

Suggested citation: Hermida, Alfred. 2020. "Post-Publication Gatekeeping: The Interplay of Publics, Platforms, Paraphernalia, and Practices in the Circulation of News." *Journalism & Mass Communication Quarterly*, (March 12).

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DOI: 10.1177/1077699020911882.

Accepted manuscript

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Abstract

The factors that shape the news that citizens are exposed to and act upon are a growing area of research. This paper advances a framework to examine how issues and topics rise to prominence and gain attention following publication in a digital hybrid media ecosystem. The four elements address extend previous work by accounting for the actions of individuals in aggregate as publics, the impact of platforms as institutionalized spaces for news, the objects of media consumption and exposure, and the temporal and spatial contexts for practices of news circulation and consumption.

Keywords: circulation, digital journalism, gatekeeping, journalism studies, platforms, social media

Alfred Hermida, PhD
School of Journalism, Writing, and Media, University of British Columbia
Email: alfred.hermida@ubc.ca

This research was supported by the Social Sciences and Humanities Research Council of Canada.

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Shazi mostly followed the December 2019 general election in the UK via Twitter on her phone as she doesn't own a TV or read newspapers. Over three days, the 37-year-old health worker from Sheffield came across 274 pieces of election-related material, most of it from political parties, influencers and friends. She clicked on five of the 30 news headlines she saw and read two to the end (Waterson, 2019a). Shazi was one of six voters recruited under pseudonyms and studied by *The Guardian* for a study on people's news habits via their phones (Waterson, 2019b). It found that the news diet of these voters was shaped far more by algorithms and friends than professional journalism outlets. The study concluded that "the results from each individual's phone show how the traditional media ecosystem is changing and disintegrating," and that "professional journalism outlets are only one small part of where the public are getting their online information about this election," (Waterson, 2019b, para. 11.).

The Guardian study offers a snapshot into the changing information ecosystem, highlighting individuals' diverse news experiences in today's media system. It underlines the importance of factors such as social platforms and mobile devices to the digital diffusion, circulation and consumption of news. It is part of a body of audience studies that signal how gatekeeping online is being reconfigured by what Singer (2014) has called secondary gatekeepers. This paper presents a conceptual framework to examine how news items gain attention post-publication through secondary gatekeeping mechanisms and processes in an ambient digital media ecosystem (Hermida, 2010). It answers the call by Lewis and Westlund (2015) for "a more comprehensive accounting of cross-media news work as a system of actors, actants, and audiences engaged in a complex set of media activities" (p. 33). Lewis and Westlund locate their "Four A's" (2015, p. 20) in the context of the institutional functions usually associated with news production (Domingo et al., 2008). This paper builds on their work and switches the focus to the assemblages taking place post-publication to configure digital flows of news and shape media exposure. It extends Thorson and Wells' (2016) model of five sets of curating actors in news flows by combining publics and platforms with the objects of digital media and the temporality and spatiality of media practices.

Such an approach considers gatekeeping as a function that happens post-publication in a digital media ecosystem, building on research on the cultures of circulation in journalism (Bødker, 2015; Raetzsch & Bødker, 2016). In journalism studies, gatekeeping is considered a core activity of journalists, through the choices made in choosing, writing, editing and positioning information presented as news to the public. Given a transformed media ecology, studies of gatekeeping have sought to address the emergence of digitalization and the role of the audience (Shoemaker & Vos, 2009; Reese & Shoemaker, 2016; Vos & Heinderyckx, 2015). Reese and Shoemaker (2016) have asked how models of analysis, developed at a time when news was produced by professional journalists working for news organizations, "fit with the new media world where the lines are not as tidy?" (p. 391). Paying attention to attention is relevant in what Chadwick (2013) has called hybrid media systems where contextual and contested processes vie for prominence, profile and relevance to shape the circulation of news.

Taking a cue from Reese (2016), this paper considers gatekeeping as a function occurring at the digital circulation of news, taking place as “not some naturally existing and enduring category, but a complex and contingent assemblage – less product than process,” (p. 821). The main contribution of this paper is to offer a framework to study gatekeeping post-publication, combining the human aspect with the materiality of the technological infrastructures and products, and the subsequent emergent social habits of news consumption and circulation. Inspired by the work of Lewis and Westlund (2015), it proposes Four Ps – publics, platforms, paraphernalia and practices – as elements in gatekeeping processes taking place post-publication. The Four Ps answer the call by Reese (2016) to “identify the newly coupled assemblages put together in producing digital journalism, beyond its traditional institutional containers,” (p. 816). The idea of an assemblage of elements serves to capture what Reese & Shoemaker (2016) describe as “a contingent set of relationships to accomplish shifting social objectives not otherwise defined by formal institutions,” (p. 406).

The concept of assemblage is valuable in journalism to capture the dynamic and fluid ways that diverse factors in newsworld combine and recombine in new ways (see, for example, Anderson, 2013). In this paper, the assemblages are the elements that compete for the attention of audiences, and form part of the gatekeeping processes that shape the digital circulation and profile of news, ultimately influencing what the public pays attention to and acts upon. The contribution here is to provide a matrix that is not defined or limited by pre-existing relationships or institutional boundaries. Rather it is malleable and supple enough to account for the contingencies in how attention to the news is assigned, constructed and manipulated in hybrid media systems (Chadwick, 2013).

The evolution of gatekeeping

Lewin (1947) coined the term “gatekeeper” in the context of group dynamics and household decision-making, while White (1950) expanded the concept to journalism in his study of editorial decisions. In their seminal volume, Shoemaker and Vos (2009) defined gatekeeping as “the process of culling and crafting countless bits of information into the limited number of messages that reach people each day, and it is the center of the media’s role in modern public life,” (p. 1). A significant body of work has sought to examine the characteristics of individual journalists to understand how gatekeeping decisions are made (Weaver, Beam, Brownlee, Voakes & Wilhoit, 2007; Weaver & Wilhoit, 1996). Gans (1979) surfaced how individual journalists operated in a broader functional and organizational context, with specific professional norms and routines, while Shoemaker and Vos (2009) further extended the idea of gatekeeping to consider communication routines, organizations, social institution, and social system as layers of analysis. More broadly, Benson and Neveu (2005) use field theory to consider how the institutional characteristics of journalism also impact the agency of individuals. And gatekeeping is related to other theories in communication, such as agenda-setting, given how issues and perspectives that make it to publication are deemed to be important and shape public opinion (McCombs & Shaw, 1976).

While much of the extensive literature on gatekeeping tends to place journalists and their sources as the primary gatekeepers (Gans, 1979; Shoemaker, 1991; Shoemaker & Reese, 1996), there has been an increasing turn towards examining how the concept applies in a digital media

environment (see, for example, Vos & Heinderyckx, 2015). Reese and Shoemaker (2016) make a valuable intervention in this area with their model of a “hierarchy of influences,” (p. 390). The model breaks down this hierarchy into the following factors: the individual, routines, organizational factors, social institutions and the social system.

Increasing attention has been paid to the rise of non-journalistic actors in online new production processes. Meraz and Papacharissi argue that “the inclusive, participatory logic of social media technologies calls these media control theories of gatekeeping and framing into question,” (2016, p. 97). The growing body of work on journalism and social media highlights how newsrooms have sought to retain a traditional gatekeeping role, reluctant to embrace the participatory logic of social media (Hermida, 2014; Lasorsa, Lewis & Holton, 2012; Singer, Hermida, Domingo, Heinonen, Paulussen et al., 2011). Shoemaker and Vos (2009) argue that newsrooms remain the primary gatekeepers, with audiences taking on a secondary role through actions such as commenting on, linking to or sharing the published work of journalists.

Scholars have highlighted the need to consider the diffusion and circulation of news as an extension of the gatekeeping process to understand how news and information rises to prominence and gains the attention of audiences (Bruns 2018; Gillespie, 2018; Meraz & Papacharissi, 2016). Circulation is one of the measures used by media organizations to assess the reach of their products, historically located in the physical distribution of printed newspapers. In a digital age, page views and unique users have become common analytics to assess circulation. Digital technologies offer sophisticated ways of tracking how a piece of content circulates online. The interplay between web analytics, newsroom practices and editorial decisions has been a growing area of scholarship, given that editors can effectively peer over a reader’s shoulder to see what grabs their attention (Belair-Gagnon, 2019; Cherubini & Nielsen, 2015). Indeed, researchers are finding evidence that news organizations are actually taking their cues from the audience when determining what types of news to publish (Moyo, Mare and Matsilele, 2019; Pantic, 2018; Tandoc, 2014).

The proliferation of tools on online news sites that enable audiences to make choices on what to like or share presents users a degree of collective control over the diffusion and prominence of news items (Ju, Jeong, & Chyi, 2014). Singer notes that, following publication, newsrooms “are counting on a user’s ability to scoop any item into his or her own social net and from there to highlight it, re-disseminate it, or enhance its chances to be seen in some other way,” (2014, p. 66). While acknowledging that most people will have neither the time nor skills to take on a gatekeeping role, Heinderyckx (2015) notes how online audience behaviours offer “sophisticated feedback loops that guide a news industry eager to please and retain an audience,” (p. 263). The choices of individuals by themselves are unlikely to have much of an impact. But networked technologies serve to aggregate and amplify individual decisions.

Novel ways to account for the influence of the audience in gatekeeping have been proposed by scholars, particularly in news flows on social media. Meraz and Papacharissi (2013) have advanced the theory of networked gatekeeping, defined as “a process through which actors are crowdsourced to prominence through the use of conversational, social practices that symbiotically connect elite and crowd in the determination of information relevancy,” (p. 22). In networked gatekeeping, the practices of publics in the filtering, amplification and sharing of

news and information come together to give collective expression and prominence, supported by the interconnected architecture of social media (Meraz & Papacharissi, 2016).

For his part, Bruns has advanced the term “gatewatching”, defined as “the observation of the output gates of other social media participants, and the selective re-sharing of information that appears most important, relevant, and meaningful,” (2018, p. 84). Gatewatching shares much in common with the notion of networked gatekeeping, as both refer to the collective construction of news events through the actions of individual actors on social media. The approaches acknowledge how gatekeeping operates in an ambient, always-on media environment “that offers diverse means to collect, communicate, share and display news and information, serving diverse purposes,” (Hermida, 2010, p. 301). Studies into recent social movements have highlighted how alternative voices and narratives have challenged the agenda-setting and gatekeeping choices of established media through the practices and architectures of social media (Callison & Hermida, 2015; Gleason, 2013; Lotan, Graeff, Ananny, Gaffney, Pearce & boyd, 2011).

Moreover, digital gatekeeping takes place against a backdrop of algorithmically-driven digital platforms, such as Apple, Google, Facebook, Twitter and YouTube. The gatekeeping role of platforms is a burgeoning area of research, with concerns over the power of algorithms to “filter, categorize and classify information that is already present in the system, and reflect what users want back to them,” (Napoli & Caplan, 2017, n.p.). Scholars, journalists and technologists have queried the duties and responsibilities of platforms to the public interest, given their increasing entwinement in the distribution, circulation and promotion of news and information (Ananny & Crawford, 2015; Gillespie, 2018; Napoli, 2015).

What emerges from the literature are insights into how digitalization, the internet and social media have reconfigured gatekeeping. This paper advances a framework to analyse what Raetzsch and Bødker describe as the “increasingly varied mediated forms of digital circulation,” (2016, p. 143). The four key elements in this matrix are the Four Ps, namely publics, platforms, paraphernalia and practices. They are intended to further understanding of how news stories circulated in a “dispersed landscape in which news stories are layered technologically, spatially and temporally,” (Bødker, 2015, p. 110). The Four Ps aims to account for the actions of individuals in aggregate as publics, the impact of platforms as institutionalized spaces for news, the objects of media consumption and exposure, and the temporal and spatial context for news distribution, consumption and circulation. The model addresses the call that “new media configurations must be identified and their emergence accounted for, even as they may prove elusive and transitory,” (Reese and Shoemaker, 2016, p. 407).

Publics, platforms, paraphernalia and practices

Publics

The term publics in this context refers to the audiences for news. This includes members of the public, but also extends to other human actors with an interest in news, such as politicians, businesspeople and journalists themselves. How the public pays attention to the news is an established vein in media research. For example, Drew and Weaver (1990) mapped audience attention to newspapers, television news and radio news. More recent work has sought to

investigate audiences, media consumption and public policy issues (for example, Couldry, Livingstone & Markham, 2010). The growth in media choices, channels and social media has led scholars to talk about an “attention economy”, where attracting audiences is paramount in a crowded media multiverse (for example, Davenport & Beck, 2001; Lanham, 2006). Such work is valuable in revealing the media choices and consumption habits of publics. As Couldry (2012) has noted, “previously most people’s commentary on the media was lost in the ether – a shout at the television, a scrawl in a book, a remark to a friend. Now our commentary is automatically archived and made visible online,” (p. 54-55).

A networked media ecosystem has enabled the individual choices of thousands of people to be automatically aggregated and surfaced, through the recommendation mechanisms built into social media. Such digital traces surface how publics decide what deserves the attention of others. Thorson and Wells (2015) describe this as a form of social curation, acknowledging the importance of friends, family and acquaintances in news flows well before the internet and social media. As Wallace (2018) notes, “by publishing, endorsing or by recontextualizing already-published news items, individuals become gatekeepers,” (p. 279). The growing trend of social discovery as a key gateway to the news signals how individual actions collectively serve as gatekeeping mechanisms to the news. In the Reuters Institute Digital News Report 2019, Newman, Fletcher, Kalogeropoulos and Nielsen (2019) noted that in some countries, “preferred access is often social first, with over four in ten (42%) preferring this route in Chile and many other Latin American markets,” (p. 13). Such social sharing takes place in a networked, digital ecosystem, meaning that once a story has made it “through the gates of publication; it cannot be withdrawn from circulation, but only made more or less visible through the concerted efforts of social media users,” (Bruns, 2018, p. 88).

The connective infrastructures of social media have enabled ad hoc publics (Bruns & Moe, 2013) to mobilize and coalesce around an issue or news event, amplify counter-narratives and reimagine group identities. Not only have tweets been used by journalists as a form of “vox populi” (Broersma & Graham, 2013), they have even been used as a stand-in for public opinion in the media during elections (Anstead & O’Loughlin, 2015). The visible and aggregated commentary of ad hoc publics on social media, particularly on Twitter, means that “when important news breaks and spreads across the Twittersphere, shifts in tone and topical focus of incoming tweets may cause that user to pay attention to the story” (Bruns & Burgess, 2012, p. 2).

Events and issues that are ignored, dismissed or marginalized through the gatekeeping decisions in established media can be revitalized through the collective action of individuals. In this case, publics are reacting post-publication to counter, and potentially, minimize the prominence of perspectives from established media. Prominent examples of publics coalescing around an issue to surface alternative views include the hashtags #OccupyWallStreet (Gleason, 2013), #IdleNoMore (Barker, 2015; Callison & Hermida, 2015) and #BlackLivesMatter (Garza, 2014). Each of these collectively raised the profile and visibility of a shared narrative, often at odds with the choices of established media. Similarly, scholars have looked at how feminist hashtag activism (Gunn, 2015) has served as a way “to intervene on oppressive discourses produced by commercial, news, and entertainment media, respectively,” (Clark, 2016). Feminist activists have used various hashtags to circulate and amplify feminist counter-narratives. In India, the #boardthebus hashtag sought to raise awareness of violence against women on the streets and

buses, and the #everydaysexism hashtag was used worldwide to highlight the pervasive nature of sexism by documenting stories of women's experiences of being sexually harassed (Bowles, 2015). In another case in 2013, Melbourne-based student Hilary Bowman-Smart started #safetytipsforladies as a parody hashtag after reading yet another article offering advice to women to minimize the chances of sexual assault. Others coalesce around the hashtag to use humour to push back against a dominant media narrative of victim-blaming (Rentschler, 2015). Such collective action has been described as productive curation by Davis (2017) through which "people decide with whom they connect, what to post, what to tag, and similarly, what to delete and exclude," (p. 773).

Through these conversational and social practices (Meraz & Papacharissi, 2013), publics exercise a gatekeeping function through the selection and amplification of specific news items or perspectives. This process is a relational and transient resource, allocated collectively to certain individuals and issues dependent on the context. How attention is assigned is not necessarily based on traditional newsroom norms of newsworthiness, but rather through "affective news streams", (Papacharissi, 2015, p. 28). These streams fuse together values of impact, proximity and currency with emotions of outrage, anger and disgust, subjective experiences and opinion (Al-Rawi, 2019; Bro & Wallberg, 2014).

The sharing and highlighting of specific topics and issues is rooted in the social value of a news item, operating within what van Dijck (2013) has called a culture of connectivity. Choices over the sharing of news and information are not solely based on the veracity of piece of content. Such decisions draw on a broad range of factors, as individuals may recommend a tidbit of information that is not necessarily true. In this sense, the gatekeeping choices of individuals are analogous to everyday conversations that mix anecdotes, gossip or far-fetched stories which are too good to be true. Yadamsuren and Erdelez (2010) found that publics tended to pay attention to the more unusual, bizarre or outrageous news. Thus, individuals may share something seen as amusing or entertaining, or be reacting to a news item that provoked emotions of anger and outrage (see Hermida, 2014, for an overview). In fact, the "emotional turn" in journalism is a growing area of research (Wahl-Jorgensen, 2019).

Such publics have been labelled as personal curators (Thorson & Wells, 2016), with Wallace (2018) defining them as "individual amateurs without social or organisational affiliations to powerful organisations or institutions," (p. 281) whose personal interests and predispositions shape decisions. Both Thorson and Wells (2016) and Wallace (2018) acknowledge the role of journalists and strategic communicators as actors in news flows. Journalists not only play a role in the circulation of news in digital spaces but also influence each other. A prominent example is Andy Carvin's social media activities during the Arab Spring. His Twitter feed featured posts by other journalists, as well as serving as a clearing house for tweets for other journalists (Garcia de Torres & Hermida, 2017). Both Thorson and Wells (2016) and Wallace (2018) consider how the actions of actors such as individual amateurs, journalists and strategic professionals are often taking place in the context of algorithmically-driven platforms. The next section considers the gatekeeping role of platforms and the algorithms underlying how they function in the circulation of news post-publication.

Platforms

Platforms such as Twitter, Facebook and Google have become increasingly influential actors in the dissemination and consumption of news and information once it has been published by news organizations (Newman et al., 2019; Nielsen & Schrøder, 2014). In the U.S. in 2019, more than half of adults, 55%, got news from social media (predominantly Facebook) often or sometimes, up from 47% in 2018 (Shearer & Grieco, 2019). Similarly in Chile, Brazil and Malaysia, four out of 10 got some of their news via social platforms (Newman et al., 2019). What has happened is what Heinderyckx has described as the “algorithmification of gatekeeping,” (2015, p. 257) and by Thorson and Well as “algorithmic filters” (2016, p. 314).

Platforms provide a continually evolving and dynamic infrastructure for public interaction and expression. The algorithms unpinning these platform carry out the functions of prioritization, classification, association, and filtering as expressions of algorithmic power (Diakopoulos, 2014). Platforms function as social institutions that shape public knowledge (Napoli, 2015), yet operate outside of the institutional settings of journalism. While algorithms have “a technologically inflected promise of mechanical neutrality”, (Gillespie, 2014, p. 181), they are clearly not free of bias. Software engineers need to make decisions on variables to evaluate (Steiner, 2012) and data sources to include or exclude (Gillespie, 2014). As Ananny (2016) has pointed out how “those with power are increasingly technologists and advertisers – not journalists – whose platforms and commodifications control how and when news circulates,” (p. 12).

Platforms, thus, have emerged as gatekeepers shaping the flow of news and information. As Welbers and Opgenhaffen (2018) have argued, the “form of influence exerted by Facebook could be conceptualized as gatekeeping on a meta level, where instead of controlling communication flows by operating gates, the power of gates is reconfigured by controlling the rules of the communication channels,” (P. 4744). Questions emerge when considering the rules of these platform channels compared to established media gatekeeping norms and practices. Proprietary algorithms assign relevance, value and prominence of knowledge to blend a cocktail of news, information and entertainment tailored to individual users.

Gatekeeping decisions on access, inclusion, visibility and popularity through algorithms are driven by commercial considerations that may be out of step with the public service ideals often associated with journalism (Ananny & Crawford, 2015). In 2015, the Reuters Institute Digital News Report noted the “renewed concern about the power of these networks, about the lack of transparency around the algorithms that surface content and about the extent to which publishers will get a fair return for the quality content that drives so much social media usage,” (Newman, Levy & Nielsen, 2015, p. 13).

Platforms, then, serve as algorithmic gatekeepers of the public’s attention, as a cultural form to process, filter and highlight what is seen, how it is seen and even when it is seen. Aggregators such as Google News and Apple News operate as gatewatchers (Bruns, 2005), selecting and highlighting content created by others through a mix of algorithmic and human editors. As Heinderyckx notes, “because the content is only selected and made available with no editorial transformation, curation and aggregation could be considered second-order gatekeeping, but

gatekeeping all the same,” (2015, p. 262). On social media platforms, the selection process is understood to be driven by algorithms that track, analyse and interpret individual behaviour, data and connections to tailor information towards the individual (Heinderyckx, 2015; Thorson & Wells, 2016). The feedback loops used to make decisions on story selection on Facebook range from explicit user interests to prior behaviour to platform priorities (DeVito, 2017). But DeVito (2017) found that relationships with friends mattered the most, eclipsing other variables. Combined, these factors create calculated publics (Gillespie, 2014) for news and information.

Scholars have expressed concerns about the implications for media exposure of such algorithmic gatekeeping taking place post-publication. Thorson and Wells have warned how “not clicking on ‘news’ stories will likely reduce the amount of news that appears in one’s feed, thereby amplifying an individual’s own predispositions. Such processes could extend the gap between the political information rich and the political information poor,” (2016, p. 318). One study of seven million URLs shared on Facebook found that only a fraction, 13%, were related to news about politics, world affairs or events considered as hard news (Bakshy, Messing & Adamic, 2015). As gatekeeping mechanisms, the algorithms embedded in platforms select and recommend news and information such that they “have the potential to radically shift not only how we select what news to read, but also the attitudes we form about it,” (Thorson, 2008, p. 486). The material ways through which such algorithms operate is addressed in the next section that considers the paraphernalia of news circulation and consumption, such as mobile devices and smart speakers.

Paraphernalia

Recently, there has been a renewed focus in journalism studies on the materiality of journalism, with Anderson and De Maeyer (2015) arguing that with “the objects of journalism provide a new window into the social, material, and cultural context that suffuses our increasingly technologically obsessed world,” (p. 4). This section takes an object-centred approach to analyse the paraphernalia of news as contributing to the materiality of gatekeeping. Paraphernalia are defined as all the objects needed for or related to a particular activity, in this case, being informed. Pre-digital, such objects or products would have been the printed newspaper, television or radio device, which created material conditions for the diffusion and circulation of news and information.

Much as Powers (2012) argued that the technologies of news production introduce “technologically specific forms of work”, (p. 25) the technologies of news circulation and reception introduce technologically specific forms of gatekeeping. To paraphrase Powers, paraphernalia enable technologically specific forms of news consumption and circulation. The paraphernalia of news are objects of media exposure that shape how audiences are made awareness, alerted to and informed about the news. Such a focus is necessary, given the rise of mobile and other digital devices as gateways to the news, enabled by what Wellman and Rainie (2012) call the triple revolution of the internet, social networking and ubiquitous connectivity.

Devices such as mobile phones, voice-activated smart speakers and smart watches are communicative objects that are becoming deeply embedded in everyday life, playing a growing role in news habits (Newman et al., 2019). The material nature of these devices – always-on

connectivity - enable a pervasive, persistent and perpetual information environment. As a result, they support specific contexts for the circulation of news and information. This section focuses on two sets of devices – mobiles and smart speakers – as examples of the gatekeeping function of the paraphernalia of news.

Much of the research on these contexts has focused on how news organizations and journalists have adopted mobile devices for reporting and publishing news, often considering the impact on norms and practices (Westlund, 2013; Perreault & Stanfield, 2019). There have also been books dedicated to mobile-first journalism (Hill & Bradshaw, 2018) and book chapters on mobile journalism training in countries that have leapfrogged hardwired internet cables and gone straight to mobile connectivity (Mhiripiri & Ureke, 2019).

Studies of the impact on audiences have tended to consider how mobile devices have been used for citizen witnessing and reporting of the news (see, for example, Allan & Thorson, 2009). At the same time, though, other studies have paid attention to how the digital paraphernalia of news are reshaping news habits. Such work has been helpful in surfacing how the news comes to the attention of audiences. As early as 2010, the Pew Center in the U.S. noted that “almost half of on-the-go news consumers (46%)” used mobile devices to access the news (Purcell et al, 2010). By 2019, two-thirds of news consumers globally were using mobile devices to access news (Newman et al., 2019). But not all news users are equal, as research has found that the number of devices is a factor in shaping news consumption, with Newman, Levy and Nielsen (2015) noting that “the more devices we have, the more frequently we consume,” (p. 55).

The materiality of devices such as the mobile plays a role in the form and type of news. Since most smartphones came with built-in location technology, Schmitz Weiss has called for more attention to “spatial journalism”, defined as “the kinds of information that incorporate a place, space, and/or location (physical, augmented, and virtual) into the process and practice of journalism” (2015, p. 125). As a result, how news is received and consumed can be closely related to the location. The interplay between media exposure, mobile connectivity and location is a growing area of research. Willems (2020) suggested early adopters used mobiles and Facebook to share information about the 2011 elections in Zambia as the devices were not only cheaper and more reliable than public internet access points, but could be used anyway at anytime. A study by Nelson (2019) of the audiences for news on desktop compared to mobile noted the popularity of weather apps. He suggests that the combination of the portability of mobiles and location-based services “suggests an opportunity for researchers interested in understanding how media platforms mediate local news consumption,” (2019, p. 99).

Similarly, the rapid uptake of mobiles with touchscreens has fuelled responsive web design for websites that work across platforms (Westlund, 2013). The increase in the quality of screens and the vertical orientation of mobile devices has served to privilege visual forms of communication. While vertical video has been largely negatively greeted by broadcast professionals, news organizations have been developing video specifically for this screen format (Manjoo, 2015). Specific mobile platforms (mainly iOS and Android) set their own parameters of the apps and services accepted for the each of the systems. The devices and operating systems have their own inbuilt biases and values, arguably serving as gatekeeping mechanisms.

Taken together, these factors combine to shape the types and forms of news that proliferate on mobile devices, raising questions about how their materiality perform secondary gatekeeping functions. Here are two examples of how such gatekeeping can be seen to play out. First, the mobile screen in and of itself is an example a gated space, where there is a competition to have push notifications pop up on the lockscreen and grab an individual's attention. The notifications range from news alerts to personal messages and photos from friends, from likes and follows to alerts about sales. The news alerts that make it to the lockscreen are in a prime position to capture attention but decisions on what appears there are based on a mix of device settings, app settings and personal preferences.

The role of the lockscreen and notifications in the circulation of news was noted in the 2016 report from the Reuters Institute for the Study of Journalism. Such news alerts can serve as pathways to an outlet's news apps, with legacy news brands such as the BBC, CNN and Fox emerging as the winners in the battle for the lockscreen (Newman, 2016). Research on how these notifications are filtered, produced and selected to surface what matters in that instant to an individual user is underdeveloped but key to understanding the gatekeeping process on the paraphernalia of news. In a cross-national study, Mitchelstein, Boczkowski, Tenenboim-Weinblatt, Hayashi, Villi and Kligler-Vilenchik (forthcoming) noted some individuals tended to rely on push notifications for news while others disabled the functionality. Here there is scope for additional research to consider how the interplay between device, apps and personal choices configure the lockscreen, considering differences individual differences in experience (Groot Kormelink & Costera Meijer, 2019).

While far less prevalent than mobiles, smart speakers are also emerging as gateways to the news (Newman et al., 2019). The landscape of smart speakers is dominated by some of the same platforms that dominate digital life. Currently, Amazon leads the way in the US, UK and Germany, while Google is more prevalent in other countries such as Australia and Canada (Newman et al., 2019). It may be fancible to think of Alexa becoming the Walter Cronkite for a generation of news consumers who ask their smart speakers to tell them the news. But there is some research that suggests perhaps this is not as farfetched as it sounds. An industry report found that 45% of device owners use them to listen to news (Edison/NPR, 2019). While people can customize their on-demand news broadcasts, standard services like Alexa's Flash Briefing have certain channels enabled by default, such as the BBC and NPR (Martin, 2016). In their study of the impact of smart speakers on broadcasters in Brazil, Kischinhevsky and Lopez (2019) suggest that the proliferation of such devices is bolstering the already powerful role of Amazon and Google as intermediaries. They conclude by asking "who controls what we will hear when we ask Alexa – or any other voice assistant – what is the news?" (2019, p. 139)

Much as platforms emerged as significant gateways to the news, voice-activated smart speakers are emerging as gateways to audio news and informational content. What is less clear is the decisions made by these devices, as Alexa or Siri figure out how to best respond to a query, the sources and outlets they draw on and those they exclude. As with past paraphernalia of news, social and cultural practices change and emerge given new digital products. This is potentially a rich vein for research to understand how devices shape the circulation of news, particularly considering how much of this information is tracked and stored, albeit mostly by private corporations. Raetzsch and Bødker suggest that the metadata of digital products as

communicative objects could “open up new possibilities for social science to use automatically retrieved data as sources for investigations of digital circulation,” (2016, p. 140). One of the challenges here is who has access to such data. Kischinhevsky and Lopez (2019) highlight the power of companies such as Amazon and Google as intermediaries given their control of audience data. Paying attention to the digital paraphernalia of news is important, given how they contribute to creating new daily practices (Kischinhevsky & Lopez, 2019). As Groot Kormelink and Costera Meijer suggest, “news devices and platforms also invite and inhibit different ways of physically – and often manually – handling and navigating them, resulting in different ways of engaging with news content,” (2019, p. 650).

Practices

This section examines the social practices around how users engage with news in an ambient, digital media environment act as gatekeeping mechanisms in and of themselves. Existing and emergent routines of accessing news influence and shape the time dedicated to these activities and the places where they take place. Taken together, such factors affect the time and attention devoted to news, as well as the types of media exposure. One of the most significant shifts since digitalization has been temporal and spatial with news as pervasive and never more than a screen away. News-seeking behaviour used to be an activity tied to specific times of the day, shaped by the nature of the medium, from the morning newspaper to the evening TV news bulletin. As a broad range of research has found, audiences face much more incidental, at times accidental, exposure to the news, fuelled by 24-hour news services, social media and smartphones (Boczkowski, Mitchelstein & Matassi, 2018; Fletcher & Nielsen, 2018; Tewksbury & Weaver, 2001),

As noted earlier, changing practices are enabled by a combination of the platforms and paraphernalia associated with the circulation of news and information. As the smartphone is fast becoming the primary gateway to media content, scholars have talked about the “atomisation of the news – associated with practices of casual and serendipitous ‘news snacking’,” (Bruns, 2018, p. 240). Costera Meijer and Groot Kormelink (2015) define snacking as consuming “bits and pieces of information in a relaxed, easy-going fashion to gain a sense of what is going on,” (p. 670). It was one of the user practices they identified in studies over a 100-year period. Other practices included checking the news through 24/7 updates or notifications and scanning a story to get across the gist of a news item. As Costera Meijer and Groot Kormelink (2015) noted in their overview, “no one will find it odd anymore when people do a ‘checking cycle’ while getting up or during social experiences like having a drink or grabbing a bite,” (p. 675).

Changing patterns of news consumption are linked to a broader shift in the use of mobile phones in personal spaces, since such devices tend to always be within reach. In the words of Costera Meijer and Groot Kormelink (2015), “all micro-periods of waiting appear to be padded with news: in the bathroom, at the bus stop, when waiting between appointments,” (p. 670). A particular type of news consumption, then, is increasingly associated with in-between moments – the dead times between more purposeful activities. Such news routines are an extension of what Davis (2017) calls consumptive curation, defined as “how persons allocate attention among information and social networks, creating particularistic windows on the world,” (p. 774).

Studies such as the work of Damme, Martens, Van Leuven, Vanden Abeele and De Marez (2019) on mobile news consumption have sought to understand how algorithms, peers and editors shape incidental news exposure. But the ability to access news anywhere at anytime suggest it is important, too, to consider how temporal and spatial considerations influence such consumptive curation. For example, one study found how the news checking cycle has spread to the toilet, with a third of news consumers filling the minutes spent in the bathroom by looking at news on their phone (Newman, Fletcher, Kalogeropoulos, Levy, & Nielsen, 2017). Studies also underline how a significant number of news consumers (42%) pass the time on public transport with the news, while almost half (46%) check the news in bed (Newman et al., 2017). The primacy of the smartphone among younger news consumers means that almost half of 18-24 year-old make first contact with the news in the morning on a mobile device (Newman et al., 2019).

More research would shed light on how decisions on what to read are affected by this particular environment and circumstances when people are snacking on the news, as well as how time and place influence the types of content accessed. For example, most people view video on mobile devices with the sound off given that this may be happening in a shared space. It is hardly surprising then, that news organizations have been creating captioned video in response to this audience trend. Arguably, videos with sub-titles are more likely to be viewed in such circumstances, than those that require sound.

Understanding the when and where of the checking cycle would contribute to further understanding of how people make decisions around news choices. Studies have found that people often don't read online but rather scan to get the gist of a story (Costera Meijer & Groot Kormelink, 2015; Duggan & Payne, 2011). What is less clear is spatial and temporal factors, such as going to the toilet, shape news choices, so that summaries or shorter stories produced for these situations would be more widely read than other formats. One study by Leiva (2018) on automated snippets for mobile screens found that users spent more time and visited more pages on sites with the short summaries. A key area for research here is how far such behaviour impacts public understanding of news and events, particularly if people are only seeing a headline and short description as they scroll on their mobile phone during in-between moments (Groot Kormelink & Costera Meijer, 2019). To conclude, this section has argued that place and time play a significant role in the gatekeeping process as they impact the when and where of news consumption. Decisions about what to read and how long to spend on the news are contingent on what individuals are seeking to achieve at specific times of the day and at specific places in-between more purposeful activities.

Discussion and implications

This paper started by considering the media habits of U.K. voter Shazi. Her experience illustrated how her friends as publics, Twitter as a platform, her phone as paraphernalia, and time and place as practices shaped her exposure to news about the general election of 2019 (Waterson, 2019a). *The Guardian* story on the media habits of these voters talked about a chaotic world in which political news was warped by friends and social media platforms rather than shaped by publishers (Waterson, 2019b). The Four Ps outlined in this paper advance a model to bring order to the supposed chaos of media exposure and consumption in a digital media ecosystem. Such an approach takes into account the secondary processes of gatekeeping that takes place post-

publication, once a news item has been published. As Vos has noted, “the real world of news production and distribution is changing so quickly that scholars are confronted with the changing dynamics of gatekeeping,” (2015, p. 5).

Gatekeeping as extended to post-publication has served as the overarching theme to unpack the complex, contextual and contested processes through which the Four Ps – publics, platforms, paraphernalia and practices – interact to assign prominence and profile to the news. The model extends the work of Lewis and Westlund (2015) through its focus on elements that are mostly operating outside of the institutional functions usually associated with news production. It shares a common question with Thorson and Wells (2016) who ask, “*which curation processes are most significant in citizens’ media experiences?*” (p. 318, italics in original). In their typology, they consider the implications of personal, social, strategic, journalistic, and automated curation for an individual’s information diet.

The framework of the Four Ps could help unpack the complexity of gatekeeping post-publication by surfacing the ways in which different factors combine and recombine to shape the circulation of news. Acknowledging a degree of overlap, the Four Ps model extends the actors engaged in media curation beyond those proposed by Thorson and Wells (2016) to include not just human and algorithmic actors, but also the objects of digital media, and the temporality and spatiality of media practices. By taking account of the sociotechnical dimensions of gatekeeping, it “acknowledges how journalism is becoming interconnected with technological tools, processes, and ways of thinking,” (Lewis and Westlund, 2015, p. 33). As such, the model could be used to understand the digital intermediaries that shape the four key moments of news consumption by young audiences identified by Newman et. al., (2019) – dedicated moments, a moment of update, time-fillers and intercepted moments.. For example, aggregation platforms like Apple News, combined with mobile devices, are more significant for young people with time to fill while on public transport than for dedicated news consumers. Such research suggests that media exposure for younger audiences is significantly shaped by the platforms and devices favoured by them, occurring at a time and place of their convenience.

Such an approach builds on the work of Raetzsch and Bødker (2016) who argued that “integrating an understanding of the processes of digital circulation with the social and cultural processes of meaning-making urges us to come to terms with the duality of communicative objects, as both technological and cultural forms,” (p. 143). Circulation matters because, as Hardt (1979) puts it, “control over the media of dissemination may suggest control over the mind of society,” (p. 22). Raetzsch and Bødker (2016) argue that “taking circulation seriously as a critical concept in journalism studies means to shift our attention away from traditional actors (e.g. institutions) to acknowledge the co-constitution of materiality, users and meaning,” (p. 130). For example, studies could examine platforms as social institutions (Napoli, 2015) that not only offer act as gatekeepers for the newsfeeds of individual users, but also shape the nature of the social environment for journalists, media organizations and other actors.

Mapping out four elements at the circulation stage of the news highlights two key aspects. There is scope for further research into how these dynamics interact with each other to affect how news items gain prominence and attention. For example, how objects of media such as smart speakers filter the type and range of news that audiences are exposed to? How do these objects intersect with temporal and spatial factors related to media exposure? Echoing Thorson and Wells (2016) questions about curation, what are the logics of the Four Ps and what is the degree of variation within each element?

Further work could build on Reese and Shoemaker's (2016) hierarchy of influences by applying it to the four elements explored in this paper. For example, at the level of publics, research could further investigate the significance of journalists or strategic communication professionals in influencing how news rises to gain broad attention in relation to other publics, and the other elements. Of particular interest to journalism studies scholars are emergent journalistic roles related to the circulation of news items post-publication that extend already established roles (Mellado, 2019). Such roles go beyond those involved in the gathering, filtering and production of news to roles that intersect with the publics, platforms, paraphernalia and practices that shape circulation in a noisy media environment. Tandoc & Vos (2016) have talked a marketing role for journalists who are "now finding themselves part of the complicated news distribution process," (p. 961). These emergent roles do not simply involve promoting news by posting headlines on social media. They also require considering how to connect and engage with audiences and paying "attention to market demand" (Tandoc & Vos, 2016, p. 962). Furthermore, there is scope to examine how these emergent roles are shaped by, and are shaping, the media logics of spaces for news circulation outside of the institutional structures of journalism (Hermida & Mellado, 2019).

The model advanced in this paper could be applied to trace the processes around specific stories and issues once something has been published and is seeking to be seen and heard. Research has shown how newsrooms are paying more attention to digital metrics and the way this is affecting editorial decisions. There is potential to build on such studies by considering how all or some of the Four Ps impact flows of news and information post-publication. The interplay of platforms and paraphernalia is an equally rich vein for research, given how these can be so closely related. Take for example the Apple ecosystem of operating system devices and services like Apple News. As Groot Kormelink, and Costera Meijer (2019) suggest, "the materiality of devices and platforms and the ways users physically handle and navigate them impact how they engage with news, in ways they themselves had not realized," (p. 1).

This kind of research could contribute empirical research that addresses the concerns about polarization and balkanization of media experiences as reflected in the study in *The Guardian*. There is little doubt that audiences have an unprecedented number of ways and means to access and receive news and information. Of increasing significance are the forces that come into play once a news item is published, given the rise of digital intermediaries that mediate such news flows. Breaking down the processes through which news circulates and comes to the attention of voters is important in order to understand the flows of information to citizens. The complexity of digital media spaces, their materiality and associated practices require a holistic approach to map out and unpack the gatekeeping processes taking place post-publication.

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