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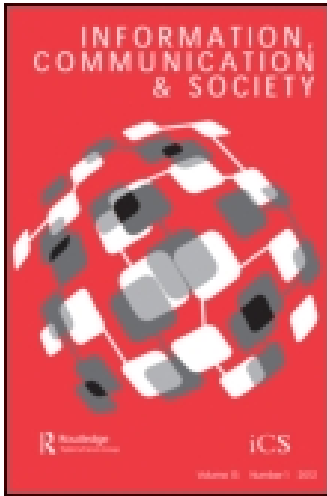
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Social media and the transformation of activist communication: exploring the social media ecology of the 2010 Toronto G20 protests

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How does the massive use of social media in contemporary protests affect the character of activist communication? Moving away from the conceptualization of social media as tools, this research explores how activist social media communication is entangled with and shaped by heterogeneous techno-cultural and political economic relations. This exploration is pursued through a case study on the social media reporting efforts of the Toronto Community Mobilization Network, which coordinated and facilitated the protests against the 2010 Toronto G-20 summit. The network urged activists to report about the protests on Twitter, YouTube, and Flickr, tagging their contributions #g20report. In addition, it set up a Facebook group and used a blog. The investigation, first, traces the hyperlink network in which the protest communication was embedded. The hyperlink analysis provides a window on the online ecology in which this communication unfolded. In addition, the examination interrogates how the particular technological architectures, related user practices, and business models of the various social platforms steered communication. This investigation shows that the use of social media brings about an acceleration of activist communication, and greatly enhances its visual character. Moreover, as activists massively embrace corporate social media, they increasingly lose control over the data they collectively produce, as well as over the very architectures of the spaces through which they communicate.

Keywords: social media; activist communication; hyperlink analysis; political economy; technological architectures

Introduction

During the 2010 G20-summit in Toronto, the Toronto Community Mobilization Network (TCMN), which coordinated and facilitated many of the protests, called upon protestors to ‘broadcast breaking news’ using Twitter, YouTube, or Flickr, tagging their reports #g20report. And, ‘if you’re combing the Web for G20 reports, retweet them with #g20report, or add the tag to flickr photos or youtube videos about G20 actions you happen to come across’. The #g20report tweets, videos and photos were subsequently aggregated in real-time on the ‘open publishing website’ of the G20 Alternative Media Center. In total, 11,556 tweets, 222 videos, and 3338 photos tagged #g20report were produced in the 12 days around the summit.

This is one of the many examples, over the past years, of activists using social media during large protest events. The protestors of the 2009 G20-summit in London employed similar social media tactics (Cullum, 2010). In turn, the Occupy Wall Street movement, more recently, also

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heavily relied on social media, creating hundreds of local Facebook pages and groups, and circulating Twitter hashtags, such as #occupywallstreet, #ows, and #occupy (Juris, 2012). Finally, particularly striking is the massive social media use during the 2009 post-election protests in Moldova and Iran, and during the 2011 North African revolutions and protests. On these occasions, protestors setup Facebook groups, such as ‘We are all Khaled Said’, and used Twitter hashtags, such as #iranelection, #sidibouid, and #egypt, to exchange millions of messages (Lim, 2012; Lotan et al., 2011; Poell & Darmoni, 2012).

This article examines how this social media use affects the character of activist communication. Reflecting on this question, some commentators have celebrated these media as tools, which allow activists, and citizens more generally, to expose wrongdoings, report news, and express opinions (Diamond, 2010; Shirky, 2011). In reaction to these kinds of celebratory claims, other commentators have criticized social media as activist tools, pointing out that they are also used by authorities for surveillance purposes (Morozov, 2011). Despite the differences between these claims, they resemble each other in their understanding of social media as tools in the hands of particular actors. While most scholars working on social media activism are less overly optimistic or pessimistic, most tend to understand social media as tools, platforms, or instruments, which can be used to pursue particular objectives. Accordingly, a lot of research is concerned with questions pertaining to the efficacy of social media in facilitating activist communication (van de Donk, Loader, Nixon, & Rucht, 2004; Eltantawy & Wiest, 2011; Howard, 2010; Joyce, 2010).

As a number of critical theorists have pointed out, however, social media are not neutral tools, as they are always already entangled in complex techno-cultural and political economic relations, from which they cannot be analytically separated. Segerberg and Bennett (2011, p. 200) maintain, for example, that ‘extracting single elements from more complex communication processes involving many actors and technologies may misrepresent the political action and dynamics of the case at hand’. From a slightly different point of view, but also moving away from social media as tools, Langlois, Elmer, McKelvey, and Devereaux (2009, p. 416) have argued, examining how political activism takes shape on Facebook, that social platforms should be conceptualized as assemblages. In these assemblages ‘software processes, patterns of information circulation, communicative practices, social practices, and political contexts are articulated with and redefined by each other in complex ways’.

Following this more complex understanding of social media, this article explores how social media shape activist communication, and how these media are, in turn, shaped by intersecting techno-cultural and political economic relations. It will do so through a case study on the social media activities of the TCMN, during the 2010 G20 protests. This provides an excellent case study, as TCMN carefully orchestrated which platforms and tags were employed, making it possible to demarcate the relevant social media activity. This activity includes the #g20report tweets, videos and photos, but also posts on the Toronto Media Co-op blog, and the ‘Community Solidarity Network’ Facebook group.

To understand how this activity is entangled in heterogeneous sets of relations, the investigation, first, traces the hyperlink networks in which it is embedded. As various researchers have shown, hyperlink analysis can provide a window on the organizational ecology in which online communication takes place (Foot & Schneider, 2006; Marres & Rogers, 2005; Segerberg & Bennett, 2011). In addition, the examination interrogates how the particular technological architectures, related user practices, and business models of the various social platforms steer protest communication. Finally, the analysis reflects on the character of the social media protest ecology as a whole. What kind of ecology did the combined activity on the different platforms produce?

Theorizing activist social media communication

This exploration will be developed in critical dialogue with a variety of studies, which have examined, at least, in part, the relations in which activist social media communication is entangled. First, much attention has been devoted to the relationship with the mainstream press. Especially, the question whether social media allow activists to plug their message into the mainstream news process has generated debate. Initially, in the first years after the turn of the millennium, there was general optimism about the potential of online media to change the flow of public communication (Benkler, 2006; Bennett, 2003; Jenkins, 2006; Peretti & Micheletti, 2004). While this type of optimism still resonates in popular discourse, most scholars have, over the past years, adopted a more sobering tone. Fenton (2010), and Bennett, Lawrence, and Livingston (2007), for example, maintain that despite the rise of social media, it is still difficult for critical voices, if not more difficult than before, to affect the mainstream news process. In turn, Lester and Hutchins (2009, p. 591) stress that it will remain hard for activists ‘to destabilize established patterns of political and media power’, as long as they continue ‘using the internet primarily to attract the attention of journalists’, a strategy which rather ‘reinforces and entrenches’ established patterns. In their mind, the way forward for activists is to start using the Web for ‘sustainable self-representation’ (see also Couldry, 2003).

Second, particularly important for the present inquiry is research that uses hyperlink analysis to explore how different organizational websites, ranging from non-governmental organizations (NGOs) to corporate websites, are linked with each other in online contention (Bennett, 2004; Foot & Schneider, 2006; Marres & Rogers, 2005). Building on this approach, Segerberg and Bennett have recently mapped the protest ecologies around the 2009 UN Climate Summit by tracing the hyperlinks that were shared through two Twitter hashtags used in the protests. Studying these ecologies, they discovered ‘a media world that places the mass media at the margins, and elevates purveyors of social technology from NGOs to Flickr to prominent roles’ (Segerberg & Bennett, 2011, p. 205). More generally, they discovered what they call ‘the logic of connective action’. In contrast to the traditional ‘logic of collective action’, connective action does not revolve around the formation of collective identities, and does not require the involvement of formal organizations. Instead connective action is, according to the authors, based on the sharing of easily personalized ideas, such as ‘we are the 99%’, through social media technologies (Bennett & Segerberg, 2012).

Finally, of interest is research that uses hyperlink analysis to study online group polarization. Much of this research takes the American blogosphere as its object of study. Especially Sunstein (2001, p. 199) has tried to demonstrate, exploring the links between blogs, that ‘the Internet creates a large risk of group polarization, simply because it makes it so easy for like-minded people to speak with one another – and ultimately to move towards extreme and sometimes even violent positions’ (see also Adamic & Glance, 2005; Sunstein, 2006). Over the past years, these concerns have been partly qualified, as researchers found active engagement and substantive debate between different political groups in the American political blogosphere, as well as on Twitter and Facebook (Bakshy, 2012; Hargittai, Gallo, & Kane, 2008; Yardi & boyd, 2010). Given that the present study focuses on what Sunstein would qualify as a group of ‘like-minded people’, it will be interesting to examine whether the social media use of G20 protesters can be understood in terms of polarization and debate.

While the above discussed research offers vital insights, it also has two important limitations. First, most of these studies only examine part of the relations in which social media are embedded. Many of them are heavily focused on links with the mainstream press. The assumption being that the press ultimately provides access to, and is a carrier of, general public discourse. Furthermore, much of the current research concentrates on the type of relations that primarily revolve around

discursive exchanges, instead of, for example, the exchange of visual material. Consequently, a lot of attention is devoted to links between (micro-) blogs. These types of connections, however, only constitute part of the heterogeneous hyperlink networks in which social media communication is entangled. In practice, blogs are not only linked to other blogs and mainstream news sites, but also to Internet forums, NGO and government sites, news aggregators, and so on. Not to mention all the ‘embedded’ content from photo- and video-sharing sites. The same can be said for other types of social platforms.

The second limitation of the discussed studies is the lack of attention for the particular architectures and user practices that characterize specific social platforms. Most of these studies appear to start from the assumption that different social media, conceptualized as ‘neutral’ platforms or tools, are in similar ways embedded in public communication. Observations on specific platforms are often extrapolated, and held to be valid for all social media. Consequently, it is not systematically examined how particular types of social media are entangled in activist communication. Yet, as a number of platform-specific studies have already indicated, each platform is defined by particular protocols, user practices, and business models, which very much shape how information circulates (boyd, Golder, & Lotan, 2010; Bruns, 2011a; Kessler & Schäfer, 2009; Langlois et al., 2009; Poell, 2009). This is not to say that social platforms should be studied in isolation, nor does it mean that attempts should be made to identify and fixate the structural properties of specific platforms. Instead, social media should be understood, in the words of Manovich (2008, p. 15), as ‘dynamic software performances’. Moreover, these performances take place in constant interaction with other media platforms, as well as with the specific social and political contexts in which they are enacted.

Taken together, there are at least two major challenges for this investigation. First, the technological and political economic features of social platforms have to be interrogated, to understand how these platforms steer the character of activist communication. Second, the examination needs to trace the full range of hyperlink networks in which activist social media communication is embedded, to gain insight in how activist communication is shaped through the interrelations between different social platforms.

Examining the social media protest hyperlink network

The starting point of this inquiry is the exploration of the hyperlink networks in which the G20 social media protest communication was entangled. This exploration has been operationalized through the following steps.

First, all of the reports on social media platforms advocated by the TCMN have been collected for the 12-day period between 22 June and 3 July 2010. More specifically, this concerns the posts on Twitter, YouTube, and Flickr with the hashtag #g20report, as well as the posts on the Toronto Media Co-op blog and the ‘Community Solidarity Network’ Facebook group. Data were collected starting a few days before the actual G20 summit (26–27 June) because there was already significant protest activity during these days. The collected data spans until after the summit, as several demonstrations took place protesting the arrest of over a thousand people in the course of the protests.

The tweets were collected with Google Realtime Scraper.¹ This produced a set of 11,556 tweets for the 12-day period. In turn, by searching #g20report on YouTube, 222 videos were harvested with the assistance of the Tubekit.² And, 3338 Flickr photos were collected manually through Flickr’s advanced search interface, which allows one to query for particular tags within a specific date range. The posts on the Media Co-op blog and the Facebook posts were also collected manually. For the latter, specifically the ‘links’ pages of the Facebook group were saved.

In the following step, the out- and inlinks of the social media posts were amassed. Outlinks are the URLs included in the social media posts, which *refer to* other online platforms. Inlinks, in turn, are the links *received by* a particular post, or set of posts, from other platforms. The outlinks could be selected from the harvested posts, while the inlinks were collected with the Yahoo Inlink Scraper (Table 1).³ As a result of the particular architecture and the specific linking practices of each platform, there are a number of notable differences in how the inlinks were scraped. For YouTube, the Media Co-op blog, and Flickr, the inlinks for the individual posts were collected. In the case of the Facebook group, the links received by the group as a whole were scraped. And, as it is uncommon to link to individual tweets, the choice was made to scrape the Twitter search query for #g20report.

Finally, all of the pages in the hyperlink network were coded for the *type of website*. This was done through a strategy of emergent coding, in which the starting point was how the sources defined themselves. First, a list of self-descriptions was consolidated. Subsequently, this list was cross-referenced with the list of ‘types of websites’ on the English Wikipedia (2011). By coding for type of website, it became possible to gain insight into how the activity on particular platforms was embedded in a larger media ecology. And, by combining results, the social media protest ecology as a whole came into view.

Particular platforms

Figure 1 shows a Gephi map of the hyperlink network in which the activity on the five selected platforms was embedded. The map immediately indicates, as does Table 1, that there are striking differences in how the activity on the different platforms shapes the protest ecology. There are especially strong differences between the activity on Twitter, which was characterized by a large number of outlinks, and the YouTube videos, which received a lot of inlinks. Moreover, it is also evident that these two platforms were the most important in the ecology. The Media Co-op blog, and the Facebook group, generated less linking activity, and, consequently, were not as centrally positioned. Most notable is the absence of Flickr, which was not included in this map because the #g20report photos were not accompanied by outlinks. And only one #g20report photo received inlinks (Martinho 2010). In this sense, Flickr appears not to have been a crucial part of the social media protest ecology.

Twitter

The Twitter outlinks, that is the URLs included in the tweets and retweets, constitute the largest set of harvested links. Twitter clearly was an important referencing platform during the protests. In this respect, the G20 protesters build on a well-established practice. Already early on, Twitter users included URLs in their tweets (boyd et al., 2010, p. 2). This practice has grown more popular over the years. Hughes and Palen (2009, p. 9) note an increase in the percentage of

Table 1. In- and outlinks G20 activist social media communication.

Platform	Nr. outlinks	Nr. inlinks
Twitter	1871	34
YouTube	157	1230
Flickr	0	21
Media Co-op blog	78	120
Facebook group	225	265

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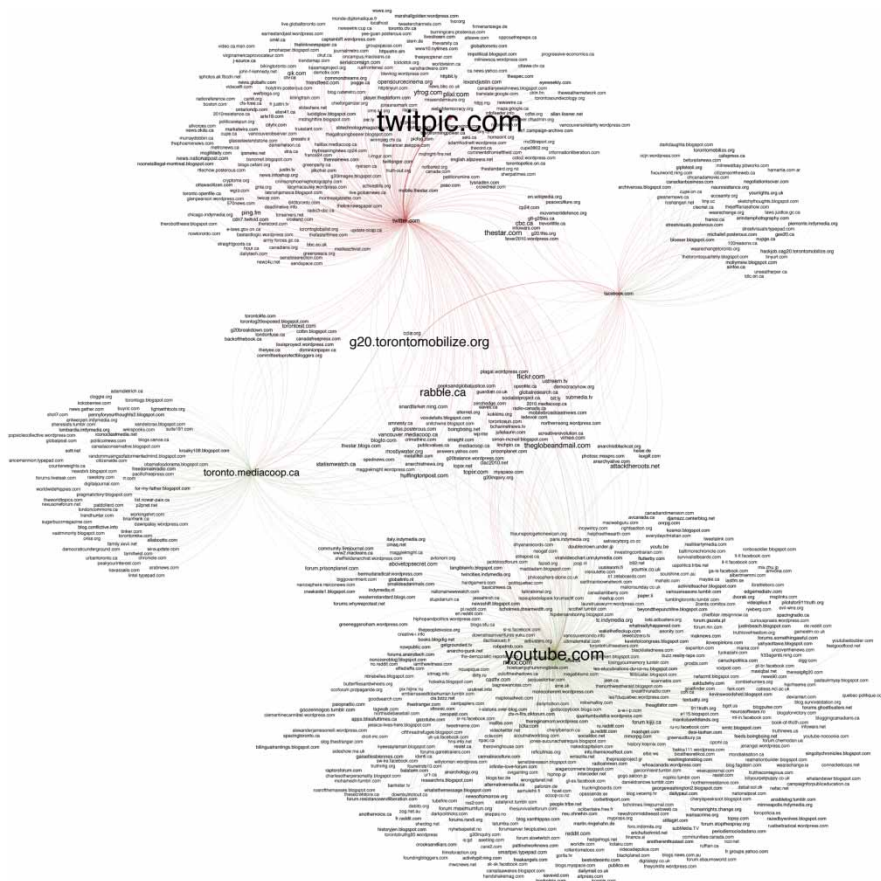


Figure 1. Hyperlink network of the G20 activist social media communication (Node label size is scaled by indegree. Links are coloured green if they constitute an inlink, and red if they are outlinks).

tweets containing a URL, from about 13% in 2007 to about 25% in 2009. The present study, which found that 30% of the examined tweets contained a URL, is in line with this trend. Hughes and Palen concluded that ‘Twitter seems to have evolved over time to offer more of an information-sharing purpose (2009, p. 9)’.

As Twitter users massively linked to outside sources, they effectively enhanced the reach of specific media accounts of the G20 protests. Especially striking is that a major part of the Twitter outlinks, 45% in total, referred to ‘media sharing sites’ (Figure 2). In turn, a large share of these sites facilitated photo sharing: Plixi, yfrog, Ping, and especially Twitpic, which is specifically designed for sharing photos on Twitter. Moreover, there were also a lot of outlinks to video-sharing platforms, most prominently to YouTube. The outlinks found in the tweets pointed users to new photo and video material on the protest events, and especially on the violent confrontations between the protesters and the police. Through these outlinks, visual accounts of the events were constructed that were closely entwined with the stream of twitter messages.

Also frequently referenced in the Twitter outlinks were news sites, which constituted 36% of the shared URLs. Of these news sites, the mainstream media, such as the Canadian newspapers *The Star* and *The Globe and Mail*, constituted a minority: 15% of all the shared links. This corresponds with the observations of Segerberg and Bennett (2011, p. 205) on the limited role of the

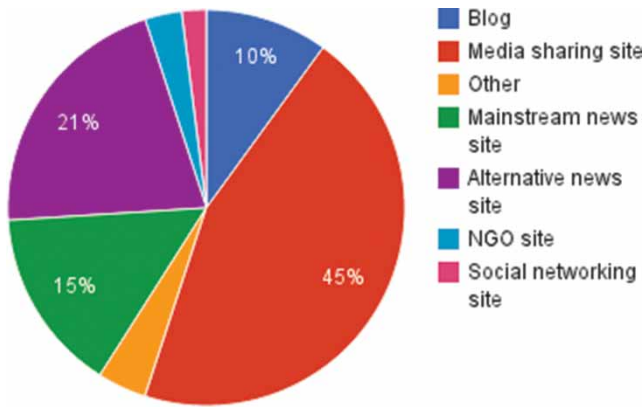


Figure 2. Twitter outlinks – distribution of types of platforms referenced in #g20report tweets.

mainstream media in the Twitter ecology of the 2009 UN Climate Summit protests. In the two hashtags they examined, Segerberg and Bennett found that 15–18% of the shared links referred to mass media sites. The majority of the referenced news sites, in the present study, can be categorized as alternative news sites, such as Rabble.ca, Toronto Media Co-op, Vancouver Media Co-op, and Democracy Now! In terms of content, both the alternative and mainstream news reports were, similar to the linked photos and videos, squarely focused on the events on the streets.

Through the Twitter linking practices, a detailed account was constructed of especially the overwhelming police presence and violence that accompanied the protests. The protest issues, as well as the G20 summit itself, were mostly absent from the referenced news reports (see also Poell & Borra, 2012). In fact, of the most retweeted urls, taking for each examined day the top 10, only 8% of the referenced pages discussed the issues that inspired the protests. The rest of the most retweeted urls, 92%, referenced pages that were concerned with the events on the streets, of which 62% featured police activity.

Going by the hyperlink network map, it is clear that the communication through Twitter played an important role in organizing the social media protest ecology, enhancing the focus on unfolding events. It is not evident, however, how the Twitter messages themselves circulated in this ecology. Going by the map it seems that these messages only played a marginal role, as they did not receive any inlinks. There were 34 inlinks to the Twitter search query for #g20report, almost all of which came from blogs (27). Yet, these links did not privilege any particular messages, but rather gave access to the stream of #g20report tweets. To understand how tweets circulate, it is important to move beyond hyperlink analysis and interrogate Twitter's particular architecture and users practices.

Especially important in this respect is the practice of retweeting. Retweeting, that is reposting the content of another user's tweet, can enormously enhance the visibility of a specific tweet, and of the included URLs. As each user has followers, who themselves also have followers, a tweet can quickly reach thousands of people. How far the reach of a message is extended through this practice ultimately depends on the number of followers of each retweeting user, and the number of times a tweet is retweeted. In the case of the #g20report tweets, there was a lot of retweeting activity: the retweets constituted more than 50% of all tweets on each of the investigated days (for a more extensive discussion, see Poell & Borra, 2012).

Of course, the intense circulation of messages through retweeting took place on Twitter itself, and did, in this way, not permeate the larger media ecology of the protests. Nevertheless, recent Twitter research does suggest that the platform occupies a central place in online news ecologies,

as the platform has very much become the go to place for breaking news events (Armstrong & Gao, 2010; Bruns, 2011b; Hermida, 2010a; Murthy & Longwell, 2012). The practice of categorizing tweets through hashtags is important here. It prompts users to share and search for news on a particular topic on Twitter. Evidently, with the #g20report, the G20 protest organizers built on this practice, by inviting users to actively report on the protests. In turn, Twitter's news-oriented character is further enhanced by its trending topic feature. This feature, which was introduced in 2008, shows what hashtag has a spike in volume (Gillespie, 2012). Since its introduction, the feature was further developed by identifying the 'most breaking news', and by allowing users to break-down trending topics by region, country and city (Parr, 2010).

Twitter's news-oriented focus is by no means accidental, but very much shaped by the emerging business models of the platform. As described by van Dijck (2013), Twitter has experimented with a number of revenue models. In 2009, the company sold the rights to include tweets in the real-time search results of Google and Microsoft. And the next year, the company started to charge external developers for using Twitter data to develop monetizing services, for example, for sentiment-analysis and opinion mining. During the same year, it also launched @earlybird Exclusive Offers, offering followers time-sensitive deals on products and events from sponsors. Taken together, Twitter's revenue models especially exploit the near real-time character of the platform. And, as these models, in turn, inform the platform's technological architecture, they effectively steer activist communication towards real-time reporting.

While the G20 protest communication built on Twitter's real-time news-oriented character, which is also reflected in the examined linking practices, it is important to note that the platform's unfolding business models simultaneously undermine activist control over their communication data. Over the past years, Twitter has increasingly made it more difficult for users to freely access large sets of tweets through its application-programming interface. Hence, already a few days after the G20 protests, it became impossible to access the entire set of #g20report tweets that were sent during the demonstrations. In early 2011, Twitter began to refer users that needed access to such large data sets to third party commercial access providers, such as Gnip, which charge substantial access fees (Bruns, 2011a, p. 5; Bruns & Liang, 2012). Hence, Twitter's business models and technological architecture, in this way, obstruct activists from accessing, controlling, and gaining an overview of the data they collectively produce.

YouTube

Whereas Twitter especially enhanced the visibility of specific social media protest accounts, YouTube primarily hosted the material to which other sites were referencing. The top YouTube videos, a few of which received about one hundred inlinks and around 100,000 views, can be considered as the most prominent social media reports of the protests. As Figure 3 shows, these videos were referenced on a wide variety of sites. Especially important were blogs (30%), news sites (24%), and Internet forums (19%). Most of these sites linked to the #g20report videos to illustrate a particular account of the protests. More specifically, especially those videos were referenced that portrayed the excessive police presence and violence that accompanied the protests.⁴ Other videos that discussed the larger context of the G20 protests, and the issues that triggered these protests, hardly received any inlinks. Strikingly, these inlinking patterns correspond with the observed Twitter outlinking practices, which were also primarily focused on reconstructing the unfolding events on the streets, and especially the confrontations with the police.

The particular role played by YouTube in the social media protest ecology can, first of all, be related to the platform's specific architecture and user practices. Kessler and Schäfer (2009, p. 278) have argued that the platform can be 'described as an infrastructure, as its scope goes well beyond the YouTube Internet site proper'. Among other things, this is enabled by the

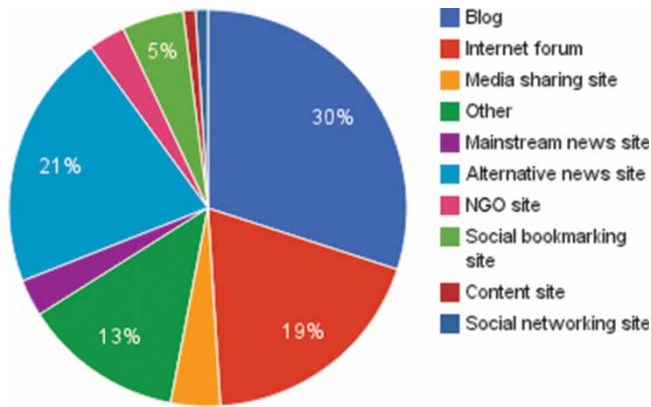


Figure 3. YouTube inlinks – distribution of types of platforms referencing #g20report YouTube videos.

feature of ‘the so-called “embedded links” that facilitate the integration of YouTube videos into all types of other environments, from personal websites and amateur or professional blogs to the online services of traditional media such as newspapers, magazines and television channels’ (Kessler & Schäfer, 2009, pp. 278–279). It is precisely this feature that allowed YouTube to function as an important repository for videos on the G20 protests. In this way, it further enhanced the visual character of the social media protest ecology.

By contrast, YouTube did not play a significant role as a referencing platform. While the percentage of video descriptions that included a URL, 34%, was similar to the percentage of tweets containing a URL (30%), these YouTube outlinks were not important in terms of gatewatching relevant material as it appeared. Instead, most of the included URLs were self-promotional, referencing to the video author’s blog. Moreover, many users included the same set of URLs in the descriptions of all of the videos they posted. This corresponds with established YouTube outlink practices, in which the video description section typically include self-referential links (Kessler & Schäfer, 2009). Thus, while the platform constituted an important repository that received a lot of inlinks, it did not play an important role in organizing the social media protest account. Of course, it should be noted that YouTube’s ‘pace’ does not make the platform particularly suitable for organizing an unfolding protest account. While Twitter had over previous years developed into a real-time news platform, real-time video streaming was not one of YouTube’s key features. The #g20report videos were certainly far from live: they were mostly uploaded, often in batches, at least a number of hours, or even a few days, after they were shot.

Like in the case of Twitter, YouTube’s particular technological features and user practices have very much developed in correspondence with the platform’s business model. This business model primarily revolves around targeted advertising. As van Dijck (2013) emphasizes, developing this business model YouTube has focused on ‘maximizing the ability to distribute *personalized* commercial messages to *mass* audiences’. In this model, real-time speed is of relatively little importance. Instead, YouTube’s revenue depends on its ability to draw large numbers of users to the videos it hosts, to profile these users, and to tie personalized advertisements to these users. In this model, a video that has been uploaded a year ago potentially has the same value as a recently added one.

Consequently, search results on YouTube are by default organized according to their relevance, and not according to their upload date. Although all of the videos shared through YouTube are in principle accessible, the way in which they can be accessed is very much steered by the platform’s interface. Querying YouTube for #g20report, one is not presented with a chronologically organized

list of videos with this particular tag, but with a list of the most relevant videos, according to the platform's algorithms. Hence, by using YouTube activists also relinquish control over their collectively produced data, just as they do on Twitter. Of course, the TCMN did try to regain control by aggregating the different #g20report streams on the G20 Alternative Media Center, presenting them in the order they were uploaded. This, however, is still a far cry from the activist control over data shared through alternative media platforms, such as Indymedia.

Facebook and Media Co-op blog

In contrast to the use of the #g20report tag, the Facebook group and Media Co-op blog were not specifically focused on sharing breaking news. The Facebook group was already active months in advance of the protests. Inspecting the websites that linked to this group, it becomes clear that it played a crucial role in the planning stages. As it was impossible to limit the date range when retrieving the inlinks to a web page, a lot of references to the Facebook group were collected, which had been posted in the months before the summit. While this is an artefact of the data collection process, it does provide insight into the role of the Facebook group in activist communication. It explains the extremely high percentage of NGO sites, more than 80%, among the websites that referenced the Facebook group. By comparison, only 3% of the inlinks to the YouTube videos came from NGO sites. Especially attacktheroots.net and g20.torontomobilize.org, which played a key role in the planning and organization of the protests, frequently referenced the Facebook group.

Just as in the case of Twitter and YouTube, Facebook's architecture steers users to communicate with each other in specific ways. Examining how political activity is shaped on the platform, Langlois and colleagues (2009, p. 418) observe that

any kind of activity takes place through a highly individualized and personalized perspective. The entry point on the Facebook interface is one's user account, and the Facebook recommendation and search features rank their results by measuring closeness to one's network.

Developing its business model, Facebook has especially built an architecture, which prompts users to reconstruct their offline relations on the platform. By using the Facebook group especially for planning the protests, TCMN's social media strategies very much corresponded with this objective.

By comparison, the Media Co-op blog is a non-commercial space, which in contrast to the other platforms, it is not directed by a major corporation. The blog is part of the Dominion News Cooperative that publishes a grassroots Canadian newspaper, and since 2003 a website. In 2009, the cooperative started a series of local cooperatives among others in Halifax and Vancouver. The Toronto Media Co-op was founded in 2010, a few months before the G20 Summit. The local cooperatives aim to 'combine participatory, democratically produced media with professional standards' (About the Media Co-op, 2012).

Examining the link patterns in which the blog posts were embedded, it becomes clear that the blog was strongly linked to other blogs. In total, 46% of the urls in the posts referred to blogs, including blogs by mainstream media organizations, such as the Huffington Post and the Canadian Online Explorer, but also including personal blogs of local and national political commentators. In turn, of the inlinks 25% came from other blogs, especially from activist and personal weblogs. In this sense, these linking practices match the blogging practices observed in much of the current research, which shows that blogs especially, although certainly not exclusively, link to other blogs (Benkler & Shaw, 2010; Reese, Rutigliano, Hyun, & Jeong, 2007; Weltevredé & Helmond, 2012).

Examining the in- and outlinks between the blogs in more detail, one can, also corresponding with the current research, find instances of public debate, as well as of strong affirmation of a particular point of view. It would, however, be a mistake to characterize the hyperlink network in which the Media Co-op blog posts were embedded in terms of public debate, or its reverse group polarization. A closer examination of the hyperlink network of the Media Co-op blog, and of the content of the blog posts, makes clear that these were above all concentrated on reconstructing the events on the streets. Most of the posts focused on the violence by the police, as well as by protestors using black bloc tactics. Some posts extensively linked to news reports, YouTube videos, and eyewitness blog reports to backup their accounts. Just like in the case of Twitter and YouTube, these linking practices were about providing evidence.

The G20 social media protest ecology

So far, the social platforms selected by the TCMN have largely been examined in isolation. Through this analysis, it became clear that the technological architectures, business models and user practices of social media platforms are anything but 'neutral', but shape user activity in particular ways. Consequently, the activity on each platform played a specific role in the social media protest ecology as a whole.

The TCMN tried to control how this ecology developed by selecting particular platforms and by promoting the #g20report hashtag. These efforts were especially successful in the sense that they came a long way towards realizing, albeit temporarily, the ideal of self-representation in public communication. As discussed, Lester and Hutchins (2009, p. 591) were, in 2009, rather pessimistic concerning the ability of activists to achieve sustainable forms of self-representation. The present research suggests, however, that the character and dynamic of mediated activism might be changing. At least part of the social media protest reports did reach sizable audiences. Some of the #g20report YouTube videos were viewed tens of thousands of times, and were referenced on a wide variety of sites around the world. Twitter, in turn, greatly enlarged the public of particular photos, videos, and blog posts, as the URLs of these reports were retweeted numerous times.

All this is not to say that the use of major social platforms is necessarily a step forward in activist communication. Exploring the social media protest ecology, it is crucial to see how the massive activity across different platforms has a dynamic of its own, which needs to be critically interrogated. Particularly striking is the large presence of visual material in the examined hyperlink networks. Through the many inlinks to the YouTube videos, and the many Twitter outlinks to photos and videos, the ecology attained a highly visual character. Moreover, examining the YouTube videos that received the most inlinks, and the photos and videos that were retweeted the most, it becomes clear that these visual accounts, especially portrayed the spectacular, and often violent, confrontations between the police and the protestors.

Viewed in light of the history of mediated activism, the highly visual character of activist social media communication is an ambiguous phenomenon. As various theorists have noticed, activism has, over the past decades, increasingly become more focused on providing visual spectacle. In the past, this development has especially been explained through the relationship between activism and mainstream media. The idea is that to draw mainstream media attention, which was always crucial to mobilize large groups of people, activists have turned protests into spectacles (Castells, 2004; Hutchins & Lester, 2006; Lester & Hutchins, 2009; Rucht, 2004). These sorts of public relations activities have been criticized because they are said to generate media attention for the wrong reasons, drawing attention away from the actual issues at stake in the protests. Intriguingly, the social media protest reporters appear to have the same appetite for

spectacle as mainstream journalists. Thus, while we might be seeing a shift in media power, this does not necessarily imply that protests are portrayed different than in mainstream reporting.

This conclusion presents itself all the more strongly, when one considers what can best be described as a ‘real-time dynamic’, which can be observed when examining how activist communication unfolds across different platforms. Of course, none of the platforms, not even Twitter, facilitate actual real-time communication. As Hassan (2010, p. 371) rightly points out: ‘nothing in cyberspace happens in real-time. Temporal lags, and hierarchies of speed, depending upon levels of technological sophistication and social context, beset the network society’. What is, nevertheless, striking when reviewing the links that were shared on Twitter, Facebook, and the Media Co-op blog, as well as the YouTube videos that were referenced, is that the core objective of these linking practices appeared to be to reconstruct the unfolding events on the streets of Toronto. The examined hyperlinks not only predominantly linked to visual material on the protests, but especially also to material that narrated what had just happened. The strong event-oriented focus of activist communication through Twitter and YouTube, as discussed in previous sections, is obviously not surprising as the #g20report hashtag was specifically promoted to enable the sharing of ‘breaking news’. In this way, the protest organizers actively contributed to the event-oriented focus of the social media ecology. What is surprising is that the communication through other platforms, such as the Media Co-op blog, was also very much focused on unfolding events.

These observations correspond with Hermida’s (2010b) notion of ‘ambient journalism’: ‘a multi-faceted and fragmented news experience, where citizens are producing small pieces of content that can be collectively considered as journalism’. Hermida maintains that this type of journalism is facilitated by social media technologies that allow for ‘the immediate dissemination of digital fragments of news and information’. Moreover, these observations also strongly correspond with Berry’s (2011, p. 144) claims concerning the rise of the ‘riparian citizen’, who ‘is continually watching the flow of data, or delegating this “watching” to a technical device or agent to do so on their behalf’. The combined linking practices can be understood as constituting a ‘riparian public’, to paraphrase Berry, that recognizes patterns, discerns narratives, and aggregates data flows.

The examined social media protest reporting and communication practices have, on the one hand, major advantages for activists. The speed with which new events were reported from many different places in Toronto, far outstretched the reporting capacities of mainstream news outlets. The use of social platforms not only allowed activists to reach substantial publics, but it also facilitated, in this sense, a speedy form of protest reporting. In the context of the Toronto G20 protests, this was especially important for the protestors, who were confronted with an overwhelming police force, which did not hesitate to use violence in steering the protests. The visually detailed, minute-by-minute, accounts can, in this sense, be seen as evidence provided by the protestors themselves.

On the other hand, in the light of the larger theoretical debate on the impact of the Internet on activist communication, the new social media practices are more problematic. Around the turn of the millennium, various theorists noticed that an important benefit of the, at the time emerging, online activist networks is that they allow for the long-term articulation and polarization of protest issues (Bennett, 2004; Dean, 2002; Marres & Rogers, 2005). As Dean (2002, pp. 172–173) pointed out, these ‘issue networks’ make it possible to move away from the ‘drive for spectacle and immediacy that plagues an audience oriented news cycle’, instead these networks ‘work to maintain links among those specifically engaged with a matter of concern’. At the core of these networks were interlinked NGO sites, which were squarely focused on particular sets of issues. The rise of social media gives an entirely new twist to this debate. Instead of moving activist communication away from the drive for spectacle and immediacy, the use of social platforms rather

appears to accelerate activist communication and to highlight the visual spectacle that accompany protest events. This is not to say that issue networks have disappeared, but rather that the emphasis in activist communication is shifting from the long-term articulation of issues to the rapid exchange of current information through social media ecologies, which involve large numbers of people and are primarily focused on the present.

Conclusion

As social media platforms play an increasingly central role in protest communication, it is vital that activists and scholars alike begin to see that these platforms are not simply neutral communication tools. Instead, social media should be understood as complex assemblages, which are deeply entangled in on- and offline techno-cultural and political economic configurations. Exploring how the G20 social media protest communication was embedded in such configurations, it became clear that activist communication is undergoing a profound transformation.

The research suggests that the massive use of social platforms greatly enhances the visual character of activist communication. Through the G20 social media ecology, an enormous amount of videos and photos was shared, some of which became the most prominent accounts of the protests. In addition, the growing importance of social media appears to bring about an acceleration of activist communication. A majority of the G20 social media linking practices were focused on reporting in great detail the events on the streets.

So far, the particular character of this transformation has not been systematically examined. Researchers have mostly focused on limited sets of relations, in which activist social media communication is entangled. The present research shows, however, that the highly visual character of activist social media communication and its real-time dynamic only come into view, if the entire hyperlink network is explored in which this communication is embedded. Moreover, examining how individual platforms are positioned in this network, it becomes clear that each platform shapes activist communication in different ways. Hence, observations on specific platforms cannot be extrapolated; the challenge is to examine how different platforms operate in combination. Finally, such examinations need to take the particular technological architectures and business models of social platforms into account, as these very much steer how activist communication takes shape on each platform, and how it is entangled in larger ecologies.

For activists, the growing importance of social media in protest communication also introduces a number of challenges. A major challenge concerns the access to and control of data, as social media corporations have a strong interest in limiting access to the data shared through their platforms. In the case of the G20 protests, the TCMN, of course, provided its own aggregating platform. For activists, such aggregating platforms are an important step towards gaining greater control over collectively produced social media data. Moving forward, it is vital that activists start developing ways to harvest, store, and curate social media data to secure access beyond the moment it is shared, and to present social media reports in ways that correspond with the larger aims of the protests.

Second, equally problematic is the observed real-time dynamic and the highly visual character of activist social media communication. Instead of slowly articulating and developing protest issues away from the spectacle and immediacy of the mainstream press, the rise of social platforms accelerates protest communication and enhances its visual spectacle. The speed and wide reach of social media communication certainly have strategic advantages, especially in situations when protestors are confronted by a repressive police force. Moreover, social media facilitate, at least temporarily, the ideal of self-representation, potentially bringing about a shift in media power. However, such a shift is only beneficial, if self-representation entails more than a mere reflection of mainstream reporting practices. Activists have to find ways to develop

diverse media offerings, which not only allow for speedy, visually attractive, protest accounts, but also make it possible to communicate the larger issues at stake in contemporary protests.

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Notes

1. This was a custom scraper built by the Digital Methods Initiative (<https://www.digitalmethods.net/>, last accessed 15 February 2011), which harvested results from Google Real Time Search (<http://www.google.com/realtime/>). The scraper extracted all the tweets with hashtag #g20report and stored them in a database for further analysis. Since then, the Google Real Time Search service has been discontinued. For a methodological overview of the retrieval and analysis of Twitter data for academic purposes, see Bruns and Liang (2012).
2. A YouTube crawling and data extraction toolkit (<http://www.tubekit.org/>, last accessed 10 February 2011), which allows for the collection of up to 16 different attributes per video.
3. A scraper that retrieves all the inlinks to a webpage, according to Yahoo! (<https://tools.issuecrawler.net/beta/yahoo/>, last accessed, 11 February 2011). Since Yahoo! has discontinued its service, the scraper no longer functions.
4. See for example: TheSecretStore (2010); Jehsin (2010); Smutton 1874 (2010).

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