," Pigg (2014) explores how Dave used social media not just for content creation, but also to do research and to enter networks by "inventing himself as a genuine member of and contributor to the existing network" (p. 80). Pigg suggests that using social media is a matter of constructing relationships: "Dave was inventing his career out of alliances he formed through social media writing in small, incremental movements" (p. 83). In this way, social media does not simply support current projects but is also future orienting, helping a participant develop "the connections, alliances, and presences that could support later inventions" (p. 84). Using social media, then, helps writers accomplish the sort of "textual coordination" described by Slattery (2005 and 2007) wherein writers assemble new texts from a variety of source materials, and to coordinate and construct new relationships "to invent texts, identities, and careers" (Pigg, 2014, p. 70). As Swarts (2011) argues, part of being technologically literate involves creating these relational networks.

Some institutions are responding to social media's growing place in the ecologies of professional work by creating policies for employees' social media use. However, studies are finding that these policies are typically ambiguous and meant to protect institutions, often failing to educate employees and students about social media expectations. In his analysis of corporate social media policies, Weber (2013) argues that these policies constrain employees because of the tensions in the policies: They encourage employees to be simultaneously personal and corporate-friendly on social media, and "they create a seemingly paradoxical situation where employees both do and do not represent the company" (p. 289). Thus, these policies are written in ways that protect companies, and the policies "enshrine tensions between company and employee agency rather than resolving them" (p. 290). Sanderson and Browning (2013) come to similar conclusions in their study of student–athletes and athletic departments' social media policies. Students were typically not provided training for using social media, and any education they were provided usually came after a violation of a policy—often an unknown or unclear policy. Policies, Sanderson and Browning argue, forbid postings on social media that are "inappropriate," an ambiguous term that served the interests of administrators who could define "inappropriate" after the fact (pp. 106–107). In this way, such policies serve as a way to maintain power over employees (Sanderson, 2011).

Educating the Field and Students about Social Media

Despite increased use of social media by professionals in writing studies, we—as a field—are still uncertain of how to best manage and educate each other about using social media. Although Gurak and Duin's (2004) call for the field to attend to scholarly and professional activities on new media is over a decade old, there has been scant research on uses of social media by graduate students, instructors, and professors in the field. Of course, this is not to discount the growing bodies of work on social media and pedagogy (e.g., Vie, 2008; Longo, 2014; Maranto & Barton, 2010; Daer & Potts, 2014; Hurley & Kimme Hea, 2014), social media and disaster and crisis communication (e.g., Potts, 2009 and 2014), and the changing nature of knowledge work in social media environments (e.g., Spinuzzi, 2007 and 2009; McNely, 2010 and 2011; Ferro & Zachry, 2014). But we need more understanding of social media use by professionals as professional work. As Kimme Hea (2014) puts it, we need to attend to social media use, as "social media also are interwoven into the political, rhetorical, and material work of technical communication scholars" (p. 2).

Such an approach, however, has perhaps been limited by our cultural obsession with the dangers of social media. As Hurley and Kimme Hea (2014) note, typical discussions of social media and professionalism focus on the potential pitfalls of social media and the ways that unsavvy social media use can harm or even destroy careers. They explain how these concerns are echoed by students, who are often more concerned about managing their online reputation out of fear rather than understanding how social media can be used in professional settings. And in technical communication scholarship, this factor plays out in discussions of risk for employees writing in social media, such as Rife's (2007) assessment of the risks of blogging, where she chronicles numerous risks, ethical concerns, and negative consequences to blogging.

Hurley and Kimme Hea (2014) suggest technical communication teachers "can demystify the current rhetorics of fear and illegitimacy about social media" (p. 56). In one of the few studies of graduate student social media use in the field, Leon and Pigg (2011) explore how two graduate students navigate the tensions between "real work" and digital work and negotiate their professionalization in digital spaces. Leon and Pigg suggest that professionalism is not a linear process restricted to formal settings and genres; rather the process of professionalism is "fragmented and composed of myriad moments of different kinds of writing," including writing online (p. 5). They close by asking how the field might support and value graduate student writing and professionalization in social media environments.

The authors' own experiences suggest that the fears surrounding social media are not merely pedagogical—indeed, it is not only our students who face long-term consequences for their use of social media. We (as members of a field) do, too. Potts (2009) suggests we cannot attend to a single platform or tool, but must attend to the "holistic experiences" of users who traverse a variety of digital and non-digital spaces (p. 298). This suggestion holds not only for our undergraduate students, but for our graduate students and colleagues as well: our holistic experiences as users press upon our professional experiences, collapsing contexts in which we perform our identities as scholars, professionals, etc. Given the consequences of social media use and the collapse of context, then, best practices for social media use within our own fields should inform the advice given both to avid users of social media and to others in our community who are less inclined to engage using such technologies.

METHODS

How, then, should we be building policies, guidelines, and strategies for social media use within writing studies? The current literature reviewed here offers much in terms of understanding the affordances of social media and even addresses the ways we might help undergraduates engage with social media critically. However, few studies in writing studies seek to understand the ways professionals in the academy experience the field through social media, the ways they craft their identities via social media, or how institutions might respond to the socially mediated aspects of the field. In order to address this gap, we designed a mixed-methods study (Creswell, 2014) that engaged scholars across the field in a discussion of the uses, risks, and guidelines for social media. Our central goal was to understand how and if scholars in the field use social media for professional and personal purposes and, specifically, to learn how professionals perceived the risks and affordances of social media use. In order to do so, we needed to first confirm our suspicions that social media was not perceived as merely a personal platform. Then, we needed to speak directly with individuals about their experiences and perspectives related to social media use. We provide an overview of the research design and objectives in Table 1.

We began by circulating a survey of 10 questions to writing studies listservs and on social media platforms. These questions were designed to gain a broader understanding of how scholars in writing

Table 1: Overview of Pilot Research Design

Pilot Research Design Phase	Purpose
Phase One: Survey	• To confirm our suspicion that writing studies professional used social media for both professional and personal purposes • To recruit interview participants that spanned diverse demographics and familiarity with social media
Phase Two: Interview	• To learn from professionals how they use social media professionally • To learn from professionals the perceived and/or experienced risks surrounding social media use • To begin understanding existing and potential institutional responses to and training for social media engagement

studies use social media and to screen participants for interviews (see Appendix A for survey questions). Our survey participants self-selected as writing studies scholars by completing the survey (we purposely left the writing studies self-identification broad). This identification was the only requirement for participation in the survey. Four hundred and nineteen participants completed the survey, and their responses confirmed that social media use was frequent and that, indeed, many of them (285 of 413) use social media in ways that blur the boundary between professional and personal (see Tables 2 and 3).

Question 4, a series of Likert-scale questions, was designed to collect information about the participants' experiences and comfort with social media (see Table 4). Questions 5 through 8 were demographic questions designed to collect information on race/ethnicity, gender, age, and rank, which then allowed us to recruit diverse demographics. (Such information is important because we wanted to be sure not to homogenize responses, particularly because the social and professional expectations for women and people of color are often different and more complex than those from majority groups [read: straight/white/male/native English speaker].)

In the final question, participants indicated their willingness to participate in a video or face-to-face interview by providing us, the researchers, with their names and email addresses. Based upon the responses we received, we sent email requests for interviews with 15 participants, taking care to solicit a range of ages, races, ranks and experiences with social media. Of the solicited participants, 10 responded within the allotted interviewing time frame, and we, along with several graduate student researchers, conducted and recorded 9 interviews using video conferencing tools of the interviewee's choice (e.g., Skype, Google Hangout, Facetime; see Appendix B for interview questions). One participant requested an in-person interview at a conference, so that interview was conducted face-to-face and recorded using a digital recorder. Interview data was transcribed and coded using an open coding schema (see Strauss, 1987; Miles, Huberman, & Saldaña, 2014). In analyzing our interview data, we searched specifically for discussions of risks and advice about social media. In our coding for "risk," we looked for any instance of what might happen as a result of social media use, including fears, job-related consequences (like not getting hired), being misunderstood, interpretations of ethos, and so forth. Each of the authors coded for such instances separately and then cross-checked in a norming session.

Interview Participants

Our interview participants spanned academic ranks, gender, and race/ethnicity as well as varied levels social media engagement (see Table 5). Some of our participants use social media in only limited or controlled ways; others engage with social media more freely. All ten of our participants use social media with regularity (i.e., many discussed using social media multiple times a day), though some certainly more than others. We asked our participants, for example, to think back to the last time they'd used social media; all reported that they'd used some form of social media that day, and many reported that it was the first thing they did when they woke up.**** While the platforms of use varied, nearly all participants discussed Facebook and Twitter as platforms they use and/or are familiar with.

Some of our participants admitted that their online/social media presence is very controlled and purposeful—tactical, even. One participant discussed her role as a mother dominating her persona on social media; this move is strategic: on the job market she sought to find a "safe" social media persona. Others discussed the desire to be more fully themselves online—that is, they sought an online presence that eschewed the need to craft a particular persona. These

Table 2: Responses to Survey Question 2: How often do you use social media?

Frequency	Number of Responses (N=417)	Percentage
Several times a day	342	82.0%
About once a day	30	7.2%
3–5 times a week	10	2.4%
1–2 times a week	13	3.1%
Rarely	22	5.3%

Table 3: Responses to Survey Question 3: How would you characterize your social media use?

Characterization	Number of Responses (N=413)	Percentage
Primarily personal	109	26.4%
Primarily professional	19	4.6%
A combination of both	285	69.0%

10 participants, of course, cannot provide the final say on the use of social media in writing studies. But they can help us understand more fully the ways professional use and consider social media in the field. More importantly, they help us sketch a way forward for the field, as we collect cross-institutional perspectives on the ways our field embraces, troubles, and uses social media.

DISCUSSION OF FINDINGS

Given our research and our own experiences, we see a need for considering institutional responsibilities, the policing of and policies regarding faculty members and graduate students, and the role of the technical communicator in developing the increasingly necessary social media policies in organizations. Thus, we analyzed the data with this question in mind: how should and can we aid our colleagues—particularly junior colleagues and graduate students—in successfully navigating the harrowing social media waters, wherein (if our participants are correct) one misstep can cause you your job? This section begins with an overview of how participants describe social media use, focusing specifically on the advice they give and have received in relation to interacting via social media. Complicating some of the advice given and received by participants, we locate the tensions between the experiences and advice of our participants.

Social Media Use in Writing Studies

In order to characterize social media use in writing studies, we turn momentarily to our survey data. Of the 419 respondents to our survey, 82 percent (or 342 participants) reported using social media multiple times a day, and 69 percent (285 participants) reported using social media for both personal and professional purposes (see Tables 2 and 3). Participants mostly reported using

- Facebook (317)
- Twitter (218)
- LinkedIn (83)
- Instagram (78)

But scholars in our field also use

- Pinterest (40)
- Tumblr (30)
- Reddit (14)
- Google+ (8)
- Ravelry (4)
- Yelp (3)
- Github (1)
- Medium (1)

Table 4: Responses to Survey Question 4: Please respond to the following statements about your social media use.

Statement	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree	Average Likert Value (out of 5)
Social media is an important part of my personal life. (N=418)	24	35	41	182	136	3.89
Social media is an important part of my professional life. (N=418)	34	39	61	194	90	3.64
I use social media to maintain my professional network. (N=417)	28	44	47	196	102	3.72
I study social media as part of my scholarship. (N=418)	71	109	62	111	65	2.98
I use social media as a part of my teaching activities. (N=418)	38	74	59	186	61	3.38
I am confident about my ability to use social media. (N=418)	13	13	36	191	165	4.15

Table 5: Overview of Participant Demographics ***

Pseudonym	Race and gender	Institutional information	Social media used
Natalie	Black Female	Assistant Professor at Research University	Instagram, Twitter, Facebook
Nathan	White Male	Associate Professor at Research University	Google Hangout, Facebook, LinkedIn, Twitter
Becca	White Female	Associate Professor at Research University	Twitter, Facebook, reddit, Instagram, Pinterest, Google Talk, Google Hangouts, Wikipedia, Flickr
Suzie	Asian Female	Graduate Student at Research University	Facebook, LinkedIn, Instagram
Monica	White Female	Instructor at Community College	Facebook
David	White Male	Assistant Professor at Research University	Twitter, Facebook, YouTube, Wordpress, Blogger
Rose	White Female	Full Professor at Research University	Facebook, Twitter
Sally	Asian Female	Administrator at Research University	Facebook, Twitter, Instagram, LinkedIn, Academia.edu
Sarah	White Female	Instructor at Liberal Arts College	Facebook, LinkedIn
Gabby	Latina Female	Assistant Professor at Research University	Facebook

Some scholars included Blackboard (2) and wikis (6) as part of their report, and still others troubled the notion of social media, including phrases like: "Not sure if that counts" or "I'm not sure what 'social media' includes." They wondered whether some of the online technologies they use—YouTube, for example—"counted" as social media.

As researchers, we hesitated to draw distinctions surrounding social media platforms because, as we discuss above, the term social media is ever changing and evolving. Because all media is social, we wanted to offer participants the opportunity to define forms of social media themselves. This approach follows scholars like Anderson et al. (2006) who study multimodality and allow their participants to determine what kinds of writing is multimodal since all composing is inherently multimodal. Rather, we report this data to demonstrate that, indeed, scholars in writing studies use social media regularly and that they use it for professional and personal purposes across a range of platforms.

Our interview participants (noted here via pseudonyms) reflect these variations as well. Where Becca uses social media for both professional and personal purposes and takes it as a subject of research, Rose only uses it on occasion and primarily (though not exclusively) uses it for professional reasons. David, Monica and Nathan all integrate social media in their teaching as well as their personal/professional lives. Gabby uses social media to promote her professional work, and Suzie uses it to build resources, networks, and ask disciplinary questions about what to read or sources on topics.

Our interview participants also indicated that social media use sometimes shifts when on the job market or before securing a job. Both the advice they offered or received and their own experiences suggest that when job-hunting, professional social media use can and/or should shift. Natalie, for example, reported that she was quite careful about social media use, and Gabby reported that she remembers being told that she must get on social media during the job market in order to be visible. (We review this quickly to give a context for the advice and discussions of risk that come next: our participants come from a range of positions and institutions with a wide range of expertise surrounding social media use.) Having participants from a range of positions and a range of social media experiences allows us to attend to the various factors involved in advice on using social media. For example, someone with expertise in social media may give advice differently than someone who rarely uses social media professionally, and advice may be given, received, and understood differently depending in part on one's security in their position (e.g., being on the job market versus being tenured).

Advice

The advice discussed by our participants might be summarized most succinctly by Becca's statement, "Everything's about professionalism, right?" Most advice received and given by participants was generalized advice with a only few directives about behavior. First, there was a clear expectation that scholars had to have online presences. Some junior faculty and graduate students we interviewed for our study reported that they were told during their job market training that they had to be on Facebook: "You have to be get on Facebook because that's where a lot of things happen." Similarly, as Becca explained, and as we quote in our epigraph, "If you don't participate online, you're invisible. You really are." As a digital rhetoric and technical communication scholar, she stressed the importance of being engaged in social media, particularly because, as many of our other participants noted, social media can and perhaps should be used to establish your professional ethos.

But participants also suggested it was not enough to merely be online; rather, it is necessary to develop a consistent and thoughtful ethos. Nathan put this advice this way: "I encourage students to create a presence that conveys what they want to convey." He advises graduate students to consider what level of engagement they want online and what sort of ethos they want to present and encourages them to work to consistently create that level of engagement and ethos. He asks his graduate students to think about their career goals: If they want to be a professor, "Think about, 'What does that mean? What do I care about?' And start being that person." Additionally, David, an assistant professor, was told in graduate school to have a consistent and professional presence across platforms (and explained that he wasn't given any other specific advice).

Participants provided and received advice about being cautious and aware online in order to create this professional ethos. Rose's advice to "be very cautious" was repeated either explicitly or through stories in many other participants' discussions. Monica, for example, reports taking down some of her Facebook posts with regularity, in fear that her colleagues would report her overly liberal activity to the administration. Natalie similarly reports that she stopped using social media in the months following the Michael Brown case; she was concerned that she would be seen as "this rabble rouser activist on steroids," which concerned her. "As an untenured professor it did cross my mind to think that these were the people who would be evaluating me in a few years." Both Monica and Natalie report that the oversight from administrators and evaluators caused them to be cautious about their approaches to social media use.

Most participants openly advised this kind of caution as well. Becca suggested users should wait to post, especially when they're emotionally engaged with a particular topic. She advised graduate students to engage in private conversations with friends and colleagues about anger and frustration and allow emotions to subside before deciding to post.

Although many participants shied away from giving blanket rules for social media use, some "rules" emerged from our interviews, either because the participants had been advised this way or because they offered this advice to junior scholars. These suggested "rules" included the following:

- Wait to post, especially if you're emotional.
- Don't vent (e.g., don't complain, especially in anger or annoyance about something that happened at work).
- Don't engage in fights.
- Build connections.
- Connect your web presence and social media use (e.g., link your Twitter account to your webpage).
- Stay positive.

This last suggested rule, "stay positive," perhaps encompasses some of the other edicts: any negative comment has potential ramifications. And yet this advice runs contrary to the rhetorical suggestions that emerge from pedagogical articles and from other participants. If the rules are to "be positive" at all times, then users are severely limited in their engagement. Of course, positivity is subjective: where some, for example, might see Natalie's online activism as a positive, others might not. So this advice, in all its concreteness, breeds uncertainty and leads to tensions among approaches to social media.

Tensions

Many of our participants felt strongly about the role social media can or should have in their professional and private lives. From statements like, "If you're in rhetoric and writing, I expect you to be on social media" to more cautious statements like, "I am fairly skeptical of the professional value of this stuff," participants' social media practices indicate that social media use produces strong reactions. Yet we find the certainty of these claims countered by parallel statements of uncertainty and concerns that suggest the field of writing studies needs to respond more overtly and directly to expectations about social media use.

Most notably, we're concerned because our participants tell this narrative: Professionals in writing studies should be careful to be present on social media, while being cautious because they "know for a fact that people have not been hired because they were an asshole on social media" and they have to admit that search committees they've been on used social media to research candidates. Put another way, while participants are convinced that social media is being used for institutional decision-making, the ways it's being used are nebulous at best. The range of advice provided by participants is smart, solid advice (at least we think so). Yet it reveals a concerning trend: scholars whose work is to study and engage with discourse (across media) see their engagement as subject to institutional policing. For good or for ill, this seems to be true. Indeed, this was the impetus for the study in the first place.

This risk—that our online presence potentially constrains our professional success (or vice versa)—is in no way surprising. For many teachers, this is the beauty of teaching with social media: there are real world consequences for engaging these sites (Vie, 2008; Daer & Potts, 2014; Hurley & Kimme Hea, 2014). Our participants' discussions of their social media practices revealed some very real tensions around context collapse; the visibility of how one spends their time; uncertainty about power, difference, and surveillance; and the permanence of data.

Participants' anxieties around context collapse revealed a fundamental tension of having both a professional and personal life online. According Marwick and boyd (2011), context collapse on social media occurs when multiple audiences are present on the same platform, making it difficult for users to manage their identity presentation to audiences with different values and understandings of an individual. The collapsing of contexts leads to tensions around what sort of persona one is presenting as well as the distinctions and overlaps between a "professional" identity and a personal, political, or "authentic" persona. Sally, for example, explained that she had considered having separate Twitter and Facebook accounts for personal and professional profiles, but decided that this would be too laborious. She and others participants noted they decided on a single account on these sites for ease and authenticity (i.e., a correspondence between their "whole" selves and their online identity presentation).

But having a single account within networks of professional colleagues (including senior colleagues for graduate students and junior faculty), family, friends, and students led to anxiety around what was appropriate to post. Sally, for example, was concerned that she was posting too much about her personal life on Facebook. When she then realized senior colleagues posted even more about their families than she did, and she felt more confident about her posts. Monica, who used to have two Facebook accounts but didn't like the idea of "having two different versions" of herself, is now concerned about her liberal political posts because she works at a fairly conservative institution and has conservative colleagues as Facebook friends. David put this tension this way: "I want to live in a world where I'm allowed to be me and not this perfect figure with this firewall where I can really not be a human and I have to act in really calculated ways all the time."

If scholars in the field are expected to be online, how much time should they be online? Digital media, unlike more traditional networking, makes activity visible and leaves behind evidence of that activity. Social media use can be seen as a waste of time or a mode of procrastination. Rose, for instance, explicitly stated that she judges colleagues who she sees posting on Facebook all the time: "I think if you spend all day on Facebook, you give the impression that you don't do your job." Other participants who post on social media regularly expressed concerns that they would be seen as slacking off, particularly, as David noted, if posts showed parties or non-work activities.

Relatedly, participants were concerned about their online persona or ethos in relation to power and difference. Participants who did not represent the historically non-marginalized scholar—Western, white, middle class, heterosexual, native English speaker, able-bodied male—often expressed concerns that their positionality ("one's imagined relation" or understanding of one's position in society [Sánchez, 2006, p. 38]) or difference would affect others' perceptions of them. Suzie, for example, was concerned about posting "something that will make me look stupid" because she knows that potential employers could be reading her posts. Online identity management is difficult for her because, as she explained, "there's people in the field who I really admire; they can be reading my posts." As a non-native speaker of English, she was concerned with potentially using "bad English" and found herself "editing and editing" so friends and colleagues would not judge her online communiqués.

Suzie's example echoes Natalie's experiences, which we discussed earlier. Engaging with Facebook too often, for her, meant posting political material and "getting sucked into [political or sensitive] discussions," specifically in the wake of Michael Brown's death. She understood that, as a junior scholar, her national profile was determined as much by her social media presence as by her scholarly work. As such, she shared that she was concerned about how she might be judged by senior scholars, who ultimately might be evaluating her tenure case or hiring her if she looked for her a new job.

Nathan noted that some aspects of ethos and the repercussions that come with online behaviors are gendered, sexed, and raced. He noted, "Personal details that might make someone seem less hirable" can be personal details deemed too private by the native English speaker, middle class, white, male, heterosexual norms of professionalism. "What do you do," he asked, "when part of your work is about crossing lines that society isn't always comfortable in you crossing?" Referencing scholars working on race and sexuality and being visible on social media sites, he asked, "How do you be you while understanding that other people have a vested interest in you not even existing?"

Of course, because social media is very much mundane and everyday, participants reported that the permanence and scalability of content (i.e., how easy it is for content to be shared and "scale up" to broader audiences) made it difficult to make mistakes. Monica reported deleting Facebook posts after five minutes of reflection on how they could be interpreted by others. Nathan reported that in response to discussion on posts, he has "gone back and done some hygiene" by deleting posts. But that hygiene is not foolproof, as others take screen captures. Gabby, for example, explained that even after an angry exchange has been taken down, screenshots of that exchange circulate among networks in the field (and indeed, our study was motivated in part by witnessing some of these screenshots circulate). Or on Twitter, as Becca reported, replies to tweets still exist even if the original tweet is deleted. David expressed his frustration with how mistakes are often judged on social media: "We fail to contextualize those kinds of things in earnest, right?" For David, we need to be okay with others and ourselves making mistakes in public: "You have to learn to be ethical—we all make mistakes and it's part of growing. People don't just emerge as ethical subjects."

CONCLUSION

What, then, does it mean to be or act "professional" in online spaces? What does it mean to be "appropriate" in these spaces? Generalized advice exhorts us to be professional and appropriate, but these are terms that, much like the obverse "obscene material," are best described as "we know it when we see it." Indeed, it is probably impossible to provide a clear-cut definition of what constitutes professional and appropriate behavior given that these practices are always localized and context-specific. And of course, given the limits of this pilot study we cannot provide generalizable results. But we have learned from our participants some key ideas that should guide future work.

The tensions noted in even this small sample of interview participants suggest some members of the writing studies field resist the inclusion of social media in our professional spaces while at the same time acknowledging the importance of them. Although we often like to talk about social media risks and rewards with our students, professional discussions of these risks and rewards is needed among faculty and professional organizations as well. Such discussions, as in our interviews, are likely to arouse latent emotional responses to the intrusion of professional expectations in private and/or personal platforms. For us, these emotional, affective responses suggest the importance of having these discussions carefully. The power structures that imbue the workplace layer in odd (if problematic) ways upon the more distributed power structures of social media. Our findings suggest that tending to social media engagement in terms of vulnerabilities and uncertainties can produce thoughtful, heuristic approaches to building policies and advice about social media use in organizations and institutions.

Although many of us seek best practices and a list of dos and don'ts, our pilot study suggests we ought to be looking more closely at the ways vulnerabilities and uncertainties show up in social media infrastructures and experiences. Thus we resist suggesting advice with terms like "appropriate," "professional," and "positive" because they are amorphous, undefined, and possibly even impossible to define universally given that they play out differently in different contexts. Additionally, "appropriate" and "professional" are often tied to dominant and normative conceptions of the public/private distinction (Warner, 2002)—indeed, professional ethos has traditionally meant to perform certain notions of masculinity, monolingual English speaking, whiteness, heterosexuality, able-bodiedness, and middle-class propriety in public or semi-public settings (Nothstine, Blair, & Copeland, 1994; Wilkins, 1998; Mizzi, 2013; Samek & Donofrio, 2013).

While we agree that social media engagement has consequences, and that in some cases those consequences are negative, we want to push back against the reactionary tendency to seek total control over our online persona, mostly because social media scholarship suggests that such control is impossible. And though we need to understand the potential for problems with social media, we want to encourage professionals in writing studies to develop more flexible ways of thinking about social media engagement. Thus, we need more studies that investigate social media as it helps co-constitute institutions and individuals, rather than seeing them as separate from one another.

In suggesting that social media engagement be understood in terms of uncertainty and vulnerability, we admit that these terms are messy, unstable, and dynamic. In truth, that is what we have learned from our pilot study. Rather than build rules tied to risky and therefore bad behavior, we suggest mapping the uncertainty tied to any engagement (on social media or otherwise). This approach requires both an understanding of how social media works and an understanding of one's vulnerability, including one's own professional position.

Understanding social media in terms of vulnerabilities prompts advice givers to revise recommendations and encourages flexible thinking about social media engagement without sacrificing the kind of critical thought needed to effectively navigate professional spaces, including social media. A messy vision of social media makes it harder to study than we had initially hoped. Indeed, our mixed methods study aimed to understand best practices and institutional policies. But what we found was that social media use depends upon career goals and positionality, upon contexts of use and professional experiences.

As social media policies are called for in industry, nonprofit organizations, the government, and the academy, we suggest that writing studies scholars commit to being at the forefront of these discussions. Rather than design these policies as reactionary moves, writing studies scholars might propose studies, discussions, and approaches that anticipate both the potentials for and the problems with engaging with social media. As we consider how we might design professional development for graduate students and junior scholars regarding social media use, these principles might provide guidance for designing professional development, either in graduate courses, in professional development seminars, or through mentoring. We suggest that both policies and professional development should encourage both the use of social media and the mapping of potential vulnerabilities and uncertainties. Such an approach can aid in individual and organizational decision-making that takes advantage of and acknowledges the affordances of social media.

ACKNOWLEDGEMENTS

The authors would like to thank Kirk St.Amant and two anonymous reviewers for their helpful feedback during the drafting of this article. We would additionally like to thank our student researchers at TTU who helped us think through the project, conduct interviews, and sort through data: Amilia Evans, Nancy Muncie, Laura Patterson, David Young, David Vialard, Sheri McClure-Baker, and Timothy Goss.

ENDNOTES

* Authorship is alphabetical and does not reflect amount of contribution.

** We understand vulnerability as "equivalent to openness and flexibility" (Bijker, Hommels, & Mesman, 2014, p. 1). While risk has been tied to qualitative approaches and cost–benefit analysis (Scott, 2003/2014), "vulnerability, in contrast, is linked to situations that are less specified and more difficult to predict" (Bijker, Hommels, & Mesman, 2014, p. 7). And whereas risk is associated with negative outcomes and with discourses of control, stability, regulations, and prevention, vulnerability works through vocabularies of openness, surprise, precautions, humility, and justice (p. 11). Thus, while risk often implies a calculability of outcomes, we prefer to focus on uncertainty, which implies neither negative nor positive outcomes and calls attention to the unpredictability of social media use.

*** This study was approved by the Institutional Review Board at Texas Tech University, protocol #504917.

**** Laughing, one participant admitted to being embarrassed to admit that she'd woken up that day and immediately picked up her phone to check Instagram.

***** All names used in this document are pseudonyms.

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APPENDIX A:
Survey Questions

1. What social media services/sites do you use most often? [Please list].

2. How often do you use social media?

   a) Several times a day
   b) About once a day
   c) 3-5 times a week
   d) 1-2 times a week
   e) Rarely

3. Would you characterize your social media use as a) primarily personal; b) primarily professional; c) a combination of both?

4. Please respond the following statements about your social media use.

Question	**Strongly Disagree**	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**
Social media is an important part of my personal life.					
Social media is important part of my professional life.					
I use social media to maintain my professional network.					
I study social media as a part of my scholarship.					
I use social media as a part of my teaching activities.					
I am confident about my ability to navigate social media.					

5. Please characterize your professional status.

   a) Master’s level graduate student
   b) Doctoral level graduate student
   c) Instructor (non-tenure-track, adjunct, or similar status)
   d) Assistant professor
   e) Associate professor
   f) Full professor
   g) Other

6. What is your gender identity?

7. What is your race/ethnic identity?

8. What is your age?

   a) 20-29 years old
   b) 30-39 years old
   c) 40-49 years old
   d) 50-59 years old
   e) 60+ years old

9. Would you be interested in being contacted as an interview participant about social media use?

   a) Yes
   b) No

10. If yes, please provide your name and email address. (This information will be disidentified from other responses given in this survey.)

Name:

Email:

APPENDIX B
Interview Questions

Part I: Understanding Social Media Use

1. Describe yourself as a professional -- your position, what you study, etc.
2. As you know, this study is about social media use as it converges with your professional life. Can you tell us a little about your social media use? [Prompt what sites used, what technologies used to access, etc.]
3. We're hoping to get a contextualized understanding of how folks in the field use social media -- so I'm wondering if you can think back to the last day you used social media. Can you describe that day along with your social media use -- when did you use it? what devices did you use? How often and for what purposes?
4. Can you describe your social media network -- who does it include [family, friends, colleagues, students, professors]?
5. Explain the relationship between your social media use and your professional identity/work. Do they intersect? If so, can you describe that intersection? How does your professional life/work show up, get informed by your social media use? Do you see social media as a central part of your professional life?

Part II: Risks, Benefits and Institutional Constraints of Social Media Use

1. Can you tell us a little about why you use social media? What are the benefits -- either personal or professional?
2. Do you think there are risks for yourself or others in the field in using social media as part of professional life? Can you describe those risks?
3. Can you remember a time when your professional connections ever caused you to make decisions differently about your social media use? If yes, can you describe that or another instance?
4. We're wondering about the ways in which social media use is used for institutional decision making. Do you see social media affecting the ways decisions are made about hiring/firing or tenure and promotion? If so, how?
5. A. Grad Students/New Faculty: Have you been advised about your professional use of social media by mentors or professors? What kind of advice have you gotten? B. New and Senior Faculty: Do you advise students or other colleagues about social media use? What kind of advice do you give?

Book Review

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Spinuzzi, C. (2015). ***All edge: Inside the new workplace networks*****. University of Chicago Press: Chicago.**

In 1970, Alvin Toffler described "adhocracies"—teams of specialists deployed to swarm a project, solve the problem, and disperse at its completion, reforming in a different configuration depending on the next project's needs. In *All Edge: Inside the New Workplace Networks*, Clay Spinuzzi introduces the idea of "all-edge-adhocracies" (AEAs), where specialists have the ability to form links both inside and outside an organization (p. 1). *All Edge* is an overview of new workplace strategies that knowledge professionals—such as those working in web design, content structuring, graphic design, etc.—can use when collaborating. "Edge" means several things in this context: cutting edge (e.g., technologies, skills, response time, project types), and the ability to cross edges/borders (e.g., forming rapid collaborations with workers with complimentary skills—who may be employed within or outside the originating organization). The idea of an "all-edge" approach to project management means that the project components (workers, space, materials needed) are stripped down to the essentials because they *can* be and thus increase workplace flexibility.

The past 25 years have introduced low-cost or free communication platforms that have enhanced the freedom of workers seeking more autonomous employment. Many workers, particularly in the knowledge sector, no longer necessarily need a home "office" with a fax, bulky printer, or mailing address. Rather, instant messaging, email, and cell access has allowed many workers to a mobile, flexible way of working far from the confines of a traditional 9-to-5 setting.

Spinuzzi's main points regarding AEAs are that:

- All-edge work is focused on innovation: finding unique solutions to unique problems (e.g., each website is going to be different) rather than mass-producing a tangible product.
- The overall process is centered on information, which can be discussed, dissected, tested, and easily shared.
- This overall work is largely situated in service industries (e.g., problem-solving work, such as design) where noncore assets are easily shed (no manufacturing plant is necessary; workers may merely need an internet connection and appropriate software).

Spinuzzi emphasizes that although all-edge adhocracies are a new way of working, more traditional management styles, such as bureaucracies and adhocracies, will not disappear any time soon. Likewise, AEAs should be used for the appropriate type of work in which they flourish: AEAs are good for some types of projects; traditional structures are better for others. However, organizational leaders and workers should become aware of the work styles and strategies AEAs use because it is likely that traditional employers—if they are not incorporating some AEA traits into their own work already—will likely be working alongside AEAs in the near future.

All Edge is organized into ten chapters. Chapter one provides a historical context of communication, coordination, and collaboration in the context of writing, printing, and digital connections. Over the past 25 years, information and communication technologies (ICTs), such as instant messaging, social networks, and mobile access, have rapidly increased workers' ability to connect, share content, and network by collapsing time and space. The chapter uses three case studies to describe what the systems tell us about workplace trends. Chapter two describes shifts in organizational work since 1970, and how AEAs have developed in response to this shift. In this way, chapters 1 and 2 introduce the idea of being "all-edge," traits of AEAs, and how these traits differ from traditionally bureaucratic and institutional adhocracy communication management strategies. Readers may, in turn, begin to recognize traits in their own projects that would adapt well to AEA work.

Chapter three introduces examples of individuals working in subcontractor networks and how several individuals had formed their own "nonemployer firms"— networks that complete project-oriented contract work for larger organizations. Chapter four compares organizational networks to sociotechnical networks and social networks in terms of division of work, network development, and work styles. Chapter five examines the idea of "co-working": situations where individuals share a common workspace, yet are not employees of the same company. (A self-employed content writer might, for example, collaborate with a web developer to build a website.) Chapter five also discusses a variety of co-working spaces and briefly overviews of how the spaces and co-workers operate, including the management of "front-stage operations" (e.g., for coordinating a professional space where individuals can meet clients) and "back-stage operations" (e.g., coordinating consultants from multiple disciplines to complete a single project, then dissolving/revising the team if/when another project arises). Practitioners will chapter five's case studies on swarming processes valuable—not only for "co-workers," but also new hires/consultants seeking strategies for quickly acclimating to a new job.

Chapter six discusses how traits of AEAs (being dynamic, kinetic, responsive, and creative) can both foster and hinder projects. For example, being dynamic might introduce strain in a project timeline, yet may foster innovations if the right team handles issues well. Chapter six could be expanded to include two additional sections, illustrating front-stage and back-stage processes in more detail. It does, however, serve as a good starting point for discussions on how professionals assess each other as potential subcontractors, develop trust, hammer out contracts, and how projects work out when a history of collaboration lacks among parties. That said, a walk-through of a front- and back-stage project from start-to-finish would be a very welcome addition for both practitioners and for classroom discussions.

Chapter seven provides a detailed case study on a search engine optimization (SEO) team, and the case illustrates the iterative nature of knowledge work. Communication designers will appreciate the chapter's in-depth descriptions of research, writing, revision, negotiations and argumentation strategies that take place within client/provider relationships. Truthfully, chapter seven would be an excellent piece to include in a digital writing, web content, or introductory course in professional writing to foster discussion about the types of job opportunities that exist after graduation.

Chapter eight discusses four organizational forms: hierarchies, markets, clans, and networks, noting how these forms developed to meet various workplace needs. (Spinuzzi uses these forms to highlight how the SEO team handled situations noted in chapter seven.) Chapter eight also provides an accessible example of incorporating reliable, codified results to justify and promote an argument. For example, the SEO workers provide a standardized "report card" to clients in order to provide a baseline summary of their progress. This report card provides a stepping-stone for the SEO team's more innovative strategies by helping the team meet client expectations and build trust. Knowledge workers will appreciate the discussions of documentation and tacit knowledge, and how content affects organizational configurations and power structures. The negotiations found in chapter seven and subsequent analysis in chapter eight would provide a useful context for courses discussing interpersonal and organizational communication, and in consulting.

Chapter nine continues to discuss the role of codification and the standardization/innovation cycle of how knowledge work seeks continual improvement, while providing stability. Codification should truly be under revision at all times, but it should also contain some sort of baseline standard to facilitate working with multiple audiences. To conceptualize this idea, think of how professors often make adjustments to prior syllabi, edit assignment descriptions, update reading lists, etc. each semester in order to improve a previously taught course. The outcomes may be improved, but the course skeleton provides a basic framework.

Chapter ten concludes the overall text with a reminder that AEAs are not appropriate for all types of work projects; traditional bureaucracies and adhocracies will still exist for some tasks, for they are better suited for different types of work. Traditional organizations and consultants, however, will be interacting with AEAs more frequently, so we should know how to utilize them effectively. Spinuzzi concludes this discussion by examining the pros and cons of AEAs. In so doing, he provides suggestions on how to maximize the strengths and shore up the weaknesses of AEAs. Through this closing examination, Spinuzzi ignites an interesting discussion of how health care/retirement/traditional workplace benefits might not be as closely tied to permanent, full-time employment in the future as they have been in the past. (This is a conversation that knowledge workers and communication designers will want to extend.)

Both academics and practitioners will appreciate the concepts in *All Edge*. The content is appropriate for both undergraduate and graduate coursework in communication and professional writing programs—particularly courses that incorporate writing in organizations, organizational communication, digital content, or team writing. Scholars in the knowledge work, technical communication, and communication studies fields will benefit from a concise and accessible overview of organizational communication theories and AEA project descriptions. Researchers will want to continue this line of inquiry, asking questions like

> *What happens when a subcontractor's work isn't up to par?*
>
> *How do workers form trust?*

and

> *How are co-working spaces' rules codified and shared?*

Organizational leaders would benefit from learning how to work with AEAs and how to distribute appropriate projects. Finally, knowledge workers and consultants would benefit from learning about co-working, distributing appropriate projects, and making the case for AEA-style work processes in traditional organizations.

Overall, *All Edge: Inside the New Workplace Networks* presents a concise overview of inter- and intra-organizational communication and the evolution of project management over the past forty years. As such, it is a welcome addition to the social aspects of the collaborative-slash-autonomous workplace.

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Book Review

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Morville, P. (2014). ***Intertwingled: Information changes everything.*** **Ann Arbor, MI: Semantic Studios.**

Peter Morville's *Intertwingled: Information Changes Everything* combines storytelling, musings on prior information architecture practice, and theoretical snippets ranging from systems theory to Heidegger to argue for information architects as change agents. Communication designers concerned with the nature and applicability of their expertise will find an inspired argument for envisioning information architecture (IA) as a practice for detecting and intervening in complex problems. Published through Morville's Semantic Studios, *Intertwingled* primes practitioners to apply IA lenses to uncover and reframe organizational schemes that shape companies, cultures, and worlds. This expansive view of IA offers practitioners continued relevance amongst the changing landscape of cross-channel experiences, the Internet of Things, and the iterative design processes of Agile software development and lean manufacturing.

In the preface, Morville explains that the title term is a nod to Theodore H. Nelson's 1974 self-published introduction to computers, which declared "People keep pretending they can make things hierarchical, categorizable, and sequential when they can't. Everything is deeply intertwingled." Morville contextualizes this quotation by noting that he has recently begun to "sense a glitch" where a "narrow focus" has limited his ability to enact sustainable change in client projects (p. vii). Morville explains that the problems run deep: "reductionism is endemic to our culture" (p. viii). Because of this reductionism, Morville argues that Nelson's insight about deep interconnectivity is "more vital than ever," requiring us to alter "how we organize information not only on websites, but in our minds" (p. viii).

Through the five following chapters, Morville synthesizes connections among "intertwingling" and IA. The first chapter, "Nature," introduces information in systems and systems thinking as foundational concepts. Positioning systems thinking as an antidote to reductionism, Morville argues that IA practitioners should think through synthesis (p. 16), detect feedback loops (p. 17), and practice intervention. Importantly, Chapter 1 argues that experts in systems thinking are crucial even amongst the growing importance of crowds and the turn toward open-ended and emergent development and production processes (p. 24-6). Understanding and intervening in information systems are not just necessary for business, Morville suggests. IA practices have become literacies, as "content creation and organization are key life skills" (p. 32). For communication designers, the takeaway in this chapter is that communication designers should not simply jump to the details: big-picture thinking that accounts for complexity and emergence is necessary for creating sustainable designs.

Turning to "Categorization" in Chapter 2, Morville positions categories as deeply ingrained and foundation to thinking. IA practitioners, Morville explains, must categorize purposefully, question category values, and attend to the ultimate "weakness of words" and taxonomies (p. 55). Again, Morville emphasizes that systems thinking is necessary for effective categorization and should shape "basic level taxonomies," as well as "multiple maps and paths" across spaces (p. 59). By re-framing the categories that shape websites, organizations, and cultures, IA practitioners become "contrarians" who challenge the status flow (p. 73). Communication designers can apply these practices not only to rethink websites but also to reframe issues such as environmental harmony, where outdated categories enable individuals to see themselves outside systems that cause "pollution, suffering, and collapse" (p. 77).

If categories shape assumptions, Morville shows in Chapter 3 how "Connections" shape movements. Beginning with a call to remember that two-way links rather than one-way streams were central to early World Wide Web development, Morville explains that links also "afford movement in space and time" through physical places such as books, parks, shops, and airports (p. 85). In addition to links, Morville suggests IA practitioners pay attention to loops, those feedback opportunities that "bind goals, process, and metrics" (p. 90). While loops are important, Morville again urges systems thinking that avoids "shallow, siloed analytics" (p. 90). Finally, he uses the concept of "forks" to describe divergent paths. Forks are not only important as website pathways but also for describing decisions in IA projects that both enable and require reflection. Links, loops, and forks are useful tools for communication designers because they are the identifiable connective tissue that shape how systems are held together; thus, practitioners can transform these connections into "levers for positive change" (108).

In Chapter 4, Morville introduces "Culture" as a "powerful, hidden force, highly resistant to change" (p. 108). From the "culture of users" (p. 111) to the cultural fit of organizations, the artifacts, values (espoused and real), and assumptions that underlie culture are frequently invisible to insiders. Morville thus offers design ethnography as a methodology that IA practitioners can apply toward systems-level changes. Design ethnography enables practitioners to search for "levers" that can lead to change, which Morville suggests pairing with "cultivating [one's] own humility" (p. 130). He further suggests strategies for creating change, including focusing on processes of unlearning, shifting habits, influencing leadership, and enacting syntheses that involve multiple angles.

After offering advice for change making, Chapter 5 reveals how "Limits" such as "obstacles, opportunities, connections, and consequences" are revealed by "seeing the bigger picture" (p. 143). Rather than relying on "silos, short-term metrics, and quick fixes" (p. 146), Morville argues that IA should enable "daylighting": practices that "use our categories and connections to reveal the hidden assumptions of culture; and sketch links and loops to explore the latent potential of systems" (p. 148). In order to practice this systems thinking, Morville asks practitioners to realize their interconnection with contexts, which he explains through Thich Nhat Hanh's concept of "interbeing" (p. 167). While myths may offer potential for shifting toward interconnected understandings, Morville suggests that the mythic trickster is the wrong hero: "The hero of our story is not the trickster but the tree. A clever mind delivers a quick fix, but the road to eternity is a garden of branching paths" (p. 173). For communication designers, the lesson is that their skills sets will always be broadly and continually relevant. As change-makers, they should continually debunk man/nature dichotomies and hierarchies, expose the “categories and connections to the light of day,” and help people see that our “models are all we know” (p. 175).

The book does have limitations. Some readers will find Morville’s near stream-of-consciousness writing distracting or his advice off-putting, alternative theoretical vocabularies could challenge those he offers for understanding culture and interconnections, and inexperienced readers will need practical resources that demonstrate applied IA methods and practices. However, Morville offers a call for communication designers to think big and think creatively—particularly about what they know and how it might be applied. As he puts it, “We think we’re making software, websites, and experiences, but we’re not. We are agents of change within complex adaptive systems” (p. 147). This positioning of IA expertise not only dovetails with the recent interest in advocacy and social justice across interdisciplinary design fields, but also looks forward to the role of communication design in emerging technological environments.