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Affording Immediacy in Television News Production: Comparing Adoption Trajectories of Social Media and Satellite Technologies

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Scholars have added nuance to debates about technology's effects on journalism by exploring how news organizations adopt technologies. Extending this work, this article argues that technological adoption occurs at the intersection of technological affordances, journalism practice, and internal power relations. It uses interviews and observations with over 100 journalists at eight mainstream television news organizations in the United Kingdom and Canada to compare the adoption of social media and satellite technologies and their affordance of immediacy, a central television news value. Adoption trajectories and use of each set of technologies are found to vary in three respects: the extent to which they afford and shape immediacy; top-down versus bottom-up investment strategies; and effects on news-gathering and transmission practices.

Keywords: television news, social media, satellite, technology adoption, immediacy, journalism practice, power

The desire to assess the "future of news" and ensuing consequences for society is entangled in a long history of social anxieties about the relationship between technology and journalism (Pavlik, 2000). Since the London Tube bombings in 2004, "citizen"² or "amateur" journalism has been a prominent axis of debate, revealing an investment in either securing traditional boundaries between professional and amateur journalism, or redrawing boundaries to move toward more progressive models of journalism. For instance, regarding the privileged relationships that elites have established with journalists (Compton & Benedetti, 2010, p. 492), perhaps technologies could "invert the "hierarchy of access" (Atton as cited in Flew & Wilson, 2010, p. 132) by broadening coverage and source diversity. An interest in inverting the hierarchy of access can be linked to an interest in decreasing the media power of society's elites, or at least supporting more opportunities for nonelites to access media power (Freedman, 2014). However, a preoccupation with technology's impact on journalism can lead to deterministic arguments that suggest a

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² Costanza-Chock (2008) argues that "citizen" renders the phrase "dead on arrival as an organizing concept for participatory reporting by noncitizens" (p. 856). "Amateur" and "participatory" journalism have gained popularity; the former is used here to emphasize boundary making by professional journalists.

causal link between the emergence of digital media tools and the growth of amateur journalism. One such popular account comes from Gillmor's (2006) earlier work, which argued that

Big Media has lost its monopoly of the news. . . . Now that it is possible to publish in real time to a worldwide audience, a new breed of grassroots journalists are taking the news into their own hands. (p. 305)

Many have since disputed any loss of monopoly, arguing that amateur journalists do not do original reporting but largely reproduce mainstream content (Compton & Benedetti, 2010). Even user-generated content is seen as "marginalized and non-threatening to journalists' gate-keeping role" (Karlssohn, 2011, p. 71).

Social media technologies like blogs, Twitter, and Facebook are frequent targets of studies about technology's effects on journalism (see, e.g., Bajkiewicz, Kraus, & Hong, 2011; Gleason, 2010; Hermida, 2010; Hermida, Lewis, & Zamith, 2014; Newman, 2011, 2012). Yet these technologies were originally designed for sets of users and intended uses that had little to do with journalism. Studies by Harrison (2000), Boczkowski (2004a, 2004b), and Bivens (2014), among others, have examined technologies developed primarily for journalists and news production. Examples include software like ENPS,³ nonlinear editing suites, server technology, and satellite transmission equipment. Insights from science and technology studies highlight the ways technological innovation and development are influenced by social, political, and economic factors, which in turn are influenced by technologies (Wajcman, 2010). A focus on the mutual shaping of society and technology illuminates such factors as the internal dynamics of news organizations and diverse practices of technological adoption and use. Boczkowski (2004b) expanded the understanding of technologies' effects on journalism by analyzing technological adoption as a way of "making more visible the processes whereby these effects are, or are not, created" (pp. 200–201). But before assessing the impact of any particular technology, one should consider how and for what purpose the technology is adopted in journalism practice, where specifically in the production process it is taken up, and how internal power relations constrain or encourage its use. This article compares the adoption trajectories and use of social media technologies and satellite technologies—particularly as they relate to efforts to achieve the central television news value, immediacy—in order to assess these differences and their relationship to wider discourses about technology's effects on journalism. This work further develops scholarly attention to immediacy while also contributing to research on technological adoption in newsrooms. The analysis is distinct in its classification of three different types of immediacy and its focus on everyday practices of technological adoption (as opposed to newsroom projects geared toward innovation, such as Micó, Masip, and Domingo's (2013) study of newsroom convergence).

This article begins with a brief review of the sociology of television news production to contextualize the production practices and internal power relations at the center of this analysis. It then explores immediacy as a news value along with broader issues relating to professional ideology. Following a note on methods are three sections detailing the findings of this study. The first introduces three types

³ Introduced by AP in 1997, Electronic News Production System (ENPS) is software designed to aid the production and management of news. ENPS also delivers wire feeds from news agencies to journalists.

of immediacy (speed, live, and feedback) and compares how satellite and social media technologies have shaped expectations about immediacy and production practices. The second considers adoption trajectories in relation to financial investment and power relations. The third explores power relations at the intersection of news-gathering and transmission practices. Though satellite and social media technologies both afford (or make it possible to achieve) immediacy in various phases of news production, this article argues that technological adoption occurs at the intersection of technological affordances,⁴ journalism practice, and internal power relations.

Controlling Television News Production and Professional Boundaries

Studies of television news production conducted in the 1970s and 1980s by scholars such as Epstein (1973), Fishman (1980), Golding and Elliott (1979), and Schlesinger (1987) still influence the social organization approach to the sociology of news (Schudson, 2005). Based on observations of television newsrooms and interviews with journalists, these studies highlighted the social construction of news through production routines, relationships between journalists and sources, and ideological forces within the newsroom, which all contributed to a set of professionalized values, norms, and attitudes. Journalists were understood to operate under a heavy hand, constrained by various structural forces.

To counter this focus on constraints, scholars turned to study the autonomy of journalists, leading to greater recognition of how internal power relations and journalism practice intersect (Altschull, 1997; Ryfe, 2009). This article builds on this work and previous work by the author (Bivens, 2014).⁵ Since technologies are taken up in different ways during the course of news production, a model from Bivens (2014) is reproduced in Figure 1 below to help visualize the intersection of technologies and power relations at each phase of television news production. Production phases,⁶ labeled in the legend, are indicated by the letters A through D. Internal power relations tend to pivot around the hierarchy inside the news organization (illustrated as a triangle), which is largely closed off from the rest of the model to indicate the one-to-many tradition of professional journalism. The arrows pointing down indicate news values and other directives trickling down the hierarchy (Golding & Elliott, 1979; Schlesinger, 1987). From the viewpoint of base-level⁷ journalists, the vertical positioning of each phase of news production indicates that phase's intersection with the internal power relations it experiences. A lower position equates to

⁴ The term affordance is popular in the field of science and technology studies. I use it here to connote an opportunity or possibility that the particular design of a technology makes available. An oft-cited example is a hammer. One can grasp the stem and swing the hammer vertically up and down, imparting force on a nail or other object. A hammer also affords the removal of a nail lodged inside another object. A hammer can be thrown to cause damage, too.

⁵ Many thanks to *IJoC* reviewers for recommending literature that helped develop ideas presented here.

⁶ The intake phase and selection and assignment phase are merged, as they depend on and feed into one another. Breaking news production down into phases might imply that journalists always follow a linear sequence, but this is not necessarily so (e.g., filing a breaking news report live can equate to simultaneous news gathering, story writing, and transmission).

⁷ Base-level journalists hold job titles like correspondent, general assignment reporter, investigative reporter, video journalist, and presenter.

decreased autonomy and increased constraints imposed by upper management⁸ and mid-level⁹ journalists. The terms base-level, mid-level, and upper management categorize the hierarchical structure within news organizations imperfectly, as factors like seniority and differences between general assignment reporters, those covering a beat, and foreign correspondents can also influence power relations.

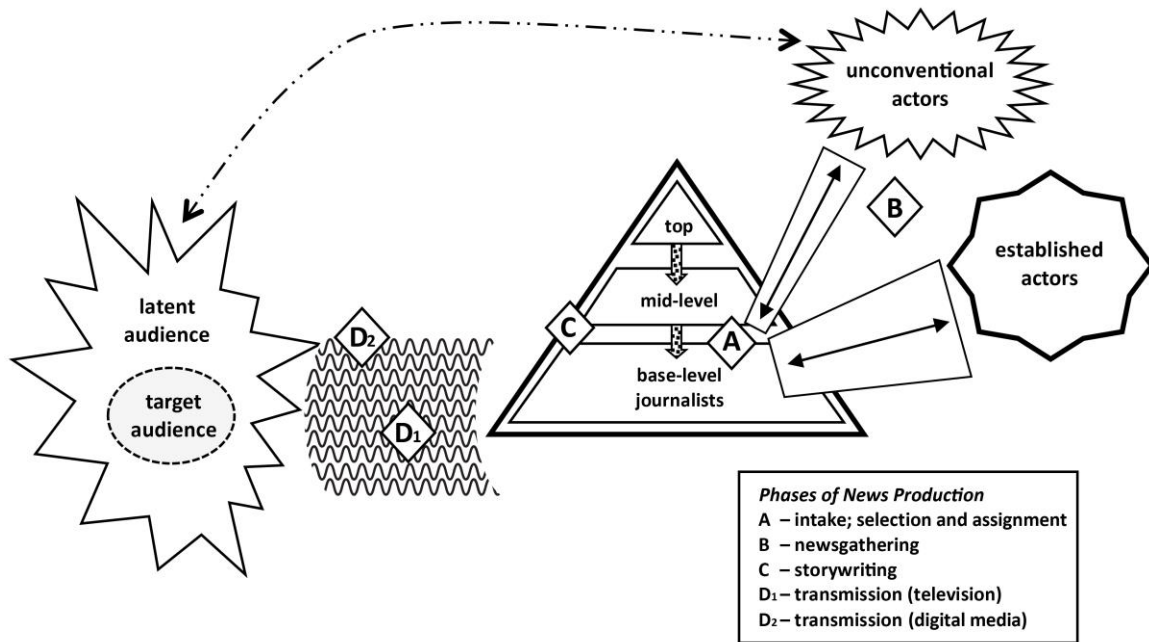


Figure 1. Technology–autonomy–constraint model of news production.¹⁰

The most significant findings of the fieldwork underpinning this model (and this article) concern extremes of autonomy and constraints. These occurred at the intersection of the news-gathering and transmission phases of production and the use of social media technologies and satellite technologies. In the news-gathering phase of news production, journalists could exploit digital media tools like social media to improve their news gathering and acquire greater control over decisions about their news item. Transmission through digital media (social media in particular) also offered opportunities for increased autonomy. Meanwhile, television transmission (particularly live coverage via satellite technologies) was

⁸ Upper management includes executive vice presidents, executive directors, senior directors, editors in chief, and controllers.

⁹ Mid-level journalists might be executive producers, managers, directors, producers, editors, deputy editors, assignment editors, assistant editors, or copy chiefs.

¹⁰ For a full description see Bivens (2014, pp. 76–91), where all terms are explained, including target versus latent audience groupings and the feedback loop (indicated by the dotted line with arrows at each end). Further analyses stemming from the model also use an ideal–typical autonomy–constraint ratio.

largely controlled by mid-level journalists and upper management, as was news gathering associated with live coverage. This article extends this analysis by exploring the adoption trajectories and uses of social media and satellite technologies in these news-gathering and transmission contexts, and reworks it by considering how these technologies afford immediacy.

The rise of free, accessible publication and distribution technologies and the practices of amateur journalists are typically perceived as threats to professional journalism's one-to-many, vertical structure of news production. Indeed, many understand social media technologies as contributing to the rise of horizontal networks of news production and consumption. Lewis (2012) has argued that all professions seek control when threatened and journalism in particular is fraught with this tension. To legitimize their profession, journalists rely heavily on a shared professional ideology tied to news values (Deuze, 2005). Despite increasing integration of user-generated content, blogs, and social networking services into journalism practice, Domingo (2008) argued that traditional norms and values had not changed substantially. Similarly, guidelines for re-tweeting information developed by the Canadian Association of Journalists (2010, para. 28) state that "traditional journalistic values remain unchanged as new technologies emerge."

Perhaps this reflects one of many contradictions associated with news values. Consider objectivity: some reject it, some argue it is important to strive for it, and others work to redefine it (Deuze, 2005). As an interviewee in the present study said: "If anybody stands up and tells you, 'I'm perfectly objective' they're full of shit" (Alan Fryer, investigative reporter, CTV). Relying on an ideology that broadly regards the occupation of journalism and corresponding news values as static makes it easier to define the added value that professional journalists offer and amateur journalists without proper training or commitment to the ideology cannot. But although journalism's professional ideology appears to resist fluctuations in the broader media environment, Deuze (2005) held that this is "increasingly untenable in our liquid modern times" (p. 458). In this wider context of liquid modernity (Bauman, 2001), many social institutions seek to maintain their shape, resisting the liquidity surrounding them. Deuze (2008) argued that "journalism still depends on its established mode of production, through which it largely (and unreflexively) reproduces the institutional contours of high (or 'solid') modernity" (p. 856). This analysis would suggest that news organizations value satellite technologies over social media technologies because the former support the established mode of production. This article explores how immediacy has changed and been shaped by technological development and adoption, and how satellite technologies are used to demarcate the boundary between professional and amateur journalism while social media technologies threaten to redefine it.

Immediacy has not always been vital to television news, and live coverage has not always been possible. But although logistics can still present obstacles (e.g., how to get to the fire in time for the newscast) and determine whether stories are covered, immediacy was a much bigger challenge 30 years ago. For instance, there was an "organizational need to shoot and narrate filmed stories that can be used, as [former NBC president] Frank suggests, up to 'two weeks' later" (Epstein, 1973, p. 31). Technical capabilities for achieving immediacy were very limited. Twenty years ago an on-camera talkback (live dialogue) by a reporter was "pretty much unheard of. . . . It simply wasn't done" (Morning Show unit, CBC). News organizations had to go to great lengths simply to get material from foreign correspondents,

who sent film on planes before satellite was a viable option. Even after the advent of satellite, a flight could be necessary just to reach a destination with the requisite facilities for transmission.

Yet television cannot be isolated from other news formats. Pressure to produce a constant stream of news is not restricted to television. Usher's (2014) recent work based on her immersion at the *New York Times* highlights the translation of immediacy into constant deadlines and juggling between online and print. Newsroom convergence and multi-platform authoring in conjunction with market demands have contributed to what Klinenberg (2005) has described as a "news cyclone," signaling a fundamental shift in the relationship between time and news production. This article extends the scholarly focus on immediacy in journalism by delineating different types of immediacy and exploring how technologies have been adopted and used to achieve them from the perspective of television news. As the following analysis will show, scholars typically theorize immediacy in relation to time, yet any ideal of instantaneous coverage is tempered by an inevitable gap. This gap may pivot around a temporal axis, but there are other ways to understand it. Heidegger argued that humans make sense of the world by being physically immersed or embedded in it (Steiner, 1987). Audiences unable to "be there" with the news item can instead tap into a proxy experience that may fill the physical or mental space that separates them from it. Live coverage and opportunities for audiences to engage are two ways television news achieves this. From this perspective, immediacy—via speedy reporting, live audio and visuals, and space to engage with stories—can be understood as a news value that helps audiences get closer to the news.

Technological development is clearly part of this story. The drive to design smaller technological equipment is coupled with a broader ability to transmit reports from isolated regions and conflict zones (Bivens, 2014). Technologies geared more specifically to television journalism practice may have been developed to meet the perceived desire for immediacy. Its increasing importance may have contributed to technological development, or technological adoption may have promoted it as an increasingly achievable news value. Perhaps more likely, the rise of immediacy was a mutual shaping of technology and journalism practice over time. This article considers the affordances of technologies, or what can be achieved by using social media and satellite technologies. Tying technological affordances to the news values underpinning professional ideology allows consideration of how technological adoption intersects with affordances. There is more than one way to achieve a news value like immediacy, and more than one technology can afford immediacy. Given that there are multiple strategies, a guiding research question becomes: Why would upper management invest in and encourage one particular strategy for achieving immediacy over another?

Methods

This article is based on a study of television news production by eight major news organizations in the United Kingdom and Canada (BBC, Channel 4, ITV, Sky, and APTN in the United Kingdom; CBC, CTV, and Global in Canada). Fieldwork took place in thirteen different locations between May 2005 and January 2007. Observations of daily routines included attendance at editorial meetings and time spent in newsrooms, galleries, post-production editing suites, and the field. Interviews were either scheduled or conducted more spontaneously during time spent at news organizations, and both types of interview involved one, two, or a group of journalists. In all, 124 unique journalists participated, but direct quotes

for this article were taken almost exclusively from formal interviews (involving 30 unique journalists), as these conversations most effectively captured internal struggles over technological adoption. The context of events was a particularly valuable aspect of the time period in which this fieldwork was conducted. Because of the July 2005 London Tube bombings—one of the key points of reference for the early days of user-generated content—several interviews conducted in London had to be rescheduled for the following week. Also, the BBC had recently set up its “UGC Hub.” Most of the journalists did not request anonymity, and many names and positions are provided to give context to quotes (some journalists have since moved on to different positions).

Affording and Shaping Three Types of Immediacy

There are at least three ways to define immediacy: in relation to speed, live coverage, and audience feedback or participation. This section considers each in turn before exploring how satellite technologies and social media technologies have shaped expectations around immediacy and how those expectations have shaped journalism practice. “Speed immediacy,” likely the most common type, is understood primarily as “the time lag between when a news organization becomes aware of an issue and publishes information about it” (Karlsson & Strömbäck, 2010, p. 4). A sense of urgency underlies the very term “news” (Deuze, 2005). Journalists follow the “immediacy rule,” particularly online (Domingo, 2008, p. 696). Other values closely tied to immediacy include being first and recency; both have a long history (Epstein, 1973; Golding & Elliott, 1979; Schlesinger, 1987). Lim (2012) articulates immediacy as “speed and freshness” (p. 73)—online audiences seek continuous updates, as long as they appear to offer fresh content. Alongside updates on news websites, ways to achieve speed immediacy include syndication across news platforms, updates and breaking news announcements on 24-hour news channels, posts to Twitter and Facebook, and updates on j-blogs (blogs written by professional journalists).

“Live immediacy” is another common way of understanding this news value. In interviews, journalists argued that this form of transmission was being increased, purportedly to demonstrate that audiences can trust the news organization because its journalists are actually there, at the scene. From “a televisual-infotainment point of view,” live news coverage “feels like you’ve made more effort” (Paul Adams, chief diplomatic correspondent, BBC News 24). Similarly, “if you’re in the middle of nowhere there’s a lot of merit to seeing somebody’s face on camera powered by battery in the middle of the desert” (Daniel Morin, supervising technician, CBC). Over time live immediacy has extended beyond coverage of remote locations or breaking news stories: “Live, live, live, everything’s live” (Trina Maus, video journalist, CTV Southwestern Ontario). Any number of news items can be amenable to live coverage; all that is required is a site that is somehow related to the news story. The journalist can simply stand at the site and file a report “live from location.” Reporters are often assigned prearranged “live hits” organized the day before (Morning Show unit, CBC).

The third conception of this news value is “feedback immediacy.” The key here is to offer audiences opportunities to participate while news stories continue to develop, or at least to respond as soon as they are transmitted. This type of immediacy has a shorter history than speed and live immediacy and is related to technological developments that encompassed the shift toward “Web 2.0,” whereby websites lost their static character and became dynamic spaces that afforded user interactivity.

The range of technologies that can afford immediacy includes satellite phones, Skype, vans equipped with satellite transmission technologies, earpieces, and social media like Twitter and Facebook. Even a helicopter could be in this list. Sean O'Shea (investigative reporter, Global) describes how Global's purchase of a helicopter has serviced immediacy:

That helicopter is flying through the whole newscast at six to seven and has been pretty much since they got it . . . because they want the ability, for example, to cover a fire that breaks out at 6:01 so they are over there right away. We don't have the capability with traffic . . . to cover anything from the ground last minute. With a helicopter it's regularly happening: a major fire, a chemical leak, huge traffic.

O'Shea's comments also reveal how journalism practices shifted along with the helicopter acquisition. For instance, when events occur a pilot flies the helicopter, upper management endorses the expenditure, and executive producers alter their running order. This speaks to the broader relationship between technology and journalism: Once technologies are developed and news organizations invest in them, their mere existence can shape expectations about immediacy and prompt transmission decisions. As Don Knox (senior director, CBC) concluded, "because you can get it on, the technology means you will get it on." CBC's supervising technician Daniel Morin described how expectations of speed immediacy shape technical transmission practices:

I can send it live if I want to with the video phone. Yeah, it looks like crap, but who cares? I get to move the pictures now. They go on air. Once they go on air I can encode them [formatting the material for optimal transmission] and take an hour to send them so that for the next hour they can use this clean version of the same thing. . . . You've got the immediacy of it all with the video phone . . . those decisions are made depending on the requirements of the story—if we need immediacy, then of course we'll do the satellite uplinks.

Once the technologies are purchased by the news organization, achieving immediacy is no longer "too expensive and satellite transmission [no longer] too complicated" (Nigel Baker, executive director, APTN). Thus the capacity for live coverage has increased along with the desire for live immediacy. The 24-hour rolling news platform is even more heavily inundated with expectations for live immediacy: "The live stuff is very important to the life of [CBC] Newsworld. . . . It's their bread and butter" (Brien Christie, foreign assignment editor, CBC). The same holds true for the BBC's 24-hour news channel: "On location. That's what twenty-four-hour news is all about really" (Paul Adams, chief diplomatic correspondent, BBC News 24). During fieldwork at Sky, the executive producer asked journalists to look for "anywhere live to be at all rather than just package," since a story is "boring when you just wrap it up" (i.e., produce it in a packaged, linear format). Some journalists viewed this shift in terms of a "live bias":

Speaker 1: I definitely get that sense from having worked before this live revolution and after. [Others nod in agreement.] There is a definite bias toward getting things live. Our whole show is based around—

Speaker 2: Well, what's our mandate? What's happening now.
(Morning Show unit, CBC)

Transmission decisions by one news organization influenced by the "live bias" can have a rolling impact on decisions by other news organizations: "We're in a constant state of war to be first with something, to be live with something and then everything else, we're just filling time, trying to have interesting programming" (Paul Hambleton, executive producer, CBC). Consider the following discussion in CBC's Morning Show unit about the decision to cover alleged terrorist arrests live because of BBC and CNN's live coverage:

Speaker 1: It was about four in the morning [in Canada] when the BBC started going live wall to wall with it and really pumping it up as a big story, and that impacted how we handled it here. Initially we were saying, "It's sort of a good news story, they caught these people, there weren't explosions." You're weighing out how big of a deal it is. Do you go live with it? But then BBC started going live and then suddenly CNN's going live, so then we go up and we go live. There's a cascading effect there.

Speaker 2: It's intensified the whole pack journalism aspect.

Foreign correspondents rely especially heavily on technology to file their reports. Lindsey Hilsum (international editor and China correspondent, Channel 4) argues that satellite transmission technologies have "completely changed the nature of news production." She reflected on her previous work in Africa, where the limits set by older transmission technologies afforded her more time to gather news:

I used to fly from Nairobi [Kenya] to southern Sudan and spend three weeks in southern Sudan gathering material, and then come back and send my stories from Nairobi because [they would have the technology]. That would never happen now because they want something every day—because it's possible, because satellite technology is there.

Overall, an increased emphasis on live transmission is shaped by technological development, technological adoption, and upper management's encouragement and direction to include live coverage, which trickles down to the mid-level journalists who make selection and assignment decisions. However, findings indicate that this is more clearly the case for satellite technologies than social media technologies. The mere existence of j-blogs, for instance, does not shape journalism practice in the same way. David Akin (parliamentary correspondent, CTV) argued that speed immediacy is reserved for television transmission:

Certainly there's information that I'll get ahead of our 11 o'clock newscast, and if I was Mr. Transparent I would get that out as fast as possible on our blog. No, I'm not going to do that. I'm going to hold something in that's an exclusive or an extra-juicy bit for my broadest, biggest-punch platform – which is the national newscast.

Media conglomeration complicates newsroom convergence even further with difficult decisions about which platform should get the exclusive (i.e., newspaper, television, website). Sometimes the

existence of social media technologies has led to top-down policies that function to inhibit speed immediacy. For instance, social media guidelines e-mailed to journalists at Sky in February 2012 included a request to send breaking news to the news desk before posting it on Twitter in order to ensure “that the news desks remain the central hub for information going out on all [Sky] stories” (Halliday, 2012, para. 8).

The medium of television is particularly conducive to live coverage, but live immediacy can also be achieved with social media technologies. However, these technologies have not shaped expectations for live immediacy in the same way. J-blogs transmit news and information but are not particularly well suited to live coverage, even though it is possible.¹¹ Social networking services can help achieve speed or live immediacy by quickly sending links to j-blog content to a large network. Twitter in particular has gained much attention as a popular platform for live coverage of court cases and parliamentary sessions. Journalists can tweet about developments and assess how a story is moving or playing out by reading the tweets of other journalists and other actors invested in the story (Newman, 2011). Depending on a particular journalist’s network and subsequent social media “news” feed, expectations to achieve live immediacy may become apparent to the journalist, though little pressure is exerted through internal, top-down channels.

Achieving feedback immediacy through social media is nonetheless an important affordance of these technologies (and news websites) that is not amenable to satellite technology. David Akin (parliamentary correspondent, CTV) viewed his j-blog as a space for his audience to “amplify, extend, comment, and annotate [his] writing.” In these horizontal networks of production and consumption, Akin says, audiences “rapidly circulate electronically what you have written. Again there’s this great feedback loop [with] all kinds of new people to comment, provide new story ideas, and correct what you’re doing.” Audiences can become immersed in a story, sharing and commenting on it through social media channels and potentially even influencing its direction as it continues to unfold. Feedback immediacy has been shaped by social media technologies, along with digital media like news websites and smart phones that have contributed to broader shifts in audience expectations for interactivity and opportunities to contribute user-generated content.

Financial Investment and Power Over Adoption Trajectories

Financial investment in technologies that afford immediacy varies. Acquiring a helicopter and flying it throughout nightly newscasts clearly comes with a hefty price tag, and satellite technologies also require financial investment. Upper management usually controls these decisions. Technological development has reduced some costs, particularly for foreign coverage. The cost of the kit CBC foreign correspondents use to cover major stories (including a video phone, BGAN,¹² and Avid editing suite) has

¹¹ *Financial Times* foreign affairs commentator Gideon Rachman has published j-blog posts at train stations or airport lounges to “react to an event by posting something quickly” (Newman, 2011, p. 45). Television audiences are also directed to news websites for live blog coverage.

¹² A Broadband Global Area Network (BGAN) uses a modem and satellite connectivity provided by Inmarsat to transmit data.

dropped from CAN\$50,000 to CAN\$10,000. CBC's supervising technician Daniel Morin explained why the BGAN was seen as "a very viable money saving solution" compared with the conventional satellite phone with ISDN service. For one month of use, BGAN cost about CAN\$3,000–4,000, whereas satellite phone cost CAN\$16,000. This is partly because "the BGAN is based on a charge per packet of data uploaded or downloaded, as opposed to the per-minute charge of the satellite phone" (Bivens, 2014, p. 210).

While these costs are continually in flux, most social media technologies are freely available.¹³ However, they come at a radically different cost: new positions like social media editor and manager have cropped up, and user-generated content comes with moderation and sorting costs. Also, drawing on an earlier discussion about technological design and intended users, many journalists first began using social media technologies in their personal lives, and when they did adopt them professionally, they did so at their own discretion. This adoption trajectory, combined with the lack of an upfront financial investment, equates to a bottom-up initiative within news organizations. The next section looks more closely at the impact of internal power relations at the intersection of the transmission and news-gathering phases of television news production.

Intersections with Transmission and News Gathering

The material immersion of satellite technologies in the production process leaves little room for base-level journalists to gain power over their adoption and use. Consider the following example from Paul Adams (chief diplomatic correspondent, BBC News 24). Expectations about live immediacy shaped the decision to send him to the Foreign Office to transmit a news item about tensions with North Korea:

The call I got in the morning was, "Can you go to the Foreign Office and broadcast from there?" The rationale being that the Foreign Office hasn't responded, and it's one backdrop illustrating the international response, so you've got to stand there. And you don't just do the Foreign Office, you also say what the Americans are saying and the Russians are saying. My heart always sinks with that because you're stuck outside of Parliament, you've got no access to anything . . . our little satellite trucks don't have ENPS.

The practice of news gathering was stunted, and Adams felt physically trapped. When the satellite van unexpectedly left, Adams was relieved to return to his office. This combination of live and speed immediacy can lead to a complete loss of autonomy for base-level journalists, who end up repeating information fed to them either moments before going live or while on air. A general assignment reporter from BBC Scotland explains:

For a breaking news story you have to do your two-ways [on-air conversation between journalist and presenter] blind. You can't look at the wires, and can't phone the police or ambulance since you are in front of the camera. In that situation you depend on your

¹³ Nevertheless, content posted by users can be seen as free labor, exploited for capital gain through financial relationships with advertisers (Fuchs, 2012).

producer in the gallery and the earpiece in your ear, and you just regurgitate.

Achieving live immediacy through social media technologies does not require journalists' bodies on-screen, so physical immobility is less of a concern in this sphere. Journalists' use of social media technologies positions them in a horizontal network of communication where other actors invested in their story are also contributing, allowing them to potentially gather news while also offering live coverage.

When live immediacy intersects with satellite technologies, however, base-level journalists are stripped of their news-gathering practices and rarely able to influence whether live items are added to the running order. The following example illustrates power relations between an executive producer and a presenter at Sky in the decision to cover former U.S. president George W. Bush's visit to Latvia live. Though both were aware that the coverage would be boring, the executive producer was persistent even though Sky's own foreign correspondents were unavailable.

The journalist in charge of the foreign desk told the executive producer, "We're not [in Latvia] at all. We have Moscow for Monday." The executive producer asked, "What about Fox? Can we hop on live with them? Any chance?" The journalist replied that yesterday Fox only offered photos, but she could check again at lunchtime. Although the executive producer admitted that Bush's visit was "bound to be absolutely dull," he explained that he was intent on covering it because "you want to do Bush just to show we're live somewhere." In the end, live coverage was available, and Sky appeared to "be live everywhere," covering important events for their audience. However, in the gallery one of the presenters was not very happy that the executive producer chose to go live with Bush not once but twice during the news bulletin. Trying to explain his decision, the executive producer said, "I thought you'd do a quip [witty remark]. It shows we're live somewhere." The presenter responded, "We are supposed to be doing news." To this remark the executive producer replied, "Yeah, but we're also doing television."

Expectations about live immediacy shaped the executive producer's determination, but directives from upper management likely shaped his expectations in the first place. Both base- and mid-level journalists were strongly critical of the use of satellite technologies to achieve live immediacy. CBC foreign assignment editor Brien Christie argued that going live "hurts the product" and is "harmful to the reporters doing the news-gathering . . . [CBC foreign correspondent] Adrienne [Arsenault] is stuck in this studio yacking every hour . . . she's stuck there. She's not out interviewing Jeff Brown about what happened today." Another critique concerned vetting practices: "The inherent danger is you're going to get it wrong and take stuff out of context. And it happens all the time" (Alan Fryer, investigative reporter, CTV). As CBC's ombudsman Vince Carlin explained, "The inadvertent, technological push is to be instantly authoritative."

In the context of 24-hour news channels that generate substantial revenue, another consequence of live immediacy is the desire to "give the impression that the story is still dynamic and developing" (Peter Kent, deputy editor, Global) to deter audiences from leaving. Tony Burman (editor-in-chief, CBC) criticized CNN's coverage of the 2006 Israeli-Palestinian conflict, blaming its "live bias" on competition

with Fox News: "They were scouring the country for something they could portray in a dramatic, live sense" and ended up with coverage of an Israeli tank "stuck in the mud." A "live bias" can also influence social media use. Journalists may feel obliged to continually contribute to the flow of information on their Twitter feed. Vetting problems are also highly relevant, as are technical limitations such as Twitter's 140 characters, which can easily lead to loss of context.

Some top-down control is exercised over social media technologies, but they still offer base-level journalists more autonomy than do satellite technologies. A recent content analysis of the top 500 journalists on Twitter compared j-blogging with Twitter, concluding that journalists who tweet "do not face the same level of oversight nor the same necessity to stay on-topic journalistically" (Lasorsa, Lewis, & Holton, 2012, p. 6). The same study found that "non-elite" journalists were more able to depart from traditional norms than their "elite" counterparts employed by major broadcasters and cable television news. As a result, nonelite journalists engaged in more "(1) opining, (2) allowing others to participate in the news production process, and (3) providing accountability and transparency" (Lasorsa et al., 2012, p. 11). However, base-level journalists are still guided by mid-level journalists, who request particular sources during the selection and assignment phase and approve stories prior to final editing. As John Northcott (video journalist, CBC) explained, "They may not want a specific person but they want an element: 'I want to hear from the government.'" The news-gathering phase offers greater freedom; journalists can decide whether (and how) to use social media technologies. For instance, some journalists relied heavily on amateur journalists' blogs, whereas some of their peers had never used them or believed the lack of pictures made them irrelevant for television. Sean Mallen (parliamentary correspondent, Global) had not used blogs but had anticipated altering his practices for the upcoming election. Paul Adams (chief diplomatic correspondent, BBC News 24) said: "I haven't yet been tempted to e-mail a blogger. Perhaps that's rather narrow-minded of me. There are bloggers who could tell you what life is like in a part of the country you don't get to." The variety of responses to the prospect of using blogs, even among journalists working for the same organization, affirms they were using their own discretion. Still, some journalists were constrained by superiors: "We don't believe them [to be] credible. We don't use them at all. . . . It's in our handbook: do not trust blogs" (Trina Maus, video journalist, CTV Southwestern Ontario). Recent research has explored base-level journalists' different uses of Twitter: "engaging with audiences and sources, tracking the latest buzz on their beats, and promoting their work" (Lasorsa et al., 2012, p. 2). Others repurpose traditional practices by using social media technologies to maintain relationships with sources they have already established trust with (Oriella PR Network, 2012). The reasons for these variations are not well understood, and some journalists are simply not interested: "There's a lot of experienced journalists out there who will shut the door on things like this, who are afraid" (Mick McGlinchey, assistant editor, BBC Scotland Online).

Discussion

Juxtaposing technologies' affordances with their adoption and use, particularly in pursuit of a specific news value, makes visible the dynamics at the intersection of technology, journalism practice, and internal power relations. Both satellite and social media technologies can afford speed immediacy and live immediacy. Yet whereas the mere existence of satellite technologies has shaped expectations about these types of immediacy and the production practices tied to achieving them, social media technologies have

had less influence on these expectations and production practices. Speed immediacy in particular is largely reserved for the "biggest-punch platform": television. Some top-down organizational policies have even functioned to restrict the achievement of speed immediacy through social media technologies. Without aiming to exhaust all types of immediacy, it is worth noting that speed immediacy can also be affectively conceptualized. Journalists may, for instance, feel a sense of urgency shaped by different socio-technical contexts. On Twitter a journalist with a large network may feel pressure to contribute to the flow of posts, yet that journalist's habitual patterns of use (checking in and out of Twitter at regular intervals) may reduce the pressure.

Social media technologies escape the dominance of satellite technologies through feedback immediacy, affording opportunities for news gathering that differ greatly from the limited practices at the intersection of satellite technologies, live immediacy, and news gathering. Thus both sets of technologies affect the power relations intersecting with news-gathering practices, but in radically different ways. In the quest to achieve live immediacy, the materiality of satellite technologies physically immobilizes base-level journalists, leaving mid-level journalists and news agencies to perform the news-gathering function. Alternatively, the materiality of social media technologies does not equate to immobilization in the same way and affords comparably greater levels of news-gathering autonomy for base-level journalists. In these transmission contexts, mid-level journalists control the use of satellite technologies to afford live immediacy, and since many are quick to critique their own decisions, guidance and directives from upper management are clearly influential.

Differences in organizational investment and use of each set of technologies are also related to oppositional adoption trajectories coupled with inverse power relations. Satellite technologies require an initial top-down financial investment, whereas social media technologies do not. Journalists were therefore able to adopt social media technologies at their own discretion, whereas satellite technologies were not available until upper management had approved their purchase and incorporated them into organizational practices. Of course these findings should be understood in the context of the fieldwork undertaken for this study. Many journalists focused on blogs because they were the most prominent social media technology in use at the time, whether written by amateur or professional journalists. In comparison, satellite technologies had a longer, more established history of adoption and use by television news organizations. This may be an important reason for some of the differences found in this study. Analyses incorporating earlier adoption histories of satellite technologies could offer further insight.

Another prominent difference is satellite technologies' greater specialization and clear demarcation within professional journalism, affording speed and live immediacy within the bounds of the traditional, vertical news production network. Social media technologies are not specialized or at all demarcated as bounded by the journalism profession; in fact, many see them as functioning in the opposite direction by confusing, blurring, and outwardly, unapologetically pushing the boundaries of journalism to make room for new models such as amateur and participatory journalism. Social media technologies are discursively set in fundamental opposition to the vertical networks of communication that television news organizations are deeply embedded in. Also, television news production's inherent orientation to television transmission disadvantages any investment in social media transmission. Yet this logic does not necessarily hold up in the broader context of converged newsrooms and multi-platform

authoring, where television cannot be isolated from other news formats. For instance, video and audio, whose timely transmission is facilitated by satellite technologies, also have an afterlife: clips quickly enter social media distribution networks, achieving the speed immediacy imperative and activating the potential for feedback immediacy. But though feedback immediacy may advantage social media over satellite technologies, it is more likely to occur within a horizontal network of news production—a space that upper management is generally disinclined to engage with. Satellite technologies are thus clearly advantageous investments, particularly because they afford mainstream news organizations opportunities to achieve live immediacy on television. Amateur journalists rarely achieve this because they lack access to expensive satellite technologies and reach a smaller share of news audiences.

Finally, technologies for professional journalists as projected users are likely designed according to perceived notions of the affordances journalists seek to achieve. In return, the (intended and unintended) ways journalists adopt and use technologies shape new iterations of those technologies and subsequent technological development. Although this study's findings show how technologies have shaped immediacy as a news value, they reveal little about how journalism practice and shifting expectations of immediacy have shaped technological development. This is a symptom of the methodology of this study, but further research incorporating designers of technologies specifically developed for journalism practice could offer additional insight.

Conclusion

This article has argued that technological adoption by television journalists takes place at the intersection of technological affordances, journalism practice, and internal power relations. Different assemblages of affordances, practices, and power relations occur depending on which technology is the subject of analysis. The strategies selected by upper management and mid-level journalists (as proxies of guidance and directives from upper management) illuminate the top-down understanding of what is important and worth investing in for television news organizations and their audiences. Whereas social media technologies have been approached with caution and restricted to the periphery, heavy financial investment in satellite technologies and directives encourage their use, particularly to achieve live immediacy. Satellite technologies are clearly conducive to television news production, but since television news cannot be isolated from other mediums, this only partly explains the top-down investment. Satellite technologies are part of vertical networks of communication that support the status quo, where television news acts as an important receptacle for the flow of media power. Upper management's investment in satellite technologies to afford a form of live immediacy that is largely unattainable by amateur journalists is tailored to the professional journalism industry's wider desire to solidify the boundary between professional and amateur journalism.

A reflection of liquid modernity, digital media technologies are in perpetual development. The power dynamics described here between upper management and base-level journalists are also in flux, in part because they keep adjusting to technological development and adoption in their organizations as well as the wider society. Technologies that begin with a top-down adoption trajectory (tied to financial investment or not) are poised to influence production practices in ways that carry forward these top-down power relations. In contrast, technologies like social media, which are not designed specifically for

journalists and do not require substantial initial financial investment, are available for journalists to adopt more organically, of their own volition, with top-down control manifesting later or more haphazardly. This bottom-up trajectory offers greater flexibility and control to base-level journalists seeking to adopt technologies and incorporate them in their production practices.

This focus on technological adoption at the intersection of affordances, journalism practice, and internal power relations further contextualizes analyses of technology and journalism, but the story does not stop there. Though less relevant to an investigation of technological adoption in the newsroom or in the field, external power relations are also important, particularly with regard to the dominance of elites as sources and their consequent access to media power. The journalism industry has long been criticized for relying on elite actors to shape the language and terms of debate, and even to determine which debates are permissible, but close analysis of the contextual factors that influence technological adoption and use makes it possible to consider how more nonelite actors can gain influence. Internal organizational power dynamics arise in diverging ways within each phase, generating both risks and opportunities for the assemblage of actors that are external to news organizations yet seek media power, and assessment of these fluctuations should continue. This analysis has focused on television news production, but studies of other mediums (e.g., radio, newspapers, alternative news) would be valuable for determining whether technological adoption continues to be intersected by technological affordances, journalism practice, and internal power relations.

Emphasizing technological adoption in combination with technology's broader effects on journalism improves understanding of how, where, and under what pressures (or lack of pressures) technologies are integrated into journalism practice. The relationship between technology and journalism should not be analyzed only after a technology has been adopted. In the search for more progressive models of journalism, understanding technological adoption aids in imagining ways to influence technological design and development, as well as the intersecting factors that shape subsequent adoption trajectories.

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