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Code, Collaboration, And The Future Of Journalism

Seth C. Lewis^a & Nikki Usher^b

^a School of Journalism and Mass Communication, University of Minnesota-Twin Cities, USA

^b School of Media & Public Affairs, George Washington University, USA

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CODE, COLLABORATION, AND THE FUTURE OF JOURNALISM

A case study of the Hacks/Hackers global network

Seth C. Lewis and Nikki Usher

Amid the rise of computational and data-driven forms of journalism, it is important to consider the institutions, interactions, and processes that aim to help the social worlds of journalism and technology come together and collaborate around a common cause of news innovation. This paper examines one of the most prominent such efforts: the transnational grassroots organization called Hacks/Hackers. Through a two-year qualitative case study, we sought to understand just how journalists and technologists would engage through this organization: what kinds of interactions would occur, and what factors might facilitate collaboration? Drawing upon the science and technology studies concept of “trading zones,” we examine how Hacks/Hackers functions as an informal and transitory trading zone through which journalists and technologists can casually meet and coordinate. The level of engagement between the two groups, we found, depends on a set of social and structural factors, including institutional support and the leadership of key volunteers, and the depth of that engagement depends on sufficient mutual understanding among journalists and hackers. We discuss the implications of these findings for understanding the challenges and opportunities presented through the intersection of journalism and technology.

KEYWORDS computational journalism; hackers; news innovation; institutions; software development; trading zone

Introduction

By many accounts, both from inside the news industry and by academics, a distinct era of computational journalism is emerging—a moment at which a range of computer programming techniques, software applications, algorithms, data-processing tools, and beyond are becoming widely incorporated into major news organizations around the globe (Anderson 2012; Cohen, Hamilton, and Turner 2011; Flew et al. 2012; Lewis and Usher 2013). While computer-assisted reporting has been a feature of newswork for several decades, only in recent years have individuals who know how to write software code assumed a prominent role in the journalism field, typically through roles such as developer, data scientist, or “programmer-journalist” for specialized newsroom teams that build news applications, data visualizations, and related interactive features

(Parasie and Dagiral 2013; Royal 2012). Concurrently, there is a growing interest in journalism from the technology world. Programming communities to Silicon Valley startups to institutional actors like Google and the Mozilla Foundation have supported a *mélange* of “hackathons,” networking groups, scholarships, and even partnerships with traditional newsrooms in the service of news innovation.

Two major factors have influenced the increased intersection between technology and journalism. First, amid the rise of big data across many fields and industries, there has been a rise in data-driven approaches to journalism that can only be handled by complicated computer algorithms, database processing, and programming languages and interpretation (Gray, Chambers, and Bounegru 2012; Gynnild 2013). Second, and evident in the excitement around online interactives like *The New York Times*’ “Snow Fall” (Sonderman 2012), there has been a growing emphasis on news presentation that more closely resembles the properties of responsive and interactive Web design (Weber and Rall 2012). This requires more sophisticated programming knowledge. Thus, it is important for the journalism community to understand the social actors and processes engaged in building the techno-cultural frameworks for news innovation (Lewis and Usher 2013).

This article takes a step in that direction by examining perhaps the most prominent example of an effort to bring together the computing and journalism worlds: the transnational grassroots organization called Hacks/Hackers. Founded in 2009 to build a “network of journalists (‘hacks’) and technologists (‘hackers’) to rethink the future of news and information,” Hacks/Hackers has grown to become the largest organization of its kind.¹ As of January 2014, it had more than 75 city-based chapters around the world and more than 23,000 members connected via Meetup.com and other social media platforms who meet for discussions, hack days, and informal social mixers. The case of Hacks/Hackers presents an opportunity to consider the extent and nature of interactions between the computing and journalism domains—interactions that, according to academics and practitioners alike, are presumed to be critical for the future of journalism (Cohen, Hamilton, and Turner 2011; Flew et al. 2012). In this article, we draw on qualitative data gathered during a two-year study of Hacks/Hackers to examine this global network as a space for interaction.

On a broad level, we sought to understand what would happen as the journalism and technology worlds came together. In this case, our overarching research goal was to explore: Just how would hacks and hackers engage through this organization? What would their interactions be like? What factors would help facilitate these interactions? We examined these questions through interviews with leaders of 27 international chapters as well as through field research conducted at select chapters, and situated our work using the concept of “trading zones” (Galison 1997). From a practical perspective, this research is significant for understanding the challenges and opportunities presented through the intersection of journalism and technology.

Literature Review

Computer-assisted reporting (CAR) first emerged in the United States in the late 1960s and grew to prominence in the 1980s and 1990s, as computer-aided investigative reporting led to several Pulitzer Prizes. However, whereas traditional CAR uses statistics

to reveal truths hidden in public data and write narrative accounts about such findings, the emerging “programmer-journalist” alternative focuses on making data transparent for users to explore and contribute their own findings (Parasie and Dagiral 2013), in line with the norms and values of open-source computing (Lewis and Usher 2013). Moreover, technology specialists—software developers, computer programmers, and other technologists often labeled generically as “hackers”—have become key components in major newsrooms, building news applications that integrate sophisticated programming from 3D graphics to mapping data to interactive multimedia that tells stories (Usher 2009). Altogether, this has established the relevance of software code for contemporary journalism (Anderson 2012).

Journalists, in turn, have hoped to capitalize on the synergy that appears to be emerging between hackers interested in news and the creation of news innovation—thus leading to movements like Hacks/Hackers, initiatives like Hack Days at *The New York Times* and *The Guardian*, scholarships to bring programmers into newsrooms, and programs that teach journalists the basics of coding through online resources like Codecademy (for additional background, see Gynnild 2013). And yet, journalists and hackers have not always mixed easily because of their distinctive occupational norms and values, leading to different views about the nature of journalism and its processes amid technological innovation (Lewis and Usher 2013). Thus far, most research has looked at the potential tools that hackers might create for journalists (Cohen, Hamilton, and Turner 2011) rather than examine the actual relationships between these two groups.

One way to think about the intersection of two disciplines has been introduced in science and technology studies (STS), through the concept of a *trading zone*. Borrowing from anthropology, Galison (1997, 48) used the term to describe an “intermediate domain in which procedures could be coordinated locally even where broader meanings clashed.” As he notes, “Within a certain cultural arena—[the trading zone]—two dissimilar groups can find common ground” (48). He showed how diverse communities of scientists—each with their own distinctive identities, traditions, and epistemological claims—came together in social and technical spaces like MIT’s Rad Lab during World War II and, while not relinquishing their separate identities, managed to “hammer out a local coordination despite vast global differences” (783). The result was the development of innovations such as particle detectors and radar.

In developing the trading zone concept, Galison suggested that a shared language may emerge to facilitate collaboration—a “pidgin” or “creole” that becomes the social mortar through which groups converse, converge their thinking, and ultimately produce. This does not suggest that different groups suddenly agree on the meaning and significance of objects being exchanged, but rather that enough mutual understanding emerges to allow interdisciplinary productivity (or “trade”) to occur. In this sense, the trading zone concept connects with Stark’s (2009) thesis that, especially in the contemporary work environment, innovation arises not out of homogeneous cooperation but rather out of heterogeneous, even fractious, combinations of ideas and individuals. Indeed, across many fields, scholars have expanded on the notion of trading zones to develop theories around interactional forms of expertise (Gorman 2010), including to describe the new press–public collaboration evident in news organizations’ use of application programming interfaces (Ananny 2013).

Taken together, the literature suggests that institutions, shared working space, opportunities for informal collaboration, and common goals are key factors in helping

different social worlds come together and collaborate productively. Would these, in turn, be present with Hacks/Hackers?

The Case

Hacks/Hackers, co-founded in 2009 by a group of current or former journalists,² describes itself as “a digital community of people who seek to inspire each other, share information (and code) and collaborate to invent the future of media and journalism.” Its purpose is to bring together “hackers exploring technologies to filter and visualize information, and ... journalists who use technology to find and tell stories.”³ The group is non-hierarchical, composed of chapters unique to cities across all six continents.⁴ From 2012 to 2013 alone, the number of chapters doubled, as the network spread beyond its base in the developed West to many cities in Africa, the Middle East, and Asia.

Chapters range in size from a few dozen members for new chapters like Zurich and Beijing to more than 2000 members for older chapters in New York City, Buenos Aires, and London. They are encouraged to host regular meetings, or “meetups”; some chapters meet monthly or more, while others have met only sporadically over a period of years. Meetups typically are of three types: social gatherings, hack days or hackathons, and discussion panels. The group as a whole is largely informal: its members are tracked not by a central database but by estimates of who attends meetups; a few groups ask for fees to offset costs but most offer free events; and the regularity and focus of meetups varies considerably across groups.

Notably, Hacks/Hackers has received support from major players in American journalism, including the Online News Association, the National Institute for Computer-Assisted Reporting, major universities such as Columbia and Northwestern, and news organizations like *The New York Times*. It is hard to get a sense of the membership as a whole and the relative proportion of hacks to hackers, but our research suggests that some chapters have an even distribution of hacks to hackers, some have more hacks than hackers, and others have more hackers than hacks. By an overwhelming majority, most members in the United States are white and male.

Methods

We combined two forms of data collection to help synthesize this international organization. First, we conducted semi-structured, in-depth interviews with co-organizers of 27 chapters, representing nearly three-quarters of the 38 chapters that existed in April 2012, when the interviews began.⁵ We asked questions about the programming, membership, dynamics, and projects of each chapter, trying to understand the distinct roles and perspectives of hacks and hackers alike. Most interviews were conducted by phone. In addition, we made several field visits to meetups in Boston (September 2011 and March 2012), New York City (March 2012 and May 2012), and Minneapolis (November 2011) to observe the meetings of the groups first-hand. These sites were selected based on proximity to the researchers as well as the variety of activity within the groups.

Thus, we were able to combine the self-perception bias inherent in qualitative interview (Weiss 1994) with field data, strengthening our results. Field notes were kept through jottings in a notebook and transcribed later; interview data were recorded and transcribed. For analysis, we relied on a grounded theory approach that relied on the constant comparative method: we looked for categories, then larger codes, then themes that were resonant across the more than 250 pages of single-spaced data we had collected. From these themes, we assessed our research question and thematically traced our findings around the forums for collaboration and the factors enhancing or constraining engagement. We then looked back at trading zones as an explanatory framework for this research.

Hacks/Hackers as a Site of Informal Engagement

Most notably, Hacks/Hackers came as it was advertised: as a loosely organized forum for hacks and hackers to meet and socialize with each other. In the three general types of meetings—the presentation, the hack day, and the social get-together—hacks and hackers were welcomed into a variety of spaces with often vague directions about how, exactly, they were supposed to work with each other, and what, exactly, they were supposed to create. Like the physics laboratories studied by Galison (1997), these spaces encouraged interdisciplinary exchange through the creation of a deliberate setting to bring together actors around a common goal.

I like the regular and informal character of the Hacks/Hackers meetups, because you can sort of dive in and out of it ... And maybe these people don't become your new best friends, but you see them frequently enough where you are bouncing ideas off of each other and it's creating this intellectual community. (Lila LaHood, San Francisco Bay Area, May 18, 2012)⁶

While the San Francisco chapter is one of the largest with 1700 members, this pattern of informality was evident in smaller chapters as well—such as Edinburgh (56 members). “It’s very social. We don’t have a laser-focus beam of direction in terms of what exactly we want to do, but we’re all interested in technology and all interested in telling stories. Basically, I think we get together so that we can be more creative and bring ideas from what we are doing into our professional lives” (Devon Walshe, June 19, 2012).

A brief sketch from the field illustrates the kind of environment that the New York City chapter sought to create, according to lead organizer Chrys Wu. On a Wednesday in May 2012, some 35 chapter members gather at *The Guardian's* New York City office at 7 pm for a deliberately unstructured meetup, in a Silicon Valley-style loft with exposed ceilings, open space, and inviting couches. The attendees quickly make their way to *The Guardian's* kitchen area for burgers and beer. Attendees have paid \$10 for the privilege. Nearly all are male, white, and under 40.

Wu interrupts the mingling to describe this as “an open hack night, something we’ve never tried before.” She encourages people to offer their talents to others, and to think of this as “20 percent of your time,” in reference to the 20 percent creative time afforded to some tech workers to experiment with new projects on company time. Attendees have two hours, to which one of the few female developers, a

freelancer for *The New York Times* and Associated Press, quietly complains, “You can’t do *anything* in two hours.”

People move around the room to introduce themselves and offer their skills: most were developer/programmer types, while others were on the strategy side of tech and journalism. A few identified themselves as specializing in the PHP scripting language, as “Rubyists” who can apply the Ruby programming language, and another as a programmer/journalist who works for the Associated Press. Much of the evening is spent socializing, but a few developers take out their laptops and get to work on projects, most working solo. One developer tries to show a group how to extract data visualizations from networked data, with three or four people on their knees at a table watching him as he explains steps. A few people have headphones on and are busy coding on Macs running Linux. At this event, there are more hackers than hacks, to use the term strictly, but many hackers are tied to some kind of editorial day job: a back-end developer at *The Guardian*, a R&D designer at *The New York Times*, an interactive graphics and data editor at the Associated Press. (Indeed, we found overall that many hackers involved in Hacks/Hackers had technologist roles within news organizations.) The room is abuzz with beer drinking, some hacking, and much socializing. But at 9 pm, the lights go off, and the group heads out for more drinks at a bar nearby.

There were no formal projects prescribed; there were no icebreakers; there was just beer, food, and a time and space provided for a group of people to get together.

In this way, the meetups operated as informal trading zones for journalists and technologists to meet and greet. Yet, unlike the laboratories described by Galison to create cloud chambers, these temporary spaces were mostly introductions and casual exchanges—leaving the question as to whether informal interdisciplinary engagement can lead to a sustained coordination around a common goal.

Influences on Engagement Between Hacks and Hackers

We sought to explore not just the sites of interaction and their collaborative potential, but also the factors that might influence the relationships between hacks and hackers. What we found generally corresponds to the literature about the influences required for a trading zone to create a common language and purpose. Three primary factors emerged as the most significant in developing regular and meaningful hack-hacker interactions: supporting institutions, sufficient cross-understanding, and volunteer leadership.

Supporting Institutions as a Key Factor

Where Hacks/Hackers chapters have found staying power, almost inevitably they have enjoyed the support of local media/tech organizations—most often in addressing the primary logistical problem for Hacks/Hackers: finding a free place to meet. Naturally, in larger media markets it has been easier to find partners willing to offer space because there are more of them to choose from, such as *The Guardian* and *The Huffington Post* in New York City, Storify in San Francisco, and Bloomberg’s European offices in London, among many others.

In Boston, the *Globe* newspaper has opened its offices to meetups because “they recognize that this is important, and they want to be seen as a player in this space” (Matt Carroll, May 21, 2012). Just as important, for many chapters the local media organizations serve as a key source of hack and hacker participants. In Seattle, however, a smaller media ecosystem, combined with an intense demand for developers’ time, has made it difficult for the Hacks/Hackers group to find sustainable traction—not least because media and tech organizations alike have not shown much interest in supporting the chapter. “It’s not a key area of interest in Seattle” (Lauren Rabaino, July 9, 2013).

Sufficient Cross-understanding as a Key Factor

We found that journalists and developers generally shared a similar sense of purpose for Hacks/Hackers—in short, “to figure out how you can use software to tell a story, and do it in a more comprehensive way than maybe had been done previously” (Peter Edstrom, Minneapolis–St. Paul, June 5, 2012). Yet, a number of chapters found it difficult to develop a common language for translating that purpose toward productive ends, converting talk into action. Some of the problems related to technical jargon that developers knew and journalists did not; others were about differences in thinking—such as journalists’ concern with short-term, one-off stories compared to developers’ interest in long-term, ongoing software development. In Rochester, for instance, many journalists focused on solutions to mundane problems to allow them to keep up with increasing workloads; the hackers, meanwhile, were there to solve bigger problems and build something they could be proud of, like a major investigative report. This inevitably led to misunderstanding: “a lot of the technologists locally have very traditional heroic-journalism type views and don’t really appreciate the pressures that are on [the local newspaper] to constantly feed the beast” (Matt Bernius, Rochester, May 22, 2012).

By contrast, other chapters found more common ground of mutual appreciation because they worked to show specific areas of coordinated possibilities. In New York, demo days featured the work of hackers who had put together applications they thought could be beneficial for journalism. Mereporter, an application that gives virtual badges to citizen journalists for contributing information to stories, debuted first at a tech conference, but was later the subject of conversation at Hacks/Hackers as a productive crossover for both groups to assist each other. Journalists could provide feedback and exchange on the demo days, creating an open dialogue about news innovation. Additionally, in Toronto, chapter leaders made a point of introducing hacks and hackers to each other, one-on-one. “We tried to turn it into sort of a matchmaking thing,” designed to solve particular problems through micro-collaboration. And, as they programmed events, organizers sought to create “catalytic moments” that “really open the eyes of both sides and open up opportunities for conversations so they can collaborate more together” (Phillip Smith, Toronto, November 15, 2012). Structure, therefore, facilitated a certain degree of improved understanding.

Volunteer Leadership as a Key Factor

Hacks/Hackers chapters depend on the volunteer leadership of organizers, of which there are typically three or four per chapter, usually with one co-organizer acting

as the lead. The most active chapters, often holding an event or more per month, are led by highly engaged lead organizers—such as Wu in New York, data journalist Matt Carroll in Boston, communication professor and self-taught developer Cindy Royal in Austin, and investigative journalist Mariano Blejman in Buenos Aires. Each not only cares passionately enough to propel the group forward, but also acts as a bridging liaison between the social worlds of journalism and computing in their local communities: in many cases, they personally know enough journalists and developers, or have co-organizers with complementary social circles, to leverage a steady stream of presenters for panel discussions and participants for hackathons.

Meanwhile, in other locations, Hacks/Hackers chapters have struggled because of high turnover or lack of time among leaders, or because the co-organizers predominantly come from one side of the hack–hacker spectrum or the other, without the right mix to attract both communities to meetings. The chapter in Ottawa, for instance, needed a co-organizer “who’s not a full-time journalist who is constantly worried about deadlines who can actually take the bull by the horns and make sure we do regular stuff and reach out to more and more people” (Nick Taylor-Vaisey, May 23, 2012). Ultimately, in locations where an insufficient number of journalists or developers were attracted to participate in Hacks/Hackers, the requisite degree of “cross-pollination of ideas” could not occur, negating the potential for productive interaction (Steve Myers, Tampa Bay, October 1, 2012).

Discussion and Conclusion

This case study of Hacks/Hackers is a starting point for investigating the interactions developing between journalists and technologists, and the factors that influence how they might come together and coordinate around a common purpose of news innovation. What we learn about these initial interactions via Hacks/Hackers is telling. Informal relationship-building is helpful in that it is enjoyable for both groups, and may create quick relationships or spontaneous opportunities for learning. However, the lack of sustained and enduring exchanges—e.g. more systematic membership tracking, more regularly scheduled meetings, and otherwise greater institutional continuity—would seem to make it difficult to generate momentum for more in-depth sharing. The institutional support varies: not only does it often come from different institutions for each event, in an *ad hoc* fashion, but it may not happen at all in some cases. Nonetheless, it appears that institutional backing from local media and technology organizations does create a better chance that a chapter will be more active, and thus have more frequent and sustained forms of engagement. And, what remains difficult to anticipate is the degree of mutual understanding that may or may not develop in a setting of hack–hacker interaction. In turn, that level of cross-understanding, critical to eventual collaboration, appears dependent in part on the commitment and social connections of key individuals who orchestrate meetings and encourage these two groups to coordinate.

Galison’s (1997) trading zone concept offers a metaphor to help articulate this phenomenon. Trading zones suggest the importance of institutional support for creating relationships between actors of difference, whether they are doctors and magnetic resonance imaging technicians or physicists and engineers gathered in wartime laboratories. Institutions matter because they have the social and economic capital necessary

to help bring together people who might ordinarily not come into contact with one another, enabling sites of exchange to develop. Yet, in the case of Hacks/Hackers, there is an incomplete rendering of institutions. Their tacit support allows chapters to overcome a major logistical challenge—finding meeting space for dozens or even hundreds of attendees—and thereby build momentum and achieve critical mass. But the lack of consistency in institutional backing from event to event may be limiting the long-term rootedness of chapters in their local communities: just working out when and where to meet becomes a practical barrier to collaboration.

This raises a second critical issue, which is the temporary nature of these trading zone opportunities. In the case of Hacks/Hackers, the informal exchange of ideas is a welcome part of the process, presumed to lead to greater innovation through open-ended direction and rapid iteration and experimentation—as exemplified in the setup for a hackathon (Gray, Chambers, and Bounegru 2012). Nevertheless, the informality of these interactions—the casual exchanges, the different kinds of attendees depending on the event topic, the lack of consistency, the infrequency and unpredictability of events—all of this renders it more difficult to establish a steady space for the exchange of ideas and the gradual infusion of shared culture and meaning, of the kind that may be required for cross-disciplinary understanding and collaboration. Thus, in the main, we see ways in which hacks and hackers do not understand each other because they struggle to develop a common language; yet, the conditions for creating a common language would be more likely in a setting of more durational, consistent, and coordinated engagement of actors. Nevertheless, some chapters, like Toronto, have been successful in using structured interactions to facilitate mutual understanding and eventual productive collaboration, one journalist and one developer at a time.

Both of these findings illustrate themes that are found in the science and technology studies literature but are further confirmed here. What may appear anomalous, however, is the salience of particular individuals—key volunteers who took leadership roles and, because of their personal investment and social circles, were uniquely positioned to help ensure engagement for their chapters. While the literature on trading zones has little to say about such individual-level influences such as these, this finding may simply suggest the limitations of applying the trading zone concept to the case of Hacks/Hackers—and indicate that further research is needed to untangle the role of individuals relative to social institutions and technological artifacts.

Ultimately, this research is a step toward understanding what happens when the social worlds of journalism and technology come together. We learn that the fusion between the two requires significant, coordinated, and sustained effort, and that the barriers between each field's understanding of the other are real. News innovation may be a common cause, but what that means and how it serves as a rallying cry is quite complicated, and it is important to hold back on some of the unbridled enthusiasm for the potential fusion of technologists sharing with journalists, despite the clear potential this may offer to journalism. To be fair, of course, Hacks/Hackers is a fledgling organization run entirely by volunteer efforts; our purpose is not to criticize it unduly so much as use its experience to cast a wider lens on the challenges that face any group trying to institutionalize and pursue innovation on a broad scale across the journalism field.

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NOTES

1. The term “hacker” often has a negative connotation, but Hacks/Hackers invokes it in a more pro-social sense—as a computationally skilled individual with an interest in sharing information, often with the public good in mind, in the manner described by Coleman (2013).
2. See <http://hackshackers.com/about/history/> for a brief history of Hacks/Hackers and its co-founding by Burt Herman, Aron Pilhofer, and Rich Gordon.
3. See <http://hackshackers.com/about/>.
4. Not all chapters use the Meetup.com platform to coordinate their activities; others use Facebook or Google Groups. For further information, see <http://hackshackers.com/> and <http://hackshackers.meetup.com/>.
5. Of those 27 chapters, 16 represented the United States (Atlanta, Austin, Boston, Colorado, IRE [Columbia, Missouri], Los Angeles, Omaha, Philadelphia, Research Triangle [North Carolina], Rochester, San Diego, San Francisco Bay Area, Seattle, Tampa Bay, Twin Cities [Minneapolis-St. Paul], Washington, DC), four represented Canada (Montreal, Ottawa, Toronto, Vancouver), and the rest were from Argentina (Buenos Aires), Finland (Helsinki), Mexico (Mexico City), Spain (Madrid), and the United Kingdom (Belfast, Brighton, and Edinburgh).
6. Interviewees are listed by name, followed by the chapter they co-organize and the date of the interview.

REFERENCES

- Ananny, Mike. 2013. “Press-Public Collaboration as Infrastructure: Tracing News Organizations and Programming Publics in Application Programming Interfaces.” *American Behavioral Scientist* 57 (5): 623–642. doi:10.1177/0002764212469363.
- Anderson, C. W. 2012. “Towards a Sociology of Computational and Algorithmic Journalism.” *New Media & Society* 15 (7): 1005–1021. doi:10.1177/1461444812465137.
- Cohen, Sarah, James T. Hamilton, and Fred Turner. 2011. “Computational Journalism.” *Communications of the ACM* 54 (10): 66–71.
- Coleman, E. Gabriella. 2013. *Coding Freedom: The Ethics and Aesthetics of Hacking*. Princeton, NJ: Princeton University Press.

- Flew, Terry, Christina Spurgeon, Anna Daniel, and Adam Swift. 2012. "The Promise of Computational Journalism." *Journalism Practice* 6 (2): 157–171. doi:[10.1080/17512786.2011.616655](https://doi.org/10.1080/17512786.2011.616655).
- Galison, Peter. 1997. *Image and Logic: A Material Culture of Microphysics*. Chicago: University of Chicago Press.
- Gorman, Michael E. (ed.). 2010. *Trading Zones and Interactional Expertise: Creating New Kinds of Collaboration*. Cambridge, MA: MIT Press.
- Gray, Jonathan, Lucy Chambers, and Liliana Bounegru. 2012. *The Data Journalism Handbook*. Sebastopol, CA: O'Reilly Media.
- Gynnild, Astrid. 2013. "Journalism Innovation Leads to Innovation Journalism: The Impact of Computational Exploration on Changing Mindsets." *Journalism*. doi:[10.1177/1464884913486393](https://doi.org/10.1177/1464884913486393).
- Lewis, Seth C., and Nikki Usher. 2013. "Open Source and Journalism: Toward New Frameworks for Imagining News Innovation." *Media, Culture & Society* 35 (5): 602–619. doi:[10.1177/0163443713485494](https://doi.org/10.1177/0163443713485494).
- Parasie, Sylvain, and Eric Dagiral. 2013. "Data-Driven Journalism and the Public Good: 'Computer-Assisted-Reporters' and 'Programmer-Journalists' in Chicago." *New Media & Society* 15 (6): 853–871. doi:[10.1177/1461444812463345](https://doi.org/10.1177/1461444812463345).
- Royal, Cindy. 2012. "The Journalist as Programmer: A Case Study of the New York times Interactive News Technology Department." *#ISOJ: the Official Research Journal of the International Symposium for Online Journalism* 2 (1): 5–24.
- Sonderman, Jeff. 2012. "How the New York Times' 'Snow Fall' Project Unifies Text, Multimedia." Poynter. Accessed December 20. <http://www.poynter.org/latest-news/top-stories/198970/how-the-new-york-times-snow-fall-project-unifies-text-multimedia/>
- Stark, David. 2009. *The Sense of Dissonance: Accounts of Worth in Economic Life*. Princeton, NJ: Princeton University Press.
- Usher, Nikki. 2009. "The Iraq War Online: News Graphics and Interactive Argument." *Journal of Visual Literacy* 28 (12): 116–128.
- Weber, Wibke, and Hannes Rall. 2012. "Data Visualization in Online Journalism and Its Implications for the Production Process." *16th International Conference on Information Visualisation (IV)* 349–356. IEEE. doi:[10.1109/IV.2012.65](https://doi.org/10.1109/IV.2012.65)
- Weiss, Robert S. 1994. *Learning from Strangers: The Art and Method of Qualitative Interview Studies*. New York: Free Press.

Seth C. Lewis, (author to whom correspondence should be addressed) School of Journalism and Mass Communication, University of Minnesota–Twin Cities, USA. E-mail: sclewis@umn.edu

Nikki Usher, School of Media & Public Affairs, George Washington University, USA