Social media monitoring apps in news work: A mixed-methods study of professional practices and journalists' and citizens' opinions

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Social media plays an important role for journalists, as a source of breaking news and a way of monitoring trends and sentiment. To help journalists find and filter newsworthy social media content, a number of sophisticated apps have been developed, some by social media platforms themselves and others by third parties. This article explores the use of such apps by UK journalists and the opinions of social media users who are surveilled by them. The results reveal that, as of 2018, a third of UK journalists use social media monitoring apps, and that some of these journalists believe these apps have pushed them to increase their reporting of social media trends. Journalists appreciate the speed with which such apps can alert them to newsworthy information but are sceptical about the claim that verification can be automated. Citizens raise concerns about social media surveillance, especially, but not exclusively, that occurring in the journalism context.

Keywords: computational journalism; news sourcing; newsworthiness; privacy; social media in news work; social media monitoring; surveillance; verification

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Introduction

Chesley Sullenberger's successful crash landing of Flight 1549 into the Hudson River was an early and prominent example of news breaking first on Twitter (Kwak, Lee, Park, & Sue, 2010). Since then, social media platforms have played an increasingly important role for journalists, not only as a source of breaking news but also for monitoring trends and sentiment (Broersma & Graham, 2012).

Although journalists are depending more and more on social media platforms, a number of challenges exist in exploiting these new sources of information. The nearly limitless volume of information on social networks has made it difficult for journalists—and other users—to find and verify relevant information in a timely manner, especially if they are using the platforms directly, in an unmediated fashion.

As a result, third-party developers have, for some time, offered apps that allow users to find and filter social media posts in particular ways. Early examples included SRSR (Diakopoulos et al., 2012) and VSAIH (Molina, 2012). Since then much more sophisticated social media monitoring apps have been developed, some of which are offered at considerable expense. They can monitor several social networking platforms simultaneously, alerting users to content that may be newsworthy based on its substance, location, or both.

This article argues that it is important to understand the level of use of social media monitoring apps by journalists, the consequences they may be having on how news is produced, and the opinions of those citizens being monitored. Some social media monitoring apps used in journalism and other fields have already been forced to close following accusations of data misuse. For example, Geofeedia ceased operation

after it was revealed its app was being used by U.S. law enforcement agencies to monitor activists of colour in Oakland and Baltimore (Cagle, 2016).

This article explores the use of social media monitoring apps by journalists and the opinions of the social media users who are surveilled by them, using a multi-methods research design that includes in-depth interviews with journalists and technologists and large-scale surveys of UK journalists and citizens in the UK and Germany.

The results show that journalists appreciate the speed and precision with which such apps can alert them to potentially newsworthy information but mostly reject the notion that the content and contributors apps present to them are more credible than could be found by using social media platforms directly. We found some journalists felt the use of social media monitoring apps had influenced their news coverage, making it incline more towards what is trending on social media. While journalists were not particularly concerned about the ethics of social media monitoring for public purposes, or about their profession's use of such services, the surveys of citizens revealed concerns about social media surveillance, especially that undertaken by private entities and that occurring in the context of journalism.

Literature review

For journalistic use, two functions of social media monitoring apps are particularly important. Firstly, the detection of events automatically as they break and, secondly, the incorporation of location-based search and monitoring.

Social networking platforms' own native event detection functionalities are not as useful and flexible as those found in social media monitoring apps. On Twitter, only

a limited number—approximately twenty—entities (often hashtags or known human or organisational entities) reach 'trending' status at any moment in time. Social media monitoring apps, by contrast, can alert their users to a much larger number of trending events, and give more control over the criteria for detection.

Also important for journalists is location-based search and monitoring (Diakopoulos, De Choudhury, & Naaman, 2012, p. 2452), because, as (Thurman, 2018, p. 78) writes, "many newsworthy events, such as natural disasters and demonstrations" are "inextricably linked to specific geographical locations" Although social media posts may include information about location from where the post emanated, most social media platforms, in their unmediated form, do not allow users to filter posts geographically as precisely as sophisticated apps do.

There are various apps on the market that fulfil one or both of these journalistic requirements: event detection and location-based search and monitoring. Reuters' in-house app, Reuters Tracer, can detect newsworthy events on Twitter (Liu et al., 2016), with, it is claimed, a high degree of accuracy (Reilly & Al-Kofahi, 2017). The company behind Tracer's analysis engine, Cloudera, say that "over 50 major news stories, including the shooting in San Bernardino, California, the Brussels bombings, and the 2016 earthquake in Ecuador" have been broken by Reuters Tracer, giving Reuters journalists a head start of up to 60 minutes over other news organisations (Cloudera Inc., 2017).

Whereas Tracer is only available to Reuters' staff, some companies sell their social media monitoring apps to a broad range of customers, including, but not limited to, journalists and news organisations. SAMdesk, for instance, believes "there is a long list of industries … who depend on the delivery of fast, accurate data about world events" (Neufeld, 2018). SAMdesk's CEO, James Neufeld, believes that logistics,

travel, first responders, and corporate security, as well as news, are all fields where social media monitoring apps have potential (ibid.). As the market for social media monitoring apps matured, some suppliers started to charge for their apps. For example, Banjo initially provided a free iOS and Android app that allowed users to find social media content based on its location (Fink, 2014, p. 151). Subsequently it only allowed access to its service via subscription (Inc. Magazine, 2016).

Existing research on social media monitoring apps can be divided into two strands. The first is primarily technical in nature, describing the techniques the apps use to find, classify, filter, and display information (see, for instance, Liu et al., 2016; Atefeh & Khreich, 2015; Aiello et al., 2013; Benevenuto, Magno, Rodrigues, & Almeida, 2010).

The second strand of research encompasses the social implications of social media monitoring apps. Contrary to the wealth of work on the technical development of such apps, research taking a social or critical perspective is rare. Scant research has been done on the biases these apps might embody or on their use by journalists. Analysis of citizens' opinions towards social media surveillance is virtually non-existent. This study aims to address some of these gaps in the existing research.

The abundance of information on social media should not conceal the fact that journalistic research on the internet is very demanding (Nuernbergk, 2018, p. 103). Fink (2014) found that using social media platforms directly for broad searches did not work well for most of the journalists she interviewed. One interviewee said "she felt she lacked direction" (Fink, 2014, p. 176), while another said using social media platforms directly for broad searches was too time-consuming (p. 176). Schifferes et al. (2014) came to the same conclusion after interviewing UK journalists, many of whom were found to be frustrated with directly sourcing news from social media (p. 409).

Social media monitoring apps were designed to help in such circumstances by providing journalists and other users with (geo-)filtering options, event detection, sentiment analysis, and translation services for multilingual content. Thurman (2018) compared the functionality of a selection of social media monitoring apps (SocialSensor, Geofeedia, and NewsWhip Spike) and also conducted an experiment in which these apps were used by 81 student journalists for a period of two weeks, and their views analysed. Location-based searches were particularly valued by the student journalists (if available within the app). However, the students were less positive about the apps' abilities to find original news.

Despite the need journalists have voiced for social media monitoring apps and the proliferation of apps, little research has been done on the extent to which journalists use social media monitoring apps. This leads us to our first research question:

RQ 1: What proportion of UK journalists use social media monitoring apps?

Although the information they gather clearly has value for their users, social media monitoring apps are not without limitations. Thurman et al. (2016) showed that they often favour short-term events over long-term developments. Proprietary algorithms decide what is newsworthy, which users to follow, and which users or information seem credible. For example, the social media monitoring app SocialSensor acquired its information from a limited number of well-known journalists, politicians, and bloggers, and the people those sources follow, what the project team called 'newshounds' (pp. 840-841). SocialSensor's database of UK newshounds was predominantly made up of men (52%) and institutional accounts (24%). Women represented only 23% of the newshounds (p. 842). In terms of the affiliations of the newshounds, there was a bias

towards mainstream media (63%). In contrast, activists, experts/academics, and those working for NGOs or for blogs/alternative media only made up small proportions (<5% each) of the newshounds (p. 842). Do, then, journalists feel their reporting is influenced by such apps, for example, by being pushed towards certain sources or towards reporting trending topics? This leads to our second research question:

> **RQ 2**: Do UK journalists believe that social media monitoring apps influence the news production process?

An important factor in reporting breaking news is timeliness: finding original insights before your competitors do. Some have claimed that the dissemination of news on social media is fast enough to have become an alternative to local news and newswires as a source of information (Fink, 2014, p. 181). It has been suggested that Twitter sometimes even breaks news before newswires (Kwak, Lee, Park, & Sue, 2010, p. 596), especially on stories about sport events or unforeseen natural disasters (Petrović et al., 2013, p. 715).

However, sourcing from social media is viewed critically by some journalists given the uncertain provenance of some of the information that is circulated (Broersma & Graham, 2012, p. 404). Indeed, Fink (2014) found some journalists were sometimes fooled by hoaxes "as they rushed to report the latest developments in breaking news stories" (p. 242). It is clearly crucial for journalists to check the truthfulness of content and the trustworthiness of people they find online (Silverman & Tsubaki, 2014, p. 11).

Social media monitoring apps can assist journalists in their assessment of the credibility of contributors and content but cannot verify information in "an absolute sense" (Diplaris et al., 2012, p. 1246). Diakopoulos et al. found that some journalists

were sceptical about an algorithm's judgement about the credibility of social media sources (2012 p. 2458). In contrast, Thurman (2018) found that student journalists were inclined to assume content carried by social media monitoring apps was mostly verified. This raises questions about whether and how professional journalists use social media monitoring apps in their verification routines. This leads us to our third research question:

> **RQ 3**: Do social media monitoring apps influence journalistic verification routines?

Social media monitoring apps may impact social media users' privacy by, for example, surveilling their movements. Some social media users may be unaware how they are being surveilled, even if they know the content they post is public (Hess, 2015). Other users who try to hide their social media activity may find themselves tagged or mentioned in content shared by others (Fink, 2014, p. 186). In the previously mentioned work by Thurman (2018), student journalists voiced concern "about the ease with which it was possible to track individual users" (p. 89) via social media monitoring apps. Thus far, little research has been conducted on the extent to which citizens know they are actually being surveilled by social media monitoring apps and their—and journalists'—opinions about the practice. This leads to our forth research question:

> **RQ 4**: What do UK journalists and citizens in the UK and Germany think about who should have access to social media monitoring apps and their privacy implications?

Methodology

Because research on social media monitoring apps from a social science perspective is relatively novel, a "partially mixed sequential dominant status" method approach was chosen for this study (Leech & Onwuegbuzie, 2009, p. 270). The research questions were first addressed qualitatively, and then quantitatively, with the quantitative research representing the dominant research phase. The qualitative and quantitative data were analysed separately but are presented and discussed together.

The qualitative part of this study consisted of seven semi-structured interviews with experts (carried out in the summer of 2018), five of which were carried out with news professionals who use social media monitoring apps in their daily routines. Two additional interviews were carried out with technologists from news agencies (see Table 1). The interviews lasted 40–50 minutes and were audio-recorded and transcribed.

Building on the interviews, three online surveys were conducted to analyse social media monitoring apps in a structured, quantitative manner. The first survey, conducted online in July and August 2018, investigated the behaviour and opinions of a representative sample of UK journalists. The second and third surveys, also conducted online (in August 2018), investigated the opinions of citizens in the UK and Germany. The UK sample was recruited via *respondi*'s established panel, while the German survey was distributed through the *SoSci* panel. The UK respondents were given a small incentive to participate. Members of the *SoSci* panel volunteered their time. Both the English and German language versions of the citizens' survey were checked and approved by two independent academic reviewers appointed by the *SoSci* platform.

Table 1: Participants interviewed in-depth for this study

Interviewee	Position	Employer
Mohammad A. Q. Ziyadah	Social Media Editor	BBC
Thomas Smith	Data Manager	Dazed Media
Jono Hutchinson	Deputy Head of Social Media	The Telegraph
Stephen Jones	Social Media Editor	Press Association
Stuart Myles	Director of Information Management	Associated Press
Christoph Weckwerth	Editor and founder of DPA's social newsgathering unit	Deutschen Presse-Agentur (DPA)
Jochen Leidner	Research Director	Thomson Reuters

Description of the surveys' samples

The journalists' questionnaire was started by 796 journalists (9,538 invitations were sent, a 8.4% response rate), with 602 respondents fully completing the survey (a 76% completion rate). Participants who did not fully complete the questionnaire were not removed from the sample. As a result, the sample size fluctuates between questions (some of which were optional). After the data was cleaned, for example by removing questionnaires with unrealistically short or long completion durations,[2] 680 respondents remained, who we believe to be representative of the larger population of UK journalists.

[2] Participants who took less than one minute and more than 30 minutes to complete the questionnaire.

The citizens' questionnaires were started by 1,233 participants, 632 in the UK and 601 in Germany. After the data was cleaned, for example by removing questionnaires with unrealistically short or long durations[3] 1,204 respondents remained, 619 from the UK and 585 from Germany. Although 25% of respondents stated they did not use social networking sites at all, these respondents were not excluded. Social media monitoring apps were described during the survey, and we made the decision that the ability to assess the privacy and surveillance issues of social media monitoring apps did not require respondents to be active social media users.

In the German sample 55% of participants were female and in the UK sample, 51%. Across both countries the participants were, on average, between 43 and 47 years old. The participants in the German sample were more highly educated: 64% held a university degree, in contrast to only 29% in the UK sample.

Results

The semi-structured interviews confirmed the importance of social media in contemporary news work. Mohammad A. Q. Ziyadah (social media editor at the BBC) said that "we expect every single journalist to be using social media as a way of finding contacts, finding interesting topics, and understanding the audiences. It's no different from following TV channels, satellite channels and newspapers. It's now become an extra bit of your toolkit as a journalist" (Ziyadah, 2018). Jono Hutchison (deputy head of social media at The Telegraph) stated that Twitter is journalists' favourite social networking site from which to source: "Twitter is the most useful . . . it's usually the

[3] Participants who took less than one minute and more than 30 minutes to complete the questionnaire.

first place we would find out about something. And often the news gathering will continue on Twitter as well, because there's a lot of subsequent updates that come via there" (Hutchison, 2018). However, Stephen Jones (social media editor at the Press Association) thought that Twitter had become less central with journalists needing to monitor a range of different social media sources.

The survey of UK journalists revealed that a large majority (82%) do, indeed, use social media platforms as a source of information for the stories/news items they produce. The journalists who did not use social media as a source were asked why, with 71% giving detailed explanations. Some said that news about their beat does not circulate on social media. For example, one wrote, "As we are almost entirely concerned with stories regarding new technology we rely on companies approaching us about new products or services." Another journalist also indicated a reliance on PR input: "I am provided with most of [the] information I need by the distributors and PR companies whose releases we cover, and have specific web sites I refer to for more details." Other journalists mentioned not resorting to social media due to a lack of time. One said: "I have very little time to engage on social media", while another believed that "trawling through Twitter is inefficient and time-consuming". A large proportion of the comments expressed scepticism about the credibility of social media sources.

Journalists who stated that they used social networking platforms as sources of information were asked to rank various platforms in order of importance and usefulness for news production (on a scale from 1 to 9, with 1 indicating the most useful and 9 indicating the least useful). Here, again, Twitter was considered as the most useful social networking site for news production (M = 1.47, SD = 1.03), followed by Facebook (M = 2.69, SD = 1.40), YouTube (M = 4.15, SD = 1.55), and Instagram (M =

4.18, *SD* = 2.02). Flickr was classified as the least useful for news production, as was the Russian equivalent of Facebook, VKontakte.

Journalists' use of social media monitoring apps

Our first research question asks what proportion of UK journalists use social media monitoring apps. Journalists were asked how they access information circulating on social networking sites. We found 68% used social networking platforms directly, 27% interacted with them via free apps, and 5% via paid apps (see Figure 2).

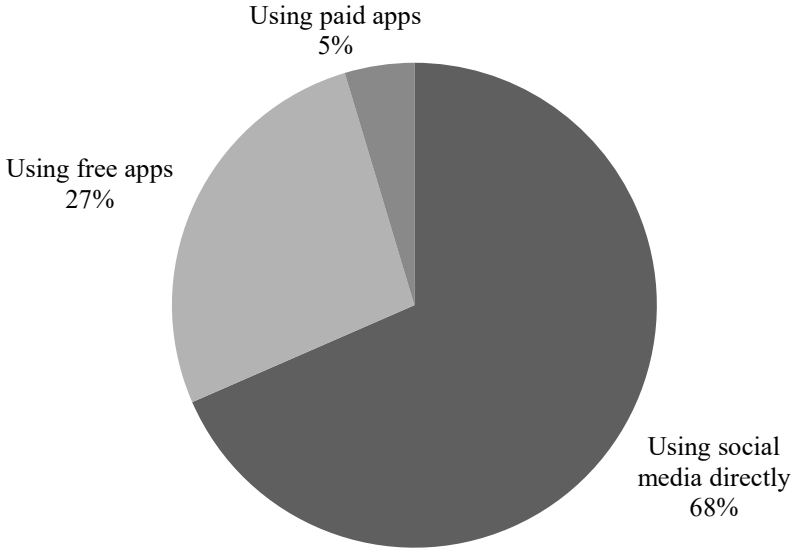

Figure 2: Proportions of UK journalists using social media platforms directly or using them via free or paid social media monitoring apps, July and August 2018 (*N*=614).

Online journalists, and journalists working for newspapers, seem to be more likely to use apps to mediate their interactions with social media, 38% of paid app users and 35% of free app users were online journalists (working for either a stand-alone online outlet or an online outlet of an offline outlet). On the other side of the app usage spectrum are journalists working for radio or news agencies. Of those working for radio, only 5% use paid apps and 9% use free apps, while only 2% of journalists working for news agencies use either paid or free apps.

Journalists who used paid apps were also asked what proportion of the stories/news items they produced included information they found or verified via social media monitoring apps. About one third (M = 34%, SD = 18.79) of news stories produced by these journalists included information found or verified via social media monitoring apps.

Because a relatively small proportion of journalists used paid apps to source content from social media, it is difficult to make general statements about the usage of specific paid apps. However, Dataminr was the most popular app, with 22 out of 35 journalists in the sub-sample using it. NewsWhip Spike was used by six journalists, Trendsmap by three, SAMdesk and BuzzSumo by two, and Reuter's Tracer by one. None of the journalists used Banjo or Echosec.

Of those journalists who use Dataminr, 46% said they use the paid service to alert them to newsworthy events, with 26% using it to find witnesses or sources, and 15% to receive alerts on trends. The app is used less for verifying contributors or content (10%), or for sensing sentiment (6%).

The majority of journalists who indicated that they did not use paid apps were not aware of their existence (52% stated they did not know about them, 37% did know, and 11% did not answer the question). After those who were unaware of the apps'

existence were informed about the apps' capabilities, 58% agreed with the statement that social media monitoring apps could be useful for their work, and 67% thought they could be useful for the work of their colleagues.

The influence of social media monitoring apps on news production

Trends and Bias. We now turn to the second research question, about how journalists feel social media monitoring apps are influencing, if at all, the news production process.

Journalists who use paid social media monitoring apps were asked, in the questionnaire, how their use of social media monitoring apps changed, if at all, the extent to which they cover events, topics, or stories that are trending. The journalists in question reported increases in their coverage of trending topics or stories: 69% said their coverage of trending stories either "somewhat increased" (50%) or "increased a lot" (19%), while only 8% said that it either "somewhat decreased" (4%) or "decreased a lot" (4%). Just over 23% thought there had been no change at all.

On the whole, journalists did not report that they had detected any biases in how paid social media monitoring apps find and filter the information they present to them. Only two journalists mentioned biases, for example one wrote that "Dataminr alerts often include Trump but rarely any other leader."

Timeliness and Verification. The third research question scrutinises the influence of social media monitoring apps on journalistic verification routines. The context for this question includes the time pressure that social media creates and the problems such pressure causes with regard to journalists' verification practices.

It became clear during the interviews with professional journalists that the findability of content is meaningless if the discovery does not occur in a timely manner. Regardless of the type of search – whether via direct use of social media or via free or paid apps – information almost always needs to be found immediately. According to Jono Hutchison, social media has "changed the speed" at which The Telegraph gathers news (Hutchison, 2018). The Telegraph, nowadays, is in direct competition with social networking sites themselves: "the fact that a story could be developing on Twitter means that, as a newsroom, you have to be across the latest developments very quickly; otherwise you're seen as really slow" (Hutchison, 2018).

There are of course exceptions with particular types of stories or news companies that do not rely heavily on the timely discovery of events or trends, for instance background investigations for bigger stories or outlets that build their strategy on long-term trends. Google Trends plays a far more important role than social media for Thomas Smith of culture outlet DAZED Media, whose strategic focus involves less immediacy. They use Google Trends to "really . . . look for things that [they are] going to have an opportunity to rank for in comparison to [their] competitors" (Smith, 2018).

All the journalists interviewed for this study were well aware that the social media presented by monitoring apps is not automatically verified. Jono Hutchison was typical in stressing the importance of human verification. Hutchison said that he would never "run something purely based on something that [he] had seen on Dataminr". Stephen Jones said that PA "use [their] own verification processes" which include "old fashioned journalism . . . free tools online, Google reverse image search" (Jones, 2018). Mohammad A. Q. Ziyadah agreed: "A tool will facilitate to an extent, but it doesn't give you something which is a hundred percent. You still have to exercise your own editorial judgement" (Ziyadah, 2018). He referred to the UGC hub, a team of

dedicated journalists whose role is to find and verify content in order to make sure that "nothing goes out unchecked". Nevertheless, a tension would seem to exist between timely reporting and journalists' duty to verify information:

> [Social media] causes a bit of friction with your obligations to verify things. So, I think newsrooms have had to adapt a lot in terms of how we go about verification and how we go about reporting things that are on social media, because obviously people want to know about things very quickly but we have an obligation as well to get things right. So, I think it's changed it in terms of the urgency. It's made it more of a race to be first I think. But obviously that's done with the consideration of making sure that we get it right (Hutchison, 2018).

Ziyadah stated that verification is a necessity and should not be jettisoned for the sake of high dissemination speeds. According to him, sourcing with the help of apps is "just quicker" (Ziyadah, 2018). That social media monitoring apps are currently "more about efficiency than anything else" (Myles [Director of Information Management at Associated Press], 2018) is also reflected in the answers journalists gave in the questionnaire when confronted with the statement "social media monitoring applications present me with more credible content and contributors than I would find by using social media platforms directly". Most journalists who used paid apps neither agreed nor disagreed to this statement (62%), while 15% disagreed, 4% strongly disagreed, 19% agreed, and nobody strongly agreed.

Privacy and Access

The fourth research question asks UK journalists, and citizens in the UK and Germany, about who should have access to social media monitoring apps and the privacy implications of their use.

Journalists. The interviews with journalists who actively use social media monitoring apps suggest they have very few privacy concerns related to their use. Jono Hutchison justified their use by saying that he thought social media users were mostly aware, particularly on Twitter, about the public nature of their posts. Mohammad A. Q. Ziyadah believed that, ultimately, responsibility lies with the social media platforms "Each [social networking site] would have their own terms and conditions, and [social monitoring apps] have to honour these terms and conditions. So, when Dataminr accesses the Twitter firehose, they have to agree to Twitter's terms and conditions. And they have to abide by local laws as well" (Ziyadah, 2018). He also explained that the BBC only accessed public social media posts "We can't access anything which is not public …. All the tools only give you what is publicly available. And now, in light of the new GDPR, we have to be very careful about what we store about people" (ibid.). Ziyadah said that BBC employees do not track specific people and used social media monitoring apps "in good faith" (ibid.).

By contrast, in the survey of journalists, those who mainly used social networking sites directly, rather than via monitoring apps, were fairly concerned about the privacy implications of social media monitoring apps. About two thirds were either slightly concerned (36%), concerned (24%), or very concerned (11%), while just under a third (29%) were not concerned at all. Journalists who stated any level of concern,

were also asked what concerned them. Some voiced criticism about the adoption of 'factory farming' methods with data that should be private, while others criticised monitoring apps for unethical data mining and tracking people geographically without their knowledge.

We found significant differences between the levels of concern among journalists who used social media monitoring apps and those who did not. A t-test comparison of means revealed that journalists who use sophisticated paid apps were significantly (t[628] =-2.04, $p < .05$) less concerned about privacy implications (M = 1.82, SD = .77) than those who do not (M = 2.21, SD = .99). Furthermore, journalists who used free apps were also less concerned about the privacy implications (M = 2.06, SD = .93) compared to those not using social media at all and those using social media directly to find information (M = 2.25, SD = 1.0; t[396] = -2.26, $p < .05$).

The interviews revealed a range of views about who should and should not be allowed to use social media monitoring apps. Jono Hutchison admitted he "hadn't really thought about that" (Hutchison, 2018). Mohammad A. Q. Ziyadah said that the BBC "can't control how a third-party tool is being used" (Ziyadah, 2018) by other institutions. If a tool is being misused "and the BBC thinks at a certain point that it's not appropriate to keep using that tool for any trust issue, that's a decision that has to be taken at a very high level of the BBC" (Ziyadah, 2018). Stephen Jones said "there's a whole load of ethical issues out there" (Jones, 2018) that one needs to be aware of. He justified the usage of monitoring apps in the context of journalism by referring to the UK media regulations that journalists must comply with, such as the Independent Press Standards Organisation (IPSO): "[they] dictate not just what we can use and what we can't use, but who we can contact and who we can't contact. So, children for example, we shouldn't be contacting children." In addition to regulations pertaining to their own

professional group, what do journalists think about who should have access to social media monitoring apps?

Overall, the journalists had relatively liberal views about access to social media monitoring apps (see Figure 3). In particular they thought that public safety officials, law enforcement agencies, and, most of all, themselves should have access. Only 3% of journalists would definitely not grant members of their own profession access (18% did not know). They were less certain that marketers, ordinary citizens, private corporate security firms, and financiers should have access, but the balance of opinion was still in favour—rather than against—access (with the single exception of private corporate security firms). Whether journalists used free or paid apps made no significant difference in their judgement of who should have access to social media monitoring apps.

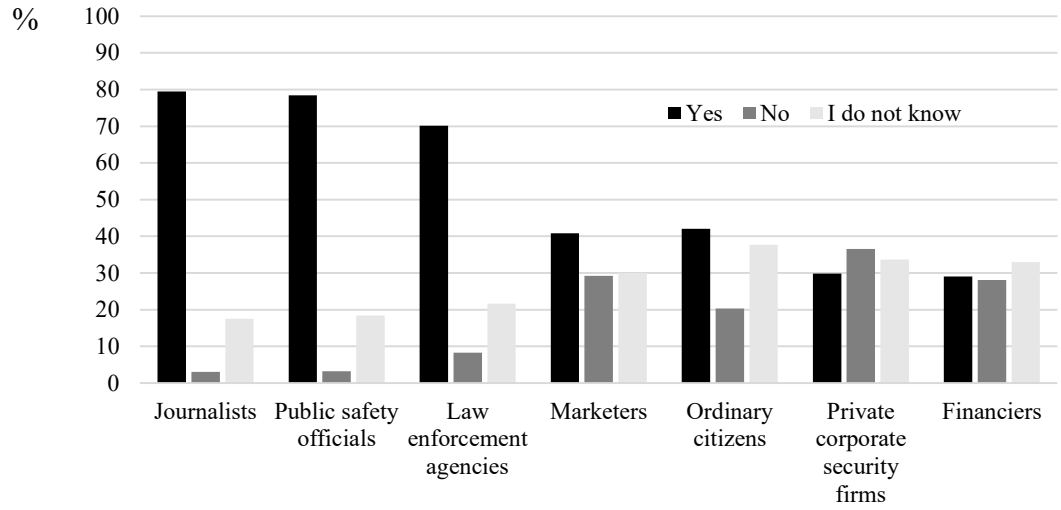

Figure 3: UK journalists' assessments of which professional groups should have access to social media monitoring apps, July and August 2018 (*N*=583).

Citizens. Our citizen respondents were asked how concerned they were about monitoring apps tracking them or their posts. On a scale from 1 to 5 (with 1 indicating "not really concerned" and 5 indicating "very concerned"), the mean was 3.38 (*SD* = 1.3) indicating concern. The UK participants were significantly more concerned about social media apps surveilling them and their movements (*M* = 3.63, *SD* = 1.24) than the German participants were (*M* = 3.12, *SD* = 1.29; $t[1193] = -6.95$, $p < .001$).

Some citizens who use social media were unaware of how visible they are on the platforms. About a quarter of participants stated they did not know that content made public by them is visible to users of social media monitoring apps such as the police and fire services, and private organisations such as marketing or corporate security agencies (26% did not know, while 74% did). A third of the participants stated they did not know that content shared by someone else in which they were tagged might also be visible to the same institutions (33% did not know, while 67% did). Like journalists, citizens (in both Germany and the UK) were most likely to agree that public safety officials and law enforcement agencies should have access to social media monitoring apps. However, whereas journalists were fairly liberal about granting access to private sector institutions, the citizen participants were far more inclined to deny it (see Figure 4). For example, 81% of citizens believed marketers should not have access to monitoring apps compared with only 29% of journalists. Interestingly, the majority of the citizens were opposed to granting journalists access to monitoring apps. Only 24% of citizens would grant journalists access, whereas 80% of journalists thought their own profession should have access.

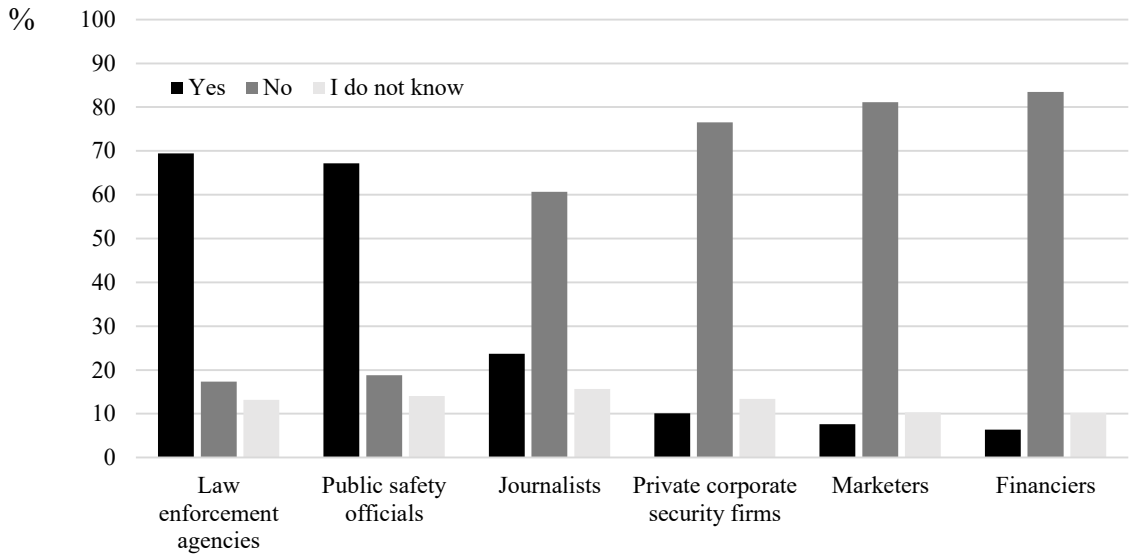

Figure 4: British (N = 619) and German (N = 585) citizens' assessments of which professional groups should have access to social media monitoring apps (August, 2018).

One possible factor that may influence whether citizens feel journalists should be granted access to social media monitoring apps is their overall trust in journalism. Overall trust in journalism was measured via five items: trust in journalists, trust in independent reporting without influence from businesses, trust in independent reporting without influence from governments, trust in news, and trust in news organisations (Cronbach's alpha $\alpha = .09$; all on a scale from 1 to 5, with 1 indicating little trust and 5 indicating high trust). A t-test comparison of means revealed that citizens who would grant journalists access to social media monitoring apps had significantly ($t[1003] = -7.20$, $p < .001$) more trust in journalism in their country ($M = 3.11$, $SD = .89$) than those who would not grant journalists access ($M = 2.65$, $SD = .91$). The UK participants had significantly less trust in journalism ($M = 2.68$, $SD = .90$) than the German participants ($M = 3.0$, $SD = .90$; $t[1195] = 6.21$, $p < .001$).

Discussion

Our results confirm the importance of social media as a source of information for journalists, especially Twitter. Although Fink (2014) found that sourcing on social media is very time-consuming and that journalists often lack direction, our study has shown that many journalists still prefer to use social networking platforms natively, in an unmediated manner, rather than by utilising free or paid social media monitoring apps. A simple reason for this may be ignorance: half the journalists surveyed who did not use paid apps did not know they existed.

Nevertheless, social media monitoring apps are clearly having an impact on the working practices of those who use them. Our study found that about a third of the news items produced by users of paid social media monitoring apps contain information found on, or verified with the help of, those apps. Although only two journalists who used paid apps remarked on their biases, interestingly many of them felt the apps had pushed them to report more on events, topics, or stories that were trending on social media. There is, therefore, a possibility that the use of such apps is influencing which events get reported. This possibility was also mentioned by some of the participants in Thurman's (2018) study on the use of social media monitoring apps by student journalists. One was concerned that the use of apps would make him lazy and lead him to focus on “what is trending” rather than writing about “important stories, no matter how unpopular they might be” (p. 91).

Both the journalists we interviewed, and most of those we surveyed, rejected the idea that social media monitoring apps present journalists with more credible information. It is worth noting that all the journalists we interviewed worked for news organisations known for their accurate coverage. The approximately 20% of surveyed

journalists who agreed with the statement that monitoring apps provide them with more credible information than social media directly may have been reflecting on the fact that monitoring apps can provide information to help in the assessment of the credibility of content, such as the location from which it was posted.

Both journalists and citizens had general concerns about social media monitoring apps. The journalists who were concerned mostly voiced criticism of data farming and invasive surveillance. Invasive surveillance was also a concern of the student journalists in Thurman's (2018) study. Our findings also show a disparity between the concerns citizens have about privacy and the knowledge they possess about how to protect it.

The question of who should have access to monitoring apps revealed significant differences between journalists and citizens. Although both groups are more inclined to grant access to public services than to private institutions, journalists are far more liberal in their assessments. Especially notable is that journalists would, above all, grant themselves access. These differing viewpoints may be a result of the fact that journalists view their role as one that serves the public, whereas the public have a different view about the benevolence of journalists. Overall, citizens seem willing to grant access to their social media data for good causes, such as public safety, but would rather deny access for commercial purposes.

Conclusion

This article has revealed the proportion of UK journalists using social media monitoring apps, and some of the influences those apps are having on news production, including the reporting of trending stories. It has also shed light on what journalists and citizens

think about who should have access to social media monitoring apps and their privacy implications.

This study's findings should, of course, be viewed in light of its limitations. Because relatively few of the journalists we surveyed used paid apps, no general statements on the usage habits of such apps could be made.

Although social media monitoring apps exert an influence on the work of the journalists who use them, they are not yet very widely used. Although about 27% of UK journalists use free apps to keep track of what is happening on social media, only around 5% use the more sophisticated paid apps. Nevertheless with the population of journalists in the UK estimated at 73,000 (Spilsbury, 2018) this means approximately 3650 journalists could be using sophisticated social media monitoring apps. Although social media monitoring apps were unknown to over half of the journalists who did not use them, this may change. The majority of journalists who did not yet use these apps indicated that doing so might be of interest to them or their colleagues.

Despite the elements of automation built into social media monitoring apps, a substantial amount of human input is still required to identify, research, and prioritise which events to cover. Because news usually involves human interaction – for instance in "building rapport with people, speaking to them, trying to find out what happened" – apps cannot be expected to replace journalists' tasks, "certainly not for a while" (Jones, 2018).

Social media platforms and their ecosystem of apps have made certain types of sourcing easier, but journalism should serve all of society, not just people who are particularly vocal on social media. It ultimately remains the task of journalists to find the "unfindables" (Fink, 2014, p. 297). As long as social media monitoring apps enrich journalists' perspectives and diminish their workload so that journalists can focus on the

things that are truly important – "filtering fact from fiction, separating signal from noise and offering trusted and relevant content" (Bruno, 2011, p. 69) – then social media monitoring apps are a gain for journalism. Less promising is the use of monitoring apps from the citizens' perspective. Although social media apps may be having a positive impact on journalism's content and on journalists' working conditions, inadequate regulation of their use could lead to a fall in trust in journalists.

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