

CHAPTER 8

VISUALIZING BOUTIQUE DATA IN EGOCENTRIC NETWORKS

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INTRODUCTION

We do more than write in social media platforms. We “Like” posts and pictures.¹ We share and move information along by tapping “Share” or “Retweet.” Each of these actions has meaning, so sometimes we hedge in our profiles, writing things like, “Retweets are not endorsements,” or making sure our networks are not too close, saying things like, “Views represented here are only my own,” in an effort to avoid confusion over responsibility. Our bodies move across interfaces, frequently through tapping/clicking; this movement shows, if not our approval, certainly our attention as we push content along or announce to others and ourselves that what we are liking or reposting is important and worth paying attention to. The scale of such activity can be daunting. We care about our own networks and the activity in those networks more than larger trends.² As Mark Zuckerberg once famously said, “A squirrel dying in front of your house may be more relevant to your interests right now than people dying in Africa” (as cited in Pariser, 2011). And we care about our networks because of relevance. Our networks are the way we stay in touch with friends and, increasingly, they are the way we get our jobs done.

This chapter focuses on visualizing the social networks around individuals, or “egocentric” networks, as well as producing a way to measure and visualize the embodied rhetorical production of egocentric network behavior. I began this project as a way for people to understand and visualize rhetorical activity in their own networks. This chapter takes as a starting point that social media networks and platforms record rhetorical behavior beyond linguistic production. Emerging from a larger project about culture and professionalism, my goal

1 I use capitalization here and through this chapter for actions that are available in Facebook and Twitter such as “Like” or “Retweet.”

2 Unless, of course, it is one’s job to pay attention to social media trends.

was the development of a research model that attempts to measure embodied rhetorical performances on social media platforms. Such measures are needed to capture both sharing or liking as well as more traditional semiotic rhetorical production. Trying to develop a way to capture and measure all forms of rhetorical interactions within a network became one of the deliverables of the project. In other words, I am attempting to answer the following question: How does one recognize, capture, and measure both linguistic and nonlinguistic rhetorical performances in a social network? And so, my goal in this chapter is to provide a visual method of displaying embodied and semiotic rhetorical activity in egocentric networks.

EGOCENTRIC NETWORKS AND EMBODIED RHETORICAL ACTIVITY

Bonnie A. Nardi, Steve Whittaker, & Heinrich Schwarz (2000) claimed that networks that are egocentric are “mapped around an individual rather than a full network scope” (p. 437). That is to say, they are network activities traced around single individuals. Nardi, Whittaker, & Schwarz are particularly interested in how workers rely on and maintain effective professional networks outside of their employers and within cross-organizational contexts. They found that the maintenance of such key cross-organizational networks is important to the fundamental way that business is done. Recently, Toni Ferro, Doug Divine, and Mark Zachry (2012) found that knowledge workers frequently use publicly available online services (Facebook, Twitter, etc.) even in situations where their employer has given those workers access to similar enterprise-level, proprietary systems. In their survey, Ferro, Divine, and Zachry also discovered that the knowledge workers used publicly available online services “to develop associations with others and to learn new information” in professional contexts, allowing “workers to develop and maintain associations with experts and peers they would not have been able to meet without” (p. 18) these networked tools. In other words, platforms like Facebook and Twitter allowed knowledge workers to maintain important professional- and task-centered networks beyond their organizations.

In a more fine-grained mode of data collection, Stacey Pigg (2014) found in her case study of “Daniel” that, as a freelance writer, significant amounts of Daniel’s time were dedicated to using socially networked writing platforms both to access communities of practice but also to coordinate people and technologies to circulate texts. Away from technical and professional contexts, Amber Buck (2012) found in her case study of an undergraduate that “Ronnie” described himself “as a ‘publisher,’ someone who creates content online for others” (p.

14); he mentioned his multiple online identities and his work as a producer of content rather than a consumer matching each platform's specific audience with specific content. Buck went on to note that "Ronnie envisioned different audiences with different concerns and interests on both Facebook and Twitter and constructed his identity on both sites with these audiences in mind" (p. 18). This shows Ronnie's rhetorical savviness in maintaining a specific egocentric network of consumers of his content. What is clear is that socially-network writing is more than just large patterns of networks; it is also about how individuals build and maintain networks around themselves for specific purposes regardless of the type or nature of the content circulated. Socially-network writing and its attendant technologies assist not only with the circulation of content but also with the maintenance of relationships. Looking at the nature of networked activity around individuals can help us see how each egocentric network depends on different kinds of rhetorical activities. These rhetorical activities are not just that of the individual but of the network around multiple individuals and can be captured and displayed in total. Successful egocentric networks do not flow one way. People share as much as they get in a healthy network as rhetorical performance flows multiple ways. It is perhaps worth noting that egocentric networks are not about individuals but are instead about the work of networks around them.

These egocentric networks depend on nonlinguistic responses often left out of work in rhetoric and composition. Rhetoric has a long and deep tradition of nonlinguistic activity, often forgotten by modern writing studies. Projects like Cheryl Glenn's (2004) pointed to the importance of nonlinguistic-based rhetorical activity, like silence (Monberg, 2008; Ratcliffe, 2006), as essential and meaningful. Debra Hawhee (2004, 2009) has examined the place of the body not only in ancient Western rhetorics but also how the body as a site of communicative meaning-making has gone unnoticed in the work of Kenneth Burke. Cultural rhetorical scholars like Malea Powell et al. (2014) drew on bodies and their connections and relationships from Native scholarship to engage in the importance of rhetorical production and meaning. Particularly important to Powell et al. is Michel de Certeau's *The Practice of Everyday Life*. De Certeau (1984) declared the importance of movement in something as mundane as walking when he wrote, "There is a rhetoric of walking. The art of 'turning' phrases finds an *equivalent* in the art of composing a path . . . like ordinary language, this art implies and combines styles and uses" (p. 100, emphasis mine). Like walking a city, deciding what to "Like" and what to comment on has meaning. We see the breadcrumbs of rhetorical activity in our feeds constantly. It means more to us when a friend or a senior colleague likes a photo on Instagram than it does when a stranger or a robot account does.

VISUALIZING NETWORKS AND DATA

The majority of scholars interested in the visualization of data dwell in big data, large data sets that are relatively recent developments. As Cheryl E. Ball (2013) noted, these large data sets are indeed what drive much of the funding in digital humanities research itself. Efforts like that of Karissa McKelvey, Alex Rudnick, Michael D. Conover, and Filippo Menczer (2012) aimed to visualize caches of data. Networked relationships may be visualized based on content or associations. Such visualizations show large trends and strengths of association. Ben Schneiderman noted that that data tools should be able to provide an overview of the data, allowing for zooming and filtering as well as details-on-demand, should be able to show relationships between objects, and should be able to extract data about subsets (as cited in McKelvey et al., 2012). This complexity of data and tool display, however, makes meaningful visualizations difficult. Gema Bello-Organ, Jason J. Jung, and David Camacho (2016), for example, have pointed out that data captured in social contexts presents new problems of “data processing, data storage, data representation” (p. 45). Like most computer scientists, their goal is to reduce that information to make it knowable. One can hear their disciplinary values when they discuss the data visualization tool MapReduce: “MapReduce [a data cutting tool] is presented as one of the most efficient big data solutions” (Bello-Organ, Jung, & Camacho, 2016, p. 3). In other words, because data sets are large, the reduction of the data to efficient transactions and visualizations is most important. MapReduce functions by examining content analysis but fails to recognize relationships between other values like tools or accounts in social media spaces.

Many scholars have struggled with representing the complicated media ecology of social media networks at large scales. That is not to say that there is no space for smaller data sets and their visualization in work. For example, researchers like Heli Aramo-Immonen, Jari Jussila, and Jukka Huhtamäki (2015) have used metadata and tools like Gephi to analyze both topic sharing as well as the activity streams of conference learning with relatively small data sets. However, these data sets represent struggles with meaningful information. Such visualizations often look like a jumble of lines and intersecting accounts. In other words, they look interesting but we remain unsure of what they say. Large-scale projects, such as following eleven million people and looking at how eleven million users enact social networking sites (Mislove, Marcon, Gummadi, Druschel, & Bhattacharjee, 2007) are not useful methodologies for understanding how egocentric networks happen or what is going on in them. Such work may demonstrate trends within large groups, rather than trends among individuals, in relation to technologies or culture.

A NOTE ABOUT ORIENTATION

Much of what happens in Facebook is not, in fact, writing in the strictest sense as much as it is some other form of embodied rhetorical performance. An advantage of Facebook is that the activities cohere nicely across physical places as rhetorical technologies. What we mean by “Facebook” is not tied to a single platform or type of technology but exists in multiple places with similar types of rhetorical performances. Clicking “Like” on a laptop is similar to pressing “Like” on a mobile device. Designers perform a great deal of work to make an application experience coherent, mobile, and always available in a variety of spaces with web-based technologies and the rise of smartphones. Mastery on one piece of hardware leads to understanding one another in terms of user experience. So coherent is the experience of Facebook that a user doesn’t even need to own his or her own computer to log in! If I am in a library or a coffee shop and I have not taken my computer with me, I can use someone else’s computer to log in and I see nothing different in the window from my own arrangements. My network will be there. My profile picture of myself and all the other decisions I have negotiated with Facebook will greet me when I log in. The goal with visualizing boutique data is to understand, locate, and visualize a network’s rhetorical activity, both embodied and linguistic, around individual accounts. These visualizations are complex measures of types of embodied rhetorical behavior.

With a focus on the egocentric network and the task of visualizing boutique data in mind, I want to take a moment to carefully articulate assumptions. Networking is hard to see and is distributed across ideological, material, embodied, and linguistic relationships. These facts make tracing networks difficult. Networks are enacted between people, things, and places in a non-metaphorical ecology. No one actor can enact a network by him- or herself; instead, the totality creates an object, an object we have learned to call a network. We can learn how networks are enacted at specific kairotic moments. Therefore, we can attempt to see how an enacted network is distributed between work and home, between social and cultural subjectivities like social networking sites because they enact the “invisible work” (Harquail, 2011) of networks. So, then, we can “see” moments in networks through embodied rhetorical activity as indexed by the social media platform.

In other words, Facebook records when people press buttons to make associations within a network. We can see what counts as effort by identifying how a network reacts to information, new content, and new users’ embodied actions, be they linguistic or embodied in nature. My focus on boutique data attempts to account for content that a user generates both as a presence (that is, how others respond to their content), as well as content they generate themselves such

as status updates or responding to others' posts. I developed an analytic to be able to visualize moments in networks by tracing the frequency of interactions, the activity around individuals' content, and individuals' activities around the content of others.

VISUALIZING BOUTIQUE DATA IN EGOCENTRIC NETWORKS: METHOD

What follows are small-scale visualizations (what may also be called boutique data) of egocentric networks. While my participants engage actively or passively in these networks, the views I present here are not of individuals. These visualizations are of networked rhetorical activity around individuals. Data collected were part of a larger set of case studies on social/professional boundary activity in social media. In the data I represent here, I followed one online social writing network from two professional and professionalizing women of color for a one-week period. Due to the nature of social media writing, these networks involve the accounts of other people. I then followed up this data collection with semi-structured interviews about data views and asked participants to categorize people involved in their social media feed as professional acquaintances, personal friends, or somewhere in between.

What advantages can be gained through boutique views? Examining small-scale interactions allows for a fine-grained view of traceable rhetorical behavior. The visualization I employ here enables comparisons of moments across accounts as well as moments within individual networks. The polargram visualizations (see Figure 8.1) enable two important moves in that regard.

First, by using a simple five-point sliding ordinal scale, numbers can shift across users' networks as a group (e.g., this network had more "Likes" than that network). Additionally, different time increments can provide different views of network behavior (e.g., Sunday may have more networked activity than Tuesday in someone's network). The polargrams are sorted into three large categories: accounts involved, tools used, and activity in total. "Accounts involved" are the amount of people/accounts contributing, commenting, or posting during a visualized moment around that user's account.³ For example, if one post elicited the responses of three people/accounts, the total number of accounts involved for that particular time would be four. "Tools used" lists the material components mentioned as forms of rhetorical delivery in those moments (e.g., "sent from

3 I use people/accounts to be accurate in terms of activity measures. Online 'bots can, and do, emulate rhetorical behavior online in social media sites. While these behaviors can assume to be behaviors of people, I still think it a necessary caution to avoid collapsing people and their social media accounts.

iPhone” or “via Web”). I counted applications separately, so if a person/account used Tweetdeck for iPhone as well as Twitter for iPhone such activity would be counted as two tools. “Activity,” specifically rhetorical activity, constituted the production of or reaction to content. Activities such as liking or sharing, status updates, or posting and commenting were counted here.

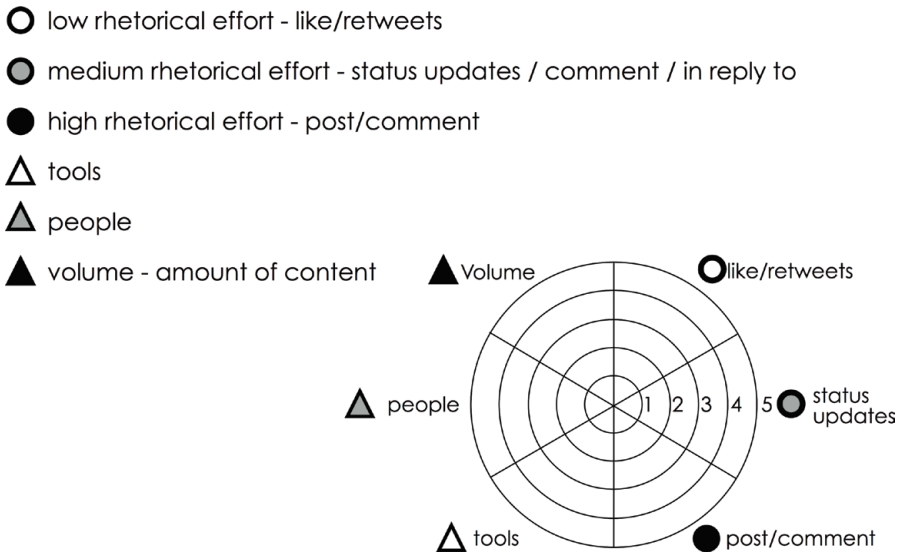


Figure 8.1. Egocentric network view.

The right side of the polargram indicates an even more fine-grained account of activity based on the amount of embodied rhetorical effort involved on the part of network participants. By embodied rhetorical effort I mean how much of the body had to move to engage in the activity as well as how much time the body took to engage in said activity. For example, to “Like” something in Facebook merely requires a single click of an onscreen button. Status updates require more complicated embodied actions like the movement of fingers to type out messages. For example, the embodied and cognitive complexity of posting a status update requires people to move their fingers and bodies. To take pictures, then upload them, then frame those pictures rhetorically by placing captions under them or using filters involves more embodied movement than tapping “Like.”

These polargrams show patterns of rhetorical behavior in a variety of situated and enacted types of networks based on what networks value. Figure 8.2 shows fictional representations of how egocentric networks form and are enacted in certain online spaces.

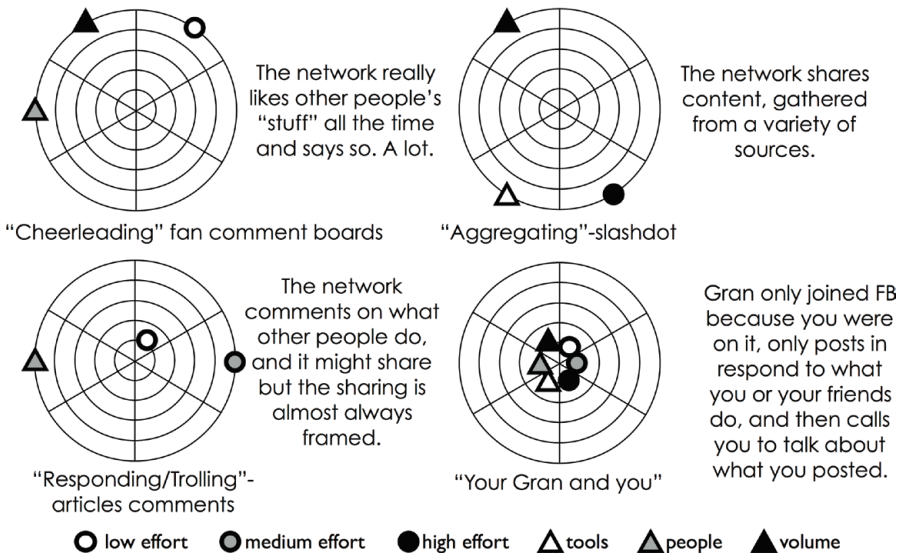


Figure 8.2. Fictional examples.

Various forms of networks enact change in different rhetorical situations. Visualizations such as this one compare different microtransactions of networks measuring different forms of rhetorical activity. Figure 8.3 shows what these different types of networked views look like for two of my participants, Lana and Barbara.⁴

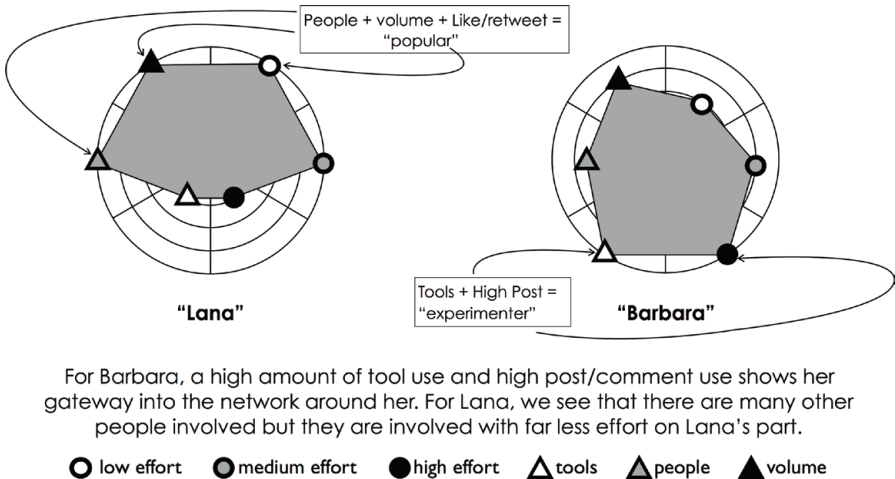
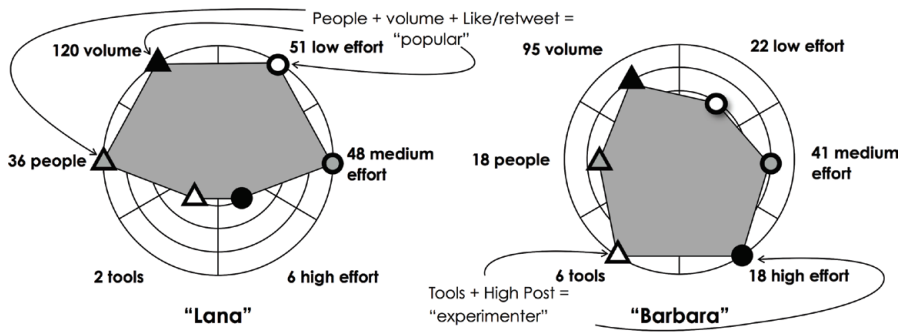


Figure 8.3. Different paths/different practices.

⁴ Lana and Barbara are both pseudonyms.

The visualization in Figure 8.3 allows us to see the area of network activity as it occurs in different users' egocentric networks. We can use the grey area between data points to think about how and what kind of rhetorical activity is taking place as well as the strength and nature of ties in the egocentric network. In Figure 8.3, similar amounts of space are covered but the networks are shaped by different kinds of rhetorical activity.

Figure 8.4 also shows us the different nature of those egocentric networks in terms of types of rhetorical activity.



Showing the actual numbers involved by using comparative measures allows us to see the types of rhetorical behaviors of each egocentric network in relation to each other.

Figure 8.4. Numbers in networks.

For example, we can see that Lana's network is engaged in a high volume of activity with a small amount of rhetorical effort. Barbara's network contains a high number of different technological tools as well as high rhetorical effort. Most of this effort comes from Barbara herself as she provides content and comments on and "likes" other people's posts. Showing the actual numbers involved by using comparative measures allows us to see how each set of networks is distributed in relation to other sets. Such a view also helps us understand how different forms of networked rhetorical activity look in relationship to each other. The sliding numeric scale shows which moments are comparable to other moments located in time or by level of scope. As a method of data visualization, this display allows scale to shift easily between data sets and still remain meaningful. Different numbers tell different stories of network activity that do not isolate or exclude relevant information from comparative cases. For example, while Lana's network coordinates differently from Barbara's, we can still see that Barbara's network engages in a lot of activity.

FINE-GRAINED VIEWS OF INDIVIDUAL USER NETWORKS: BARBARA'S NETWORK

While comparisons between networks are useful, comparisons of moments within networks can also tell us a great deal. Visualizing boutique data allows for different scales to become meaningful. For example, Barbara's network is mostly a result of her own activity. Most of the content created in her network came from her, with most comments coming from people in her old graduate program. Barbara's network maintains itself by her own practices that people/accounts respond to. Almost all of the "high effort" content (16/18) came from Barbara. By following the associations made by groups in Facebook, we can learn a great deal about how networks are enacted through rhetorical activity. In my follow-up interview with her, I discovered that the most prominent accounts in her network belonged not to her current employer but instead to colleagues from her graduate program. Barbara is not tailoring her posts toward that audience, however. More than likely Facebook is maintaining a connection by feeding her content into her old colleagues' streams.

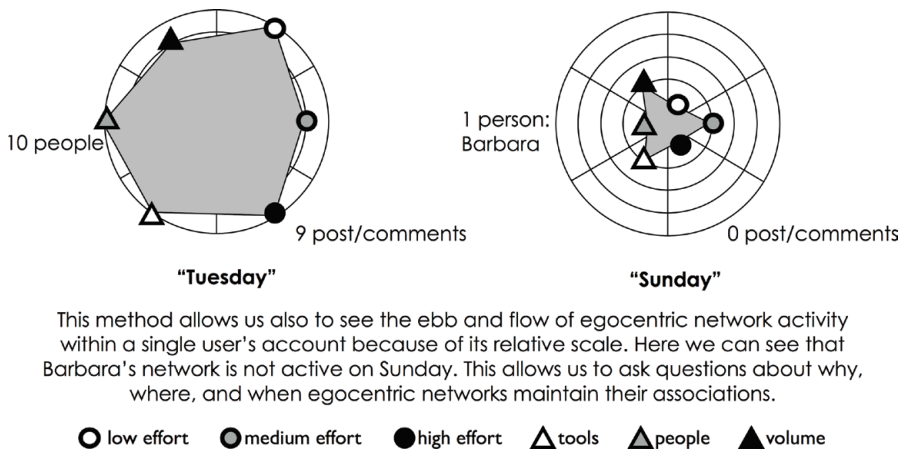


Figure 8.5. Everybody's working for the weekend.

Boutique data views allow the researcher to understand the nature of each network being created by understanding the relationship between effort and types of people. In this case, Barbara, along with Facebook, is creating the space of her peers and their graduate program online, even though the network is dislocated from a geographic reality. As a new Ph.D., she teaches, literally, a continent away from her old graduate program's physical location, and even its members are distributed across the country. Posts and friendships are maintained in Facebook but little is being done to make connections in her current

geographical work place. A boutique view of the data suggests that Barbara, with Facebook's help, is doing a lot of work to maintain those career friendships by producing content to which her former colleagues respond.

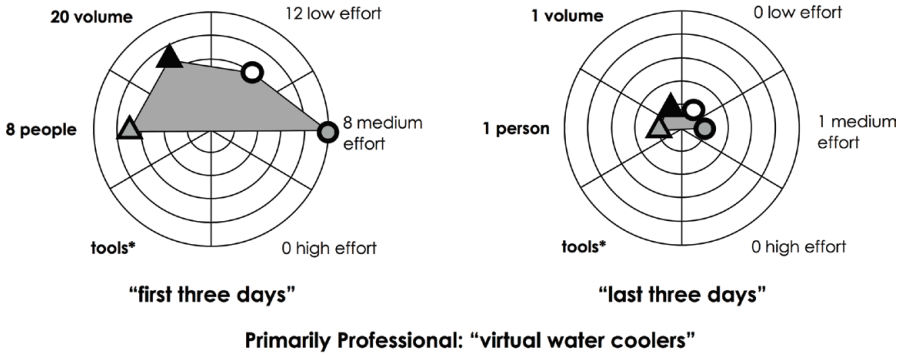
Figure 8.5 shows us just how much "Facebooking" ends up happening at work for her. Again, this method of viewing enacted access helps us to see the recursive nature of enacted access within a single user's account because of its relative scale. Here we can see that Barbara's network is not active on Sunday. This allows us to ask questions about why, where, and when egocentric networks maintain contact with users. In our follow-up interview, Barbara related to me that she spent Sundays watching football and calling family. When Barbara shuts down, her network shuts down. As we will see with Lana's network, that is not always the case.

FINE-GRAINED VIEWS OF INDIVIDUAL USER NETWORKS: LANA'S NETWORK

As we can see, Lana's network generates a great deal of activity and involves many people. Out of all of the Facebook users I studied, her network had the most activity (represented here by volume) as well as the most comments and the most people involved. While her personal number of posts was average and her content mundane, her network responded to those posts a great deal. With just a little more information, we can learn much about how this network functions both professionally and privately.

I followed Lana's Facebook feed during the end of the semester. Lana's activity remained constant during this period. She had a series of posts, all of them made from her Blackberry phone, where she described a trip about two hours away from her university and then to her home state. Some of these were textual in nature, while some of them were photo posts. Unlike Barbara, Lana doesn't post links, nor do the people in her network. All high rhetorical effort came from Lana in the nature of a photo post with comments. When I asked Lana to categorize the people/accounts involved in her network, an interesting pattern developed (see Figure 8.6).

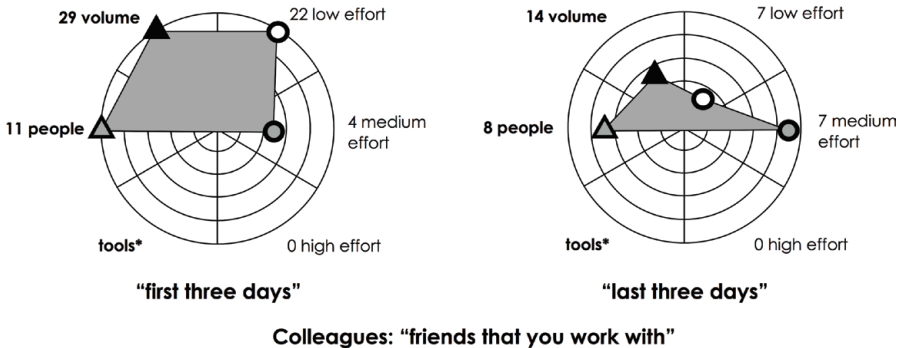
In this view, we see the people/accounts that Lana categorizes as professional-only contacts that indicate a great deal of activity. In fact, Lana's "professional" network, in just three days, produced more activity than most of the other participants' networks in my study. Here we see how the effect of embodied presence manifests itself in the activity of the "primarily professional" network. As Lana leaves the embodied space of the network, the "primarily professional" network's online activity becomes non-existent. The "primarily professional" network no longer "wants" to be part of Lana's social writing. Figure 8.7 displays the activity of peers (both friends and professional relationships).



Here we see how the effect of embodied presence manifests itself in the activity of the "primarily professional" network. As Lana leaves the embodied space of the network, the network's online activity becomes non-existent. The "primary professional" network no longer "wants" to be part of Lana's network.

○ low effort ● medium effort ● high effort ▲ tools ▲ people ▲ volume
* Facebook does not allow one to see what tool posters use to access .

Figure 8.6. *Out of sight, out of (hive) mind.*



Here we see the activity of peers (friends+professional relationships). We can see that again, embodied presence affects how the network reacts to Lana. Here though, we see that the network maintains itself through activity and the change is not as dramatic. The network alters, but is not lost. In fact, there is a higher level of rhetorical effort used in terms of "comments". What we don't see here is only one *current* colleague posts anything in the last three days, replicating the pattern we see in the professional exclusive.

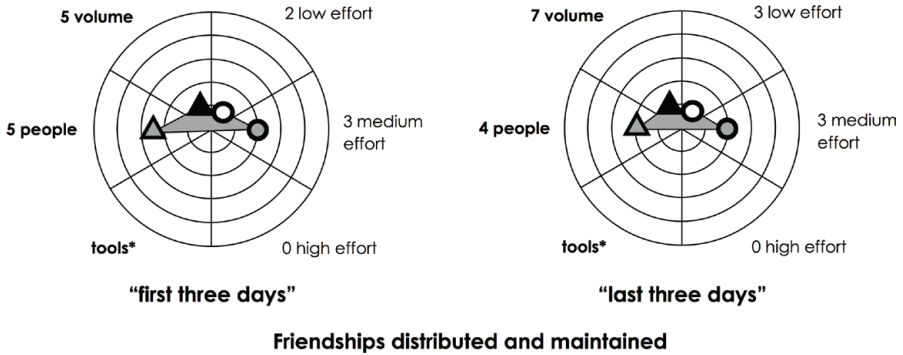
○ low effort ● medium effort ● high effort ▲ tools ▲ people ▲ volume
* Facebook does not allow one to see what tool posters use to access .

Figure 8.7. *Peer pressure.*

We can see that, again, embodied presence affects how the network reacts to Lana. Here though, we see that the network continues to maintain itself through activity, although nowhere near as heavily as when Lana is physically present, and the change is not as dramatic. The network is altered, but is not

lost. In fact, there is a higher level of rhetorical effort used in terms of comments. Interestingly, what we don't see here is that only three current colleagues engaged in any sort of activity in the last three days, replicating the pattern we see in her "professional-exclusive" network but not to such a frequency.

Interestingly enough, Figure 8.8, which shows the friendship exclusive network view, shows almost no difference between the first part of the week and the second part of the week.



Here we can see that the "friend" network maintains itself consistently. This network shows us a stable network that is maintained both within embodied presence and without presence, i.e., a strong network. We can assume this was created well away from Facebook and has been maintained through the site.

○ low effort ◐ medium effort ● high effort △ tools ▲ people ▲ volume
 * Facebook does not allow one to see what tool posters use to access.

Figure 8.8. Constant friends.

Likes, comments, and posts remain almost constant. Lana's friendship network remains constant whether members are physically present or not. Here we can see that the friend network maintains itself consistently. This network shows us a stable network that is maintained both within embodied presence and without embodied presence (i.e., a strong network). We can assume this network's relationships were created well away from Facebook and have been maintained through social media use. We can also see here that pure friendship-related activity is a small percentage of Lana's writing network's volume. Lana's network is mostly a professional one with little to no professional content.

IMPLICATIONS & CONCLUSIONS

My hope is that this visualization method supports a trajectory that incorporates embodied rhetorical performance as the field moves beyond the fact that socially-network writing platforms are worthy of disciplinary interest. Attempts to visualize egocentric network activity show that there is no one type of egocentric

network, technological or ideological. There is no one space that is “professional” or “personal” but many that are negotiated, collapsed, and expanded based on networked behaviors and the collective rhetorical production of multiple human and nonhuman rhetors. By visualizing Barbara and Lana’s egocentric network data, we see possibilities in the types of networks that people are a part of. Lana’s network, with little effort on her own part, generates large amounts of rhetorical activity while Barbara’s network is carefully curated. Visualizing comparative boutique egocentric network data allows us to measure and visualize the embodied rhetorical production of networks. Such visualizations also allow participants and researchers to understand networked rhetorical activity at a personal scale beyond the felt sense of how one’s network functions.

Visualizing boutique data of successful professionals has the potential to make certain kinds of discursive rhetorical behaviors and identity performances knowable. Such information is especially valuable for those attempting to enter into professions. For such people, large but personalized patterns in socially networked rhetorical action index the communicative patterns of professionals not just in task-centered activities but also around those activities. Visualizing these behaviors can help unpack “water cooler” discourses, discourses around professional and task-based work. Visualizing and making the back and forth of such discourses knowable could, potentially, help groups who have traditionally been marginalized by such discourses.

Two important factors are essential for the field of rhetoric and composition going forward as we study socially networked rhetorical choices. First, we begin to account for networks and, by extension, ecologies as useful metaphorical abstractions, as well as traceable collections of influences. Social media and social network platforms rely on embodied rhetorical performances to make meaning as surely as they rely on information architecture back ends and the TCP/IP protocols of the Internet. Rhetorical theory is especially well suited to study and understand how and when bodies and technologies interact and respond to each other as points of theorization. In other words, rhetorical theory can help us move beyond metaphors of ecologies and into the tracing of nonmetaphorical material rhetorical ecologies.

Second, as a field we have, to some degree, moved between the small and the large with our preferred levels of scope with our objects of inquiry. We have moved between the close reading of rhetorical texts and large cultural patterns to understand and theorize rhetoric as semiotic acts and cultural warrants. While many fields are focused on big data, including scholars of digital humanities and rhetoric, the discipline of rhetorical studies has the potential to provide important lessons learned from medium-scale projects. Such a robust middle ground of inquiry could provide rhetorical studies research that moves between

online and offline rhetorical activity through measuring embodied and material forms of rhetorical activity. In larger conversations about how social networks function and circulate content, rhetoric and composition has a great deal of theory to share about embodied rhetorical performance. More work should be done in the field to understand the connection between language, bodies, and meaning making that takes place in social networks at the medium/boutique level of scale.

REFERENCES

- Aramo-Immonen, H., Jussila, J., & Huhtamäki, J. (2015). Exploring co-learning behavior of conference participants with visual network analysis of Twitter data. *Computers in Human Behavior*, 51, 1154-1162. <http://dx.doi.org/10.1016/j.chb.2015.02.033>
- Ball, C. E. (2013). From big data to boutique data. *Gayle Morris Sweetland Digital Rhetoric Collaborative*. Retrieved from <http://www.digitalrhetoriccollaborative.org/2013/11/12/from-big-data-to-boutique-data/>
- Bello-Orgaz, G., Jung, J. J., & Camacho, D. (2016). Social big data: Recent achievements and new challenges. *Information Fusion*, 28, 45-59. <http://dx.doi.org/10.1016/j.inffus.2015.08.005>
- Buck, A. (2012). Examining digital literacy practices on social network sites. *Research in the Teaching of English*, 47(1), 9-38.
- de Certeau, M. (1984). *The practice of everyday life* (S. F. Rendall, Trans.) (2nd ed.). Berkeley, CA: University of California Press.
- Ferro, T., Divine, D., & Zachry, M. (2012). Knowledge workers and their use of publicly available online services for day-to-day work. *Proceedings from SIGDOC '12: The 30th ACM International Conference on Design of Communication* (pp. 47-54). <http://dx.doi.org/10.1145/2379057.2379068>
- Glenn, C. (2004). *Unspoken: A rhetoric of silence*. Carbondale, IL: Southern Illinois University Press.
- Harquail, C. (2011, January 27). How social media reveals invisible work. Retrieved from <http://www.socialmediatoday.com/content/how-social-media-reveals-invisible-work>
- Hawhee, D. (2004). *Bodily arts: Rhetoric and athletics in ancient Greece*. Austin, TX: University of Texas Press.
- Hawhee, D. (2009). *Moving bodies: Kenneth Burke at the edges of language*. Columbia, SC: University of South Carolina Press.
- McKelvey, K., Rudnick, A., Conover, M. D., & Menczer, F. (2012). Visualizing communication on social media: Making big data accessible. Retrieved from <http://arxiv.org/abs/1202.1367>
- Mislove, A., Marcon, M., Gummadi, K. P., Druschel, P., & Bhattacharjee, B. (2007). Measurement and analysis of online social networks. *IMC '07: Proceedings of the 5th ACM/USENIX Internet measurement conference*. Retrieved from <http://citeseerx.ist.psu.edu/viewdoc/summary?doi=10.1.1.109.4432>

- Monberg, T. G. (2008). Listening for legacies; or, how I began to hear Dorothy Laigo Cordova, the Pinay behind the podium known as FANHS. In L. Mao & M. Young (Eds.), *Representations: Doing Asian American Rhetoric* (pp. 83-105). Logan, UT: Utah State University Press.
- Nardi, B. A., Whittaker, S., & Schwarz, H. (2000, May 1). It's not what you know, it's who you know: Work in the information age. *First Monday*, 5(5). Retrieved from <http://pear.accc.uic.edu/ojs/index.php/fm/article/view/741/650>
- Pariser, E. (2011, May 22). When the Internet thinks it knows you. *The New York Times*. Retrieved from <http://www.nytimes.com/2011/05/23/opinion/23pariser.html>
- Pigg, S. (2014). Coordinating constant invention: Social media's role in distributed work. *Technical Communication Quarterly*, 23(2), 69-87. <http://dx.doi.org/10.1080/10572252.2013.796545>
- Powell, M., Levy, D., Riley-Mukavetz, A., Brooks-Gillies, M., Novotny, M., & Fisch-Ferguson, J. (2014, October 25). Our story begins here: Constellating cultural rhetorics. *Enculturation: A Journal for Rhetoric, Writing, and Culture*. Retrieved from <http://www.enculturation.net/our-story-begins-here>
- Ratcliffe, A. P. K. (2006). *Rhetorical listening: Identification, gender, whiteness*. Carbondale, IL: Southern Illinois University Press.