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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.
- Interesting res*earch results*. Short reports on interesting research or usability results that do not include the rigor for a full research article (e.g., pilot studies, graduate student projects, or corporate usability studies where full details cannot be released).

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Communication Design Quarterly

Notes from the Chair

Liza Potts

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For the past three years, it has been my pleasure to serve as your Chair. Since 2009, I have been an executive board member of SIGDOC, serving first as the Treasurer/Secretary, then appointed to the Vice Chair post in 2012, and finally elected as Chair in 2013. In other words, the majority of my academic career.

I was asked to run for office after sticking my foot in it, defending the idea that technical communication is far more than just (just?) documentation and pleading that we continue on the path of design, usability, user experience, and (often digital) content writing. During my first few years, I took a back seat. I was, after all, a junior faculty member (perhaps another life lesson). I wanted to learn about ACM, SIGs, and ours in particular.

However, in 2012, it became clear to me and others that SIGDOC had lost its way. Our conference themes, communications, and locations were causing us to lose attendance from members of our field. ACM itself placed us on probation because of participation and other issues. After speaking with my mentors, colleagues, and friends, I set out to reimagine, reboot, and recharge our SIG. Working with Kathie Gossett, we spent the 2012 CCCCs conference brainstorming ways to invigorate our SIG and the field. By the time 2013 rolled around, I was elected Chair and had the shell of a plan to set SIGDOC on a different course. One where innovative, exciting, diverse, and compelling research and researchers would find a home. I sought to refashion SIGDOC into an academic home for myself and others who were engaging in this important work. I wanted to help us make a case for why our work needed to have a stronger presence in the larger field of technical communication. I wanted us to be a welcoming space for working professionals, alt-ac's, and others. I believe we have done that work together.

With the help of so many of you, we now have a SIGDOC to be proud of. Here are what I think of as the highlights over the last few years:

- As chair, I appointed a board that was equal in gender and included people of color. We can and will do better in this regard in the future, too. We have such a huge opportunity to continue to lead in terms of equality in our speakers, our citations, and our leaders.
- We launched a publication, *Communication Design Quarterly*, with the goal of making space for innovative, sound research on user experience, content strategy, user experience, technical communication, and related subjects. As the first co-editor with Michael Albers, we wanted to build something a bit more innovative than the typical journal, and we have welcomed your recent research spanning such topics as technical communication, experience architecture, medical rhetoric, and internet studies. Thank you, Michael, for shepherding us through our early days.
- Beginning in 2014, our Ignite Talks have helped promote, shine a light on, and make space for early career academic faculty and industry practitioners. Each year, I have worked with our board to select our speakers, and I am looking forward to seeing how these special talks evolve.
- During our 2014 conference, we gave the Rigo Award to the matriarch of our field, Patricia Sullivan, for her outstanding contributions to the field of technical communication and her mentorship of several generations of scholars and practitioners. It was a great honor to introduce her at the awards banquet and hand her our award. Read her keynote paper here: http://dl.acm.org/citation.cfm?doid=2666216.2692335.
- We gave the Diana Award to Women in Technical Communication, a statement our Board made about the importance of this organization’s work and where we stand on issues of diversity as a SIG. We began a #womeninTC breakfast at SIGDOC in 2014, and we will continue to support their important and much needed work. Go read their paper if you haven’t already:

http://dl.acm.org/citation.cfm?id=2814672&CFID=620253975&CFTOKEN=95908130.

- Our conference in 2015 had the most student participation in recent times. Thanks to our student competition headed up by Stephanie Vie and sponsored by Microsoft, we had a record number of graduate and undergraduate students participating in SIGDOC's Student Research Competition. In its first year (2015, at the University of Limerick in Ireland), we had 28 students submit proposals and we were able to invite 11 students to participate in the competition. We had 30 faculty that first year serve as reviewers for these students' research abstracts and 15 additional faculty members served as judges during the poster and oral presentations during the conference. Thank you to everyone who served as a reviewer, a judge, or who sent their students information about the Student Research Competition. It's because of you that we are able to support their exciting research and help our students learn more about how welcoming a field we are.
- And most recently, the previous issue of CDQ contained digital content (beyond a PDF!) in the form of a new podcast run by our Book Editor, the guitar-wielding Ben Lauren.

We have so much more exciting work to do ahead of us, and I am confident in our newly elected leaders. But, before I go, I want to say thank you to so many of you. The people below have played a very special part in the rebuilding of SIGDOC, and I want to shine a light on their important service to our SIG and our field.

Kathie Gossett, I can never thank you enough for leading our conferences and being a realist when I proposed my crazy ideas. With your leadership, SIGDOC has had successful conferences that were fun, welcoming, and fiscally sound. You took on this job repeatedly, and the SIG owes you so much for helping to steer our ship. I can almost forgive you for choosing graph paper over lined paper for our Moleskines. Almost.

Claire Lauer, thank you so much for stepping in as Vice Chair. We needed a strong leader, someone who would tell it like it is and backup her words with action. I have every faith in you as you step into the Chair position. And I'll be here as your sounding board, in return for being mine.

Michael Trice, you have been absolutely amazing as our communication director. Whether it's dealing with pesky viruses on our website, or helping to drive our communication on Facebook and Twitter, you have been reliable, forward-thinking, and efficient. I am so grateful for your service to our SIG.

Stuart Selber, thank you for being the long-distance mentor. It was so helpful to be able to just send you a quick email asking for advice, and receiving a smart reply in response. Your faith in me was inspiring, and I am so thankful that you took the time to help us.

To the rest of our board members and conference volunteers who have served with us -- Carlos Costa, Laura Gonzales, Dave Jones, Beth Keller, Kristen Moore, Michael Salvo, Adam Strantz, Stephanie Vie, Doug Walls, and Stewart Whittemore, thank you for having faith and always jumping in feet first with me. We cannot have a SIG without our volunteers. Thank you.

And as for the rest of you lot, our dear members and participants: keep innovating, persist in pushing those boundaries, and know that SIGDOC will always be your home. And if you are a junior faculty member reading this far, here's my LPT: Volunteer where your voices will be heard.

Huzzah! for what we have accomplished together, and may the same luck, persistence, and good fortune follow us through into the next era of SIGDOC!

Liza

Editor's Introduction
Aspects of Awareness: Considerations for Social Media Use in the Modern Context

Kirk St.Amant

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Commentators often describe media as a "window on the world." That metaphor, however, doesn't work with today's technology. Windows facilitate passive observation: one sits and is at the mercy of what is on the other side of the window in terms of what s/he can view. Today's media, however, are interactive. From television programming to instragram posts, individuals use modern media to negotiate what they wish to access, when, and on their own terms. (Consider the drastic differences between the push view of broadcast television of the past vs. the pull approach to accessing Apple TV options today.) So, while we still do sit and "watch," we get determine what we view.

Social media takes this idea one step further. Now, we use such media to collaboratively and actively engage with the world. As such, social media shifts our uses of technology from commands (i.e., "I want X!"—then having the technology do so) to requests (i.e., "Can anyone out there provide me with X?"—and having users of the technology decide how to respond). And such requests shared over social media are often affected by two variables:

- Size: Posing request to dozens, hundreds, or even thousands of individuals
- Scope: Posing requests to persons situated locally, nationally, or around the world

The fact we can often use social media from the palm of our hands sometimes makes us forget these factors. This absent mindedness can lead to forgetting we might be sharing personal opinions targeted at a small group with several thousand individuals worldwide. (Just ask anyone who's accidentally sent out highly personal news via a public tweet.)

In this context, responsible use of social media comes down to one central factor: Awareness.

If we are aware of whom we might be contacting when using social media, we will likely make better decisions about sharing information. If we are aware of the scope with which we might be sharing ideas via social media, we can make more informed choices about how to craft messages to meet audience expectations. And if we are aware of how such media operate—what its functions are, what in can do (vs. what we currently use it for), and how others use it—we can maximize the success with which we engage in the world around us.

It is a true case of knowledge is power. The more we know about the media we use – the more aware we are of what it is, what it does, and what it can do – the more empowered we are to engage in effective, successful, and meaningful interactions with others.

So, where do we begin? By learning more about such media. And that's where this issue of *Communication Design Quarterly* comes in.

As a continuation of the discussion begun in the last issue of *CDQ*, this issue further examines uses of social media in different contexts. Again, the focus is on awareness—on studying such technologies so we can be more aware of how they are used and what we can do with them. To this end, the entries in this issue look at such technologies in three different contexts.

The first entry, by Sara West, examines uses of social media on a local level. By exploring how individuals in a campus community use Yik Yak—a technology for sharing information immediately and locally—West raises our awareness of employing certain social media to interact on smaller, closer scales. As such, she provides an understanding of how such technologies can foster—or hinder—connects to one's immediate environment.

The second entry, by Katrina L. Hinson, expands the scope of our awareness out to a larger—more regional or national—level by examining how individuals use Facebook to discuss and to build communities around issues of health and medicine. By examining three Facebook groups dedicated to discussing the medical condition of deep vein thrombosis (DVT), Hinson raises our awareness of how we might use social media to discuss more personal, private matters. In so doing, she provides insights on the interactions one can engage in via such technologies.

The final entry, by Sarah-Beth Hopton and R. Mitchell Perry, pushes scale out to the global level by exploring how to raise awareness internationally via social media. Hopton and Perry's entry looks at how a non-profit organization in Honduras uses social media to connect with the world. In so doing, they raises our awareness of how the social media attribute of gesture (connoting a kind of action—e.g., to "poke" someone via Facebook) can foster greater, global connections. Hopton and Perry's research reveals how to enhance the effcicacy of such features by following certain principles, and they go on to examine them. In so doing, Hopton and Perry raise our awareness of how to use a particular medium more effectively and in a more international context.

The issue then concludes with two book reviews. The first, by Dave Jones, summarizes James Kalbach's recent text *Mapping Experiences: A Guide to Creating Value through Journeys, Blueprints, and Diagrams*. In this review, Jones raises our awareness of a resource to which we can turn when trying to learn more about how individuals use technologies. The second review—Christopher Andrews' synopsis of *Managing Chaos: Digital Governance by Design* by Lisa Welchman—raises our awareness of a text that can help us understand different contexts in which we might find ourselves when using various media. As such, these reviews raise our awareness of aspects (and resources) to consider when using media to engage with others.

As with almost any technology, there is no one "best" way to use social media. Rather, what constitutes "best" depends upon what the individual user needs to achieve at a particular point in time. By being aware of different approaches to using social media to interact in different contexts, at different scopes, and with different scales, the entries in this issue of *CDQ* can help readers make more informed choices when using social media. And in raising awareness in this way, these entries can allow individuals to better determine what their own best uses of a given social media might be based on context.

Yik Yak and the Knowledge Community

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ABSTRACT
Yik Yak is an anonymous, location-based social networking application that is extremely popular on college campuses across the United States. Because it is known mainly for the controversies it breeds, both scholars and professionals have largely overlooked Yik Yak's complexities and have instead focused on its more negative traits. This article discusses Yik Yak as a site for critical research, especially in the field of technical and professional communication. Yik Yak fuses physical and virtual space, places an emphasis on interactivity, and subverts traditional user hierarchies. By examining these characteristics and the posts that users generate, this article explores how Yik Yak serves as an impetus for the formation of knowledge communities—communities in which individuals work together to create and maintain collective knowledge. This article also advocates further critical study of Yik Yak communities and posits Yik Yak communication patterns have important implications for communication designers.

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Social media, Yik Yak, anonymity, ephemerality, knowledge communities, interaction

INTRODUCTION
It should come as no surprise social media use has skyrocketed recently due largely to the rising use of Web 2.0 technologies as communication tools. Communication designers in particular have noted the influx of social media in many professional and personal communication situations (Blythe, Lauer, & Curran, 2014; Ferro & Zachry, 2014; Pigg, 2014; Van Dijck, 2013; Stolley, 2009). Technical communication is so connected to communications technologies that individuals often find themselves observing, researching, and composing across many social media platforms and teaching students to do the same (Bowdon, 2014; Daer & Potts, 2014; Hurley & Kimme Hea, 2014; Maranto & Barton, 2010; Vie, 2008). Recently, however, it seems students have discovered Yik Yak—a social media platform not yet given much academic attention. An anonymous, location-based social media application, Yik Yak shows only the most recent 100 posts from inside a small geographic radius, usually around 1.5 to 10 miles (Stoller, 2015). As such, Yik Yak can foster interactions that lead to the creation and maintenance of knowledge communities in local contexts. Communication designers can thus benefit from an examination of how individuals use Yik Yak to facilitate such interactions.

In this article, I examine different Yik Yak posts to investigate the moves users make to encourage interaction, community building, and knowledge creation. The article begins by overviewing Yik Yak and its most notable community-centered features (e.g., its focus on interactivity, its lack of user hierarchy, and users' methods of information validation). Next, I apply Pierre Lévy's (1994/1999) ideas of knowledge culture and Henry Jenkins's (2006) further articulation of knowledge communities to examine how Yik Yak can contribute to such interactions. I then present my own research of a college campus's Yik Yak feed and discuss how those this platform can aid in the creation and maintenance of knowledge communities in this space. I conclude Yik Yak users are employing the application as intended—to create, "a localized forum that could be open to anyone to discuss events, issues and such going on in a particular area" (Hines, 2015). Through this approach, I reveal Yik Yak is a valuable research site for learning how individuals create and transfer knowledge in and of communities.

YIK YAK: AN OVERVIEW

For the purposes of this article, I define social media platforms/applications by Liza Potts's (2014) notion of social media systems as "the actual systems that allow people to form, join, and participate in networks" (p. 6). Though we often invoke images of Facebook and Twitter as representative of social media platforms, we can view Yik Yak as fairly characteristic based on this definition: with this application, users form, join, and participate in networks based on their physical location. Though it launched in 2013, Yik Yak has garnered a great deal of media attention recently, from pieces in local college blogs and publications, to The Chronicle of Higher Education, to the New York Times and Slate. Yik Yak's location-based system makes it ideal for use on college campuses and densely populated urban areas.

Labeled as a "live feed of people around you," users can post and interact with others within a small radius ("Features"). In addition to communicating with others within this radius, individuals can also designate their own "herd"—a particular location chosen as a permanent feed (this encourages more activity on campus feeds during summer break). Users can communicate with each other by posting to their local feed, by commenting on other posts, and by voting on posts. In this voting system, posts that receive many "upvotes" (i.e., positive ratings) may find themselves on a separate "hot" list, while posts that receive many "downvotes" (i.e., negative ratings) are dropped from the community feed. Only the most recent 100 posts (those which have not received a certain number of downvotes) are shown on a local feed.

The idea of a local live feed is interesting, but the mass media has capitalized on the controversies spawned from this application—occurrences of racist, sexist, homophobic, and hostile posts (see Koenig, 2014; Mahler, 2015; Ross, 2015; Schmidt, 2015). This controversy generally comes from the anonymous and ephemeral nature of Yik Yak. It creates a context where users often do not think they have to address the repercussions of a post because

- It is not linked to their identity
- It will soon disappear entirely

Recent media attention, however, has moved Yik Yak from the realm of college students, professors, and administrators to that of the general public. As it is still active and popular, Yik Yak provides a rich site for studying interaction and community development related to the merger of anonymity, online space, and physical proximity.

When it comes to social media, we often read about the mistakes users make, but we see little about how individuals use an application on a daily basis. Yik Yak provides an interesting research site that fuses virtual and physical space. If researchers in technical communication are able to understand the important niche that Yik Yak fills in virtual landscapes, they might better understand its popularity and better use it, research it, and communicate ideas about it to others.

YIK YAK'S COMMUNITY-CENTERED FEATURES

Yik Yak's community focus is made clear in the way the system's design encourages interaction between individuals and discourages traditional user hierarchy. Despite users' anonymity, individuals have ways of validating the information within this space. This factor allows for communities to create and maintain knowledge.

User Interaction and Communication

Yik Yak places a premium on user interaction and communication, which encourages the creation of knowledge and the maintenance of community via the application. The kind of interaction Yik Yak facilitates seems related to the type of communication represented by online gaming and fandom communities. In these communities, interest in a particular topic unites individuals and often creates communities from discussion boards or chat rooms. Similarly, conversations frequently oscillate between the topic of interest and more off-topic contributions. While it might have been the specific topic that originally brought these users together, the shared community keeps individuals coming back, even after the hype of a TV show, movie, or game fades.

Yik Yak seems to mirror this type of community formation and parallel the community formation that takes place in the physical space, or IRL [in real life]. That is, physical location brings users together, gives them a shared knowledge base, and interaction and community formation can grow from this shared knowledge base. On Yik Yak, there is no profile, no username, and no photo to connect individual users to their posts. Rather, because the application's geofences function as gatekeepers and ensure that the community is contained to a small radius, candid interaction seems to come more naturally. Part of the application's appeal is thus the idea users can conduct themselves as if talking to a group of friends who are nearby.

Notably, Yik Yak has a built-in feature that encourages interaction: a points system (Yakarma) that awards users points for making posts, replying to posts, and voting on other posts. Currently, a user can only see his/her own Yakarma tally, so a user's Yakarma count is mostly a matter of personal pride. The idea, however, is users should actively contribute posts to their community, and if they interact through replies and votes, they will be rewarded. A recent update to the application assigns colored icons to users' replies, so individuals can have back-and-forth interactions with each other on individual threads (Rugh, 2015). While these connections can only be forged in specific threads, features like Yakarma and reply icons can benefit the community as a whole by making interaction a priority. Of course, Yik Yak's priority on anonymity during interaction disrupts the traditional relationships and hierarchies that often develop in online discussion forums and other social networking platforms. This factor, however, does not inherently threaten the communities themselves.

Anonymity and User Hierarchy

Yik Yak is particularly notable because of the anonymity it allows its users. (Users do not have a profile, a photo, or any identifying features, at least to the community at large.) Though we might not assume anonymity improves interactions, its negation of transparency and disruption of social hierarchy encourages an insulated community where users can more comfortably share information.

As Jenkins, Ford, and Green (2013) note, "transparency" is one of the central buzzwords for the Web 2.0 movement; they define transparency as

> the degree to which brands and audience members alike are forthcoming about their ties to one another, ensuring that potential customers have access to all the information needed to assess the credibility of a recommendation. (p. 76-77)

We see this emphasis on transparency daily as social media platforms ask us to confirm our relationships with family members and encourage us to “like” a page because our friends have, or as we see advertisers push information about other brands or companies. In spaces where connections are apparent, power-users develop as those who have the most influence—in terms of social media, the most “followers” or “friends” (Barton, 2005). While the social hierarchies that develop on these sites are not inherently negative, businesses and marketers can target these power-users to spread information about products and services. Information that generates buy in from power-users can spread quickly through that power-user’s network (i.e., among friends and followers) because the power user has a far-reaching impact (Kerpen, 2011; Mislove, Marcon, Grammadi, Druschel, & Battacharjee, 2007). Thus transparency has become a way of assessing social hierarchy and social currency.

Yik Yak is a holdout that does not yet allow for power users (i.e., persons identified as more influential because of the number of friends/followers they have). Users do have the ability to “upvote” and “downvote” posts to show approval or disapproval, but that only serves as a way of ranking individual contributions, not the users themselves. This lack of user hierarchy may make Yik Yak less useful from a marketing perspective. However, it does support community development and information transfer in a surprising way. Individuals, for example, do not seem to mind other users are not assigned identities, and all users function on equal ground, as was the intention of the application’s creators. The lack of transparency actually seems to keep the community isolated from outsiders. In essence, there is no user data or preferences to collect, so outside forces have little reason to come into a Yik Yak community. Within this context, users can share more openly and honestly. While this situation has its drawbacks, the openness of individuals in the community can aid in creating knowledge, both about topics that relate directly to the physical community and topics that would not, perhaps, be acceptable to discuss in the physical space.

Information Validation

Anonymity does cause some problems in validating information, but it does not seem to impede information transfer on Yik Yak. In her study of social media in disaster responses, Potts (2014) explains if we “analyze the work of social web participants” we must “understand how they locate data, validate that data as information, and republish that data to the community as knowledge” (p. 23). With Yik Yak, this process is complicated by anonymity and a lack of social hierarchy. Outside researchers thus cannot easily validate information on Yik Yak. Yet members of the community often can. As with other social media, Yik Yak’s users must find a way to validate information: by investigating firsthand, collecting several corroborating stories (often via Yik Yak), and righting information that they know to be incorrect. Additionally, Yik Yak’s voting system allows individuals to “downvote” posts that spread misinformation, so they will soon be dropped from the community feed. This system might prevent the spread of misinformation in a way that does not occur on other social media sites where limiting the spread of such information often requires the original poster of incorrect information to delete.

While it is difficult to validate information immediately by investigating the credibility of the source, Yik Yak remains a site where knowledge, especially local knowledge, can be generated. In this space, users can work together to evaluate the validity of information. Often, such validation is handled on an individual level, but as information is validated and continues to emerge on the community feed, it becomes part of the community consciousness. This information, then, becomes knowledge within the Yik Yak community. The ephemeral nature of Yik Yak means this knowledge only exists within the memories of community members vs. via some form of written record.

YIK YAK AS A KNOWLEDGE COMMUNITY

Community, knowledge creation, and information transfer are all imperative to Yik Yak’s creation as Yik Yak feeds mean knowledge is

- Created, transferred, and stored within the community of users
- Made accessible only to the members of the community

Thus, by viewing Yik Yak within the context of a knowledge community, communication designers can better evaluate how users create and share information within this space.

The Knowledge Community and Collective Intelligence

Popularized by Henry Jenkins (2006), knowledge community is a term based on Pierre Lévy’s ideas about collective intelligence and knowledge culture. Jenkins defines Lévy’s notion of a knowledge culture as “a community that emerges around the sharing and evaluation of knowledge” (p. 328). Jenkins refers to these communities as knowledge communities because of their focus on knowledge. Using this definition, we can see Yik Yak as a platform for users to form knowledge communities because commonality unites individuals similar to how physical location does. In essence, mutual interest means users have some stake in creating, sharing, and evaluating knowledge about and for their communities.

Within this context, Lévy (1994/1999) views collective intelligence as essential to individuals within a knowledge community, and this idea is crucial when considering Yik Yak’s ephemeral content. With Yik Yak, the community’s knowledge resides in its members. As soon as the discussion or post drops from Yik Yak’s 100 most recent posts, it is lost unless preserved in the collective memory of the community. (That is, the technology does not provide a system for archiving such information.) Akin to Lévy’s idea “[N]o one knows everything, everyone knows something, all knowledge resides in humanity,” the community itself cannot keep all the knowledge that has been generated there (p. 14). Rather, the information and knowledge created resides in the memories individual members. The only way to access the community’s knowledge base is to engage the collective intelligence of the community. Thus, to form a community identity, users must continually share and validate information. Thus, the way Yik Yak functions reflects Lévy’s idea of collective intelligence on a micro-level. (Lévy, too, examines how this universal concept manifests in online spaces.)

Producing and Exchanging Data in Knowledge Communities

Jenkins (2006) uses Lévy’s concept of knowledge culture to show how online communities “are held together through the mutual production and reciprocal exchange of knowledge” (p. 27). Many of these communities use collective intelligence—“ability of virtual communities to leverage the combined expertise of their members”

(p. 27)—to fulfill mutual goals. In Jenkins' example, the members of the reality show Survivor's fan-community work together to "spoil" the show for other fans because filming is completed before the show is aired. The function of this community is the collection and distribution of this knowledge, as well as the interaction generated and community formed around a shared interest. Much like in a Yik Yak community, individual members contribute their own knowledge and are responsible for maintaining the knowledge mutually generated in the community.

Users generate and distribute knowledge within Yik Yak communities in much the same way as Jenkins' fan community. Students on campuses and people in densely populated urban areas often use Yik Yak as a community-wide message board. Some posts follow the traditional patterns of Facebook updates and Twitter posts. Many seek responses from the community, and several also seek collaborative knowledge making about which Lévy and Jenkins write. Unlike the specialized fan communities Jenkins studies, however, the application's anonymity allows for the generation and distribution of knowledge about any number of topics, instead of information about a certain topic. The majority of knowledge generated in this space has to do with local happenings and events. Because of the transient nature of Yik Yak, the knowledge the community generates is held by the individual members and is often reposted and repeated as the community grows and changes.

To a certain extent, Yik Yak subverts ideas of the traditional virtual communities because the community is still reality—it is still tied to a physical space in which participants exist. But because not all people in the physical community use Yik Yak, the application provides a separate virtual community influenced by but not exclusively dictated by the physical community. The virtual community exists because of the desire to connect virtually and spread knowledge about, or centered on, the same physical location. This is driven by a desire to be connected with one's peers, people who have a stake in the same things. Even though it is still tied to the physical space, Yik Yak's anonymity provides the "nonhierarchical and free" ideal that Lévy (1997/2001) identifies in early virtual communities (p. 111). The ways users interact (e.g., the types of posts they generate) within a certain Yik Yak feed connect back to Lévy and Jenkins's ideas of collective intelligence and knowledge communities.

RESEARCH METHODS

As noted, Yik Yak's shared knowledge is located in two places: the physical space shared by Yik Yak users, and the memories of Yik Yak users. Because posts are not archived, it is important to see how users create and maintain knowledge in the posts that continually occur in a Yik Yak community—especially if we want to research the way that users communicate in this space. My own causal observations of user interaction on Yik Yak led me to believe that the application was (and is) an interesting site for further research. Because Yik Yak's design focuses heavily on user interaction, I sought to answer the research question

> *How are users making their own moves to encourage interaction and community development on the platform?*

To find the answer, I needed to collect Yik Yak postings in a deliberate way in order to identify types of posts individuals made in this space. I then needed to analyze these posts to see what role they had in community development, particularly in terms of creating and maintaining a knowledge community.

My data on the types of representative posts Yik Yak users create come from the Yik Yak feed of a flagship university in the southern United States. I chose this feed for my data collection because I am a member of the local community at such a university, and as such, I have been a user in this feed. As mentioned, it might be difficult for an outside researcher to understand or validate information posted by users in this space. However, as a user existing both in the physical and virtual community, I could more easily understand, verify, and comment on the information that users communicate. As Potts (2015) notes in discussing research on a fan community, "To know the interworkings of a particular community, culture, and group is to have a much better understanding of why certain moves are made and why activity takes place in particular spaces" (Sussing Out, Reflexive (Auto)Ethnography, para. 2).

Because I set out to research how users communicate within a Yik Yak community, it seems only fitting that I chose the community with which I had the most experience. As I had been a user and observer of Yik Yak for some time before I began my research, I felt that I could also contribute my knowledge of local events and the online community when analyzing the results. Because I was aware of campus and local happenings, I was able to better understand posts' context, something that became very important in my data coding.

As researchers of virtual spaces, though, we must be aware that the sites of our research often pose particular problems for collection of information, no matter how well acquainted we are with these spaces. As of now, there is no way to mine data in bulk from a Yik Yak feed. Additionally, Yik Yak only shows the most recent 100 posts, and any posts that have been downvoted to the maximum amount drop from the community feed. The transient nature of Yik Yak posts therefore means the data one can collect changes from moment to moment.

Data Collection and Organization

To gather data for this project, I took screen captures at various times between January 27 and March 9, 2015. My plan was to gather data for a month, but severe winter weather in the area interrupted more representative posts from our feed (i.e., for a little over a week, most of the posts I gathered were about how, when, or if classes would be canceled). I therefore decided to extend my collection time for another week and a half to capture representative posts for approximately one month. I did not develop a systematic approach to collecting this data, as the flow and pace of Yik Yak posting is fairly irregular at the observed campus. I did, however, attempt to vary my collection by capturing images of posts at different times throughout the day (i.e., generally morning, mid-afternoon, evening, and late night).

My plan was to collect a sample of general types of posts users made; thus my data collection periods were random. Because I had to collect data from screen captures and based around my own schedule, I was unable to collect every single post on the local feed. I therefore varied my collection to capture both the most recent posts (i.e., those that would have showed up first upon loading the application) and older posts still remaining on most recent 100 (i.e., those that would be located by scrolling through the feed). As a result, I have no way of knowing how many total replies and upvotes were accumulated in the time after I captured the post and before it dropped from the feed. In this time, I gathered 744 posts—a small sample relative to the number of posts actually made during that time period, but a sample I, as a frequent user of this space, found fairly representative of the types of posts to this local feed.

To analyze this sample, I transcribed each post from my data onto a separate document so posts were easily searchable. I was most interested in how different types of posts served to reinforce the platform's emphasis on community interaction. That is, it seemed obvious through Yik Yak's system that user interaction was a priority, so I wanted to see if the types of posts that users made reflected this goal. Because I had been a user of the platform for many months before engaging in data collection, I was abstractly familiar with the types of posts I would encounter—statements, questions, notifications, etc. After reading through the posts I had collected, I began to group posts based on what response the author seemed to want from the community (if any). Once grouped, I developed a typing system discussed in more detail in the next two sections.

Developing a Typing System

While the content of Yik Yak posts has been the subject of many discussions, analyzing these types of posts can tell us more about individual Yik Yak feeds as knowledge communities. In examining these posts, we can look at how users share and evaluate information. If we view Yik Yak more as a source for the generation and distribution of knowledge on college campuses and less as merely an outlet for violent and bigoted thoughts, we can become more aware of the value that this type of application has on these campuses.

For the project reported on here, I sought to determine how Yik Yak posts seek to engage the larger community. In her discussion of media as historical subjects, for example, Gitelman (2008) defines media as having a set of protocols, "normative rules and default conditions" (p. 7). Yik Yak, and social media in general, is no different. After using a particular social media platform (or participating in any community) for an extended period of time, users begin to learn and leverage posting norms of that site (Pigg, 2014). Thus, in my collected data, I was not surprised to find individuals compose several representative types of posts. In my grouping of these posts, I sought to create a typing system that reflected the original poster's desire for community feedback, interaction, or knowledge production.

In creating a typing system for Yik Yak posts, I relied on recent research methods of both Wolff (2015) and McNely (2015). In his piece, Wolff uses grounded theory to discuss composing practices of Bruce Springsteen fans on Twitter. He uses open coding, then axial coding, to show how fans represent their experience at Springsteen concerts. He finds fans in these situations use several of the same moves in their post types. Likewise, McNely finds several of the geocachers Instagram posts contain photos with shared themes. He uses content analysis to code these posts by "foremost the compositional intent and focus of the photograph simply by asking: What is this photo about?" ("Methodology and Methods," para. 4).

Although these researchers developed successful coding systems for the platforms they study, their coding types did not necessary translate to Yik Yak. Wolff's coding system is very clearly geared toward a specific event (i.e., the Springsteen concert), and thus not all of his terms related to the less specific posts on Yik Yak. McNely's coding system, in turn, is based on images, and again, does not translate well to Yik Yak. However, Wolff's method of coding based on shared posting types and McNely's decision to create a typing system based on "compositional intent" heavily influenced my own system.

As I transcribed my data, I began to see several representative types of posts emerge. In his own analyses of corpuses, Wolff notes users make "conceptual and rhetorical choices" based on the medium, their message, and the audience ("Compose New Tweet?" para. 9). Because my research question focuses on how users encouraged interaction with their posts, I borrowed more from rhetorical and contextual analysis than from content analysis. My coding was not always based on particular terms and phrases, but rather on, in McNely's terms, "compositional intent" based on the original posters' desire (or lack of desire) to create and maintain interaction and community.

Context was especially important here, as posts could not merely be viewed and coded outside of their positioning in regards to the rest of the community's posts. Because of my embedded experience as both user and researcher (Potts, 2015), I was best able to categorize these posts based on what I knew about local events, online conversation, and the individual posts in a larger context. (I, for example, could see both the individual post and many of the other posts at that time in a single screen capture.) By consulting both the original screen captures and the transcribed posts, I began to organize these posts by the rhetorical moves the original poster made in regard to audience and overall context. (The result of this coding system was a seven-part typing system discussed in more detail in the next sections of this entry.)

Because of the small sample size and because it is likely that the types of posts made to Yik Yak vary due to location and local events, it cannot be assumed that my exact results could be replicated at other universities in the United States or elsewhere. My methods, however, could easily be replicated in other Yik Yak feeds. Moreover, the post typing system I have developed can provide other researchers with a way of discussing interactions with and in Yik Yak. This is indeed what I hope other researchers will do with this information—look more closely into what and how users are communicating in other communities, especially the communities these researchers have the most interest. Perhaps researchers will even find new or different categories of posts to add to my typing system. For now, however, we can use small samples to begin more critical discussion about the type of communication that happens in this space and how this communication serves to create and engage the community.

REPRESENTATIVE TYPES OF YIK YAK POSTS

Yik Yak users in the community I observed seem to understand and use seven primary types of posts:

- **Individual posts:** Are akin to Facebook and Twitter status updates for they convey information about the author. Though they do not ask for specific responses from the community, they facilitate community building by contributing to the feeling of being among connected individuals and sharing similar experiences. The subject of these posts is often "I" or "me" (e.g., "I had to eat dinner without Netflix") though the "I" might sometimes be implied (e.g., "Way too high for this"). These posts might also say something about the author's feelings or opinions (e.g., "It's cold").

- **Question/advice seeking posts:** Ask for a direct response from the community as opposed to making a statement. They aid in the creation of knowledge in the local community and the online community and often take the form of a question (e.g., "How do you graph x>45 on a graphing calculator?").
- **Directed posts**: Contain some direct address to a specific named or unnamed audience (often "you"). They do not seem to expect responses, but aid in community building by allowing users to share an experience. They often contain the sentence structure "To [name/group]" or "Shout out to [name/group]" (e.g., "Shout out to [teacher] for making chemistry harder than it should be.").
- **Connection posts:** Seek explicitly to reach out to the community at large and do not specify an audience, though sometimes they hope to attract a certain type of person. Most of these posts reference a communal feeling or experience (e.g., "That one 15 minute break in your class schedule where you basically have to run across campus"). Posts of this nature often use sentence constructions that reference "that [event/thing/moment]" or "when [X happens]."
- **Joke posts**: Seek to create a communal vibe by joking about local and campus happenings, shared experiences, or popular culture references (e.g., "I'm just here so I don't get fined – spring rush," a play on Marshawn Lynch's 2015 Super Bowl Media Day interview). These posts might also be a posting or reposting a traditional joke (e.g., "How many nurses does it take to change a diaper? Depends").
- **Community-wide warnings/notifications:** Focus on passing along information the original poster believes the entire online community should know. They often reference campus events, weather conditions, and placement of campus security or parking services. Posters frequently announce this intention by nothing the post is a "PSA," "Alert," or "Warning" (e.g., "Warning: parking in front of [campus building]").
- **School pride posts:** Are either pro-school post in which the personal identity doesn't come into play (e.g., "Still all about them [mascot]!"), or anti-rival school posts (e.g., "Upvote if you hate [other school). Go fuck yourself if you like [same other school]"]. They often feature either the home team's name or mascot, or the name and mascot of the rival team.

Sometimes these posts contain traits of several of these types, but for these posts, I sought to identify, again, the type of response that the post wanted. For example, this post, "I want to know what this [last name] professor teaches, he seems to have a way that elicits hate on here," is written as an I-statement. Given the local feed was filled with students referencing this particular professor, it seems most likely that the author expected someone to respond with the subject the professor teaches. Thus this post was categorized as a question, despite its sentence construction. This example also demonstrates the importance of context when coding these posts. The terminology and sentence structure alone, in this post, does not indicate what type of response seemed to be expected at the time of the post. Therefore, when coding my information, I categorized posts by the form that seemed most evident, based on context and the author's perceived intention, even if many forms were present. (See Table 1 for a complete breakdown of how the data I collected fell into different categories.)

In the remainder of this section, I will describe the seven primary post types in more detail, focusing on how each type provides an important facet of community development in this space.

Individual Posts

Individual posts (I-Posts) seem to remain as holdovers from profile-centric social media platforms like Facebook and Twitter. Individual posts often describe what the poster is currently doing/thinking (e.g., "I really dislike college." or "I am watching anime.") or something the poster has done/thought in the past (e.g., "My day thus far: Got pulled over on my way to my 835 this morning. Then I got to campus, got on the bus, and found out my class was canceled."). These posts are can also reference specific activities or opinions (e.g., "The best American horror story season was asylum.").

These types of posts made up the majority of my data (i.e., 266 of 744 posts); however, as Yik Yak usage becomes more entrenched and the community aspect is continually encouraged by both the application and users, these types of posts seem to be falling out of favor. Most I-Posts had few (less than 5) upvotes or replies. This factor might suggest the community does not feel it necessary to respond frequently to I-driven statements and opinions, unless those statements and opinions are controversial (e.g., "I feel like feminism will only become popular with men when supporting it can get them laid." had received 14 replies in the hour after it was posted).

Table 1: Breakdown of Yik Yak data, January 27 to March 9, 2015

Type of Post	Number of Primary Occurrences	Percentage of Occurrence
Individual Posts	266	35.8%
Question/Advice Posts	157	21.1%
Directed Posts	88	11.8%
Connection Posts	86	11.6%
Joke Posts	78	10.5%
Community-wide Warnings/Notifications	51	6.9%
School Pride Posts	18	2.4%
Total Number of Posts: 744		

More upvotes may also be given when users want to sympathize or empathize with the original poster. For example, the "my day thus far" post, which tells the users' story of being pulled over on the way to school only to find out his/her class was canceled, received 27 upvotes. In this way, I-Posts do encourage interaction and community formation by providing an outlet for users to share their personal experiences and thoughts, and for others to respond to that sharing, sympathize or empathize, or share their own related experiences. These posts can also aid in maintaining the knowledge community by allowing users to contribute knowledge as an individual.

Sometimes, I-Posts can be cries for help, generally about mental health problems. These posts take a traditional I-driven structure, but seem to be searching for more intimate responses. Luckily, only one post from my data referenced serious mental health problems, but these posts are not uncommon. In fact, cries for help posted on Yik Yak have inspired some campuses to use the application to provide suicide intervention (Shahani, 2015). The following is the transcribed conversation from my data that shows interaction generated from this type of post:

> Original post: I have literally been in bed for the past 19 hours except for the 2 times I peed. Depression is kicking my ass right now. Fuck life.
>
> Reply 1: Force yourself to get out of bed and go do something! Even though going to the gym sounds like a cliché thing to do, it really will help. It releases endorphins which make you feel better!
>
> Reply 2: You may not love my suggestions, but hear me out. Once I started doing these things my life brightened up! Meditate for 20 min a day. Exercise for 30. Eat more fruits & vegetables. Count ur blessings!
>
> Reply 3: Also, if necessary seek medical help. Sometimes it's just a chemical imbalance. I really hope you start feeling better soon, op [original poster]!
>
> Reply 4: I went through that I never talked to anyone about it and now that I'm passed it I wish I did. Don't be embarrassed to ask for help, a lot of us need it but are too afraid to ask.

As with any call for help, these posts might be overlooked or not taken seriously by other members of the community. In this case, however, other users attempt to provide guidance to the original poster in a meaningful way. Although the posters do not necessarily leverage any already-created community knowledge, they rely on their individual experiences to create shared knowledge about a common issue and to show that the original poster is not alone in his/her feelings. Because this post will eventually disappear, the individual users involved will be responsible for maintaining this community-generated knowledge and reposting it as advice if the need arises.

Question/Advice Posts

Question/Advice-seeking posts specifically engage the community to answer a question or to help solve a problem, and they are at the core of viewing Yik Yak as a knowledge community. Most question/advice seeking posts receive few upvotes (only 28 of the 157 question posts received 5 or more upvotes), but they have a high rate of reply (i.e., by nature, upvotes outnumber replies on most posts as they take less effort; however, in question posts, 71 of the 157 posts had more replies than upvotes, and only 23 of 157 posts had no replies at the time of capture).

Often, question/advice posts explicitly state their audience and their purpose. Questions are often asked of the community at large (e.g., "Anyone have any clue what to do on the Comp 2 essay," "Where's the best place to get tamales in [city]?"). Certain ones, however, do specify an audience—most often a certain gender or students of a certain class or major (e.g., "Ladies: You're walking along and you catch a guy checking you out, what's the best thing he can do at this point?" or "Anyone in BLAW know what scantron we need for the test?"). Posters will sometimes specify that they have a "legit" or "honest" question or will include a note to "answer truthfully" in order to encourage the community to take their question or request for advice seriously, rather than responding with joking, trolling, or incorrect answers. In cases that I could confirm with my own prior knowledge, the community respects these classifications and is less likely to purposely transmit misinformation when an original poster makes clear their intentions to find legitimate answers.

Advice-seeking posts are often the most interesting, as they engage the community not to answer a specific question, but to provide their own opinions and reasoning about a topic. These posts frequently combine general advice and specific advice based on location. In one of the posts, a user posted to ask for advice on how to propose to his/her girlfriend (i.e., "Just bought an engagement ring for my girlfriend but have no idea how to propose. Any help?"). Several users responded with ideas of locations around the local community that might be best for this proposal, while a few others offered advice about what s/he should say. Some users ask for advice about housing options, restaurants, events, or shopping, requiring responses to relay knowledge of the shared physical space. In some posts (e.g., "Has anyone got called in for academic dishonesty? If so, what happened?"), users respond specifically about university procedures and policies, giving advice that could not necessarily be separated from the campus community. In order to respond to many question or advice-seeking posts, users must often leverage their individual experiences and their knowledge of the shared physical space.

Sometimes advice-seeking posts are personal in nature and seek advice on taboo subjects like sexual activity or sexual preference, masturbation habits, or symptoms of illnesses (e.g., "During sex, is a little extra weight on the midsection that noticeable/awful??" or "How common is premature ejaculation?"). On this subject, Hess (2015) notes while "Yik Yak attracts people on the hunt for sex partners and drug buddies […] it also frees people to discuss their inability to orgasm or their experience being raped. Meanwhile, the intimacy of the geolocation feature inspires a communal vibe" (para. 7). The anonymous aspect keeps users' identities safe. Yet, as we've seen, the shared physical space and shared experiences give users the chance to create and share knowledge around the same points of reference.

Directed Posts

Directed posts are directed to a specific person or group, but do not ask a question. These posts are often used when posters do not know the identity of a person or when posters want to share something about a person with the community. These posts generally address a person by gender and what he/she was wearing or doing, or use an unknown "you" (e.g., "Well, the universe itself keeps giving me signs that I should ask you out #destiny." or "So you can like my tinder moment, but can't text me back?"). Often these posts use the construction “To______” or “Shout out to_____” but are not usually posted to legitimately address the unknown or known person (e.g., “To the girl at the union gym wearing the turquoise tank and with blonde highlights. U r absolutely gorgeous!”).

It seems most users employ directed posts merely to share thoughts to the community rather than to actually try to communicate with the person to whom the post was directed. On some level, users perhaps do hope they will be able to reach out to a specific person, or that the person they reference might see the post. However, because identities cannot be verified, these posts instead seem to be used to communicate something that the poster would not say out loud. The virtual community, again, provides a space for users to share things that they could not or would not share in the physical space. Yik Yak provides an outlet, and in many cases, users seem aware of this function. After revealing, “I listen to cheesy love songs and pretend I’m singing to you,” one user noted, “Only on YikYak would I ever admit this.”

Though I do separate directed posts from connection posts that address the community as a whole, directed posts do, sometimes, have a similar function to connection posts. As users in this space seem to understand that directed posts are not, in reality, directed to one person, users sometimes use these posts to communicate similar feelings as that of the original poster. Though they will likely not be able to speak about the same “you,” users sometimes choose to share related experiences or to offer advice based on these previous experiences. Thus these types of posts do serve the function of developing community, sharing information, and creating knowledge, though on a lesser scale than, for example, question/advice seeking posts.

Connection Posts

Connection posts are those in which posters attempt to make a connection with the members of the community as a whole. Some of these posts take the form of personal ads. More often, however, these posts express loneliness or an attempt to share an experience with the community at large.

Those posts that take the form of personal ads are perhaps some of the more representative posts from the public imagination of Yik Yak (e.g., “I really would love a guy to cuddle with tonight. 20+”). Of the connection posts I gathered, these personal ads made up a relatively small amount of the total posts in this category (only 7 of the 86 posts). Early in the campus’s adoption of Yik Yak, these types of personal ad posts were very frequent, especially on weekend nights. It seems, though, as users develop more awareness of the space that Yik Yak occupies in their virtual landscape, these types of posts occur less often, likely as users realize that personal ads in this space are rarely successful and move these requests to other platforms that better occupy that niche.

More often than personal ads, connection posts express loneliness and the desire to find someone who feels the same way (e.g., “I have nobody to go to the game with. I wanna go…but not alone,” “I want a friend ... Most like a best friend ... I’m not weird.”). Again, the shared space and the anonymity provides a place for users to share these feelings; even if no one responds in the way they had hoped, users are still able to express these feelings through a platform that they know someone in their physical community will read.

Connection posts often take the form of sharing what the original poster believes is a universal experience. One hallmark of a connection post is the use of a subordinate clause standing alone: “That moment you realize you took the wrong bus,” or “When you find that person you can finally be yourself around.” This sentence construction has become fairly common in a variety of social media platforms in order to make the feeling expressed seem universal. McCulloch, a linguist who specializes in netspeak, explains that this construction serves to “make [the idea expressed] kind of an Everyman type of experience” (as cited in Thompson, 2015, “It makes your feeling seem universal,” para. 1). Connection posts seem to receive a quite a few upvotes in general. This indicates the community acknowledges and accepts the universality of posters’ experiences, from, as posts in my data say, “find[ing] that one person you can finally be yourself around” to feeling “[l]onelier than the bill sitting on Capitol Hill.”

Joke Posts

Joke posts, along with connection posts, are often the most upvoted in the community (e.g., “It’s always so awkward ending phone calls with loved ones, I always say ‘I love you’ and they’re like, ‘thank you for choosing dominoes’” received 125 upvotes). As the name suggests, these posts make some sort of joke: sometimes an original joke created by the poster, but often reposts of jokes from other communities or plays on popular culture references (e.g., “I’m kind of like a refrigerator: I don’t do much but I’m pretty cool.” and “Momma always said college is like a box of choclates [sic]: You never know what grade you’re gonna get…unless you read the key they put in the box, then you get an A.”).

Certain jokes become part of the shared community knowledge and are often referenced, causing newcomers to the community to have to rely on others to explain the joke. For example, this particular campus community has ongoing references to two users who identify themselves as “Cashew Girl” and “Almond Guy,” based on Cashew Girl’s original posts about cashews and Almond Guy’s responses. The two “characters” show up frequently on the local feed, usually making spam comments and prompting many users to block them. Despite their unpopularity among the community, however, they are referenced frequently, even as the number of posts by these characters decreases. Users often make jokes that involve the two, and new users have to ask for clarification; thus the stories of Cashew Girl and Almond Guy continue to be circulated in the community. The repetition of these types of jokes are sometimes used to identify the long-term users, but they are often easily shared with newcomers and continue to be used as a point of reference specific to the virtual community rather than the local, physical community.

The purposes of these joke posts in general seem to be primarily to engage with the community and to encourage interaction based on the caliber of the joke or based on shared experiences (e.g., “If you hook up with your ex on a Thursday, it’s not cheating, it’s a throwback,” “‘911, what’s your emergency?’ ‘I just accidentally liked a photo from 2013!’”). The jokes in these examples reach back to the feelings of universality that connection posts often invoke. The first presupposes an audience that is familiar with Throwback Thursday and an audience that might understand the experience of going back to one’s ex. The second presupposes an audience that will understand the joke because they will have experienced similar mishaps that feel like real emergencies. Because of the relatively limited audience of Yik Yak posts, users can feel comfortable making a joke whose punch line relies on shared cultural or communal experiences.

Community-wide Warnings/Notifications

Community-wide Warnings/Notifications are intended to pass on some sort of information that the entire community should know. This is a type of unsolicited knowledge generation, but these types of posts usually encourage information validation, as other users often confirm information in original posts. Some individuals and groups use these types of posts to advertise events or encourage others in the community to support a cause (e.g., "Glo party on March 12!" or "Bake Sale going on at [resident hall]. Oreo balls, cookies, and more! Everything is a dollar! Today and tomorrow!"). Others use these types of posts to comment on campus activities or happenings (e.g., "Saturday, Feb.28, the [recreational building] will operate from 9 a.m. to 7 p.m."). Sometimes this information is reposted from other places—often, in my data, a post is copied from an official university Twitter account. It is most likely that a community member—not the original poster on Twitter—copied this information and shared in on Yik Yak so that the community there would be able to access this content. Thus, the Yik Yak community functions independently of other social networks that are tied to their physical space (such as official university accounts).

This type of posting occurred frequently when the campus experienced severe winter weather. During this time, users showed community-wide posts could be especially useful in times of emergencies or increased concern. Because users on the local feed were located around the area of campus, they began to post updates on road and sidewalk conditions, warnings of minor accidents, and closings of campus buildings and eateries (e.g., "Dining Halls Starbucks [campus-specific convenience store] AubonPain Slims open reg hrs. All other locations closed."). As I note when explaining my methods of data collection, the posts during this time did not display a full range of representative types, and thus I captured fewer posts during this time. However, of the nine community-wide notifications I captured during one winter storm system, eight of them were announcements about campus closings, transit updates, and/or road conditions.

These types of updates were frequent enough that users could have a good idea of the road conditions and campus closings before leaving their homes; if they were unsure about a particular location, they would inquire. In addition, other users who posted their own experiences of sliding down main roads, tripping over campus stairs, or eating at one of the campus dining halls, quickly validated this information. Though this was a fairly low-stakes situation, Yik Yak proved helpful for alerting others in the community about the effects of the winter storm. Users were able to leverage their individual knowledge of different locations to provide a clearer picture of the entire campus.

School Pride Posts

School Pride Posts appear most often when the university is participating in a sporting event, or in the days leading up to the sporting event. Depending on what sport is in season, the frequencies of these posts may fluctuate. (For example, I see many more of these posts during football season than any other sporting season; however, my data was collected during the football off-season and there were less of these types of posts during my collection period.)

In the days leading up to a sporting event, university students show their school pride by posting negative remarks about other teams and their fans (e.g., "[Rival school]'s fans hate snow days," and "[Rival school] fans are still trying to make Fetch happen"). During an event, these posts are used to actively comment on a sporting event as it is in action, equivalent to "live-tweeting" these events (e.g., "Screwed over by refs again," "[PLAYER NAME]!!!!!!!! YESSSSS!!!!"). These types of posts get a fair amount of upvotes, but they garner few replies, likely because the act of "live-tweeting" relies more on original posts than interacting with others in replies.

During games, the Yik Yak feed can move quite quickly, so users do not utilize the reply section as much, as it is likely that the post will soon fall from the local feed as new posts come in. Still, users often reference the same events and express similar feelings of excitement or trepidation, and the online feed often mirrors the comments and interactions within the stadium or arena. These types of posts mirror the type of commentary that happens in the physical community, fostering further community development around an aspect that already inherently encourages interaction and communal activity.

IMPLICATIONS AND APPLICATIONS

The posting types described here indicate a clear desire to create a community that is both part of the physical space and removed from it. This community uses the shared knowledge base of the physical location and creates and maintains a new knowledge base in the virtual community. Close study of this application can reveal much to both instructors and communication designers. Strategies for further exploring and researching Yik Yak based on the research reported here include the following:

- **Learn about user communication on local Yik Yak feeds.** Even if one does not actively use Yik Yak, a short observation can reveal much about campus and community culture: what the community values, believes, and desires. As researchers of communication spaces, we realize that more than the content posted in this space, the ways that users are utilizing the space can be more valuable in our research. By conducting similar research to my own, or even by observing a Yik Yak feed, researchers can rely on their own understandings of communication in virtual spaces to see the niche Yik Yak fills in their campuses and communities. My research provides a starting point for further research and gives others an idea of what kinds of user communication they might encounter.

- **Listen to and interact with the community.** After learning more about how users communicate in the local feed, communication designers can be right at the pulse of campus and local community happenings. Ornatowski and Bekins (2004) point out the trouble that our field has with the term "community"—our tendency to view it as "outside of" something else, and our tendency to view a community as some sort of homogenous group. As we view and interact with users on our local Yik Yak feeds, however, we become a part of the community there, just as we are a part of the physical community. We can see conflicts and different perspectives of local issues, allowing us some insight into the different types of users in this space and complicating our notion of a cohesive "campus community." It is true that we don't know exact demographics of Yik Yak users because of the anonymous nature; it is possible that some races, religions, genders, and interest groups do not use Yik Yak. However, we do not currently have another easily accessible, public outlet that provides us this much information about the intricacies of campus life. Yik Yak might be the first place we see rumblings of discontent in our campuses; it might be where we watch students struggle with complicated political and social issues. In addition, it might be where we see students share experiences with others; it might be where we see students struggling with isolation, fear, and depression. We may see things we do not want to see, of course, but there is really no better place for us to observe the changing landscape of our college campuses in real time.

- **Ask questions and get feedback.** If simply observing the community does not yield specialized information that communicators desire, local Yik Yak feeds can provide a ready-made audience for asking questions, as evidenced by the larger percentage of questions in my data and the high rate of replies for these posts. While many people see the value in using Yik Yak to make inquiries when visiting a new city or campus, I see value in asking questions of the community around us—engaging the collective intelligence of our local feed. In using Yik Yak to pose questions, instructors and administrators can ask questions to gauge the popularity/unpopularity of a teaching technique or program, or they can question students about their awareness of a particular resource or event. If the users on Yik Yak seem unaware of an important campus happening—in a place where the most frequent topic of conversation is the campus itself—this might serve as a notice that we need to find ways to increase awareness. In addition, as was the case in Pigg's (2014) study, interacting on social media and making even temporary alliances with other users can serve as a way of invention for other types of writing, not just about Yik Yak itself but about shared interests, local events, or campus and/or social issues.
- **Create a space for participation.** In line with asking questions, getting advice, and simply observing the community, we might begin to think about how we view Yik Yak as a space for participation. Communication designers often highlight the benefits of using a participatory design approach in communication spaces (Salvo, 2001; Spinuzzi, 2005), and Yik Yak has shown that it is already a place for this. Many of us are located on college campuses and welcome the increased participation of our students. Because of the instructor-student power balance, however, students do not often voice their issues throughout the semester. On Yik Yak, though, they are protected somewhat by the anonymity and their ideas of being surrounded by their peers. I have often asked general questions about my classroom policies or procedures in order to engage with students on Yik Yak about their thoughts. Even if we do not explicitly seek participation (asking specific questions about our classes may expose our identities), we can learn much from watching how students share information about coursework and we may be able to adapt our practices from this information. As long as we do not try too hard to limit this space, participation will likely continue to occur. We may have to know where to find it—perhaps in question/advice-seeking posts, perhaps in connection posts that engage the universality of experience. We may also find ourselves being a bit more cognizant of the many ups and downs that college life brings, and perhaps a little more in tune with our students and our campus because of it.

As we can see, viewing Yik Yak as a type of knowledge community has many possible implications, specifically for educators, administrators, and researchers in technical and professional communication, and those who wish to build online spaces in which interaction and community are key aspects. Yik Yak provides a place for community development and interaction for its users. Moreover, to the observer, it provides a glimpse into both the local and the online communities. We should thus be aware of how individuals communicate in this space and the implications this communication holds for online interaction, feedback, and participation. Perhaps then we can better understand how Yik Yak is influencing online, community, and campus interaction, and use this knowledge to more critically analyze and use this and other platforms.

CONCLUSIONS

As we view Yik Yak as a knowledge community and a useful space for research, we can perhaps see that the majority of information about Yik Yak that is spread by the mass media avoids or glosses over the application's complexity. Yik Yak is by no means a perfect system. It does often breed controversy, and it does contain and spread hateful, bigoted, or misinformed content. But its complexity deserves more attention and research, especially in the realm of technical and professional communication and communication design. It seems likely from my own observations of Yik Yak that areas in which the community bond on Yik Yak is not well established are likely the areas that suffer the most issues. When the application is being used in meaningful ways, however, we can see a rich virtual community just beginning to make itself known. Perhaps it is up to us as communication designers not only to dedicate more time and research to this platform, but also to teach others the significant ways in which it can be used.

Even if Yik Yak does not continue to be a social media powerhouse, we're still likely to see other social media platforms work to achieve this community feel. And we're likely to see any number of anonymous platforms develop as users (attempt to) resist the push of the market economy toward transparency. The controversy that surrounds this platform now is not unlike the early controversies that surrounded Facebook and Twitter (Maranto & Barton, 2005), but we soon found uses for these platforms not only in our personal lives, but also in our classrooms and our professional lives. And as we've no doubt noticed by now, our students are already using Yik Yak; we have a ready bank of interactions, conversations, and communities to tap into, and as people who study communication, it seems we should see this not as a place to fear or ignore, but to explore.

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Framing Illness Through Facebook Enabled Online Support Groups

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ABSTRACT

This article examines the illness/recovery narratives created through Facebook and shared in groups associated with the trauma of venous thrombolytic events (VTEs). Until recently, there was little public focus on VTE recovery; however, due to advances in medicine, patients who might have once died are now surviving, but there is limited literature about what surviving a VTE means for the individual. As a result, people look for others like themselves to help them adjust to this situation. In this context, Facebook affordances help extend traditional illness narratives between patient and healthcare provider from a private to semi-public or public space. Individuals participating in these groups transform not only themselves, but others, eliciting empathy, sharing experiences, and developing a platform upon which to critique healthcare practices.

Categories and Subject Descriptors

H.0 Information Systems: General

General Terms

Documentation, Design

Keywords

Illness narratives, social media, healthcare communication, communication design, rhetoric of health and medicine, chronic illness, pulmonary embolism, narrative medicine, Facebook

INTRODUCTION

The continued growth and expansion of Facebook as a dominant social network site is undeniable. As of November 2015, Facebook has 1.55 billion active users worldwide (Facebook, 2015), and it provides a steady stream of information that is easily archived, searched, accessed, and shaped. Facebook also invites user participation through features such as individuals' walls, groups' walls, notes, messages and file uploads. For communication designers working in healthcare, Facebook might offer opportunities to improve individuals' health literacy. It might also provide a platform to better inform the healthcare community about individuals' day-to-day experiences with illness and care. Lastly, Facebook might also provide a means to examine the circulation of health related information—accurate and inaccurate.

This article examines social media as a space where people congregate to share information and experiences via illness narratives of individuals' lives after a life threatening blood clotting event in the lungs, legs or both—a situation referenced here as a venous thrombolytic event (VTE). The entry reviews how these individuals use Facebook to express their personal illness narratives in the absence of available information related to day-to-day recovery concerns. To this end, this article specifically investigates the affordances of Facebook groups, including the individuals' walls, groups' walls as well as affordances of notes, likes, comment and reply, the social connection (friends) and privacy settings associated with groups (public, closed or private).

To examine these ideas, this entry begins with a review of related scholarship associated with social media, in particular, Facebook, and healthcare, and this review is followed by a discussion of the methodology I used to examine certain online groups. Next, I discuss my findings and provide a conclusion with a forward look at how social media such as Facebook might continue to influence healthcare communication practices. I also discuss how the use of Facebook creates a need for communication designers to play a pivotal role in designing and delivering pertinent health information to a variety of audiences. The results of this study should contribute to a better understanding of how the use of Facebook might contribute to improved healthcare communication platforms that invite participation from multiple participants such as healthcare providers, ancillary workers and individual patients.

RECONSIDERING THE CONTEXT OF HEALTH AND MEDICAL COMMUNICATION

Physicians are generally trained to use science to form a diagnosis from which a treatment plan is prescribed (Franks, 1995, Loc. 361). If one treatment doesn't work, another might be tried. Neither the science nor the treatment plan, however, fully addresses what it means to live day-to-day post VTE when what the individual experiences contradicts a diagnosis of recovery and wellness. Kleinman (1988), for example, notes his training and education had prepared him for the "doctor's attention to disease," but not "the patient's experience of illness" (Loc. 102). This situation leaves openings many individuals seek to fill by turning to online venues, such as Facebook. For these reasons, the more individuals can understand the nature of the discourse that takes place in such venues, the better they can understand the dynamics and the nuances of health and medical communication in the age of social media.

Narrative Medicine

Narrative medicine recognizes the roles of all involved—the "ill" individual, the physician and others (family, friends, or ancillary healthcare professionals). The practice of narrative medicine provides comfort because it encourages the healthcare professional to "recognize the patient in the face of sickness" and "more ably recognize patients and diseases, convey knowledge and regard, join humbly with colleagues and accompany patients and their families through ordeals of illness" (Charon, 2006, 17). Such a practice honors the stories of illness by making the patient more than the sum of his or her symptoms or diagnoses.

To truly honor the stories of illness the narrative must be told and written in first person by individuals experiencing the illness, rather than being told in third person, by the healthcare professional listening to and writing about the person experiencing the illness. The official medical narrative is thus biographical, with shared authorship amongst multiple healthcare professionals. Such a narrative might therefore look like nothing more than notations of weight, height, blood pressure, pulse rate, temperature and oxygen saturation levels followed by a a short paragraph describing the patient. For example,

> Patient is a 43-year-old white female. Patient appears healthy and comes into the office today with a complaint of mild chest pain when bending forward. She describes the pain as quite intense and her chest is tender to the touch.

The illness narrative in this instance is told in 3rd person about the patient by the healthcare professionals involved with that individual's care. Notes can be added related to lab results or test results completed on a future date and often end with a description of the treatment plan laid out for the patient.

In contrast, the narratives shared within the social media enabled online support groups are autobiographical and provide a data pool for "the close reading, self-reflection, and discourse with patients" (Charon, 2001, p.1899). They represent an approach narrative medicine calls for in order for the practice to be successful. Such narratives often resemble the following post:

> Hi. New to this group and looking for some advice. I am 55, reasonably active and living in Spain. Apologies for my essay.
>
> Had a PE in 2010 and took Sintron (Spanish equivalent of Warfarin) till Feb of this year (2013) when medics told me I could come off it safely as the risk of occurrence was low (diagnosed with Factor V Leiden)
>
> In June I flew to the UK for the first time since the PE and was told to take heparin 2 days before the flight and on the day of the flight as well as repeating this for the return journey. However, on returning to Spain I was diagnosed with having a further DVT and have now been told I am on medication for life.
>
> My INR had stabilized at 2.5 on 4 mg a day which was actually less dosage than originally was on. However, 3 weeks ago I had what my GP reckoned was cellulitis and had to take a weeks course of anti-biotics. My INR had dropped to 2.0 after this but returned to 2.2 last week. Having just been to my GP again today it has dropped inexplicably to 1.7 and I have been experiencing sudden onset of fatigue over the last week and weakness in my legs even though I am wearing the compression tights (very uncomfortable!!!)
>
> Has anybody come across this problem before and should I be worried? My GP has just said have another reading done after the weekend! (PEAP, 2013)

Not all posts shared within the support groups are this long. The individual "first" post to the group, however, often contains background information to help the audience put the post in context of the individual's larger experience. Other posts might be "So glad to have found this group" or "I'm glad I'm not alone."

Once a post is shared, it can generate posts in reply that are as long as the parent post or nothing more than a "like" with no comments at all. In the dialogue that emerges from posts shared within Facebook, the story moves from the present circumstances to past experience back to present circumstances or what ifs for the future. In moving backward and forward within their own narratives, individuals can reveal nuances about his or her health that might not have ever come out in the face-to-face presence of the healthcare professional but which are crucial nuances in providing quality, compassionate and ethically sound care.

Within this context, Facebook provides users with a way to "mediate a "new normal", to advocate for a cause and to stay informed" (Potts, 2012, p. 364). The ability to write on a wall, to share in a group, to write and share a note are all Facebook affordances that encourage first-person narratives in lieu of more traditional offline forms of information and support seeking. (Such offline forms are generally restricted because of distance or restricted to a specific time, day, week or month.) Unhindered by time and distance, the affordances of Facebook enable individuals to post their narratives unrestricted by the number of characters one can type, as in Twitter, nor are they limited to sharing an image as with Instagram.

In Facebook, the narrative told on a group wall, through a note or even the status update shared in a user's news feed, is controlled by the individual posting the information. He or she can choose who can see the information being shared by selecting the public, "friends" only or posting strictly to a group that might be private or secret or they can keep their information visible only to themselves. The first person narrative created under these conditions demonstrates how individuals use Facebook while also experiencing disease, illness, or some other trauma. Communication designers and technical writers thus need to study medical narratives shared via Facebook to build communication systems that better meet needs of certain audiences. Stroger platforms could lead to improved public health responses, reduced misinformation, quicker intervention efforts, and targeted dissemination of relevant health information. Health related social media platforms may improve dialogue between patients and healthcare professionals leading to stronger compliance with treatment plans and ultimately improved healthcare outcomes.

Social Networks and Social Media

Prior to the Internet and subsequent social media explosion, the term "social network" as described by anthropologists, psychologists and sociologists (Barnes, 1954; Heaney and Israel, 2008; Oh et. al, 2013) was used to describe the interlinked relationships that people established beyond that of home and work. Such social networks are thought to provide social support and contribute to an individual's overall well-being. Individuals are increasingly turning to the Internet and social media to seek such support, but relatively little is known about whether or not health related social support is a by-product of social networks created through online technologies.

As Internet technology and social media have expanded to encompass many facets of day-to-day life individual, social networks have also changed and evolved to include the online connections made through social media, like Facebook. Kuo et al. (2013), for example, note "Facebook has surpassed (other social networking sites) (SNS) in popularity and become the dominant SNS for people of any age and nationality, allowing geographically separated individuals to stay connected and share valuable information in the digital environment" (p. 635). Like face-to-face social support groups, virtual social support networks often develop around a common point of origin or some shared, common ground (illness, addiction, grief, etc.) and function much like a community of practice with mutual goals for the benefit of not just one but many.

Facebook allows data to be shared quickly and efficiently with an audience of the user's choice via applications such as "notes," "groups," "message," and even the "timeline" itself. These properties enable or "afford" an environment of social interaction and information exchange. Facebook affordances thus make it easy for individuals to seek out health related information regardless of their location and might even have access to information found nowhere else. For the study reported here, I chose to focus only on the Facebook Groups application because relatively little research about Facebook Groups and narrative is available. As such, the ideas examined in this entry reveal how people are using Facebook Groups to convey their illness story. The resulting information can help communication designers refine strategies for creating healthcare communication platforms that facilitate communication between healthcare practitioners, patients, and the public.

Virtual Illness Narratives

Facebook allows the individual seeking information and support related to a traumatic health event immediate access to first-hand patient narratives written by those in similar circumstance. Individuals might join a Facebook group immediately after a diagnosis, or days, weeks, months, even years later. As such, Facebook is both an asynchronous environment of archived patient experiences as well as a synchronous environment in which interaction and information exchange can be immediate. New group members have even logged on to Facebook and found the online support groups from their ER bedside. Such factors mean individuals who participate in such online support groups vary greatly depending on their personal illness experience as well as what they are searching for or hope to gain from the group. Such is the power of online media as related to communicating issues of health and medicine.

The Internet allows people to locate information, misinformation and sometimes-inaccurate information about any symptom they might experience. It also provides a means for individuals to find others like themselves—in this case, through the social media platform Facebook. Facebook is very much an "if you build it they will come" space when it comes to illness related groups. Participants can easily connect with others, share their story or ask questions. The increasing use of the group affordance in Facebook needs to be explored by communication designers in order to evaluate its short and long-term effectiveness. Communication designers also need to examine ways in which Facebook Groups can be used by patients and healthcare professionals to communicate more effectively about health related concerns. Membership in such virtual support groups might also alter how the ill person views the physician or other healthcare provider when that care provider might no longer be the sole source of "expert" knowledge within the doctor/healthcare practitioner-patient, lay-expert dyad.

In The Illness Narratives (1988), for example, Kleinman hoped to use his research to expand "academic medical discourse beyond molecules and drugs" (p. 266). In a similar way, I hope to determine whether the discourse created within virtual support groups can be bridged with social media discourse to enhance the doctor-patient, lay-expert healthcare experiences. To examine these ideas, I studied the narratives of participants' experiences shared in three Facebook Groups devoted to survivors of and the family/friends of those affected by a venous thrombolytic event (VTE). My interest in investigating this topic developed while I began searching for answers to my own experiences as one affected by a VTE and as someone who turned to online media for sharing experiences and learning from others.

METHODOLOGY

People are no longer just passively scanning the Internet for information about a medical concern. Instead, they are actively making use of a variety of social networking sites, of which Facebook, is one of the most popular (Park et al., 2009; Pi et al., 2013; Yu et al., 2009; Griffiths et al., 2012; Bagayogo et al., 2014; Merolli et al., 2013; Weiss et al., 2013; Potts, 2014). Connecting to online groups via Facebook, contributes to personalized support and co-constructing knowledge. The continued use of Facebook for such purposes supports Potts' (2014) assertion "We must cease building antisocial software that works to instruct users on what they can and cannot do in these spaces in favor of building systems that are socially flexible, allowing participants to flourish" (p. 6).

Research Focus

For this project, I investigated the narratives found in Facebook Groups dedicated to discussing venous thromboembolism (VTE). Specifically, I sought to address the question

What frames become defined by individuals in social media support groups post-VTE experience?

To examine this question, I attempted to identify and examine the narrative frames that emerge within such groups.

Participants and Procedures

Participants in the groups selected for this study represent a diverse population comprised of people from various countries, socio-economic backgrounds, educational levels, gender, and religious preferences. The three groups examined in this study (see Table 1) were selected because they provide a space of connection for people who have suffered a venous thrombolytic event such as a pulmonary embolism (PE), a deep vein thrombosis (DVT), or both. Additionally, I focused on these groups because members either have the condition (a PE, a DVT, or both) or have a family member who does.

Once IRB approval was granted, I provided all groups with an explanation of the study I wished to conduct and a copy of the consent form for the project via a .doc file upload to the Facebook site for each group. These documents stated the aims of the study and explained participants were guaranteed certain rights that are protected throughout the study and afterward. The explanation and consent were posted on August 1st, August 7th, August 14th and August 21st of 2013 in order to ensure that active members were aware of my observations and collection of data. Participants were informed they could opt out of the research study at any time, and every attempt was made to keep all information anonymous (e.g., names, exact locations, and reference to employers) unless participants expressly stated otherwise.

Materials/Medium Selected for Review and Analysis

Facebook Groups affordance allows participants "to become immersed in a virtual experience beyond what is familiar to them—not, however, to escape their embodied reality but to extend it" (Potts, 2014, p.7). I selected Facebook as the space for study because the Groups affordance invites a story to be told and allows participants to flourish. I also selected it for its ability to create online spaces that tend to exist over time. Blogs, for example, were not sufficiently active enough to be studied because they are often quickly abandoned (Gurzick & Lutters, 2006, p. 827). Moreover, other SoMe platforms like Twitter or Instagram tell stories in much smaller pieces of texts or without text at all; thus the richness of ideas exchanged through such media would be relatively limited. Websites, in turn, are often not current, and LinkedIn is designed to connect people on a professional level, not a personal one—thus the telling of personal health narrative is less likely to develop there.

For this project, I collected the following data in the following ways:

- **Group postings**: I collected the text of postings to one or more of the groups "wall," which included items posted to both the parent (original) post and the child (response) to the wall. To record this text, I used the Safari browser's export to PDF function. I collected these texts to study how members in the group used the affordance of the sharing information via the groups' walls.
- **Interviews**: I also conducted follow-up interviews with 14 individuals, and these interviews allowed me to focus on individual perception of illness and the virtual support group. Interviews consisted of nine structured questions and were conducted by using the Facebook Chat feature. To identify interview subjects, I posted a request for volunteers at the same time I posted the consent form and the explanation of the study. Twenty-seven persons responded, and I selected fourteen of these individuals to interview. (I selected individuals at varying junctions of their venous thrombolytic experience (VTE) from newly diagnosed to persons three to 6 months from their VTE, 6 to 12 months from their VTE, 1 to 3 years from their VTE, 3 to 5 years from the VTE, and more than 5 years from their VTE.)

Through these approaches, I collected quantitative and qualitative data that presented a more holistic perspective of interactions in this medium.

Period of Data Collection

This study was conducted over a one-month period (August 1-30, 2013), and I did participant-observation of three selected Facebook Groups described earlier.

Coding and Analysis

I collected Facebook wall posts using the Safari web browser's "export to PDF" feature to save html-based web pages as static .pdf files so I could then convert the resulting pages to word documents for review and coding—first via hand and then by NVivo software. Postings were first organized by group and then by date. Posts were also identified as "parent," meaning posted directly to the wall and "child," meaning posted in response to something shared on the wall. I collected a total of 562 unique wall posts. (I did not count duplicate posters by individuals who posted a parent post on the wall more than once, nor did I count responses to parent posts.) Once the pages were collected, I reviewed them to identify

Table 1. Groups studied for this project.

Pulmonary Embolism Awareness (PEA)	Pulmonary Embolism Survivors (PES)	Pulmonary Embolism Awareness Project (PEAP)
The largest VTE related support group on Facebook (over 3,000 members), it is an open group where posts shared on the groups 'wall' are visible to members and to and also appear in members' newsfeeds every time the member posts a comment or a reply.	This group has approximately 1,200 members. It is a closed group, meaning anyone can see the group, but only members can see the posts of the participants. (The group has since become "secret," meaning that to be part of the group one must be invited or added by a member.)	This group has approximately 1,500 members and is also a closed group and has remained a closed group.

and organize postings into certain categories (see Table 2) based on their function in the group: administrative, informative and emotional. I chose these categories based on the function each post served within the group.

Once data had been coded and converted into document files, I used NVivo to search for and determine word frequency to see if certain topics of conversation were more prevalent than others. Specifically, I used word frequency to identify key topics addressed within the three groups based on words most frequently occurring related to fear and anxiety, emotional support, lifestyle changes, medication or other health related topics. In reviewing and analyzing the data, I

- Looked at how conversations would flare up quickly and then just as quickly dissipate in contrast to those which seemed almost endless, and drifted off sometimes days and days later.
- Used discourse analysis (DA) to identify participants' views on healthcare, particularly the expert (physician) and layperson (patient) dyad.
- Analyzed narratives to examine the illness stories participants shared with groups and how participants use others' stories to enable or empower their own self-healthcare practices.

Each level of analysis provided a means for the researcher to develop a better understanding of the ways in which the Facebook Groups affordance was being utilized by group participants.

FINDINGS PART I: THE GROUP FRAME

Findings indicate participants in Facebook-mediated, online support groups benefit from the affordances provided by Facebook Groups feature. Members in these groups develop new narrative frames of awareness and survivorship to repair or replace their prior "normal," "healthy" frame(s) broken as the result of associated PE/DVT or VTE trauma. At both the group and individual level, these new frames established though the social media groups help to provide a post-VTE context for the group participants. First, there is the group frame established through the groups' site description that provides the structure in which the individual group members act.

In terms of the three groups studied, each groups' frame is clearly explained not only through its chosen name, but also from the information posted on the group's "about" page. In order to understand the group's frame, "one must try to form an image of a group's framework or frameworks—its belief system, its cosmology . . ." (Goffman, 1974 p.27). For the groups chosen for this study—Pulmonary Embolism Awareness Project (PEAP), Pulmonary Embolism—Awareness (PEA), and Pulmonary Embolism—Survivors (PES)—the group's belief systems begin with the text posted as their respective site descriptions. These become the framework for posts shared within the group. For two of the groups in this study, awareness of the risk of a PE or DVT or related hyper-coagulable disorders is a dominant frame through which information is exchanged. However, for the third group surviving as an ongoing process is the dominant framework.

Pulmonary Embolism Awareness Project

At the time of this study, the Pulmonary Embolism Awareness Project (PEAP) was one of the most vocal groups when it comes to making others aware of particular health-related information. During the study, this group generated 109 parent posts, 82 of which were posted solely by the moderator. Parent posts (i.e., posts all group members could see) included embedded hot links to news articles, web blogs, and research material relevant to the members in the group. The group's name itself drives awareness as a founding principle. Awareness is further developed through the site's description that contains the imperative "Know what you are looking for!!!" and directs participants to be informed and to be aware. The site description also identifies its goal "to post the most current info and answer all questions pertaining to DVTs/PEs and medication (PEAP, 2013). Additionally, the site contains the disclaimer "we do not diagnose; we recommend contacting your doctor" (PEAP, 2013) indicating individuals should not us post to the site in lieu of a physician or other healthcare provider (HCP).

In this context, the moderator often posts parent posts to the group. In one such example she writes:

Table 2: Example of Initially Coded Observations

Administrative	posted by the moderator or designee to reinforce the rules or introduce a new member to the group.	"Welcome (name) to the group" (PEAP, 2013)
Informative	conveyed information relevant to the membership such as news articles about blood clotting disorders or research being conducted about new medication trials—could also be seeking information in the form of a question.	"Here is some (sourced) information. . .I hope you all have seen the article floating around about vitamin K and heart health" (PEAP, 2013) 
Emotional	contained "I feel…" type statements reflecting the posters' emotional state at the time or if they expressed emotional support in response to something a poster might have stated	"Extremely humid today. Just had to use (inhaler)(sic) to get a good breath in and had damn pain. Not gonna freak out yet. I sure hate this" (PEAP, 2013)

> We have a wonderful mix of people here! I learn much from everyone, we have people from around the world & most of us had no idea treatments varied so much! I try to stick with my standard sources because I get the same info all doctors have available to them online. They send me emails daily and I sort through searching for info useful to anyone here. Feel free to request any info, I'll try to get the answer to your questions (PEAP 2013).

The moderator also sifted and sorted information based on its relevance to the group. Through these efforts, she makes the group membership aware of everything from available treatment options, dietary needs, questions to ask the HCP to daily exercise routines and positive affirmations. Her information comes consistently from online sources such as ClotConnect.org, The Blood Clot Recovery Network and the CDC.

Anything the moderator feels increases individual awareness of what is happening is forwarded to the group, and the moderator further develops this frame of awareness by inviting group members to view her personal story found under the "files" section of the group's page. In this section, she recounts the tragic death of her son and notes, had there been more awareness, he might not have died. As she states,

> [S]tupidity cost me my son . . . now, we want to make sure this does not happen to your loved ones . . . Please learn the signs and symptoms—and above all else, when in doubt **GET HELP**!!!!" (emphasis hers), (Anglebrandt, PEAP 2012). In a follow up interview I conducted with her, she added "I wanted to make people aware of the symptoms . . . I figured if I could help just one person, our son did not die in vain (Anglebrandt, Interview, 2013).

As moderator of the group, she continually creates an ongoing awareness of pulmonary embolism (PE) signs and symptoms, treatment options, and self-care practices associated with PEs and related disorders.

Members in the group also support and forward the idea of awareness established by the moderator. Group comments indicate members acknowledgement of the site's mission -- for example

> I love this sort of page as it helps raise awareness, finds examples of new treatments, support systems. I run an exercise referral scheme for the National Health Service (NHS) commissioning and find these (posts) give me a chance to find out opinions of those who matter (you all). (PEAP, August 4, 2013)

In these ways, PEAP promotes and advocates awareness by encouraging participants to learn more and share more. Information exchanged to raise awareness is evident in posts such as one shared by a group participant on August 8, 2013:

> **Everything You Ever Needed to Know About Blood Clots**
>
> www.stoptheclot.org
>
> Part One: This segment defines: Hemostasis = normal blood clotting, Thrombosis = excessive blood clotting, Thrombophilia = predisposition to thrombosis, DVT = deep vein thrombosis (clot in leg)

A participant seeking information about exercise post-PE recovery shared

> Apparently, very few studies have been conducted to investigate how physical training affects blood clots. According to the NBCA (National Blood Clot Association) site 'blood levels of the clotting protein Factor VIII INCREASES with exercise and the elevation persist post workout during muscle recovery (PEAP, August, 2013).

For those group members with a Factor VIII clotting disorder, such information might be useful in guiding their decisions related to beginning a new exercise regime or altering an existing regime and serves as a reminder to ask physicians about potential risk. This post also indicates that little research has been done on the connections between physical activity and blood clots in those with Factor VIII clotting disorders and yet physical activity is encouraged post-PE or DVT event as a means of prevention. The participant who raised the question about exercise not only got an answer to his own question but the response helped to bring an awareness to a problem that might otherwise be overlooked.

PEAP participants sometimes have questions about tests to be performed or physicians to be seen and what to expect from the encounter. One such instance occurred when a participant asked if she should seek a second opinion regarding her healthcare concerns:

> Thank you! I am very newly diagnosed—less than a week. I'm trying to adapt as best I can to the new normal, but any advice that you could provide would be greatly appreciated (PEAP, 2013).

The poster's question generated 15 child responses posted mainly by the moderator with a second respondent being another newly added participant.

Pulmonary Embolism Awareness

The group name, Pulmonary Embolism—Awareness (PEA), as with the first group (PEAP), includes "awareness" as part of its identity. PEA's site description provides insight that solidifies the framework of awareness for this group, stating "Please note this an open group to make people aware of the risks factors and symptoms of pulmonary embolism and blot [blood] clots. Additionally, this group is a support system for those who have a similar diagnosis" (PEA, 2013). The site description also contains a list of common risk factors and associated symptoms that might indicate the likelihood of a pulmonary embolism (PE), deep vein thrombosis (DVT) of other venous thrombolytic event (VTE).

This group relies less on increasing awareness through hyperlinked articles from the CDC or blood clot related organizations in the manner that PEAP does. Instead, PEA actually focuses on awareness being made through the individuals' personal PE/DVT/VTE narratives providing insight into the day-to-day lives of those who have experienced and are living through the trauma associated with a PE/DVT or VTE. This narrative becomes a means to explain to others why one can look fine externally but be very broken internally. Dialogue and narrative in this group makes both participant and secondary others aware of the invisible and unseen nature of traumatic blood clotting events.

The importance of this group to its members is conveyed through numerous posts such as

> Thanks everyone who posts and whoever created this group. It's reassuring to hear that my experience, if frustrating, is typical . . . Maybe we can all get that little mental boost when we see someone else had a good day or bounced back from a bad day! (PEA, 2013)

Another post stated, "Life has knocked me down a few times. It has shown me things that I never wanted to see. I have experienced sadness and failures . . . but one thing for sure . . . I always get up!" (PEA 2013), and generated 19 "likes" in Facebook. Thus, members in this group openly express their need for reassurance and offer reassurance to others. Such openness helps create a frame where sharing one's personal narrative becomes part of routine group discourse available via Facebook affordances.

Posts and responses shared within this group can vary from two- or three-word utterances to multiple paragraphs and might involve just text, text and emoticons, or a range of images, positive quotations, or "warm fuzzy" pictures of pets or babies. Through the personal illness narratives like these, group members are made aware of differences in treatment, differences in diet restrictions, the frustrations during recovery, and the differences with which PEs, DVTs and other VTEs are approached by healthcare professionals. This information might inform patients' subsequent healthcare visits and informational exchanges. One member, for example, wrote

> Since I have to get a spinal injection soon, my Doctor wants me to stop the Coumadin and start giving myself Lovenox shots. I'm not sure if I can stick needles into myself. I just might throw up. Is there some other alternative to this???O_o. (PEA, 2013)

Participants responded with encouragement and expressed their mutual dislike for having to self-inject medication as demonstrated in responses such as "I hated Lovenox shots!!!" or "You'll get used to it after the first day or two" (PEA, 2013). The conversation ended on an up note with "glad we can laugh about it" (PEA, 2013).

Participant discourse also shows that participants are able to freely express negative experiences, as in this post shared by one of the PEA participant

> Ended up at the A & E (accident and emergency) again last night (was in last wee) I couldn't breathe & was on oxygen... How long can this keep happening?! 2.5 years post-PE □" (PEA 2013).

This post generated eight responses from six people, and the responses were sometimes apologetic such as "So sorry you're having problems," and "Oh so sorry. I know how frustrating it is. 2.5 years for me too" (PEA 2013). These posts establish a sense of camaraderie and identification and help members know they are not alone and that others have similar experiences.

Through the struggles and triumphs shared on the group's Facebook wall, participants become aware of what might lay ahead in their own recovery process, and so too do the Facebook "friends" of participants. With each exchange, awareness increases because these posts appear not only on the groups' "wall," but also on the individual participants' newsfeeds. These posts thus bring awareness to those outside of the group, expanding both actively and passively throughout the interconnected network of Facebook. (This expansion and interconnectivity could never be fully duplicated by membership in a face-to-face support group or in the clinical setting between individual and healthcare practitioner.)

Pulmonary Embolism Survivors

The third group that comprised this study, Pulmonary Embolism-Survivors (PES), develops a framework focusing on individual survivorship and what it means to be a survivor. This is a closed group, in the same manner as the PEAP group, and only members of the group can post and can see the content of posts. Posts will not appear in a personal, public newsfeed if settings are configured appropriately. The group's site description reinforces this sense of privacy and survivorship stating

> this is a support group for people who have suffered from Pulmonary Embolism(s)/DVT's/Blood Clots. Only members can post to this support group! This group is supposed to help one another in our journey of why we had a PE, are we going to have another one, and helping those who have questions…some of us are farther along that others-so I hope we can all help each other (PES, 2013).

Of the three groups studied, this group was the most participatory, generating 278-parent post, 89% more parent posts than the larger PEA group.

Participants in this group, having survived a PE or DVT share ". . . almost losing our lives was one of the most traumatic things that can and could happen to someone . . . Good luck to you and know you are a Survivor!" (PES, 2013). Other comments follow along this line of thought with "It's a battle, a hard one, but at least we are warriors and better yet, Survivors!" and this one "That's my (name). I see that fighter, warrior, survivor" (PES 2013). Members in this group are also slightly more vocal about their quality of care with comments such as "some medical professionals have no idea what it is to be a PE Survivor with all the physical and emotional scarring" (PES 2013) and "I am glad to be part of this special group of PE Survivors!" (PES, 2013) to which another responded, ". . . we are survivors and tougher than some of the toughest…" (PES, 2013).

Individuals in this group identify themselves as survivors, and this word appears and reappears in posts: "you are strong and a survivor"; "We are tough survivors!" and "you are a survivor of this horrible experience that all of us went through . . . "(PES, 2013). A new member joined what he/she called "this family of PE Survivors!" (PES, 2013). In this group, participants who identify themselves as "survivors" do so based upon their ability to go forward—their strength, their difficulties, but most of all, individuals are framed as survivors who "survived for a reason and that gives us the hope, all will be well" (PES, 2013). Perhaps accordingly, the word "survivor" appears over 100 times during the four-week observation period of this study.

Sometimes, survivors are shaken out of their own pain by that of another. For example, one participant shared his/her anxiety and the gratitude he/she felt at finding a group like the PES by posting

> I am not sure whether you have heard my story. My wife [name] went to sleep on 10.10.10 and never woke . . . Although having read many stories about what you survivors go through, given the choice, are you not happy to have survived rather than what happened to my wife? (PES, 2013).

With the last few lines, the conversation drew to a close as participants were reminded not all survive.

The survivor framework is delicately formed out of trauma and is not easy as seen in this participant's comment, "honestly, we would love to stop talking about it and carry on with life, but it just is not that easy!" (PES, 2013). Survivors depend on one another because no one else understands quite what it is like to be a PE/DVT/VTE survivor as demonstrated in the response

> . . . this group has helped me so much more than any doctor could I get the reassurance and knowledge here that I do not get from gp, and this group is for P.E. Survivors so we do talk about it a lot to help each other, to support each other, it doesn't mean for one minute mean we are not grateful to be alive, it means that this is our way of getting through it day to day… (PES, 2013).

In these ways, group members support and encourage one another in the day-to-day living as a survivor.

New members also find reassurance, constantly reminded "but you are a survivor . . . you will come out of this well and a Survivor! PAMPER yourself! Take time to extend your life. We are survivors. We deserve it!" (PES 2013). This post also shows how dialogue that starts as individual survivorship gets folded into the group framework of survivorship as the post begins with "you" and ends with "we."

Members are also often reminded they should "Be strong [they] are a survivor!" (PES 2013). Throughout the discourse created in this group, individuals are collectively addressed with "My fellow PE survivors" and many identify as "I am a survivor." Survivorship for many means strength, yet for some, it is guilt as expressed in this post "there are times where I am paralyzed by the mental/emotional aspect of what happened. I keep thinking "am I broken now?" Was that a sign that I might not be here much longer? and all the survivor guilt that goes along with it. . . "(PES, 2013).

For some, survivorship brings guilt associated with the idea that one life was spared when so many others are not, and the guilt can be paralyzing. In those moments and as a result of the "guilt-laden" post, other members will explain that the guilt cannot impede the living. Often, when guilt begins to thread its way through the dialogue in this group, other participants will remind them that feeling guilt is natural and encourages the individual to keep fighting. There is an implied strength that is associated with the survivorship framework created and demonstrated in this group.

The discourse of survivorship is perhaps best summed up this way: Survivors are "Broken. But not destroyed. (We are) survivor(s)" (PES, 2013). For these survivors of PE/DVT/VTE trauma, the recovery journey is propelled forward and in moments that a survivor looks too far back or stumbles with guilt, someone is there to call them forward to remind one another that they have already proven that they are survivors. Such survivors now frame their understanding of events through survivorship as the members in the other two groups frame their understanding of events through awareness.

Posts shared within the three groups studied show individual participants develop new primary frameworks through which to understand their post-traumatic health event of a PE/DVT or other VTE. These narrative frameworks are made possible because of the invitational nature of Facebook affordances, such as the formation of groups around a common event and the ability to share information via the Facebook "wall."

FINDINGS PART II: THE INDIVIDUAL FRAME

The second frame that develops is the individual's frame developed through his or her wall posts shared within the group and third frame builds around shared participatory experiences. These frames bind the activities enacted by members of these groups. That is, when an individual experiences a traumatic health incident, the individual's primary framework is not just disrupted, but broken. For participants (the PE/DVT or VTE survivors in this study), the primary framework that existed before the PE/DVT event no longer functions to render understanding and meaning of events post incident, and a new framework developed from the participants PE/DVT or VTE experience now takes its place. The group frame helps the individual reshape and rebuild a new narrative framework of survivorship, awareness, or both. These new narrative frames help participants find the motivation and encouragement to not just survive, but to live.

New narrative frames emerge as participants share their illness narratives in an attempt to bring order to chaos. As evidenced in the postings which occur in SoMe enabled support groups like those created through Facebook, narrative is "a tale or anecdote, that is, a replaying . . . of a past event . . .the personal perspective of an actual or potential participant . . . [is also] something that listeners [readers] can empathetically insert themselves and vicariously (re) experience what took place" (Goffman, 1974, p. 504). Like other narrative forms, illness narratives have a structure—beginning with the illness event; the middle which might be the journey to recovery; and an ending either in resolution of the illness, acceptance of the illness, and sometimes, death. For healthcare practitioners who practice a narrative based medical approach, illness narratives generated through SoMe platforms like Facebook highlight individual awareness of one's own mortality as well as heightening the awareness of the mortality of others through shared experience which for participants in this study was survival of a PE/DVT or VTE.

The frames presented by each of the groups in this study establish a primary framework of awareness and/or survivorship that the individual uses to orient him- or herself to the post-VTE event. Individual frames emerge in and across all groups in this study. Frames created by the individual poster might forward the group's primary frame, or they might create a primary frame for the poster. Individuals might frame their experience through awareness, survivorship, fear, his or her self-care choices, his or her symptoms, or his or her emotional state. If the individual can him- or herself answer the question "What is it that is going on here?" he or she can put action to understanding that might manifest through better compliance with treatment plans. The group frame thus becomes the "frame of activity" through which individuals can develop their individual frame(s) in an effort to understand and/or explain their present position post-VTE.

Goffman (1974) also argues "Frame, however, organizes more than meaning; it also organizes involvement" and all three groups demonstrate how "during any spate of activity, participants will ordinarily not only obtain a sense of what is going but will also (in some degree) become spontaneously engrossed, caught up, enthralled" (p. 345). This can be seen in PEAP, PEA, and PES all have varying levels of activity, and the content created can sometimes come at individuals in a flurry or it might dribble in and seem that the group is not active at all. This is not to say every post gets a response (many do not). Although it is impossible to say with certainty a post will elicit a reply, looking at the wall observations for all three groups indicates certain trends. For example, posts that elicit a response are often those in which a question is asked or in which a participant expresses an emotional response (e.g., fear, victory, sadness, frustration, or any version thereof).

AREAS FOR FUTURE RESEARCH

The study of health-focused online communities created through social media is an area of interest that is constantly growing and evolving. Online support groups, such as the ones in this study, show promise as an invaluable resource for individuals as healthcare costs and access continue to challenge people around the globe. Technical and professional writers and healthcare communicators are best poised to understand how members of such groups leverage Facebook for mutual benefit. These groups demonstrate clearly Facebook's continued popularity for people across a wide spectrum creating connections where once people would have been geographically separated and providing a digital environment in which people can easily share information.

For healthcare professionals, social media could be a solid, stable platform to grow patient education programs and increase patient awareness about illness prevention, effective treatment plans, alternative treatment plans, symptom management, and an overall better quality of life for the individual. Communication designers working in concert with patients, physicians, ancillary healthcare practitioners, software designers/developers, and people at large might be able to develop more effective communication systems for use by multiple audiences. Future studies thus need to address the healthcare professionals' perceptions of such virtual support groups such as the ones researched in this study—those that survivors create to share stories and support. But, clear ethical and professional guidelines for healthcare professionals in virtual spaces like Facebook need to be established. Additionally, future studies need to explore creating a collaborative relationship between healthcare professionals and virtual support groups to investigate how these virtual support groups could be used to improve patient-provider communication practices, self-care practices and feelings of more control over their condition. The affordances provided through SoMe like Facebook, moreover, need to be understood to better influence e-health design into a stronger, more meaningful experience for the end user.

Future studies need to more closely examine the ongoing narrative participants create—from the moment of joining the group forward. Studies that address participant motivation to join online groups at the beginning of a traumatic event might be quite different from the individual who joins years after a traumatic event. Cultural influences associated with membership also need further examination, for an understanding of such factors would better inform how we view the ways in which individuals reconstruct narrative coherence post PE or DVT.

CONCLUSION

An individual's PE or DVT experience has, at the least, disrupted, and at worst, completely broken that person's reference point for understanding events. The frame of what the individual considered "normal" prior to their traumatic health event no longer works. At the group level, two frames in particular seem to dominate: awareness and survival. While two of the groups in this study have awareness as their dominant frame, these frames are both different by design. In the PEAP group, a closed group in which only members can participate in the discussion, awareness is directed inwardly towards the participants themselves. The PEAP group frames awareness as an information exchange in which the individual participants are constantly gaining knowledge about their pulmonary or deep vein event in order to make more informed decisions about their post- event recovery process.

The second group that creates a frame of awareness is the PEA group. This group differs in it is an open group where anyone can view and comment on the discussion, and the discussions will appear in members' newsfeeds. Within the third group, the Pulmonary Embolism Survivors (PES), the frame of survival and the individual survivor emerged. Interaction within this closed group encourages individuals to move forward because they are able; because they survived. The group's frame of survivorship frames the onset of a PE /DVT as the beginning of a battle in the grander scheme of one's life. It is a moment in which individuals affected by a PE or DVT cannot allow themselves to become paralyzed, but must instead find the strength to move forward.

All three groups provide a space where participants can narrate their post-PE/DVT event. Individuals affected by PE or DVT use the group to re-create/re-frame their life narrative as they understand what has happened to them. Patients construct their post-PE/DVT event lives by using Facebook support groups to help them narrate their chronically ill self. Patients thus use Facebook to tell and retell their illness story seeking understanding and validation for what is happening to them. The resulting encouragement and moral support provides a sense of unity to reinforce the idea of "normalcy" when normal is the very thing that has been shaken and altered.

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Saving the Sea, Socially: Measuring the Relationship between Content and Gesture on Facebook

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ABSTRACT

This article explores the relationship between gesture and content on the social media platform Facebook. Analyzing the results of a digital content analysis of more than 1,600 posts from the Roatan Marine Park's Facebook page, this study reports the significant correlations found between various types of content, media, and engagement gestures. Findings suggest there is a relationship between content and gesture on Facebook, but what triggers stakeholders to "like" and "comment" on content is different from what triggers them to share content. The study concludes with six applications of these findings relevant to practitioners working with nonprofit organizations on Facebook.

Categories and Subject Descriptors

H.0 Information Systems: General

General Terms

Documentation, Design

Keywords

social media, environment, nonprofit, content management, information design

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INTRODUCTION

As social media practices and platforms burgeon, the symbols, gestures (i.e., actions), and rhetorical practices we use to communicate in social spaces develop, shift, and change. In the social culture of Facebook, for example, the "like" button is not simply a symbol, but clicking it also constitutes a rhetorical gesture. Yet, what is the value of such a gesture to the communication designer? What kinds of content provoke stakeholders to gesture and engage content composed to specific rhetorical ends? And, how can technical communicators use this information to design more effective communication solutions for the organizations and clients with whom they work? These are the questions we take up in this study, which examines the correlations between rhetoric and gesture on the Roatan Marine Park's (the Park) public Facebook page.

Though communication design scholars have examined social media relative to other domains like communities of practice (Pigg, 2014); service learning (Kimme Hea, 2014); and a range of pedagogical areas (See Business Communication Quarterly special issues, 2011 & 2012), we are only now beginning to study the correlations between content and gesture and to better understand how social media practices shape our field. Our goal in this article is to make this new knowledge work a little lighter by beginning to unpack and explore the relationships between gesture and rhetorical content in social space. Specifically, we investigate the correlations between content and gesture by collecting, categorizing and analyzing more than 1,600 Facebook posts and stakeholder gestures. We also explore the unique rhetorical challenges environmental nonprofits like the Park face generating social content for disparate publics, some of whom hold conflicting beliefs about sustainability. Further, we attempt to quantify and visualize the types and categories of content that generates the most engagement gesturing, an important tool nonprofits use to measure engagement in both virtual and real world contexts. We conclude by offering six applications of our findings to practitioners working in similar communication design contexts.

Our findings suggest while content and social gesture is clearly relational, that relationship might not be cumulative or vertical—meaning, different kinds of rhetorical content trigger different gestures and combination of gestures. Thus, sometimes, an audience might "like" something, but not enough to "comment" on it or "share" it. Though our findings are preliminary, we believe they will contribute to a growing body of knowledge that helps practitioners design more effective social media campaigns, a challenge recently complicated by Facebook's introduction of more nuanced "reactions" (Krug, 2016). A clearer understanding of the relationship between rhetorical content and gesture complicate a familiar social technology in ways that will benefit our organizational partners and students, who find these complications personally interesting, if not also professionally useful (Hurley & Kimme Hea, 2014).

SOCIAL MEDIA IN COMMUNICATION DESIGN

Social media is not defined by one site or platform. Social media are, instead, a series of "symbolic representations, articulations, [and] assemblages of cultural systems of knowledge and power" (Kimme Hea, 2014, p. 2). In other words, social media are a platform and a cultural practice. As such, they are shaped by the cultural, social, rhetorical, and political conditions in which they are invented and used (Kimme Hea, 2014). Because social media are relatively new technologies, as are the cultural practices we use on social platforms, communication designers are only now investigating how traditional media theories of communication transfer to social space and what social media means to our field. In McNely's studies of social media at two workplaces, he found participants saw the use of social media as a "strategic and vital component" (2011 p. 6) to modern knowledge work. Far from being a fad, work by McNely (2011) and others have demonstrated social media services are increasingly critical to the work of communication design, and thus worth serious study.

Some suggest while communication designers are increasingly called to work in these new social spaces, this new work is so different from the old work communication designers were called to do, it warrants a new name. Maggiani (2009) suggests we should separate "traditional" from "social media" communication design as a way to think through how what we have done differs from what we are now asked to do in increasingly networked workplaces.

As Singleton and Meloncon (2011), Maggiani (2009), and others have pointed out, doing communication design in the social world is markedly different from doing communication design in the pre-digital age. As Maggiani explains, traditional communication design products and processes were generally performed and produced in isolation. Traditional technical communication and communication design jobs like interviewing, writing, and designing were performed alone, but doing anything alone is anathema to the culture of social networks. If traditional communication design is thought of as communicating one-to-one, then, as Maggiani (2009) suggests, social media communication design is "many-to-many" (p. 20). This many-to-many sketch demands both an awareness of multiple audiences and the need to compose and measure the rhetorical effects of multiple kinds of texts. Moreover, as St.Amant (2015) points out, such factors are further complicated by cultural and international aspects relating to perceptions of and uses of such media. The situation is thus a new and a complex one to address.

Whereas traditional communication design often resulted in a single, static text, composed in small teams or, more often, individually, texts in social networks are multiple, co-constructed by many individuals, widely distributed, and dynamic. And whereas readers of a traditional text cannot gesture in response to having read that text, in social space, there are several ways to engage with a text's message through various "gestures" such as "liking," "commenting," or "sharing." Social gestures then become an important and novel metric communication designers can use to quantify and condition an organization's content strategy.

To take advantage of the affordances communication in social spaces offers, communication designers need to upgrade their skills, and they also need a clearer understanding of how traditional rhetorical theories and communication practices transfer (or don't) to social spaces. For example, though audience awareness is a fundamental concept of rhetoric and communication design, McEachern's (2001) two-year study of social media use in nonprofits found writers working in social spaces had to think about the concept of "audience" more dynamically than those not working in social spaces. Additionally, these knowledge workers had to develop robust digital curation techniques to satiate public demand for mission-specific content that could not be consistently produced in-house. This may be one reason why, as Craig Lefebvre pointed out in *Social Marketing and Social Change* (2013), there is often a disconnect between social media's intrinsic capacity to facilitate social and behavioral change, and a practitioner's ability to use social platforms to such ends.

In social space, it is not enough to know how one social platform or another works. Communication designers must also know how to produce content that triggers desired engagement behavior or gesture. Gestures potentially hold great value to organizations, acting as both a barometer—measuring how connected stakeholders feel to the organization's mission—and a tool through which organizations might spread their missions and messages to new networks of stakeholders.

The "social media" communication designer is increasingly expected to know not only what content will engage, but how to produce or curate the very photos, videos, third-party applications, and cloud-based programs amended to posts used to excite, inspire, and mobilize key publics. Clearly, we are still considering what it means to integrate social media into our research, our field, and our classrooms. Our field, however, has a long and demonstrated history of theorizing, integrating, problematizing, and applying new knowledge to organizational challenges (Eisenberg, Johnson, & Pieterson, 2015; Holman King, 2013). We are, as communication designers, perhaps best suited to this kind of knowledge work.

FACEBOOK FOR SOCIAL CHANGE

Three years before the Park sent its first Facebook post in 2009, "You" was chosen as Time magazine's Person of the Year. Though a controversial decision, the Time's editorial team wanted to recognize both the quantity and influence of the content millions of users were generating globally (Grossman, 2006). Prescient in its recognition, the cover selection was one of the first signals to indicate it was not just the means of production that were changing, but the laws of power and participation too. These changes are reflected in areas of study within our field that have recently garnered significant attention like social media, communication design, and disaster response (Bowdon, 2014), and communication designers as agents of social change (Wickman, 2014; Walton & Jones, 2013).

Our field's history of partnering practitioners and scholars with local and global nonprofit organizations is well documented (McEachern 2001; Sapp & Crabtree 2002; Bacon, 2004; Turnley, 2007; Starke-Meyerring, Duin, & Palvetzian 2007). However, as Bernadette Longo argues (2014), we should remain critical of the ways in which emergent technologies like Facebook open up avenues of collaboration and participation for some, but not others. Interviews with Park staff confirm Longo's warning that social media should not—and in many cases simply cannot—replace face-to-face human interaction.

As noted, traditional, centralized media and communication has yielded to more nodal, multi-centered, and dynamic systems of communication and participation, redistributing the balance of power between sender and receiver. Such a context makes truly dialogic communication possible, if not the pinnacle, of communicative exchanges (Bortree & Seltzer, 2009). Yet, many nonprofit organizations continue to use one-way models of communication, despite the dialogic capacities of social platforms like Facebook, which begs the question: Why?

Even though nonprofit organizations often recognize social media's potential to engage and mobilize key audiences, they often lack either the financial, human, or intellectual capital necessary to construct and maintain an effective social media presence. A 2014 Nonprofit Social Media Management Benchmark study showed most nonprofits can afford to dedicate only 1/3 of one full-time position to managing and measuring an organization's social outreach efforts. In a 2014 interview, Tom Latchford, CEO of Raising IT, cited the biggest problem facing nonprofits today was their inability to effectively measure the efficacy of the rhetorical content they produce or curate on social platforms. Thus, communication designers should not simply analyze social media practices, but also architect new participatory systems of communication—thus, our project has two overarching goals:

- To preliminarily analyze the relationships between content and gesture so we can,
- Build an application that will aid environmental nonprofits specifically in developing and measuring social content that helps them achieve their organizational missions

SOCIAL MEDIA IN RELATION TO THE ROATAN MARINE PARK

In 1988, a community of concerned islanders proposed and created a managed marine reserve to protect the marine habitats on the island of Roatan, which lies 35 miles off the coast of mainland Honduras. The Park exists to enforce Honduran environmental protection laws, promote participatory conservation practices, and foster a sense of environmental responsibility among key publics that often hold conflicting values, attitudes and beliefs about conservation. Presently, the reserve incorporates 13 kilometers of coastline, east to west, and 60 meters of ocean, top to bottom. Much of the Park's work in aligning stakeholder values and conservation practices happens through educational experiences, fieldwork, and social media messaging.

Though the island of Roatan is small—spanning merely 30 miles top to bottom, Roatan accommodated more than 1 million tourist visitors in 2014 (USA Today). Visitors come for the tropical clime and warm and friendly people, and divers come for the reef system, which is consistently ranked as one of the top dive sites in the world (SportDiver), though it has suffered significant damage due to marine debris, commercial dredging, invasive lion fish populations, overfishing, and poor diver-to-reef communication and practices (see www.roatanmarinepark.com).

The Park has several stakeholders, or key audiences, with whom they communicate, and these include

- Global visitors who vacation on the island and are afterward inspired to help conserve it
- Politicians who grant the Park's enforcement authority
- Locals who both live and work on the island and suffer or benefit from the health of the reef system

The Park communicates with these audiences across myriad channels, but social media is a preferred means of communication because it is quick, cheap, distributed, and used by locals as well as tourists.

The Park's first Facebook page read: "Welcome to our new page! Please become a fan!" In the six years since, the Park has posted 1,629 unique posts or replies to its key publics (through 8/7/2015), generating more than 10,149 "likes" of the main page (as of 12-1-15). Like many small, international nonprofits, the Park cannot afford to hire a social media manager. Instead, it must rely on staff members and a small cross-trained team of workers and volunteers to post and manage content. The purpose of this content varies. Some is designed to inform stakeholders about upcoming events; others is meant to share the Park's values, conservation successes and thus build a sense of community, and still other content is meant to encourage visitors and advocates to purchase products at the Park's EcoStore, or donate.

The Park's executive team understands that effective use of networked communication tools and platforms is imperative to the long-range goals of the organization, and good management is ever more critical in light of changes to Facebook's organic reach policies. Despite such factors, between 7/3/2009 and 8/7/2015 (2,226 days), the Park averaged .73 messages per day, a slight under-exchange according to the 2014 Nonprofit Social Media Benchmark Study, which reported environmental nonprofits posted, on average, 1.2 messages per day. To redress the need for more consistent and concerted social media production and management, the Park recently dedicated a portion of a new grant-funded position specifically to social media strategy, content development, measurement, and integration of fundraising software.

Though informal, the Park's content strategy is understood by staff to be one that "engages and inspires best practice conservation while promoting the island" (Lahey, 2015). To execute this strategy, staff generates unique content when it can, but more often shares curated content created by other organizations driven by similar missions, like the organization Ocean Defender. In the past two years, the Park has increasingly experimented with various types of media attached to text-driven posts hoping to better understand how the inclusion of infographics, videos, and third-party tools stimulate engagement and gesture from its key publics, but with limited success.

METHOD

In this pilot study, we wanted to determine if there were statistically significant correlations between rhetorical content and gesture, or engagement behaviors. In researching this topic, we address a gap in our field's literature and extend our understanding of how content and gesture relate with the ultimate aim of creating an application that can help nonexperts design, build, launch, and measure their day-to-day, non campaign-related, social media content. To complete this pilot study, we needed a tool with which to collect the Park's Facebook content—both textual and visual—and then a second tool with which to categorize that content.

To address the first problem, we used Facebook's Graph API (application program interface) and a custom script written in the programming language Python. We selected the Graph API because we were interested in studying the Facebook platform specifically, and the Graph allows researchers to retrieve specific nodes of information that compose a social profile quickly and efficiently. We used Python because it offers the sophisticated data mining and statistical power of "R" (arguably the most commonly used program for data mining), but is a more practical language in which to build products, our secondary goal after analysis (Nicolaou, 2014).

To address the second program, we borrowed from Lovejoy and Saxton's (2012) coding typology for nonprofit social content. To test whether their coding typology (used to categorize nonprofit content posted to Twitter) would work on Facebook, we randomly sampled 10 percent of our corpora (160) and coded the texts using the typology. Through this approach, we found all but one example for each category, and found examples of all categories when the entire corpus of 1,628 messages was eventually coded. Once we felt comfortable the typology worked equally well for posts on Facebook or Twitter, and for nonprofits regardless of mission, we then downloaded the text into an excel file and coded each post using a dropdown menu of 12 possible codes. Table 1* displays categories and examples of content coded into each category by human coders along with total frequency counts for each category or subcategory. It also shows the percent of the total number of posts rounded to the nearest whole percentage. Percentages do not equal 100% because of rounding.

The messages we analyzed from the Park's Facebook page were collected August 8-9, 2015, and the albums, events, feed, photos, posts, and videos from the Park's Facebook page were explored using the Graph API. We downloaded all items and then recursively visited all nested content to make sure we were getting the sum total of all of the Park's posts, not merely a sample of them. This process resulted in 1,628 messages the Park posted—1,130 of which were posted to the Park's public page, and 498 messages labeled as comments, which were posted to albums, photos, videos, and other comments.

We were not simply interested in calculating the raw counts of "likes" or "shares" a post received because this technology already exists (see Facebook Insights). Rather, we were more interested to find a way to investigate correlations between content written with a specific rhetorical purpose in mind and common social gestures that demonstrated key publics were engaging in specific, intended ways with that content. We also wanted to find out if those in a network who made one gesture—such as "liking" a post—were more likely to then make a second and third gesture and if so, what kinds of content triggered this kind of vertical engagement behavior.

Once the text of each post was downloaded into an Excel file, our two coders were trained on the codebook and taught how to categorize each post based on the Lovejoy and Saxton typology (see Table 1). Coders were instructed to assign a single code from the available 12, and where a post served multiple rhetorical functions, coders were instructed to assign the dominant function.

Expectedly, some of the early posts to the Park's page were in Spanish, and so all Spanish posts were translated into English first using Google translate (www.translate.google.com), and then authenticated by a native Spanish speaker. Because only two coders were available for this project, we used the simplest measure of agreement—observed agreement—which was calculated at 83 percent on the first pass. Both coders then met and reconciled each coding disagreement until they reached 100 percent agreement on the second pass.

It must be acknowledged here that human coding, even when there is high inter-coder reliability as there was in our study, is always susceptible to personal bias and idiosyncrasy (Saldinas, 2013). Though we were careful to follow best practices and to reconcile all disagreements, our quantitative analyses were predicated on the codes we assigned. Different coders may code differently, thus yielding different results. Finally, we sought and obtained IRB approval for this project (study#15-036).

DETAILED EXPLANATION OF THE CODES

There are multiple categorization models or frameworks used to categorize social content. We however borrowed an original microblogging categorization scheme developed by Lovejoy and Saxton (2012). This was informed by previous coding schemes that classified blog posts (e.g., Macias, Hilyard, & Freimuth, 2009). As Lovejoy and Saxton determined, these 12 categories served three main communicative functions for nonprofits communicating in social spaces: to inform, to build a sense of community, or to mobilize stakeholders.

FINDINGS

To Inform, Build or Mobilize?

Table 2 represents the three-part coding structure that allowed us to connect engagement gestures with rhetorical aims and make recommendations about the categories of content information designers might consider when developing content strategies with and for nonprofit partners. We are not suggesting these are the only codes found in nonprofit social content, but this is a frame that covers most content.

More than half of all 1,628 messages were rhetorically constructed with an aim to build a sense of community among stakeholders. Though information exchanges played a key role in the Park's discursive strategy, it was not the Park's preferred means of communicating with key publics. This suggests the Park is atypical of most nonprofits that, as research shows, tend to post more monologic, information-driven messages, which can, but do not always, disengage key publics (Waters et. al, 2011). The challenge for the Park however, is to create a diversity of community-centric messages. A majority of the Park's messages fell into the Community: Thanks subcategory.

Table 1: Categories and Examples of Content Coded into Each Category

Category	**Example**	**Total frequency count**	**(%) of total number of posts *rounded to nearest whole number for clarity**
Information	Read our summer newsletter here.	512	31%
Community		818	50%
Giving recognition & thanks	Would like to thank all those that supported, sponsored, assisted and attended the RMP fundraiser. Thank you so much for helping us raise almost $6,000 towards our new patrol boat. Photo results coming very soon.	246	15%
Acknowledgement of current & local events	World Premier of Tranquil Seas by Tim Blanton	18	1%
Reply messages	… either but please read the comment I posted on Eric's post.	344	21%
Response solicitation	Vote for your favorite photo in the best find category, most liked photos will win.	210	
Action		298	18%
Promoting an event	All are invited to James' Farewell Celebration, tonight @ Land's End. 7 PM.	169	10%
Donation appeal	Our partner, the MAR Leadership Program, has been accepted on GlobalGiving's online donation platform. However, they need to raise $4,000 from 50 donors (in 18 days) to get a permanent spot on the site. Please see their page (click on the attached link) and consider donating at least $80 USD to the development of local leadership in this awesome ecoregion!	13	<1%
Selling a product	FINALLY HAS THE 2010 CALENDAR IN STOCK AFTER WAITING ALMOST 2 MONTHS FOR DELIVERY, THEY ARE ONLY $15 SO IF YOU WISH TO PLACE AN ORDER, CONTACT US.	57	4%
Call for volunteers & employees	We are actively looking for a coordinator for Bay Islands Coastal Clean Up for the West Bay area... please contact Christi @ 3289 1213 if you are interested!	18	1%
Lobbying & advocacy	Sign Petition Widget	6	<1%
Become a member, join another site or vote for another organization	Welcome to our new page! Please become a fan.	6	<1%
Learn how to help	Wanna know how you can help in TURTLE RESEARCH during the next couple months? The RMP and ProTECTOR will be having an informative meeting at Coconut Tree Restaurant @ 5:30 tomorrow (Wednesday) to talk about the turtle research and photo collection process.	29	2%

Table 2: Content Groups

Information	If a post contained information about the Park's events, news, facts, reports, or general information relevant to stakeholders, but was clearly not meant to stimulate discussion or dialogue, promote an action, or build a shared sense of community, it was categorized as "information."
Community	A post was categorized as "community" if it created what Kent and Taylor (1998) called a "dialogic loop." An organization can create a dialogic loop by asking audiences for feedback, asking a question, praising other network members or demonstrating shared values, attitudes, or beliefs. Community posts were further distinguished by subcategories: giving thanks or recognition (Community: Thanks); replying to another community member and thus demonstrating in-group courtesy (Community: Reply); seeking response from the community (Community: Response); or, promoting an event but not directly asking members to attend, which would have been categorized as Action (Community: AckCurrentEvent).
Action	A post was classified in the "Action" category if its purpose was to mobilize or incite group members to some sort of action either collectively or individually. The "Action" category contained several subcategories of content as well, which were coded accordingly if a post encouraged lobbying (Action: Lobby), promoted the sale of merchandise (Action: Sell), or engendered help (Action: Help), donations (Action: Donate), or solicited membership (Action: Join); or promote an event with a specific call to action (Action: Promo).

At first glance, it might seem that the Park was "getting it right" and distributing messages that built a sense of community and encouraged active dialogue and engagement. On closer inspection however, we found that not to be true. Of the 814 messages in the Community category, a preponderance of messages fell into one particular subcategory called Community: Thanks. Following is an example message coded as Community: Thanks.

We would like to thank our newest Individual Gold Members Greg and Cris Buscetto who named their dive site Wicked Pissa after their favorite show Wicked Tuna. Located at the far end of Sandy Bay opposite Blue Harbor, the mooring sits in 35ft in a in a crack next to the shallows.

While this message generated 27 "likes," one "comment," and a single "share," it is representative of the majority of posts in the Community: Thanks category. Such messages are necessary, certainly, but they are a kind of false positive because they do not tend to generate conversation or sharing behavior or even much "liking"— the gesture that best demonstrates when community members agree with or feel like part of a virtual community.

Figure 1 presents the distribution of categorized content across time. From 2009-2012, the Park's content strategy was generally balanced across all three content categories, but in 2013, the Park overwhelmingly favored posting posts that were community-centric, but with mixed results.

Figures 2 and 3 demonstrate that, over time, the Park's communication team did a much better job of consistently replying to messages posted by stakeholders, which is an important engagement strategy that public relations experts suggest facilitates transparency, authenticity and greater credibility within a social community (Bortree & Seltzer, 2009). Counter intuitively, however, though the number of posts in the subcategory of Community: Thanks increased over time (Figure 3), they were not the posts that generated the most engagement gestures consistently. It may be those categorized as high engagement in the Information category stimulated more engagement because of the media attached to them in addition to the post's rhetorical content. It might also be that the Park simply didn't construct posts in the Community category with an eye to soliciting feedback and engagement, making it somewhat difficult actually measure their rhetorical effectiveness.

As Figure 4 indicates, the Park increasingly relied on curation techniques posted through mobile devices to meet audience demand for content (as indicated by the increased use of the "shared_story" tag in example). We suspect this technique is a response to the financial and personnel pressures the Park and similarly sized organizations face in consistently generating custom social content, and general trends in access to and use of mobile technology for social ends. For example, according to a study conducted by the Chief Marketing Officer Council, 78 percent of Facebook users are mobile-only (CMO, 2015). Figure 4 also visualizes the number of messages per year by the Facebook category, a somewhat confusing term that tells use more about the type of media appended to the post than the rhetorical aim of the text of the post. Figure 5 does a better job of displaying an important metric: the number of messages by year that included media. We say this is an important metric because, as we show later, messages with appended media "pulled" better, or generated more gesturing than text-only posts.

Though our study was not equipped to categorize the rhetorical content of the individual photos, videos, links and ancillary media attached to such categorized posts, we were able to count and consider whether there might be a relationship between gesture/engagement and content amended to certain media.

We found the Park significantly increased its use of photos and the added_photos category in 2013 and is on target to surpass the number of posts using photos in 2015. This was not entirely unexpected, as industry research published by eMarketer, a digital information and market research company, suggested this trend on the whole. According to the eMarketer report, posts with photos tend to engage more than posts appended with any other type of media. In fact, photos now account for 75 percent of all content posted on Facebook, and Figure 11 supports these claims and findings specific to the Park's content. Other media the Park used to engage included links and videos, but neither engaged as well as did posts with photos specific to the Park's mission.

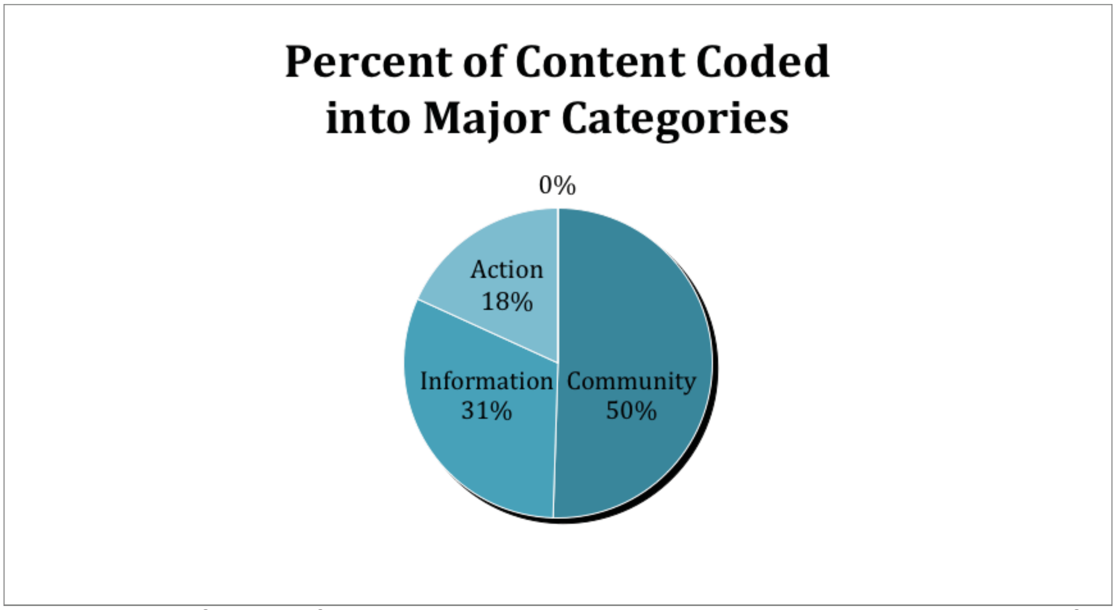

Figure 1: Percent of Content of the Three Major Categories (Percentages do not sum to 100% because of rounding.)

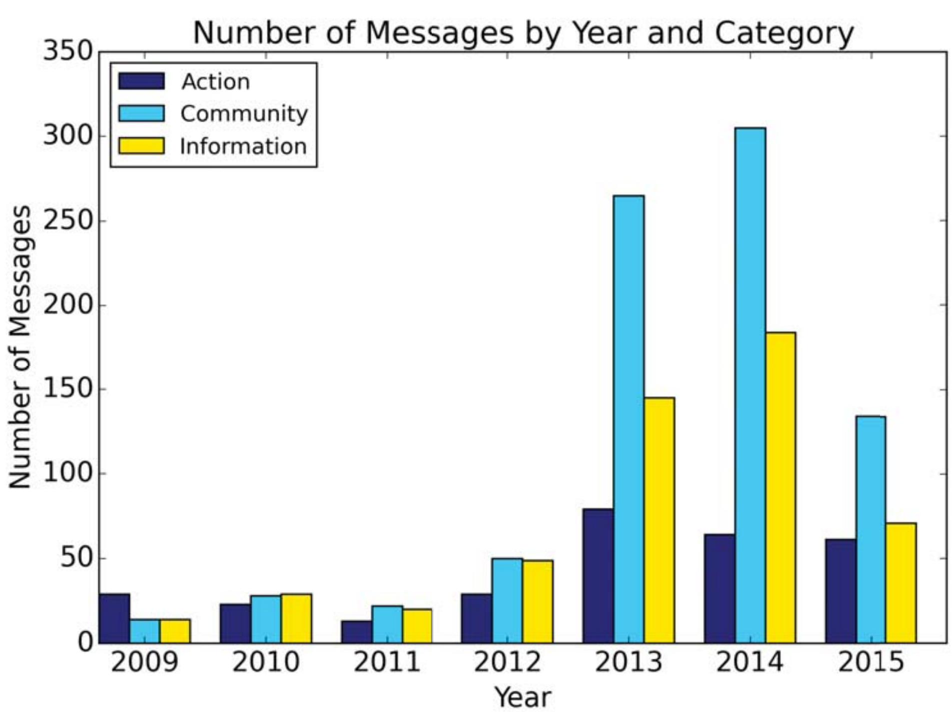

Figure 2: The Number of Messages Per Content Category Per Year.

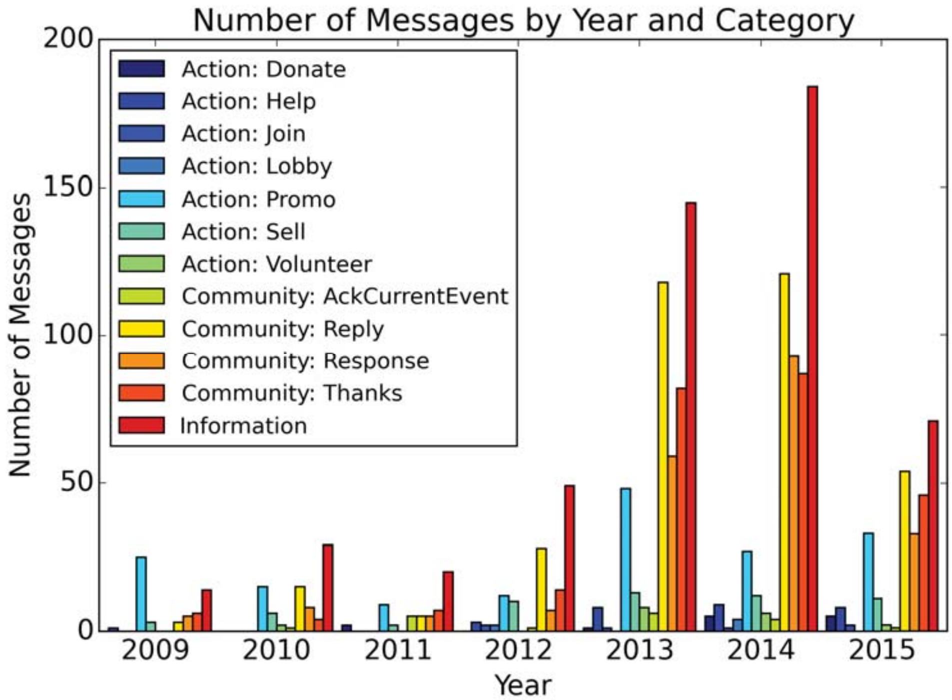

Figure 3: The Number of Messages Per Content Category or Subcategory Per Year.

If Stakeholders Like It, Will They Share It?

One of the questions we asked in this project was if we could identify correlations between kinds of rhetorical content and the likelihood of certain engagement behaviors. So, for example, we wondered if a post labeled "information" that was "liked" frequently would also be commented on more, or shared more. What we found is that while all three gestures in the Community category of content, in example, were moderately positively correlated, the strongest correlations were found between "likes" and "comments." In other words, a post written with the rhetorical aim of building a sense of community that was liked frequently was also commented on more frequently. We did not, however, find a significant positive correlation between "liking" and "sharing" or "commenting" and "sharing" for this category. Figures 6-8 visualize these findings.

This surprised us because we expected to find gesture worked on a kind of slope with "liking" a post at the bottom of the slope, and "sharing" a post at the top. "Liking," in our original conception of the model, would have some value as a measure of engagement, but not as much as a comment or a share. The ideal post—if there were such a thing—would trigger an audience member to "like," "comment," and "share," thus demonstrating maximum rhetorical appeal and garnering for the organization maximum engagement value. What we found instead was that while the correlation between "liking" and "commenting" was strong across all three of the major categories of content (Information, Community, Action), the correlation between "liking" and "sharing," and "commenting" and "sharing" in these categories was rather weak. Our take away from these findings is the kinds of content that trigger a "share" might be uniquely different from the kinds of content that triggers a stakeholder to "like" or to "comment." For some organizations, "liking" and "commenting" might be preferred gestures of value because they signal community engagement. Every organization must not only determine its content strategy, but must also determine the value of available gestures (now called reactions) and what the thresholds of success look like. Or rather, what number of "likes," "comments," or "shares" they feel signifies an appropriate level of engagement with content that has specific rhetorical aims.

That said, communication and public relations practitioners have often considered (and counseled their clients to consider) "shared" content to be highly valuable. This is because it leverages the sharer's social capital to "broker" (Burt, 2007) the spread of information, values, attitudes, or beliefs into new network spaces, spaces some organizations may not otherwise be able to penetrate. The sharer's social capital and credibility within their network increases the likelihood that an organization's message will be heard and/or, adopted or acted upon. Brokerage is thought to work based on the power of "weak ties" in a social network (Wasserman & Faust 1994; Christakis & Fowler, 2011). Further study is needed to better determine what, exactly, motivates stakeholders to spend their social capital and "share" the content of a particular post. We also need to replicate this study and attempt to validate across a larger data set the positive correlations found between "liking" and "commenting."

At the time of our study we hadn't developed a way to determine who was gesturing. When we conducted our study we were only able to calculate the total number of gestures made, not whether a single individual was responsible for gesturing once, twice, or three times on a single post or if those gestures were unique. We have since solved this identification challenge and in our follow up study, we plan to integrate this level of detail so we can make stronger claims and possibly even predictions about the correlations between content and gesture. Perhaps then we can also determine whether social gesturing tends to be a cumulative measure of engagement, and which types of content tends to trigger those gestures consistently.

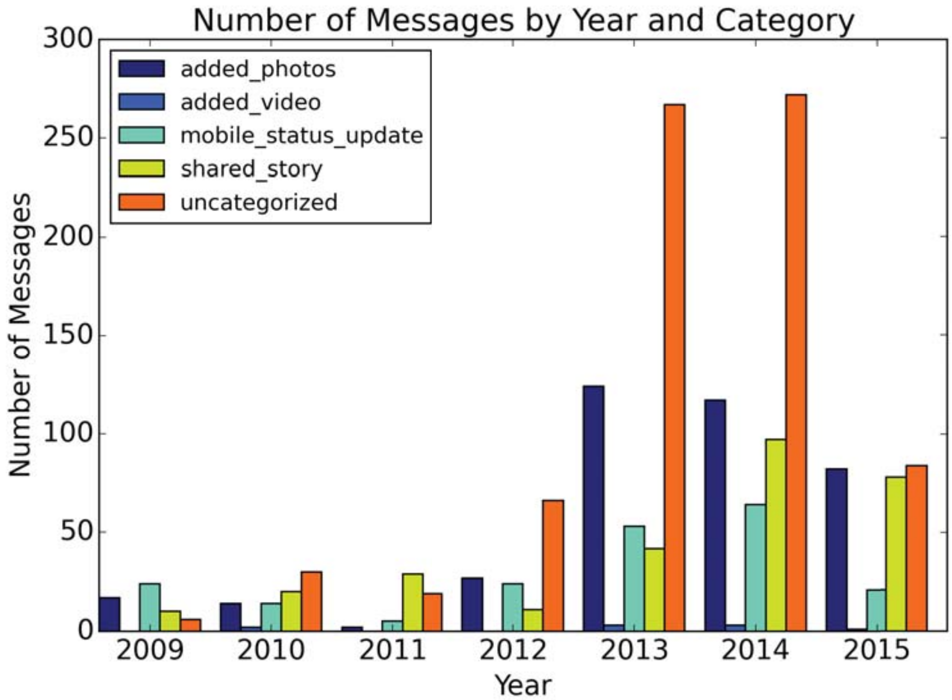

Figure 4: Number of Messages Per Year and Category

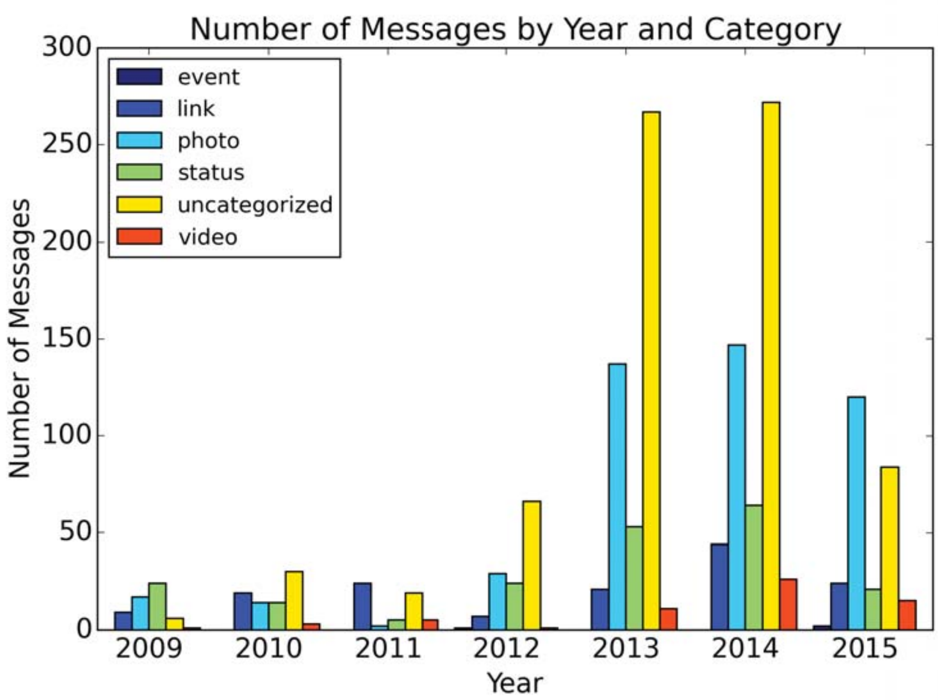

Figure 5: Number of Messages Per Year and Category Per Type.

The Most Engaging Posts

Even acknowledging these limitations, our pilot study revealed some significant correlations that we expect will be validated in future studies. Figure 6 is a 95 percent familywise confidence level graph that shows the mean (dot) or average of the category listed on the y-axis. Figure 6 indicates the posts categorized as Information triggered more comments (and thus were more dialogic) than those in the Community category of content. This cannot be read as prescriptive though as every organization must align its content strategy to its mobilization efforts and mission. But, if the goal of a Community post is to build a sense of community, then the Park may want to reconsider how it crafts Community posts because those in the Information category were more engaging.

Overall, there were not enough posts that were "shared" across the corpora to make statistically significant claims. This highlights a limitation in our study: not enough data points in some categories and subcategories to draw valid, generalizable conclusions about correlative effects. We will rectify this lack of data in our follow-up study where we analyze the social content and gesturing on the Facebook pages of 100 environmental nonprofit organizations. It is worth noting however, that of the "sharing" data available, the Action: Lobby; Action: Help; and Community: Response categories of content garnered the most shares. It might be that motivating stakeholders to "share" is a more a matter of overtly asking them to do so. We noticed that in almost every instance of a share, the Park directly asked for stakeholders to do some: sign a petition, attend an event, answer a question, or share the post.

Does Status_Type Improve Engagement?

We were also interested to know if the type of post—a shared story or added video, in example—triggered more or less engagement gestures. Our findings suggest that status_type was not as important a metric as measuring whether there was media attached to the post or not. Posts with video or photo attachments were not only "liked" more but "shared" more too. The number of "shares" of videos varied widely however, suggesting that merely including a video is not a sure-fire strategy to trigger or improve engagement gestures. The variability of shared videos might also be the result of a small starting sample of posts that were shared, period. Posts with added photos and links, were, unsurprisingly, shared significantly more than text-only status updates.

Topics That Triggered Gesture

In this article, we've looked at the relationship between categories of content with rather vaguely defined, general rhetorical aims (to inform, to build community, to mobilize) and the engagement gestures they seem to trigger. What might we learn from looking at the actual content of the messages that were "liked," "commented" on, and "shared" the most? Interestingly, the post that generated the most "likes" (409) had to do with confiscation and enforcement, specifically related to turtles. It included a photo, and generated 22 comments, and 14 shares—a quite successful post in terms of engagement. The message read:

> We would like to thank Rigoberto from the Palmetto area who took the initiative to confiscate this juvenile hawksbill from fishermen and bring the lucky individual to the RMP office where it was subsequently released. If you see people with captive turtles, please call us on 2445-4208. Interestingly, three of the five most "liked" messages dealt with confiscation or poaching, and of the five posts that had the most likes and comments, four were categorized as Information and one, Community.

The following post garnered the most comments (70) and was also about confiscation:

> Today while patrolling near Turquoise Bay, our Park Rangers spotted an empty dory and a man in the water. Upon inspection, we found 7 undersized lobster, 5 live conch, 19 speared fish and worst of all a live, speared juvenile green turtle on board. The dory with all the product was confiscated, along with a speargun and a hook rod which were found in the water. The turtle is currently in Maya Key but it doesn't looking promising as it was shot in the lung. A case will be filed regarding the incident and we will have to work further on relations with the fishermen from Punta Gorda.

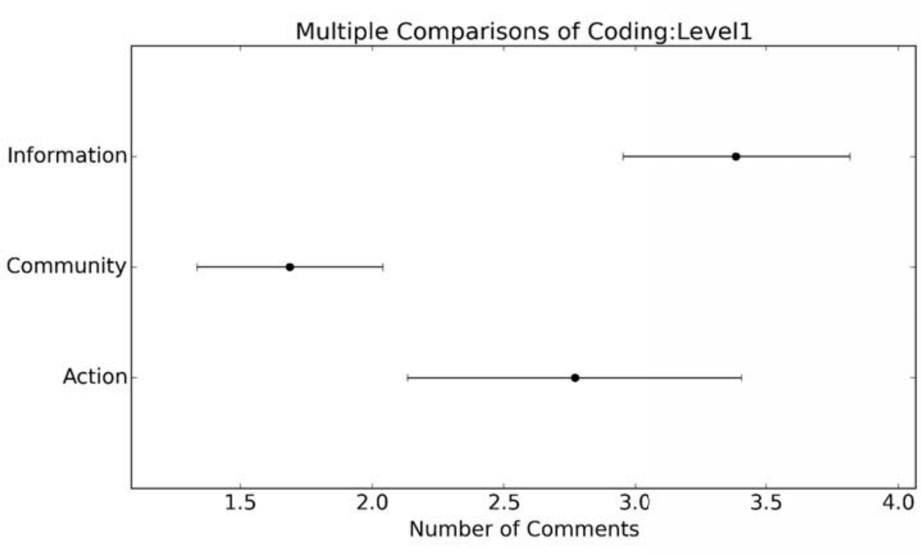

Figure 6: Comparisons of Coding Level 1: Information, Community, Action

High drama posts like this may serve as a model the Park can use in future engagement efforts where dialogue is an important goal, regardless of the category to which it is assigned.

Surprisingly, the message that generated the most "shares" included a video. We say surprisingly because there were so few videos added to posts that we were surprised to see it. The most-shared video post garnered 117 shares. The video was an educational animation called "Don't Step on Me," and appeared to be custom content created specifically for the Park. Custom content may trigger more "shares," but would be difficult to sustain as part of a long-term content strategy; the cost of production would be prohibitive for most small organizations like the Park. Other posts with high "share" rates also included media, usually a photo or a link. Most surprisingly of all though, posts with attached photos that garnered the most "shares" were not of photos generated by the Park's popular annual underwater photo competition, but curated content like memes, one which which generated 102 shares.

APPLICATION TO DIFFERENT COMMUNITY DESIGN CONTEXTS

Understanding the influence of specific rhetorical content to gestures of engagement in social space is an incredibly complicated and still largely developing area of study. Though we cannot generalize about our findings because our data were too small and our observations specific to the Park, we can suggest certain actions that may have application in more general communication design contexts.

Creating Content

When writing social content for nonprofits on Facebook, attempt to balance the rhetorical aims of that content across the three main content categories (Information, Community, Action). Though each organization will have different communication goals and priorities, our findings suggest that privileging one category of content over another may have unintended consequences. The Park thought thanking people was a strong rhetorical strategy that would facilitate conversation and generate a shared sense of community. But, if a sense of community is measured through participation and feedback, then our findings suggest that it was actually posts in the Information category that did the work of the Community category, even though that was not the Park's intent. By balancing the content of each category more evenly, the Park might not only encourage more participation from key stakeholders, and build a stronger sense of community, but might also put to the work the resources embedded in their social network.

Using Visuals

When writing posts, don't discount the power of visual and verbal drama to engage. There is considerable literature both in and beyond our field on the power of social storytelling (Digital Storytelling for Social Impact," 2014), but technical communicators would do well not to forget that though the medium and size of the texts we write have changed, the need to tell a good story has not. As our findings show, the posts that generated the most engagement gestures were high-drama pots about confiscation. These posts were likable, dialogic, and sharable perhaps because they were stories complete with characters and creatures stakeholders could care about. Though it's impossible to narrativize all content, consider if the nature of the organization's posts lends itself to a good story, and if it does, then tell one.

Encouraging Sharing

Ask for the share. While sharing is often considered the pinnacle of a communication exchange, our findings suggest that some audiences may not recognize the value of sharing to an organization unless directly asked. With few exceptions, the content that was shared was content that directly requested stakeholders to do something. Perhaps in being directly asked for help, stakeholders were triggered to enroll additional participants by sharing content.

Designing for Gesture

Compose and design for the gesture in mind. Our findings suggest that certain rhetorical content may trigger low value gesturing ("liking"), while other kinds of content may trigger high-value gesturing ("sharing"). Though much remains to be studied to affirm this theory, social media technical communicators should consider what types of gesturing are most valuable to the organization and then design posts that attempt to trigger those engagements.

Using Numbers

Know what numbers matter, and measure, often. The average number of engagement gestures, as well as the average number of posts on Facebook per industry or mission varies, but it is important that information designers know which numbers are important to an organization's overall social goals. It is difficult to demonstrate success, or shift an unsuccessful strategy, without benchmarking first.

Facilitating Engagement

Add media triggers to encourage the use of gestures. As other studies have shown, adding rich media—photos, videos, links, PDFs, and third-party applications, boost the volume of engagement gestures a post receives. But, as our findings indicate, simply adding rich media is not enough; the content of added media is often as important as its inclusion in a post.

CONCLUSION

As Paine (2009) and others have shown, the nature of the conversations taking place in social spaces tell a great deal about what people are saying, doing, and thinking about an organization or issue. But there is a gap in our ability to measure or understand the correlations between the rhetorical content communication designers produce for organizations, and the gesturing that signals engagement or transfer of meaning and value in social space. Though tools exist to measure aspects of social media content and engagement behaviors, they are not specific to the rhetorical practices of nonprofit organizations.

As technical communicators and information designers, we are well suited to help our organizational partners design and develop tools that make easier work of mining, measuring and mobilizing key audiences. We are also adept at interpreting stakeholder gestures used to demonstrate their engagement with the messages we produce. As we continue to unpack the meaning and value of social gesturing, we can expand our field's understanding of networked communication. We can also better examine the ways traditional media theories of communication and media's influence on belief and behavior transfer to new media spaces, or not. With better tools and greater understanding of how gesture and rhetoric work in social space, we can design more effective communication solutions for the organizations and clients whom we serve, the missions we wish to advance, and the global problems we wish to solve.

*The tabular data for this study can be found online at www.sarahbethhopton.com/data.

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Book reviews

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Kalbach, J. (2016). ***Mapping Experiences*****:** ***A Guide to Creating Value through Journeys, Blueprints, and Diagrams.*** **Sebastopol, CA: O'Reilly Media.**

James Kalbach's *Mapping Experiences: A Guide to Creating Value through Journeys, Blueprints, and Diagrams* is a text with a unique focus. In the preface, Kalbach says what he describes is not a design process, but rather the book is "about diagrams—key tools that span fields of practice" (p. xvi). The book starts with the premise that diagrams (or *maps*—he uses the terms interchangeably) are essential tools for teams focused on designing experiences. Maps are strategic tools for anyone "who needs a holistic view of the ecosystem" (p. xvi) in which a product or service is situated. From strategists to managers to designers, the book is aimed at anyone who wants to communicate a full picture of the various actors (from technologies to people) that contribute to an experience. And that is certainly true within both academia and industry.

Communication design scholars and practitioners have turned much attention to techniques and methodologies for mapping communication design and user experiences. For individuals working in industry, tools such as journey maps have become the *de riguer* visualizations of choice for communicating broader experience strategies. Within cross-functional teams that combine everything from marketing strategy, to user experience, to development across the full technology stack, maps and diagrams have become crucial.

Mapping Experiences has the potential to contribute some tremendously valuable tools and insights for researchers and practitioners alike. As Kalbach states, these diagrams are primarily for helping cross-functional teams create alignment quickly and effectively. He repeatedly refers to these types of visualizations as "alignment diagrams" throughout the book. Project teams often refer to such diagrams as representing a *vision* or *north star* for a project. These types of diagrams can communicate anything from tactical processes for completing a project to the conceptual, design, and technical vision that supports an overall experience.

To more clearly articulate the value of alignment diagrams, *Mapping Experiences* is organized into three major sections. Part 1 is “Visualizing Value,” which provides a primer to alignment diagrams as a tool for communication. Chapter 1 focuses on using such diagrams to capture the alignment among business units or organizational services in a visual manner. Chapter 2 surveys various components of these diagrams and articulates the purpose of each element. Diagrams that map experiences “are purposefully focused,” conveying a “point of view” that is shaped by the goals of the organization (p. 20). Kalbach doesn’t succinctly explain what he means by “point of view”. However, his examples make it clear that diagrams should articulate the relationship between people that are actors within a given context and what stakeholders want them to experience. For communication designers interested in maps and diagrams as visual rhetoric, Chapter 2 would provide some interesting perspective on the elements of communicating using these tools in industry.

Chapter 3 situates diagrams alongside strategic thinking that should underpin complex experiences. Kalbach uses the chapter to argue “diagrams offer *a new way of seeing* your markets, your organization, and your strategy—from the outside-in rather from the inside-out” [emphasis in original] (p. 49). Without question, this is often a major purpose of such diagrams in industry. When practitioners create strategic diagrams, the goal is to frame ideas and insights into a new view around which teams can align on purpose and value of an experience. Kalbach goes on to offer different mapping tools for visualizing and developing strategic alignment among stakeholders, many of which are tried and true tools commonly used in industry contexts.

Part 2 of *Mapping Experiences* turns to describing a process for developing diagrams. Kalbach starts off this section by describing how to “initiate” the process of creating a diagram. Chapter 4 coaches the reader through initially determining the level of effort for a diagram, what he describes as its level of formality.

Throughout the chapter, Kalbach provides the basics that project teams should be aware of as they kick off any project. One of the most useful insights provided by Kalbach in Chapter 4 revolves around the concept of formality. He asserts early in the chapter that project efforts "tend to become more formal" (p. 83) as they become more and more complex.

When teams move from focusing on a single product to focusing on multiple products or services in an ecosystem, or when they elevate their focus from tactical interface design to broader experiences across an ecosystem—then, there is an increasing need for more formal mapping tactics. Remember, one of the key purposes of these diagrams is achieving alignment among stakeholders, especially as experiences become more and more sophisticated. Chapters 5 and 6 become even more familiar with experienced product and design teams. Kalbach surveys a process from planning and executing stakeholder interviews and primary research activities through to the iterative development and completion of a final diagram that communicates strategic purpose and desired alignment.

As stated, the book's introduction claims that the diagramming process should be seen as independent of any particular user experience, product strategy, or other methodology. That said, the first six chapters will look extremely familiar to anyone with a history of designing experiences for audiences. From stakeholder buy-in, to determining scope of the effort, to conducting research and analysis, to iteratively developing the diagram, the first half of the book describes processes and tactics that are exceptionally common in design teams. And, the steps in this section *do* reflect the commonly used core methodologies that product, UX, creative design, and other teams follow. For experienced practitioners and scholars, Chapters 1 through 6 read like a survey of previous texts on these topics. Beyer and Holtzblatt (1997), Kuniavsky (2003), Portigal (2013), and many other core texts are oft-cited and included as suggested further reading at the end of each chapter.

Starting with Chapter 7 within Part 2, Kalbach expands on the basics of process and diagramming to help readers move into making more difficult cases with stakeholders. Namely, he describes ideas that would help project teams create new and more engaging experiences, and help those teams communicate them. One specific thread emerges, tying the latter half of the book together: fostering a disruptive mindset to challenge assumptions and align on a new perspective. As he states in Chapter 7, "Products and services that merely connect, delight, and provide positive experience don't go far enough" (p. 183). Instead, audiences are engaged when we ask or help them "become someone different" than they currently are (p. 183). In other words, disruptive thinking can foster transformation that has lasting engagement among audience members.

Like the first half, the tools and processes in Chapters 7 through 12 are not going to be new to most experienced scholars or practitioners. However, Kalbach situates these tools (including methods such as storyboarding and design studios) so that practitioners can take the cross-team alignment they create early on and move forward to produce innovative ideas. The goal becomes to help differentiate experiences that transform and engage people.

In Part 3, Chapters 9 through 12 provide a deep survey of several commonly used diagramming techniques. These chapters contain detailed explanations of service blueprints, both customer journey and experience maps, as well as mental models popularized by Indi Young (2008). Such maps are immensely useful for many communication designers because they help visualize a participant's experience. Both the participant's mindset and actions can be mapped through stages of an experience.

If a reader is hoping to find a new concept or approach for mapping experiences, the book will not satisfy that need. Ultimately, *Mapping Experiences: A Guide to Creating Value through Journeys, Blueprints, and Diagrams* is best seen as a survey of many different existing mapping, diagramming, and analytical activities. There is value in this type of book, both for teachers exposing students to common industry methods and to practitioners who need a handy quick reference to a wide range of tools to use on any given project. While all the diagrams and tools described in *Mapping Experiences* are commonly found at work within practicing design teams, most teams are not familiar with *all* of these methods. Kalbach's book works well with this in mind because it provides a baseline process for how to go about mapping an experience in different ways.

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Book reviews

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Welchman, L. (2015) ***Managing Chaos: Digital Governance by Design.*** **New York: Rosenfeld Media.**

In the book *Managing Chaos: Digital Governance by Design*, Lisa Welchman provides both rationale and method for establishing a framework for digital governance. The freedom and chaos of digital environments are a major challenge to organizations (whether external social media and web portfolios or the complexity of intranets and content management), especially when mixed with the politics and dynamics of organizational cultures and hierarchies and the digital conservatism or progressivism of leaders and workers alike. Governance with a focus on "establishing clear accountability for digital strategy, policy, and standards" (p. vi) enables development and helps organizations end infighting over ownership by taking digital out of silos and creating teams with clear structures, responsibilities, and relationships.

Communication designers who have spent more than ten minutes browsing a university's web site could find plenty of examples of an ungoverned web presence. For example, jarring design differences and variant content strategies at different levels of a confusing hierarchy. Or a single department's haphazardly updated photo blog on a social networking site outside the university's web domain as well as its identity guidelines. The variety of stakeholders means that Internet and intranet content alike are political and divisive. Who's in charge? Who's running the site here, really? Everyone and no one—that's the sort of worst-case scenario that informs *Managing Chaos.*

Describing her experiences at Cisco Systems in the 1990s, Welchman points to the underlying digital problem in many organizations—decisions didn't happen "because no one really knew whose job it was to say 'yes' or 'no'" (p. 7). Competing factions, lack of leadership, and stalled decision-making processes, she argues, ensure that web presences remain "technically incongruent, content-bloated, [and] low-quality" (p. 9). The text wrestles with a complex problem: How do organizations analyze, collaborate, and distribute the complex, mission-critical work of governing digital and keep stakeholders and user experience in mind? Her framework—more heuristic than process—presents communication designers with a way to create collaborative hierarchies that meet stakeholder needs, ensure production, and make clear, accountable decisions about digital principles and standards.

Chapter 1 defines digital governance broadly as "basic rules of engagement for digital" (p. 9). The day-to-day work of production must be separated from decision-making, she argues, because the workload and expense of managing websites, social, mobile, and internal technologies needs to be distributed throughout the organization. This decentralization necessitates clearly defined and communicated strategy, policy, and standards. These are produced separately and managed by different groups, but are crucially interrelated.

Strategy defines high-level principles and objectives for how an organization will leverage the Internet for its own goals, while policy are issue-centric manifestations of general strategy. Policy involves guidance statements, "guardrails that keep the organization's digital presence from going off the road" (p. 13) on issues like accessibility, intellectual property, security, social media, or web records management. Finally, standards "articulate the exact nature of an organization's digital portfolio" (p. 18). These, Welchman points out, are often the most common source of governance problems: especially contentious debate with stakeholders (a particular department or business unit) who think they should be the final decision-makers about templates, typography, or tools. A governance framework gives stakeholders a role to play in the process while clarifying decision-making processes. This chapter presents Welchman's master heuristic for defining and describing who should be responsible for decision-making and input via a grid that she will return to throughout the book. Communication designers will find this framework easy to replicate and customize.

Chapter 2 delineates the teams responsible for each part of the framework. Welchman sets up a hierarchical relationship between a core digital team—those big picture people who "conceptualize, architect, and oversee the *full* organizational digital presence" (p. 33)—and those distributed groups that are responsible for other, particular aspects of digital presence. The core team involves executive-level management with experience and authority over staff, budget, and strategy along with hands-on resource people with domain expertise in digital. The mixture is important here, so that digital experts are working with business and management experts who can talk about planning and resource management and have the authority to make decisions stick. These groups work mostly with strategy and policy while the distributed team works at the standards level and "extends and focuses the vision of the core team by implementing content and applications that map to specific business concerns" (p. 42). Beyond these hands-on workers are the working groups and committees made up of a mixture of core team people and stakeholders who work to vet and approve principles, discuss metrics, and brainstorm ideas. Though many communication designers may balk at the value of technology committees, Welchman notes that with clear goal and mission these temporary groups can add real value through input, providing teams, departments, and vendors the opportunity to make their needs clear to the core team as well as to designers, and developers.

Chapters 3, 4, and 5 describe strategy, policy, and standards more closely, detailing important distinctions between the three and providing profiles to help identify leaders and stewards for each facet. This section of the text is especially useful as a collaboration framework, providing a heuristic for detailing roles and responsibilities for teams and leadership. Differentiating between those who have input and those who have decision power and deriving that structure from core digital principles are an important way to stop infighting. Central groups and stewards are responsible for decisions and strategy, while increasingly distributed and more diverse groups work on standards, alignment, and input. Communication designers will find a hierarchy and rationale helpful in creating, defining, or balancing relationships and workflows between working groups with a variety of different functions.

Chapters 6, 7, and 8 summarize design factors and roadblocks—all of those variables that affect and are influenced by the organization's specific model for governance. Welchman emphasizes the benefits of distributed teams, strong sponsorship, and advocacy with clear authority as ways to deal with corporate governance dynamics, organizational culture, and external demands that will result in a unique governance structure. These chapters also describe points of resistance—"We don't govern anything," or "those PhD. Professors just don't listen" (p. 144)—and outlines ways to mitigate them.

Finally, Chapters 9, 10, and 11 provide case studies of a multinational corporation, a government organization, and a higher education institution. These cases show the uniqueness of problems and the variety of solutions possible with the framework outlined in *Managing Chaos.* While Welchman concedes some organizations won't get to full governance, the text still offers "tactics that can be effective in helping improve digital operations" (p. 159). Even if an executive-level advocate doesn't emerge, Welchman's book should empower communication designers to help quantify the risks of ungoverned or poorly aligned digital presence and discuss why better digital quality is important with executives and management.

As a squarely practical text, practitioners from project managers to user experience experts and communication designers will find the book helpful for analyzing and developing collaboration and hierarchy in organizations. *Managing Chaos: Digital Governance by Design* provides a way of thinking about collaboration and decision-making that applies to agile and waterfall processes alike.

While clearly directed at the executive and management-level readers with authority to make decisions about budget, structure, and governance, this book is also written for communication designers and user experts—often "facilitators with no governing authority" but who know how to negotiate business, digital and deadlines and who might wish to make the case for governance (p.

46). For Welchman, when principles and parameters are clear, and when roles and responsibilities are defined, good work can get done and an organization can effectively "sustain their digital face" (p. 8). Communication designers interested in collaborative frameworks that allow them to align the goals of participatory and user-centered design with the interests of stakeholders will find this book useful.