ABSTRACT

Humanistic research into social media is presently diverse in approach, but rich in theoretical underpinnings. It is unsurprising that there is some difficulty in translating often text-based approaches to multi-media rich, rapidly-evolving social networking environments. We explore theoretical issues for studying social media with respect to one popular research methodology: case study research (CSR). Here we examine the challenges that social media pose to CSR in the humanities and then advance an approach using social network analysis (SNA) to assist in selecting case studies. This approach, we argue, improves selection of case studies by considering the network structures of social media.

Categories and Subject Descriptors
K.3 [Computers and Society]: General

General Terms
Theory

Keywords
social network analysis, case study research, social media, humanities

1. INTRODUCTION

Humanities-based studies, within our articulation of the disciplines, describes studies primarily concerned with a depth of theoretical propositions and not, at least primarily, the empirical qualification or support of claims. Such consideration is difficult when studying social media as individual technologies outpace our ability to join as users, let alone develop a thoughtful, critical, and comprehensive analysis of social media tools. Put simply, the growth and pace seen in social media technologies pose new problems for humanities researchers. Yet questions posed regarding social media, from the public and academy alike, are frequently of a humanistic variety. To say something meaningful about social media technologies, then, we must look past particular tools, particular companies, and fleeting trends to how we understand the underlying characteristics of social media.

The rise of so-called “Web 2.0” or “participatory media” applications seemingly occurred with the shift from static hyperlinked text pages of the old web to a participatory and socially-driven web. Though there were certainly “social” elements and applications of the web, recalling Internet Relay Chats and MUDs, there was some fundamental shift in the way in which the web both engaged and was engaged by users. Mehlenbacher et al. (2010) outline the vast reach of the social media applications, saying “[t]oday, when researchers refer to social networking media, they are usually including self-publishing media such as podcasts, wikis, blogs, RSS/XML feeds, mashups, bookmarking applications, and so on”[13, p.65]. Further detailing the ever-growing list of social applications, Poynter (2011) includes microblogging; photo, video, and music sharing; consumer reviews; and virtual worlds and networked games[16, p.160]. The constellation of technologies that constitute social media marks the beginning of the difficulties in selecting a site or object of analysis. In addition to a multitude of technologies, each social media tool may offer numerous internal applications, notes Mehlenbacher et al.,“such as establishing public and private groups, maintaining profiles, tagging, note-taking, summary presentations, commenting, email, real-time posting, instant messaging, and the integration and display of data from other common social media applications”[13, p.65].

Poynter (2011) argues that precise definitions of social media are difficult as scholars define and redefine the scope of the technologies. Social media, then, becomes a broad term surrounding a core concept about the way that the internet and other new technologies are being used to move away from media that was essentially a one-to-many model, for example broadcast, towards a many-to-many model, such as Facebook[16][p.160]. To avoid reliance upon particular social media tools we expand this definition of social media. Social media describes internet connected and using software applications that facilitate user-generated and user-based content and connections. Connections facilitated by social media are driven primarily by abilities to communicate with a subset of users on the media platform in personally relevant and meaningful ways. The technologies are, more broadly, capable of scaling to large user bases, while allowing for use to be tailored to specific areas of in-
terest (e.g., groups, lists). Most important to this discussion, social media tools often generate and accumulate a large amount of data. Thus, with the rapid evolution of social media tools and the substantial amount of data they generate, new research design methods are required. Here we propose a method that allows for depth of analysis and thoughtful selection of data that is amenable to humanistic scholarship.

2. CASE STUDY RESEARCH

The case study has emerged as favoured methodology for humanities scholars studying social media phenomena, although little attention has been given to why this methodology is appropriate for such research[3]. Furthermore, little justification is offered within publications for the choice of case study methodology. Thus, here we explore previous scholarship about case study research (CSR) and advance a discussion about how humanities scholars can effectively employ CSR to study social media. It is important to note and understand that many subscribe to the idea that case study research is not in and of itself a methodology, but instead, researchers choose methods by which they study a case[11, 9]. Thus, many view case study research as a research strategy to help them select an appropriate subject and later develop methods to study that single case.

Case studies, as a research strategy, are the subject of a wide range of published scholarship. Woodside (2010) offers a conceptualization of the process: “CSR [Case study research] is an inquiry that focuses on describing, understanding, predicting and/or controlling the individual (i.e., process, animal, person, household, organization, group, industry, culture, or nationality)”[19, p.16]. Further, he describes the principal goal of case study as deep understanding, and getting to this deep understanding “usually involves the use of multiple research methods across multiple time periods”[19, p.21]. These methods may include archival research, interviews, focus groups, textual analysis, questionnaires, and observations. To accomplished a coherent analysis across multiple data sources both Woodside (2010) and Stake (1995) suggests triangulating points of data. Triangulation of sources is an essential component to providing high quality and consistent interpretations of measurements used in CSR. In order to accomplish this end, protocols and procedures for case studies must be enacted with careful research design to ensure validity across data observation and interpretation. Triangulation protocols may include data sources, investigators, theory, and methods[17]. The latter is perhaps the most valuable triangulation as provides a solution to the problem of researchers approach influencing results, a common problem in the social sciences, according to Stake.

Yin (1989), in his seminal work Case Study Research, offers an additional perspective on this research strategy and defines case studies technically based on three main criteria: a case study “investigates a contemporary phenomenon within its real-life context; when the boundaries between phenomenon and context are not clearly evident, and in which multiple sources of evidence are used”[20, p.23]. Furthermore, Yin writes that case studies useful for when “a how or why question is being asked about a contemporary set of events over which the investigator has little or no control”[20, p.13]. Eisenhardt (1989) adds that case studies are “particularly well suited to new research areas or research areas for which existing theory seems inadequate”[5, p.548]. Thus, case studies can be useful in both establishing new theoretical concepts or exploring how theoretical concepts apply to a particular case.

However, CSR has been the subject of criticism in the past for its alleged lack of rigour and ability to add anything to a scientific body of knowledge. Citing Abercrombie, Hill, and Turner’s (1984) definition of “case study” in the Dictionary of Sociology, Flyvbjerg (2006) writes that such definitions are dramatically oversimplified and provide little insight into the value or application of case studies in social scientific research. According to Flyvbjerg, the oversimplification of CSR results from several primary misunderstandings which are worth quoting at length:

Misunderstanding 1: General, theoretical (context-independent) knowledge is more valuable than concrete, practical (context-dependent) knowledge.
Misunderstanding 2: One cannot generalize on the basis of an individual case; therefore, the case study cannot contribute to scientific development.
Misunderstanding 3: The case study is most useful for generating hypotheses; that is, in the first stage of a total research process, whereas other methods are more suitable for hypotheses testing and theory building.
Misunderstanding 4: The case study contains a bias toward verification, that is, a tendency to confirm the researcher’s preconceived notions.
Misunderstanding 5: It is often difficult to summarize and develop general propositions and theories on the basis of specific case studies.[6, p.221]

Flyvbjerg continues by explaining how each of these misunderstandings can easily be corrected, emphasizing that the case study is a viable and important research method. He argues that “context-dependent knowledge and experience are at the very heart of expert activity”[6, p.222], and that while many great scientific and social scientific findings have been based in CSR, the value of generalization to scientific progress is highly overrated. Yin (2003) also dispels the second misunderstanding, stating that case studies “are generalizable to theoretical propositions and not to populations and universes”[21, p.10]. Flyvbjerg indicates that the third misunderstanding can be corrected in correspondence with the second: once we realize that generalizability is not the only goal of case-based research, we can see how it can indeed offer final conclusions in lieu of merely producing or testing hypotheses. He dispels the fourth misunderstanding, bias toward verification, by indicating that this critique grossly misunderstands case study methods; case study research has vigorous methods of its own, and while it does not follow the scientific method, these methods are nonetheless intensive. Lastly, he resolves the fifth misunderstanding by citing fellow CSR scholar Peatle (2001), who writes, “It is simply that the very value of the case study, the contextual

1 Abercrombie et al. (1984) define case study by saying, “The detailed examination of a single example of class of phenomenon, a case study cannot provide reliable information about the broader class, but it may be useful in the preliminary stages of an investigation since it provides hypotheses, which may be tested systematically with a larger number of cases” (p. 34)[1].
and interpenetrating nature of forces, is lost when one tries to sum up in large and mutually exclusive concepts"[15][6, p.238]). He ends by asserting that a strong field of study is one in which scholars have conducted many rigorous case studies.

We argue that the study of social media requires new conceptualization of CSR methods. Vast amounts of data and increasing numbers of connected individuals complicate the first step for CSR, selecting a case or cases for analysis. The value of completed research hinges first on the selection of appropriate and interesting case studies that will allow the research to not only explore theory but to investigate a meaningful phenomenon that will add to the body of scholarship. Here, we suggest that social network analysis can serve an important role in the beginning stages of research. First, we explore social network analysis, offering a review of current literature, and second discuss how this type of analysis can be usefully applied to social media case studies by humanities scholars.

3. SOCIAL NETWORK ANALYSIS

Social media is a technology rooted in a networked society. The idea of the networked society is perhaps most familiar to communication and related fields through the work of Manuel Castells (2000) and Mark Granovetter (1973; 1983). In these theories, the importance of the structure of social relationships is elucidated. These relationships provide important insights into the creation and functioning of groups (nodes) and the connections between groups (forming the larger network). Network analysis, then, offers both an understanding of structures and relationships as well as entities[10]. To advance these modes of analysis in social media spaces, we turn to social network analysis.

Durland and Fredericks (2005) define social network analysis (SNA) as “the study of relationships within the context of social situations”[4, p.9]. It can be used to study the connections between people, organizations, computers, and various other connected entities in both a visual and mathematical way. Social network analysis is a field that can be traced to three primarily disciplinary traditions: psychology, anthropology, and sociology[10]. The field has been becoming increasingly popular with social sciences exponentially accelerated use of the key idea of the “social network”[10]. Growing over the last three decades, the field of social network analysis is becoming increasingly popular and accessible to social scientific researchers. Knoke and Yang (2008) explain that social network analysis relies on three main assumptions: 1) The structure of social relations can be as important (or more important) for understanding behavior than other features, such as race, age, or ideology; 2) Social networks carry influence over a variety of socially constructed social mechanisms, such as opinions and actions; and 3) Structural relations are dynamic processes that are continually evolving. Thus, SNA focuses on the actors and connections between actors to examine more complex issues within a social system, as opposed to collecting average numbers to offer a surface summary of a relationship[10].

Hansen (2011) begins to explore the idea of using social network analysis for internet applications in his article, “Exploring Social Media Relationships.”[8] Hansen explains that social media can help explore relationship structures and that as more people begin to use social media tools, the picture they paint will become an increasingly accurate representation of real-life social ties. As well as being an accurate representation of the social ties, the data provided by social media technologies affords access to certain insights about how social relations function independent of a subject’s perceptions of those relations. That is, unlike a survey instrument, the data provided by social media technologies escapes some of the biases of self-reporting. Yet, as previously noted, the massive amount of data generated by these technologies requires new methods for gathering, organizing, and analysing. Advancing social network analysis to better respond to these challenges methods for computational social network analysis have begun to take shape[2].

To usefully analyze large amounts of noisy information, such as the infrastructures of social media networks produce, SNA has adopted principles from information theory. Information theory offers several important concepts that may be valuable when analysing social media technologies. For example, the idea of path-transfer flow, which describes how information is passed in a node-to-node network structure. In this model there is no parallel information transfer and the centrality of nodes it determined by the likelihood that a given node can pass a message along that will reach every other node in the network[14, 18]. Central nodes, path-transfer flow posits, will be able to further distribute information than peripheral nodes, which becomes an important factor when considering variables such as influence. A variable such as “centrality” might be used to measure individuals within a network as well as relations between individuals within networks (or subnetworks) to determine their influence on one another[14]. But using such theories and models of network information transfer requires some ability to computationally process the large amounts of information. Computational social network analysis describes a variety of methods and tools.

Social network analysis has the potential to be an important research tool for humanities scholars to find relevant and interesting case studies. Scholars in other disciplines have already began to articulate the value of this relationship[12]. While some may be skeptical of the method, the technology used for SNA is easy within reach of humanists. Hansen (2011) reports that while once a highly specialized field of analysis, SNA has gone “mainstream” with open-source network metric tools such as NodeXL and Gephi[7, 8].2 SNA tools allows researchers to calculate key players in a network, find groups of highly-connected actors, and identify overall patterns in networks.

Social network analysis provides scholars with a tool that provides greater insight about network dynamics during the initial search for cases. SNA can thus help humanities scholars respond to questions of methodological rigour in terms of sampling, allowing them to make the case for having selected representative artifacts in the most appropriate form for the particular variables one is interested in. Using such a systematic approach draws first on the empirical approaches used in information, social, and computer sciences. The wisdom of these fields is employed through the network analysis, a broad approach to search for synthesis information about particular networks and nodes within those networks. These nodes, we argue, provide spaces for deeper humanistic analysis through the case study. Finding a particular node of interest allows it to be traced outside of an indi-

vidual network into the larger social media landscape. For example, finding a node, a key player, on Twitter means that once an understanding of their role in that network is at least partially understood that understanding can be further supplemented by a triangulation with information across other networks (e.g., Facebook, blogs, etc.).

4. CONCLUDING REMARKS

While aggregating a large amount of data might yield a useful sample for analysis of some variables, much difficulty arises in situating those variables within larger frameworks. This problem is not new; however, with social media technologies are new and so we must consider how they aid and abet our methodologies. Further, we must distinguish between our initial searches for sites of interest and subsequent research. We argue then that some delineation between the process of searching for a site of interest and data collection and conducting research on that site must be more explicitly acknowledged in humanities research methods.

Humanities-based research finds its value in the depth of analysis. Whether an artifact is an outlier or representative cases does not determine the value of a study, for example. What determines the value is the critical insight offered by the research. What we proposed here does not deviate from this model, but is offered as one possible method to reconcile some of the difficulties facing humanities researchers as we begin to look at particular cases of social media.

Indeed, we believe that humanities scholarship offers great insight into the complexity of artifacts online. For example, in a recent pilot study we examined the merger between Duke Energy and Progress Energy, two major utilities providers in the United States. We attempted to collect data from the popular social networking site Twitter.com and from blogs. Our methods were, at the risk of revealing our scholarly insecurities, problematic. We were not interested in producing the quantitative results we ultimately did through our pilot study. Instead, our interest was in determining how conversations between key players online is occurring—though this was not immediately apparent to us. After sorting through a mass of data we collected from Twitter and blogs we sought a better method for identifying who key players are and how they were using social media to shape the discourse surrounding the merger. It was in this search for a better research strategy that we found SNA. Using this method we would have been better able to identify specific sites of interest, key players, and then triangulate those for analysis in a case study.

Combining Social Network Analysis with Case Study Research, we argue, provides an open-ended research strategy that allows researchers to thoughtfully identify specific artifacts and data of interest on social media sites and then organize the constellation of information through the case study, allowing then for a variety of critical analyses. It is not our aim to offer a formulate, so-called “rigorous approach” or prescribed method, but one strategy that may be useful in navigating the increasingly vast and complex store and network of information found through social media.

5. REFERENCES


