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Gangbangin on the [Face]Book: Understanding Online Interactions of Chicago Latina/o Gangs

John Leverso[1] and Yuan Hsiao[2]

Abstract

Objectives: This study examines gang group processes on the digital street to understand if gang processes in the online environment mimic those on geographic street corners. Specifically, this paper examines what conditions influence whether gangs interact negatively or positively in online spaces and how online interactions relate to geographic proximity of gangs. *Methods:* This study uses digital trace data web scraped from a public Facebook about Chicago Latina/o gangs combined with geographic locations of gang territories. Negative binomial regression models are used to investigate the conditions under which gangs interact with one another. *Results:* This study finds that interactions among gangs are conditional on the type of post displayed and negative gang interactions in online spaces are moderately correlated with geographic proximity. *Conclusions:* The tendency to show identification with the gang group or hostility to rival groups is not always

[1] Department of Sociology, Whitman College, Walla Walla, WA, USA
[2] Department of Sociology & Department of Statistics, University of Washington, Seattle, WA, USA

Corresponding Author:
John Leverso, Department of Sociology, Whitman College, 345 Boyer Avenue, Walla Walla, WA 99362, USA.
Email: leversjt@whitman.edu

evident. Rather, interactions are contextualized in the situation of the online environment. In addition, in our sample geographic proximity is not a primary condition of gang interactions. The digital street enables gang members to interact with other gangs in faraway locales and individuals in close geographic proximity. We find gang members take the opportunity to interact with both groups.

Keywords
gangs, group process, social media interactions, neighborhoods

Gang group processes and interactions play a significant role in gang violence. Historically, research has focused on interactions between members of rival gangs on street corners (Papachristos, Hureau, and Braga 2013; Short and Strodtbeck 1965). In the digital age, however, gang interactions take place in online environments as well (i.e., on the digital street, Lane 2016). In particular, trading insults and disrespecting rival gangs—"gangbanging"—now takes place in both physical and digital spaces. Gang members carry guns to gangbang in the neighborhood and carry smart phones to "internet bang" on "The Book." (Patton, Eschmann, and Butler 2013).[1]

Given the newness of internet banging, our understanding of how it differs or overlaps with in-person gangbanging is limited. Further, where researchers have explored this topic, they are not in agreement regarding how online and offline influence one another. The parallelism hypothesis (Pyrooz, Decker, and Moule 2015), for example, suggests online behavior converges with and mimics offline behavior, whereas others have argued social media may actually transform gang behaviors rather than simply reproducing them (Stuart 2020). Following the perspective that situational analyzes of behavior lead to greater understanding of criminal acts (Birkbeck and LaFree 1993), we argue that better understanding of how tension between gangs builds online will illuminate the relationship between online and offline gang behaviors. It will also shed light on whether or not online and offline behaviors are indeed occurring in parallel.

In seeking to understand the implications of internet banging, this paper illuminates the relationship between community characteristics and online interactions between gangs. It directly addresses whether or not our understanding of physical space and its gang-associated characteristics is transferrable to online spaces. For example, are negative online interactions

related to rivalries of gangs in close geographic proximity, as in the physical space (Brantingham et al. 2012; Papachristos et al. 2013; Tita and Radil 2011)? If they are, this would support the parallelism hypothesis. Or does the online environment enable and encourage negative interactions between gangs that are not geographically proximate? If there is no relationship between negative interactions and geographic proximity online, this undermines the parallelism hypothesis (Pyrooz, Decker, and Moule, 2015) and suggests internet banging may be less likely to promote real-world violence.

The purpose of this study is to examine the types of contexts and interactions that take place in online spaces and assess how context influences the type of interaction that takes place between gangs. As discussed below we operationalize context from material posted on social media and interactions from positive and negative comments that take place under posts. We also investigate whether geographic proximity is related to negative gang interactions by comparing the online interaction network to the geographic proximity of gangs. We focus on the gang at the group level. This is important as gangs are not mere aggregates of individuals; gangs members' behavior responds to unique group processes, such as the processes of status attainment and the development of norms and cohesion (Decker, Melde, and Pyrooz 2013; McGloin and Collins 2015). We build upon previous literature about gangs as groups, as well as gangs in online spaces, to answer the following research questions:

1. Do situational posts condition the type of interaction (positive or negative) that takes place between gangs on digital street corners?
2. Is the online network of negative gang-related interactions related to geographic proximity of gangs?

To answer our research questions, we use Chicago's Latina/o gangs as a case study. Using recent advances in data collection and big data techniques, we created a data set that encompasses 23 months of interactions on a public Latina/o gang Facebook page. Digital trace data has been used to analyze gang communications on social media sites such as Twitter (Patton et al. 2016; Patton et al. 2017) and performances of gang identity in rap videos on YouTube (Lauger and Densley 2018), but researchers have not yet investigated interactions on Facebook systematically. This is a notable omission as research studying gangs in the same time period shows that gang-involved individuals were using Facebook more than any other social media site (Pyrooz, Decker, and Moule 2015).

Our case study on Latina/o gangs can also shed light on this understudied population. Much research on social media and street gangs, particularly in Chicago, has focused on African American gangs (Aspholm 2020; Patton et al. 2016; Patton et al. 2017; Patton et al. 2019; Stuart 2019). Because analyses of this nature have not focused on Latina/o gangs as of yet, we can begin to unpack the relationship between race and ethnicity and social media practices for consideration in future research.

Literature Review

Gangs, Group Processes, and the Geographic Street

The group processes perspective in gang literature "explain[s] gang member behavior as a function of ongoing relations and interactions within the context of the gang" (Hughes 2013:795). Group processes take place both within and between gangs. Gang members can gain status within their gangs by acting fearless and fighting for the gang (Hughes and Short 2005), while between-gang group processes include norms of reciprocity, such as retaliating if members are attacked to reduce the likelihood of such attacks in the future and to maintain the gang's status within the gang hierarchy (Decker 1996; Papachristos et al. 2013).

Studies of between-gang group processes attempt to specify interactions between gangs that result in gang violence. For example, violence can often be understood as a process of reciprocal interactions between gangs, such that one of the most common reasons for gang shootings is retaliation (Decker and Curry 2002; Decker and Van Winkle 1996; McGloin and Collins 2015; Papachristos 2009). Decker (1996) posited that gang violence took place in a seven-step process where threats from symbolic enemies led to mobilizing events and escalating interactions, which in turn resulted in violent events between gangs. More recently, Hughes and Short (2005) investigated the context of disputes that led to violent and nonviolent outcomes. They found situational constraints (e.g., the relationship between disputants and audience member intervention) and status concerns played a key role in determining which interactions among gang members became violent. Audience mediation decreased violent outcomes, indicating situational constraints are important, while retaliation and between-gang interactions generated violent outcomes.

Neighborhoods are vital to gangs' group processes. For example, solidarity-building activities such as drinking, joking, and fighting are face-to-face interactions that take place while gang members hang out on

street corners within the neighborhood. The symbolic value ascribed to their neighborhood is unsurprising as gang members usually do not have the means to travel far from their neighborhoods (Papachristos and Hughes 2015). This makes the neighborhood a central location for activities and significant life course events (Conquergood 1993). Given gangs are tied to a specific geographic location and tend to stay there, they interact predominately with gangs in close geographic proximity to themselves. Therefore, geographic proximity and social interactions, among other things, shape between-gang group processes (e.g., interactions between gangs). This is consistent with research that finds gang disputes are most likely to occur under two conditions, spatial proximity and/or a history of violence reflecting the between-group process of reciprocity (Papachristos 2009; Papachristos et al. 2013; Tita and Radil 2011). Racial composition is also related to between-gang group processes and conflict. For example, racial composition influences rivalry structures such that African American gangs compete with other African American gangs for status and turf and Latina/o gangs compete with Latina/o gangs (Gravel et al. 2018; Papachristos 2009). This in turn influences between-gang group processes, such as norms of reciprocity relating to intergroup conflict.

Gangs and the Digital Street Corner

The presence of many gang-involved individuals on social media raises the question as to how the interactional processes between gangs that take place in communities might impact gang group processes that occur online. Gangs now have the capacity to threaten rivals both on the geographic streets and the digital streets, possibly influencing between-gang group processes. Technological advancement also likely affects within-gang group processes, as gang members can now show solidarity with one another by liking or sharing a post on social media rather than, or in addition to, hanging out together on street corners.

Social media means that members of a gang no longer require geographic proximity to interact. The digital street is a convergence space that brings together gang-involved individuals in ways geographic space may not (Morselli and Décary-Hétu 2013; Pyrooz et al. 2015). A post or video could go "viral" and lead to the ballooning of gang interactions. Researchers have begun to theorize the impact of social media on gang group processes, for example through the parallelism hypothesis (Pyrooz et al. 2015). In line with this theory, research has identified several modal behaviors that gang members engage in online—antagonizing

rivals, identity performances, and promoting gang culture—that are also common in offline gang behavior.[2] Stuart (2019), by contrast, argues that traditional theories of violence, such as those on gang processes, may not be applicable in the online setting. To further address gang interactions and whether or not the digital street mimics and converges with the offline environment and whether factors of traditional theory such as geographic proximity remain applicable we extend the study of gang group processes to online interactions taking place on social media.

Several studies have confirmed that gang members use social media to insult and threaten in the context of gang interaction, mimicking gangbanging in the geographic street (Moule, Decker, and Pyrooz 2017; Patton et al. 2013; Patton et al. 2019). Gang members also use the digital street for the accomplishment of symbolic goals such as identity construction (Lauger and Densley 2018; Pyrooz et al. 2015; Van Hellemont 2012). For instance, Lauger and Densley (2018) find that the digital street corner gives gang members a space to perform gang identities with exaggerated violent tendencies. Finally, just as in the geographic streets, gang members show off weapons or drugs, and broadly promote gang culture (Morselli and Décary-Hétu 2013; Patton et al. 2013; Pawelz and Elvers 2018; Pyrooz et al. 2015; Storrod and Densley 2017).

Building on studies that focus on individual gang members' online posts without addressing interactions, Decker and colleagues use survey data from 418 gang-involved individuals across five metropolitan areas—Cleveland, Ohio; Fresno, California; Los Angeles, California; Phoenix, Arizona; and St. Louis, Missouri—to investigate gangs as groups in online spaces (Moule, Pyrooz, and Decker 2014; Moule et al. 2017; Pyrooz et al. 2015). They find that most of their participants describe using the internet for expressive behaviors, rather than instrumental purposes (Pyrooz et al. 2015). The most recent of these studies developed a theoretical model of the relationship between collective violence, group processes, and online spaces (Moule et al. 2017). In it the researchers argue that the internet increases gangs' visibility and communication, enhancing within- and between-gang group processes that are related to violence. Furthermore, the online space is a new mechanism for gangs to engage in antagonistic behavior. They found, for example, that both current and former gang members are more likely than non-gang members to report a physical confrontation stemming from an online interaction. Advancing this research, this paper examines interactions between gangs in the online environment directly. In order to understand when online communications

are associated with offline violence we must first understand the circumstances surrounding online interactions.

Current Study

Using advances in technology (digital web scraping) the present study created a unique data source of digital trace data from a public Facebook page to investigate the situations (online posts) where gangs interact, the specific conditions in which gangs as groups will interact negatively or positively, and whether online interactions are associated with geographic proximity of gangs. These analyses advance the scholarship on gang behaviors in the digital street in important ways. First, our focus on Facebook is a notable addition to studies of gang behaviors on other social media platforms such as Twitter (Patton et al. 2017) and YouTube (Lauger and Densley 2018). In terms of global usage, especially compared to Twitter, gang members use Facebook as a social media source at much higher rates (Pyrooz, Decker, and Moule 2015). Thus, research using this platform is needed to understand how gangs are interacting and whether or not it differs from the other mentioned social media sites. Second, our emphasis on Latina/o gangs can shed light on an understudied population. While there are 40 Latina/o street gangs in Chicago (Chicago Crime Commission 2018), including large gangs such as the Latin Kings and the Satan Disciples, much research on street gangs and the digital street investigates African American gangs (Lauger and Densley 2018; Patton et al. 2019; Stuart 2019). Conducting research across ethnic groups can illuminate similarities and differences in social media practices.

Third, our study allows us to investigate new theoretical ideas related to gangs in online spaces. Moule, Decker and Pyrooz's (2017) theoretical model of gang violence expanded for online interactions posits online conflicts are driven by geographic proximity. Investigating whether geographic proximity is correlated with negative interactions serves as a test of this proposition. This also has implications for the parallelism hypothesis—if online and offline behaviors mimic one another, geographic proximity should be related to online rivalries, just as it is in offline rivalries. Here the use of web scraping is advantageous. It systematically collects all the interactions that have taken place on social media sites allowing for breadth (all gangs that post will be captured) and depth (all the interactions will be captured) in one data set while showing how gangs interact in a natural setting.

Data and Methods

For contextual knowledge on Chicago Latina/o gangs, three former long-time gang members were involved in the project in an advisory capacity: the former leader of a predominately Latina/o street gang, the leader of a Latino prison gang faction, and a long-time member of a Latina/o gang on Chicago's south side. These former gang members aided the authors in creating and evaluating a list of active Latina/o gangs in Chicago and in interpreting the language and symbols current gang members use on Facebook. Previous research notes that including former gang members as domain experts increases understanding and minimizes error in interpreting local culture and gang vernacular (Frey et al. 2018; Moore 1978; Patton et al. 2019).

Two factors prompted our focus on Latina/o gangs. First, Latina/o gangs is where the lead author's expertise and that of our advisors lie. Gang colloquial is not monolithic and can be complex, even within a given gang culture. The research team has expertise and the ability to interpret social media in relation to this population. Second, the Facebook pages examined were a prevalent part of Chicago Latina/o gang culture at the time of data collection, enabling us to use this case to further our understanding on the relationship between gangs and social media.

Digital web scraping provides a unique data source of digital trace data from a public Facebook page devoted to Chicago Latina/o gangs to investigate these topics. This public Facebook page is open access, and all posts and comments on the page can be viewed by any person. The page selected had been identified through qualitative research previously conducted by the lead author in 2015. In that earlier study, the lead researcher and his research assistants informally asked gang members in their networks about different sites they frequented. The lead author also conducted a keyword search on Facebook. These two processes identified five Facebook pages pertaining to Chicago's Latina/o gangs active at the time of data collection. One was a private group and while the lead author had access, this page's privacy settings would require consent from every person who contributed to the page if we were to conduct research with the data from this page. Two of the other pages had no activity for several months and were deemed inactive. Of the other two, one had significantly more activity and followers than the other and that activity, including posts, comments, and followers, seemed far more related to gang business. We interpreted this high volume as evidence that more gang-involved individuals participated on this page and therefore chose this Facebook page for our case study.

The Facebook page was created and maintained by one or more unknown administrators. As a public page, it allows any Facebook user to explore and participate in the page content without communicating with the owner of the page. In contrast with friending an individual on Facebook, which requires permission, liking the page is completely anonymous and content from the page will appear on the regular Facebook of anyone who has liked the page. While the page's administrator(s) posted on the page, they did not, during the study time period, reveal their gender, age, ethnicity, or how many administrators there were. The logo and avatar of the page seems to switch randomly to represent different gangs over time. The unknown administrator(s) claim they are not gang-involved, but they demonstrate considerable historical gang knowledge when commenting on certain posts, suggesting past gang involvement or research. The page's About section also states that the administrator(s) attempt to maintain neutrality and that the page includes material sent in from any gang.

As a public page, the focal page allows gang-involved individuals to communicate with other gang members who are not in their network (i.e., not Facebook friends). Individuals who describe themselves or imply they are gang members and the administrator post gang-related material on the page. Rival gang members, fellow gang members, and non-gang involved individuals communicate with each other in the comments of the posts. Material posted on this page is variable and exhibits various gang-related behaviors. The content is described below to provide depth and understanding related to the materials posted on the Facebook page.

The main material posted is photographs of individuals throwing up gang signs and throwing down rival gang signs across time and place. Some posts appear to be current gang members while others are from the 1970s to the 1990s, identified as such by clothing—Latina/o gangs historically had various color coded sweaters to represent membership—and post caption (e.g., "Insane Spanish Cobras from the 1990s," etc.). Pictures of historic leaders of gangs—for example the well-known leader of the Latin Kings Lord Gino—are also sometimes posted, as are pictures of remembrance of deceased individuals with comments such as "Rest in Peace."

Photos posted on the page also display a variety of locations, the most common of which is gangs on their own turf (identified by language in the post or the street signs). Pictures that are more inflammatory are taken on a rival gang's turf (also identified by street signs or other physical location markers). Other locations include homes and garages. In some posts gang members brandish guns.

Posts displaying gang graffiti are the second most prevalent type of material posted; they vary across time and space, similar to the photos of gang members mentioned above. Some gang graffiti is contemporary, identified by the post caption or comments, while others are historic images (referred to as murals) from gangs in the 1970s and 1980s. Gang graffiti is generally placed in a gang's turf or in a rival gang's turf. Gang symbols are also drawn on notebook paper with pencils or are computer generated and posted. Artifacts from gangs of the 1970s and 1980s are also commonly posted to the page. For example, it was common for Latina/o gangs to have business cards and apparel during those years.

Less prevalent material includes highly antagonistic posts. In many cases these posts suggest that rivals are gay or disrespect a rival gang member that is deceased with the words "rotting" or "rotz." Often times the post caption just contains the words "Sent In," presumably so the page administrators can distance themselves from the post. Media (e.g., an article from the *Chicago Tribune* or a story from television news) is also posted, in most cases related to a gang bust or a gang shooting. Finally, broader street culture and trends are posted that represent life in inner city Chicago. Taken together, a variety of material pertaining to gangs across time and place are posted on the page. The typology of posts we describe below operationalizes different situations pertaining to gang member interactions.

Media posted to the page can elicit many responses. Some comments use language to represent or disrespect a gang, some ridicule the posts or other commenters, and some have questions pertaining to the content or to the poster. In sum, the page is, in a way, like an online forum where gang-involved individuals interact in various ways.

The data set created and used here includes all posts from the focal Facebook page from January of 2015 through November of 2016. At the end of the data collection period, the Facebook page had 30,666 followers and averaged between two and three new posts per day. For organizational purposes, the raw data collected were restructured into a data set where every post, like, comment, and comment reply represent one line of data. In total, it contains 140,140 posts, likes, comments, and comment replies. Because we are interested in exploring situations and interactions of gangs in online spaces, we created two data sources from this data, a situation data set and an interaction data set. The situation data set includes a typology of posts we created to operationalize variances in the type of context on the Facebook page. In the second data set, we operationalize interactions as positive or negative comments pertaining to a given gang on the Facebook page. We merge these data with data on the geographic locations of Latina/

o gangs as defined by law enforcement (Chicago Crime Commission 2018) to understand how online behaviors correspond to geographic proximity.

Guidelines for ethical conduct were considered in light of the newness of the methodology used here. Only data publicly available were collected; no data with any privacy settings were collected at any point in this study. The only data related to the individual is the person's Facebook name (which is often an alias) and user id. No other personal information was collected at any time in this study. The comments individuals posted on the page were also public. As our analyses will describe, we are examining posts based on groups, which shifts our study away from individual users. As such, the undergraduate coders discussed below investigated posts, not user profiles. To create the necessary algorithms for interactions from user comments, a password-protected machine was used in a further secured terminal server provided by the lead author's institution. After data were aggregated from individuals to groups, individual data are dropped from our data set and analyses. To further protect the anonymity of the posters, we limit the reporting in our analysis to the 10 largest gangs represented in the data.

Situation Data Set (Post Level)

This data set consists of 3,216 posts web scraped from a public Chicago Latina/o gang Facebook page where individuals commented and all of the ensuing comments. We created a typology of posts (e.g., different situations in which gang members can interact online). The lead researcher worked with the former gang member domain experts to develop the codebook. After the codebook was developed, two undergraduate coders were brought on as part of the study. These undergraduates enrolled in independent study with the lead researcher, and for several weeks prior to coding, received instruction about Chicago Latina/o gangs and interpreting social media interactions of gangs. In general, the categories were very easily distinguishable. For example, the gang news category, where there was 100% agreement, pertained to the uploading of a news source about a gang. After the codebook was developed, the lead author independently coded all posts and the two undergraduates each coded half, skipping any they found ambiguous (of which there were 234 in total, about 7%). For those data points the coders coded, agreement with the lead author was 96.6% and 100%, respectively. For the posts that were inconsistently coded, the lead author re-read the post and determined the typology of the post. The final typology was coded as six mutually exclusive categories which are elaborated below.

Gang identity. Unsurprisingly, the dominant activity that takes place on the Latina/o gang Facebook page is symbolic performances of gang identity, or representing. Following previous research, we define performing gang identity as "a repertoire of communication practices whereby gang members enact, and thereby constitute their gang identity" (Conquergood 1993:241). Recent literature on the symbolic aspects of gangs in online spaces has used similar definitions (Johnson and Schell-Busey 2016; Lauger and Densley 2018; Pyrooz et al. 2015; Van Hellemont 2012). For conceptual clarity we disaggregate gang identity into two types: embodied gang identity and non-embodied symbolic displays of gang identity.[3]

1. Embodied performances of gang identity involve posts where gang members enact their gang identity through a range of activities, from displaying gang signs to showing gang-related tattoos that involve their bodies. Half of the posts (1,608) were classified as embodied gang identity.
2. The second sub category of gang identity is gang representation displayed with symbols. This category includes non-embodied displays of gang identity such as words graffiti, gang-related apparel, or social media memes expressing gang identity.[4] In total 1,124 (35%) posts were classified as symbolic displays of gang identity.

Antagonizing behavior. Because previous literature finds that the digital street provides new opportunities to engage in antagonistic behavior (Moule et al. 2017; Patton et al., 2019), we created a category pertaining to such behavior. This category includes more provocative forms of internet banging than performances of embodied gang identity, such as posts of deceased rival gang members with the word rotz (indicating that the deceased is rotting in the ground rather than resting in peace), going to another gang's turf and taking a picture there, and affronting the masculinity of a rival gang member by suggesting he is gay. In total 117 (4%) of posts were classified as antagonizing behavior. Given the extremely inciting nature of this category of post, the low N is unsurprising.

Gang and street culture. Previous literature has reported that gangs use the online arena to promote gang and 'hood life (Chicago Crime Commission 2018; Morselli and Decary-Hetu 2013; Pawelz and Elvers 2018). Morselli and Decary-Hetu (2013) theorize that social media sites bring together both gang members and non-gang members, and this allows gang-

involved individuals to disseminate gang culture to a wider audience. Thus, we code posts that glorify Chicago gang and street culture in general and do not include any particular gangs as instances of gang or street culture. This category includes memes and sayings. For example, a meme saying "this is the city of death [referring to Chicago] where we throw up so many hand signs [referring to gang signs] you would think we was deaf" would be coded as such. In total 99 (3%) posts were classified as gang and street culture.

Dissemination of gang news. Some posts contain links to local media stories pertaining to gangs and law enforcement. Such stories might pertain to a gang leader arrest or a large drug bust. In total 180 (6%) posts were classified as dissemination of gang news.

Other. Posts that did not match any categories in our typology were coded as other. For example, a community organization offering free tattoo removal for gang members contributed several posts. This category included 55 posts.

Apart from our six categories, 23 posts were deleted between the time we web scraped and coded the data. We are unable to determine the content of these posts and these are omitted from our analyses.

Our final analytical sample is 3,193 posts. From this sample we have created a typology of contexts involved in a Facebook page on Chicago Latina/o gangs. This typology represents situations in online settings. We also created a data set of interactions, which we then merge with the situation data set to investigate situations and interactions in online settings.

Variables and measurement online situations. Situations are measured as six dichotomous variables created from the typology of posts. Each post type is coded as a mutually exclusive category with 1 = post is coded as that situation and 0 = post is not coded as that situation. This variable is at the post level N = 3,193 (See Table 1).

Interaction Data Set (Comment Level)

On Facebook, under each post users can comment and reply to one another. In total the interactions data set consists of 37,423 comments for all of the posts from a total of 6,829 Facebook profiles. As we will elaborate below, we operationalize gang interactions from positive and negative comments relating to specific gangs. For example, a negative interaction pertaining to

Table 1. Summary Statistics for the Three Data Sources.

Situation data set (post level)	Variable (variable type)	Total posts	Positive mentions (outcome)	Negative mentions (outcome)	Antagonistic (covariate)	Embodied Perform gang identity (covariate)	Symbolic gang identity (covariate)	Street culture (covariate)	Gang media (covariate)
		3,193	2,112	8,559	117	1,608	1,124	99	180
Interaction data set (comment level)	Variable	Number of gangs	Total comments	Positive comments	Negative comments				
		36	37,423	2,432	10,321				
Geographical data set	Variable	Number of gangs	Number of police beats						
		36	279						

Notes: The situation dataset contains positive and negative mentions for the gangs used in the analytical sample (N = 10). The interaction dataset contains comments from all Latina/o gangs in the study (N = 36).

a Latin King would be a comment claiming to be a "king killer."[5] Prior to specifying interactions, we investigated which gangs are prevalent on the Facebook page. To address this question we first compiled a list of what Latina/o gangs were prevalent in Chicago from Chicago Crime Commission's (2018) list of all gangs in Chicago, which consisted of 40 gangs. The research team of former gang members reviewed this list and pronounced it comprehensive and accurate. We next compared it to the gangs on the Facebook page. Findings revealed that while all gangs had negative mentions, four of the small gangs' members did not comment; thus we are not able to use those gangs in our analyses. Therefore, the total number of gangs in our sample is 36. To protect the anonymity of members of smaller gangs, we only describe the 10 largest gangs on the Facebook page.

Using the list of gangs created from law enforcement and verified by former gang members, we created variables for each gang. These variables were coded from comments posted to the Facebook page. Each comment was coded as a positive comment directed at a gang, a negative comment directed at a gang, or not mentioning a gang. To code comments as negative or positive, a dictionary was created containing negative and positive words and phrases for each gang. For example, it can be assumed that a comment that includes "king love" originates from a Latin King and the comment will be coded as a positive comment directed at the Latin Kings. Conversely, "king killer" or "kk" for short indicates the commenter is in a rival gang of the Latin Kings. The lead researcher and the research team of former gang members identified the keywords in the positive and negative word lists. The development of the dictionary was a multi-step, iterative process.

First, the research team developed a list of universal prefixes and suffixes for use on all gangs. For example, the suffix "love" is generally a positive term (e.g., king love or king luv). The universal positive suffixes include: "lov," "luv," "nation," "world," "krazy," and "crazy." Universal negative suffixes include adding a "k" or "killer" at the end of the word (see Online Appendix for more on the dictionary creation). Next, gang-specific keywords were added to the dictionary. For example, "two shits" is a negative term for the gang Two Six. Finally, the dictionary was expanded by keywords found in the data. Gang names were searched out and the context of communication was explored.[6] Words found in these searches were then added to the dictionary.[7] After the dictionary was created, four types of error were identified and eliminated (see the Online Appendix A1 for examples of keywords and rationales for errors).

Variables and measurement interaction data set. The above interactions are measured from 72 dichotomous variables (a positive and negative variable for each gang). Each comment including positive or negative gang-specific keywords is coded as 1, while 0 indicates the comment is not positive or negative toward any gang (see Table 1).

Offline: Geographic Locations

Geographic locations of gangs were obtained from law enforcement reports of gang territories in Chicago (Chicago Crime Commission 2018). These data were organized by police beats, subsets of police districts. Chicago has 279 police beats. Police beats are typically less than one square mile in size (Hannon 2019). We measure geographic location by the presence or absence of a gang in a given police beat. We measure geographic proximity by whether gangs reside in the same police beat or adjoining police beats.

Offline geographic variables. We use data from the Chicago Police Department disseminated by the Chicago Crime Commission to create a gang variable based on geographic locations.[8] Other research pertaining to Chicago gangs has used these same data (Vargas 2014). Geographic proximity is a dichotomous variable measured by whether or not a gang's turf resides in the same or adjacent police beats (see Table 1).

Analytic Strategy

Our analyses take place in a series of steps. First we provide descriptive statistics for our sample to understand the general characteristics of our data. Our first set of analyses investigates if gangs' geographic proximity is related to negative online interactions among gangs on the digital street. In this analysis, the unit of analysis is at the gang level, which we combine the geographical data set and the interaction data set aggregated at the gang level. For each gang, we calculate the proportion of negative comments directed at each other gang, and whether each gang is geographically adjacent. We then visualize this relationship and calculate the correlation between online negative interactions and geographical adjacency.

Our second set of analyses assess whether or not interactions on the Facebook page are conditional on context (used as a proxy for situation). In this analysis, the unit of analysis is at the comment level, but we include predictors of post typology at the post level. We thus combine the interaction data set with the situation data set. Put differently, comments are nested

within posts, and we see if the context of the post affects the positivity and negativity of the comments. Our outcome variable is the interaction (a count variable) and the predictor variables are the situation. Our measures of interaction are counts of positive and negative comments, which we assume follow a Poisson distribution. In estimating Poisson regressions, we found overdispersion—the variance exceeds the mean due to a large number of zeros. Therefore, we use the negative binomial model. We also control for the time of the post (i.e., days since January 1, 2016) to relieve the concern of time effects.[9] That is, since number of users and followers of the Facebook page continuously increases over time, newer posts tend to be exposed to more users than older posts, and they tend to accrue more comments.

Results

Descriptives

We present descriptive statistics at the gang level in Table 2. The Latin Kings are by far the most active gang on the page and have the most posts pertaining to their gang. There are also a few mid-sized gangs such as Imperial Gangsters, Two Six, and Satin Disciples that are active on Facebook, as their members post a lot of comments. Finally, there are many small-sized gangs that have few comments on Facebook. Turning to gang interactions—the number of positive and negative comments individuals post about gangs—Latin Kings dominates the discussions on Facebook; there are much more comments mentioning Latin Kings than other gangs. This is unsurprising as they are the largest gang. Satin Disciples is the second most-mentioned gang.

Interactions among gang members on Facebook are overwhelmingly negative. For almost all gangs the positive-to-negative ratio is below 1.00, suggesting that there are much more negative mentions than positive mentions. Interestingly, even though Latin Kings is by far the largest gang, its positive-to-negative ratio is 0.15 (i.e., the number of negative mentions of Latin Kings is 6.67 times higher than positive mentions of Latin Kings), one of the lowest among all gangs. It appears that Facebook users are not afraid to insult Latin Kings, and Latin Kings are the most frequent target of attack. Similarly, Satin Disciples and Maniac Latin Disciples receive many mentions but the positive-to-negative ratios are also very low (0.21 and 0.15, respectively). In sum, consistent with previous literature, there is a strong symbolic war online as there are a lot of negative comments targeted at each gang (Pyrooz et al. 2015).

Table 2. Descriptive Statistics of top 10 Gangs on Facebook.

Gang Name	Abbreviation	Total mentions	Positive mentions	Negative mentions	Positive-Negative ratio	Posts regarding gang
Latin Kings	LK	5,824	752	5,072	0.15	413
Imperial Gangsters	IMP_GANG	480	233	247	0.94	106
Two Six	TS	665	240	425	0.56	161
Spanish Gangster Disciples	SGD	598	151	447	0.34	70
Satan Disciples	SD	1191	210	981	0.21	176
Maniac Latin Disciples	MLD	881	116	765	0.15	156
Insane Deuces	DEUCE	307	138	169	0.82	138
Spanish Cobras	COBRA	330	122	208	0.59	108
Simon City Royals	ASR	314	125	189	0.66	128
Latin Counts	COUNTS	81	25	56	0.45	117
Other Gangs		2,082	320	1,762	0.18	

Gang Interactions on the Digital and Geographic Street

Next we examine negative interactions on the Facebook page. Negative gang interactions are calculated as the proportion of negative mentions directed from one gang to another for each gang (see Online Appendix for online negative interaction matrix). For instance, if members of Latin Kings initiated 100 negative mentions of other gangs and 40 of the negative mentions pertained to Two Six, the proportion of attacks would be 0.40. In other words, the measure captures how hostile each gang is toward other gangs according to the proportion of their negative mentions that are directed against a particular gang. Gang origin of attack is coded from positive gang phrases individuals comment at any point in the data (e.g., a commenter that comments "King Love" is coded as being a Latin King). Figure 1 shows a relational plot between the gangs. Each circle represents a gang, while arrows represent negative interactions. The width of the arrow represents the proportion of the attacks devoted to the target gang. As

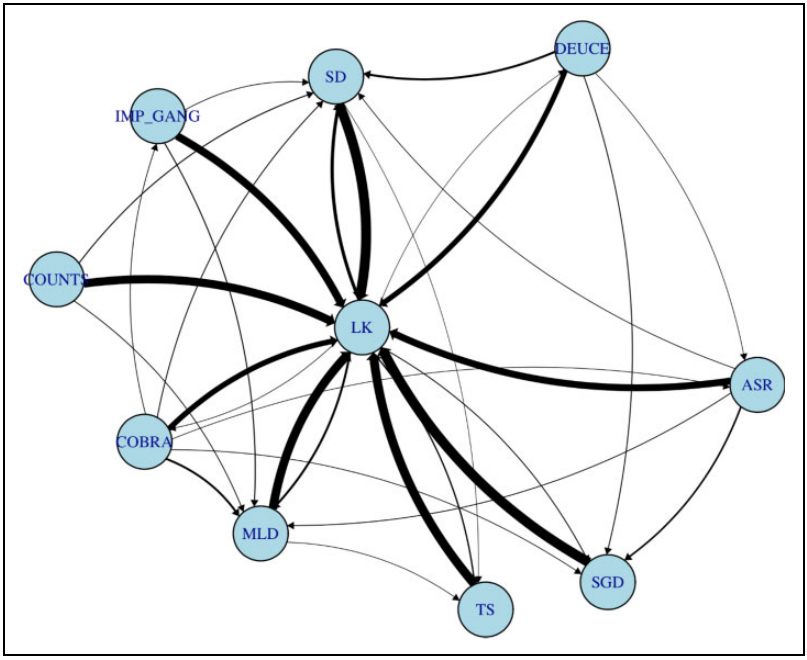

Figure 1. Gang attacking relationships online.

depicted in Figure 1, Latin Kings appears to be the target of every gang, as there is a very thick arrow connecting every other gang to it. The network also includes rivalries that do not include the Latin Kings. For example although a significant proportion of its attacks are directed toward Latin Kings, members of Satin Disciples also direct negative comments against Maniac Latin Disciples and Two Six. Thus, attacks online are not random, but, in part, organized in a structured way that is centered on Latin Kings, the dominant gang.

While Latin Kings dominate negative interactions on the Facebook page, some interactions do not involve them; other gang feuds exist, such as between the Counts and Satin Disciples and the Cobras and the Imperial Gangsters. Analysis suggests these conflicts reflect the geographical relationships between the gangs. From police beats, we construct a geographical adjacency network where two gangs are connected if they share co-presence in the same or neighboring beats. As shown in Figure 2, geographic adjacency (see Online Appendix for gang adjacency matrix) may

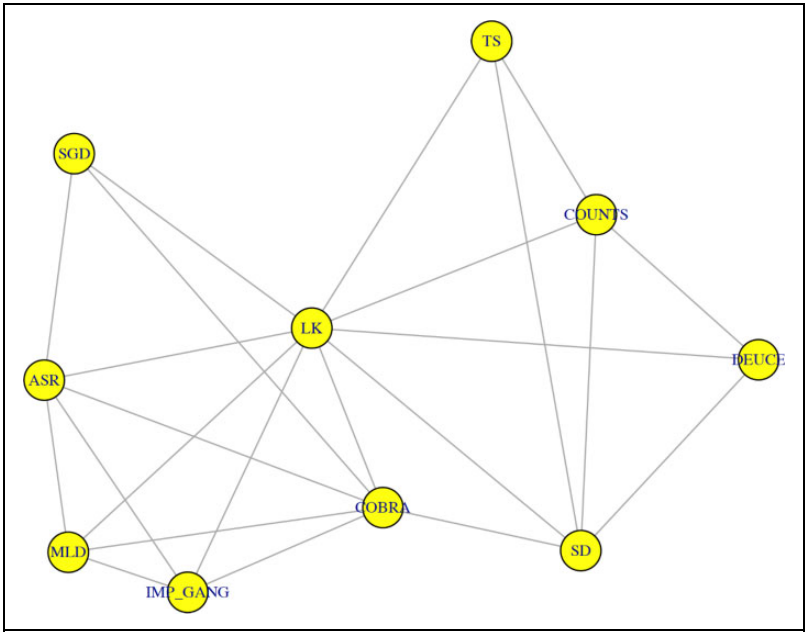

Figure 2. Geographical network among gangs.

explain many feuds observed online. A correlation test indicates a significant positive association between the geographical network and the online attacking network ($\rho = .42$, $p < .001$).[10] This correlation barely changes, even if we remove Latin Kings from the network ($\rho = .40$, $p < .001$). Thus, geographical proximity may lead to negative interaction in the online environment. This suggests it is likely that gangs fight physically on the streets, and the violence spills over to the digital street and vice versa.

Post-Level Analyses: The Influence of Situations

In our final set of analyses, we analyze comments that are under posts in order to investigate the situations that facilitate or hinder online gang interactions. Given research on how the internet creates structured spaces that affect the types of social action available, the topic of the posts (the situation) may affect how likely gangs are to fight in the comments (the interaction). To investigate this possibility, we draw from the post level covariates of whether the post contains embodied performances of gang

Table 3. Negative Binomial Regressions with Positive and Negative Mentions as Outcomes.

	Model 1	Model 2	Model 3
	Outcome: Number of Comments	Outcome: Positive Mentions	Outcome: Negative Mentions
Antagonistic	0.53*** (0.15)	1.47*** (0.35)	0.95*** (0.25)
Embodied perform gang identity	−0.10 (0.13)	1.05*** (0.13)	0.32 (0.21)
Non-Embodied Symbolic gang identity	−0.49*** (0.13)	0.86** (0.32)	0.14 (0.21)
Street culture	−0.12 (0.16)	0.01 (0.39)	−0.77** (0.28)
Gang media	0.23 (0.14)	0.57 (0.35)	0.07 (0.24)
Post time	0.003*** (0.000)	0.002*** (0.000)	0.002*** (0.00)
Number of observations	3,193	3,193	3,193

Notes: $p < .05$ ** $p < .01$ *** $p < .001$. Standard error in Parenthesis.

identity, symbolic performances of gang identity, antagonistic behaviors, promoting street culture in general or dissemination of gang news.

Table 3 presents models with positive and negative mentions as outcomes. We also control for the time of the post to relieve the concern of time effects.[11] As the table shows, the type of post structures number of comments in the post (Model 1), and particularly the number of positive or negative comments and interactions (Model 2 and Model 3). In other words, depending on the type of post, the number of positive or negative mentions could increase or decrease. Antagonistic posts increase both positive and negative mentions of gangs. To better interpret the results, we calculated the odds of increasing/decreasing positive or negative interactions using the formula $(\exp(\beta) - 1) \times 100$. Specifically, compared to posts that do not include aggressive material, posts that include aggressive material increase the odds of negative interactions by 159% and positive interactions by 335%. It seems that antagonistic posts instigate situations where gangs that are disrespected respond by showing solidarity with their gang and also by retaliating against the source of disrespect. For example, if a gang were displays a picture of a dead rival gang member upside down, the affronted gang would display solidarity with the victim and gang and then respond aggressively to the gangs that had commented on the post.

In contrast, posts involving embodied performances of gang identity or symbolic gang identity increases positive, but not negative comments. This shows variation in interactions conditioned on the situation. Specifically compared to posts that do not include embodied performances of gang identity, posts that include embodied performances of gang identity increase the odds of positive interactions by 186%, and posts that include symbols of gang identity increase the odds of positive interactions by 136%. Antagonizing behavior may create a strong incentive for gang members to defend their taunted gang, opening up a heated exchange of gang mentions. On the other hand, performing gang identity or showing one's own gang symbols is showcasing one's own group and not providing immediate incentive for other gangs to respond. Thus, the number of positive mentions about the gang increases but not the negative interactions.

Street culture decreases the negative mentions of gangs. Compared to posts that do not describe street culture, posts that describe street culture decrease the odds of negative interactions by 54%. As street culture embodies the whole gang culture, we speculate that it unites hostile gangs and lessens the incentives to fight against one another, at least under that particular post. Finally, the dissemination of gang news does not predict positive or negative interactions on the page.

In short, even in an online space where gangs are generally hostile to one another, the situation helps to condition the type of interaction, in terms of whether it will catalyze antagonism, moderately increase hostility, or decrease feuds among gangs. It shows how social conditions, at the post level and the gang level, influence how individual members of gangs conduct social exchanges with one another.[12]

Discussion

Research on gangs in online spaces has greatly furthered our understanding of what behaviors gang members engage in online (Lauger and Densley 2018; Pyrooz et al. 2015; Sela-Shayovitz 2012; Van Hellemont 2012), without exploring the complexity of these behaviors. Specifically, do gang members only interact negatively in online settings, or do interactions vary by the situation on the digital street, as it does on the geographic street (Hughes and Short 2005)? The results of this study demonstrate the complexity of these online interactions that include not only internet banging, but also identity performances and the dissemination of gang culture. Furthermore, the tendency to show identification with the gang group or hostility to rival groups is not always evident. Rather, it is contextualized in

the situation of the digital street. Antagonistic posts generated the most positive and negative interactions among gangs. Performances of embodied gang identity and symbolic displays of gang identity were associated with increases in positive interactions, but not negative interactions. Finally, situations relating to street culture were associated with decreases in negative interactions. The findings in this study indicate the need for more research that moves past individual behaviors to understanding interactional group processes.

By further extending the gang group processes literature to the digital street, our research takes an important step forward in understanding the conditions under which social media interactions may lead to violence. Identifying which situations lead to negative interactions online provide important clues—it is probable that negative online interactions will be more likely to lead to violence than positive or neutral interactions—to when social media leads to offline violence. Additionally, this study provides empirical evidence on whether or not group processes on the digital street mimic offline interactions. In literature, there is a parallelism hypothesis that posits that online gang activity should converge with offline activity (Pyrooz et al. 2015). Others argue that this view overstates the likelihood that social media leads to violence when conceptualized as an additional and duplicate site for violence (Stuart 2019). We find that the behaviors we observed taking place in our study—internet banging, identity performances, and promoting gang culture—mimic research on gangs in geographic streets. However data limitations do not allow for us to test whether online interactions lead to offline violence directly. Furthermore, much as in the geographic street, context influences gang interactions in the digital street, suggesting there is convergence, at some level, between online and offline gang behaviors. We also investigated whether or not these interactions are related to geographic proximity.

Research on between-gang violence finds geographic proximity is an important factor (Papachristos et al. 2013; Tita and Radil 2011). This is unsurprising; gang are, in many cases, located in segregated inner-city neighborhoods and usually do not travel outside of a bounded geographic space (Papachristos and Hughes 2015). The digital streets do not require travel, so it remained an empirical question whether or not the condition of geographic proximity holds on the digital street. In our case study, we find geographic proximity is not a primary condition for interactions on the digital street. However, we find a moderate correlation (.40) between geographic proximity of gangs and negative online interactions. This relationship holds true regardless of whether or not the dominant gang, Latin Kings,

is included in the analysis. Our findings are consistent with previous research showing that geographic proximity predicts violence (Papachristos et al. 2013; Tita and Radil 2011) but is not the sole factor in whether it occurs. The digital street enables gang members to interact with other gangs in faraway locales and individuals in close geographic proximity. We find gang members take the opportunity to interact with both groups. In some cases, it appears the online arena is a new place to antagonize old enemies. In other cases, it appears that the setup of an original post bounds the interactions in its comments. Thus, the digital street provides a more structured environment which could possibly condition interactions beyond geographic proximity. Here we find support for Stuart's (2019) cautioning regarding the use of traditional theory in the online environment without an empirical test.

Finally, our case study of Latina/o gangs leads to important questions about the relationship between race/ethnicity and social media practices of gangs. Because the Facebook page used in our analyses is predominantly for Latina/o gangs, we are unable to offer comparisons across race/ethnicity in the social media practices of gang members. This research does, however, bring to light important areas to be investigated in future research. Specifically previous research has found, related in part to spatial segregation, race/ethnicity conditions gang violence (i.e., African American gangs fight with African American gangs and Latina/o gangs fight with Latina/o gangs) (Papachristos 2009). The digital street however is a convergence zone that has the potential to bring together people of differing race/ethnicity which could change this pattern. Changes in interactional patterns could be related to changing patterns of violence; thus it is important to understand if group processes such as norms of reciprocity conditioned by race/ethnicity play out differently in the online environment.

In addition, our research and previous research leads to questions about whether or not platform preference varies by race/ethnicity. Much previous research in Chicago's African America gangs focus, in part, on the social media platform Twitter (Patton et al. 2016; Patton et al. 2017; Stuart 2019). In our case study of Latina/o gangs in Chicago, not a single tweet or mention of Twitter was posted to the Facebook page. Outside of the gang world there is evidence of a culture of African Americans on Twitter (Brock 2012; Florini 2014; Graham and Smith 2016). Future research using a cross-platform comparison should investigate if there are social media platform differences by race/ethnicity.

In interpreting our results, it is important to reiterate that this is a case study of Chicago Latina/o gangs, and as such is not appropriate for

generalization to the larger gang community. In addition, our results do not take into account contextual gang histories. Chicago gangs have long histories, and some date back over a half a century. We conducted supplementary analyses relating to the time period of the posted material and the results were consistent, implying that historical time is not related to our results, but the study does not account for history prior to 2014. In a similar vein, we lack the ability to account for organizational memory; in these long gang histories, a history of conflict can drive interactions. While we suspect that geographic proximity picks up most of this conflict history, measures of gang wars could enhance our study.

The above limitations notwithstanding, this case study demonstrates how online interactions among gang members unfold in a natural environment. The rapid advancement of technology has led to new theoretical postulations and hypotheses about gangs; however, data to test these propositions are scarce. This study is able to advance the state of knowledge in this important and novel space of gang behaviors, the digital street, by providing evidence that the situation influences interactions, just as they do on geographic streets. Furthermore, while geographic proximity is related to gang interactions on the digital street, it is not the primary condition for gang interactions. Thus, our study begins to unpack important complexities of gangs in the online world.

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ORCID iD

John Leverso https://orcid.org/0000-0002-3700-7703

Notes

1. The term gangbang refers to ongoing altercations in the context of gang fights and shootings (see Vigil 1996). The term The "Book" is local vernacular for the social media site Facebook.
2. For recent reviews of gangs in online spaces see Irwin-Rodgers, Densley, and Pinkney (2018), Lauger, Densley, and Moule (2019), and Pyrooz and Moule (2019).
3. To test whether embodied performances gang identity and non-embodied symbolic displays of gang identity were statistically indistinguishable, we performed tests to compare the distributions of each against the number of likes and comments each type of post received. These tests were significant, showing that embodied performances of gang identity spurred greater levels of interaction. Given this, we conclude these categories are analytically different.
4. In some cases, both embodied performances of gang identity and symbolic gang identity appeared in the same post. These posts were coded as embodied gang identity.
5. Saying the word killer after a gang name is a common way to disrespect a Chicago street gang.
6. We considered making gang names anonymous due to concerns that preserving the names may lead to stigma or glamor for certain gangs. However, since the focus of this study is interactions between gangs, there is minimal description of characteristics of any gang. We thus consider the risk of stigma or glamor to be small and retain the gang names to better show the context of the study and converse with previous studies on Chicago gangs.
7. We are unable to include gang-related pictures in our dictionary. There were 2,506 comments in the sample consisting only of pictures (5.5%).
8. Although these data are disseminated by the Chicago Crime Commission they come directly from the Chicago Police Department. Each map states it was prepared by the Chicago Police Department for the Deployment Operation Center by Information Services Division.
9. We did not control for the number of comments because, as we analyzed the data, the number of comments was often a result of the number of positive or negative comments. For instance, if someone insulted Two Six, members of Two Six could respond, generating a lot more comments than otherwise. Controlling for the number of comments would be an overcontrol as it purges these dynamics that are common in the data.
10. We further tested this relationship with a bivariate regression (see Online Appendix A2); results were consistent, finding geographic adjacency is associated with an 18% increase in the proportion of attacking relationships.

11. We considered including the number of comments as an offset to capture a rate effect, but decided modeling raw counts is more meaningful. For instance, an antagonistic post may instigate a long thread of comments, and thus the number of comments is itself a function of the type of the post. To capture this dynamic process we model counts rather than rates.
12. We conducted supplemental analyses, where we included a series of dummy variable to account for the amount of material posted about a given gang. The results remain largely similar, except that the effects of gang identity diminish. This is unsurprising since gang identity posts are likely to mention specific gangs, thus diminishing the effects. See the Online Appendix A3 for details.

Supplemental Material

Supplemental material for this article is available online.

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Author Biographies

John Leverso, is an assistant professor of Sociology at Whitman College. His research focuses on street gang involvement, including gangs in online settings, gangs in the life course, the geographic correlates of street gangs, and juvenile offending more broadly. His work has appeared in the Journal of Quantitative Criminology, the Journal of Adolescence, and the International Journal of Offender Therapy and Comparative Criminology among other outlets.

Yuan Hsiao is a doctoral candidate in Sociology and Master's student Statistics at University of Washington. His major work explores the intersection of social media, social networks, and collective behavior, and has been published or forthcoming in American Sociological Review, Social Forces, Social Networks, among other outlets.