

Crowdsourcing in Journalism

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Subject: Communication Theory, Journalism Studies Online Publication Date: Apr 2019

DOI: 10.1093/acrefore/9780190228613.013.795

Summary and Keywords

Advances in digital technologies and participatory culture have enabled the efficient use of crowdsourcing in a broad range of contexts, including journalism. Journalism is increasingly deploying crowdsourcing as a knowledge-search method and a means of engaging readers. Through crowdsourcing, journalists can tap into the collective intelligence of large online crowds. The knowledge-search mechanism is based on access to the information held by the crowd.

Using crowdsourcing, journalists can find otherwise inaccessible information that contributes to their investigations. In several countries, crowdsourced investigations have uncovered important news, including lawbreaking and corruption. Crowdsourcing can also unveil a broader range of perspectives about a story topic, leading to more inclusive and objective journalism. As a result, crowdsourcing can support the journalistic norms of accurate, objective, and transparent reporting. Moreover, it engages participants and fosters a stronger relationship between readers and journalists. Finally, in its use of crowdsourcing journalism can enact more efficiently in its monitorial role in society.

At the same time, however, crowdsourcing may compromise the journalistic goals of accuracy and objectivity. A crowd is a self-selected group, so its input reflects a participant bias. If this fact is overlooked, crowdsourcing can lead to biased reporting. Moreover, a direct connection with the crowd can increase pressure on journalists to conform to the crowd's wishes instead of pursuing journalistic norms and news values. This pressure can be especially strong in crowdfunding, a subtype of crowdsourcing.

Keywords: crowdsourcing, crowdfunding, co-creation, collective intelligence, digital journalism, normative roles of journalism, open journalism, participatory journalism, journalism studies

Crowdsourcing in Open Journalism: Background and Definitions

In parallel with ongoing societal, cultural, and technological changes, journalism is increasingly employing methods involving large-scale online collaboration, such as crowdsourcing. Crowdsourcing is used as a knowledge-search method, a way to secure funding,

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and a means of engaging with readers. Here, the “crowd” refers to an undefined group of people who participate in an open call; thus, crowdsourcing should not be confused with outsourcing, which refers to the assignment of a task to a specific agent.

“Crowdsourcing” is an umbrella term for several types of online collaboration. Typically, it refers to an open online call for knowledge, talent, or perspectives. Co-creation is a subtype of crowdsourcing that refers to a dynamic, interactive process wherein journalists and readers collaborate on a journalistic product in a structured, systematic manner. Co-creation is typically a longer-term process than crowdsourcing, which tends to take place in short-term campaigns. Another subtype is crowdfunding, in which the crowdsourcer asks the crowd for financial contributions.

In an open call, the crowd is invited to participate in an online task by submitting information, knowledge, or talent. In crowdsourced journalism, the crowdsourcer asks participants to contribute to an open task online by sharing their knowledge or completing a variety of online tasks. The crowdsourcer can be a journalist, a group of journalists, or a media organization. The tasks range from identifying valuable information in a mass of documents, as in crowdsourced document checking, to donating money to journalistic investigations, as in crowdfunded journalism (Aitamurto, 2015A, 2015B, 2015C).

What makes crowdsourcing an efficient knowledge-search and problem-solving method in journalism, among other areas, is its ability to reach a large number of people at a low cost. The crowdsourcer taps into the crowd’s collective intelligence in order to solve problems. Collective intelligence relies on the notion that the more numerous and diverse the participants are, the more likely it is that they can produce a valuable solution (Lévy, 1997). This principle applies in crowdsourced journalism, in which journalists channel the crowd’s collective intelligence toward the production of articles, photographs, or videos.

Recently, following its proliferation in areas such as crisis management and corporate research and development, crowdsourcing has become common in journalism. Newspapers both small and large crowdsource information from their readers. For example, in the wake of the 2016 U.S. presidential elections and subsequent reports of racial discrimination, the *New York Times* began continuously crowdsourcing readers’ experiences with racism in everyday life. A multitude of stories and analyses resulted from the crowd’s input.

Crowdsourcing in journalism requires opening up the story process to the public while the story itself is still in the making. Doing so increases transparency and openness, turning crowdsourcing into an open journalistic practice. Crowdsourcing contributes to journalistic goals in several ways. First, it enhances knowledge search and discovery, enabling journalists to access information that they would not otherwise have been able to obtain. Second, it strengthens the relationship between journalists and readers, providing journalists with a window to the readers’ world as well as tacit knowledge about their preferences. Crowdsourcing can also give rise to complications. It introduces significant costs, including laborious processes of data analysis and synthesis and time spent in audi-

ence interaction. Another complication involves the risk of compromising the aspirational journalistic norms of accuracy, objectivity, and autonomy (Aitamurto, 2016A).

This article reviews the uses of crowdsourcing in journalism, including co-creation and crowdfunding, and discusses their benefits and challenges. Several cases of crowdsourced journalism are discussed in the framework of a key normative role of journalism: the monitorial role.

The article is organized as follows. The second section reviews the genealogy of crowdsourcing and its rise as a business model and knowledge-search method in the context of technological and cultural change; several areas of application are presented as examples. The third section examines the mechanics of crowdsourcing as a knowledge-search method in journalism, discussing the boundaries between it and other participatory journalism methods, such as citizen journalism and public journalism. The fourth section is devoted to crowdfunding. The fifth section examines how crowdsourcing benefits journalistic norms and the sixth section explores how it challenges those norms. The seventh section investigates the advantages and disadvantages of crowdsourcing by reviewing several cases of crowdsourced journalism in the context of journalism's monitorial role. The article concludes with a discussion about the future of crowdsourcing.

The Premise, Evolution, and Applications of Crowdsourcing

The word "crowdsourcing" was first used in a 2006 article in *Wired* magazine (Howe, 2006) that described a new way for companies to organize their work and business models that involved distributing the work online to crowds of workers, communities, and individuals. Howe (2006) used several companies as illustrations, including iStockPhoto, InnoCentive, Amazon's Mechanical Turk, and Threadless, which have since become some of the most widely referenced examples of crowdsourcing (Brabham, 2008, 2010; Howe, 2008). The mechanism of crowdsourcing in all these early cases was the same as it is today: A task is given to a large number of online participants, rather than a dedicated, predetermined agent or expert. Crowdsourcing has since disrupted traditional business models in various areas, including stock photography, problem-solving in research and development (R&D), and microtasking. Two factors arising from digital communication technologies make crowdsourcing an effective problem-solving and business model: (1) the ability to reach an almost unlimited number of people and (2) the possibility of asynchronous interaction both between the crowdsourcer and the crowd and among members of the crowd.

Crowdsourcing is not new. Long before the digital era, in 1714, the British government successfully found a solution for the problem of measuring longitude by announcing an open call to anybody who was willing to try to solve the problem (Sobel, 2007). Digital technologies, however, have accelerated the rise of crowdsourcing. Technological changes, in parallel with societal and cultural shifts, have allowed crowdsourcers to

quickly and inexpensively access unlimited numbers of people and facilitate asynchronous interaction. Moreover, digital technologies cross geographic and socioeconomic boundaries, reaching distributed crowds. The potential to reach a diverse group of participants can allow access to previously untapped talent and knowledge.

The proliferation of crowdsourcing is thus tied both to improved communication technologies and to the rise of participatory culture (Jenkins, 2004, 2006), to which citizens apply their “cognitive surplus,” or the cognitive resources that are left over after mandatory tasks are accomplished (Shirky, 2010). Broad changes in culture, leisure time, and the nature of work life contribute to that surplus. In participatory culture, the users—the consumers of culture—become coproducers and producers themselves, instead of just consuming content (Jenkins, 2004, 2006).

Early scholarly work on crowdsourcing defined it as a business model, focusing on its use as, for instance, a method to support R&D and new product design processes and as a practice for implementing open innovation strategies in companies (Estellés-Arolas & González-Ladrón-De-Guevara, 2012; Hossain & Kauranen, 2015). Yet crowdsourcing is used in several kinds of processes and contexts, and it can be analyzed from multiple perspectives. It may refer to a distributed problem-solving process, as in the case of InnoCentive, an online platform used by organizations to crowdsource solutions for R&D problems in innovation challenges (Jeppesen & Lakhani, 2010). It may refer to a production model, as in the case of Threadless, a company selling crowdsourced T-shirt designs (Mukherjee, Xiao, Wang, & Contractor, 2018). It may be seen as a way to organize labor, as with Mechanical Turk or iStockPhoto (Hara et al., 2018; Salehi et al., 2015; Whitla, 2009). Finally, crowdsourcing may also be a knowledge-search method, as in crowdsourced journalism, crisis management, and policy-making (Aitamurto, 2016A, 2016B; Brabham, 2015; Cobb et al., 2014; Dailey & Starbird, 2014, 2015). These categorizations overlap and are not mutually exclusive.

Crowdsourcing is commonly divided into two types: voluntary (unpaid) and paid. Voluntary crowdsourcing is used in a wide range of contexts apart from journalism. In crisis management, information is crowdsourced to alleviate the consequences of emergencies such as natural disasters (Dailey & Starbird, 2015; Liu, 2014; Meier, 2015). In democratic processes, national and local governments solicit feedback on national policies and urban planning projects on crowdsourcing platforms (Aitamurto, Landemore, & Saldivar, 2017; Aitamurto & Saldivar, 2017). In citizen science, crowds help scientists to conduct research projects in areas ranging from biology to space exploration (Grason et al., 2018; Rotman et al., 2012).

In paid crowdsourcing, one of the most common contexts is the digital labor market, such as Mechanical Turk or Upwork (Kittur et al., 2008; Salehi & Bernstein, 2018). Here, the crowd is asked to complete small tasks, such as tagging images, for a very small amount of compensation. The proliferation of crowdsourcing in microtasking reflects larger transformations in the division of labor: Microtasking and the gig economy involve working on several simultaneous assignments for multiple employers, rather than full-time work for a

single employer. Although crowdsourcing in journalism is based mostly on voluntary contributions, journalists also deploy paid microtaskers when analyzing and organizing large data sets. Mechanical Turk has been used in crowdsourced journalistic investigations, for instance, in tagging large data sets of images.

Crowdsourcing as a Knowledge-Search Method in Journalism

Crowdsourcing is a versatile method that can be applied in several areas of the journalistic process. A crowd may be asked to help find a topic, define an angle, identify sources, process data, submit evidence, and comment on drafts. The crowd does not write the story or create the final article, video, or audio production; rather, it serves as an additional data point in the journalistic process. Journalists typically use normal data verification practices to ensure the accuracy of the crowd's input. For example, when ProPublica, a U.S. nonprofit newsroom specializing in public interest investigative journalism, crowdsourced an investigation into the use of funds by the Red Cross, the journalists verified all the crowd-submitted data they used in the investigation. While the crowd's input was useful, the data served as only part—albeit a very important one—of a larger investigation into the Red Cross's activities.

The locus of power is within the crowdsourcer, which in the case of crowdsourced journalism is a journalistic actor. It is the journalist who decides what will be crowdsourced, when and how the process will occur, and how the resulting input will be used. This differentiates crowdsourcing from commons-based peer production, another popular large-scale online collaboration method that forms the basis of open-source software production and wiki editing (Benkler, 2002). In commons-based peer production, the commons (e.g., the community of Wikipedia contributors) has power over its contributions and determines how they are used. Also, there is less hierarchy in the production process and the production and contribution cycles are typically continuous. Crowdsourced journalism, by contrast, is often organized in campaign style, which necessarily has defined start and end dates to fit the immediate nature of journalistic productions.

Despite these differences between crowdsourcing and commons-based peer production, the factors motivating each are similar. In the case of crowdsourced journalism, research has shown that the crowd is motivated mostly by intrinsic factors. Intrinsically motivated behavior (as distinct from altruistically or ideologically motivated behavior) means that participants do not expect a tangible reward for their participation (Aitamurto, 2015B). The factors motivating commons-based peer production are intrinsic and ideological. Participants contributing to crowdsourced journalistic processes want to advance social change, and they perceive journalism as a means to contribute to societal progress. They seek to mitigate power and knowledge asymmetries and to empower their peers, and they perceive the sharing of information through crowdsourcing as a way to do so. In addition,

crowd members participate to learn from one another and to discuss topics that interest them.

Crowdsourcing has a complementary relationship with participatory and citizen journalism. In participatory journalism, readers participate in journalistic processes (Singer et al., 2011) as commentators or content producers. In citizen journalism, people who are not professional journalists produce news and content, for blogs or established new sites, that can be perceived as journalism (Gillmor, 2004). In crowdsourced journalism, by contrast, the crowd typically contributes raw material to a process run by a journalist, who decides whether and how to use the crowd's input. Citizen journalists can deploy crowdsourcing in their knowledge-search efforts, and established news sites can deploy crowdsourcing by asking citizen journalists to submit certain types of information.

Crowdsourcing can also be used to support the goals of public journalism. The goal of public journalism is to enable more active and informed citizenship through journalism. Glasser and Lee (2002) define public journalism as a loosely organized reform movement, whereas Rosen (1999B) defines it as a combination of an argument, an experiment, a movement, a debate, and an adventure (pp. 262–263). Citizen engagement is the core goal of public journalism, but in crowdsourced journalism it is simply an instrument for improving knowledge search and the relationship between the journalists and the readers. Crowdsourcing can be used in stories that follow the ideals of public journalism, but that is not necessarily the case. Thus, crowdsourcing and public journalism are not mutually exclusive; crowdsourcing can serve as a method in public journalism. Yet not all crowdsourced journalism is public journalism, and vice versa. Similarly, not all participatory journalism or citizen journalism uses crowdsourcing as a means of knowledge search or audience engagement.

Crowdfunding as a Type of Crowdsourced Journalism

Amid the decline of traditional funding mechanisms in journalism, news organizations and journalists have sought new revenue streams. The traditional advertising- and subscription-based revenue models are struggling, leading to diminished resources (Anderson, 2013; Downie & Schudson, 2009; Hamilton, 2004; Newman, Fletcher, Kalogeropoulos, Levy, & Nielsen, 2017; Waldman, 2011). As a result, there are justified concerns about a decrease in coverage in several contexts, such as local and political news, leaving gaps in citizens' informational needs (Napoli, Stonbely, McCollough, & Renninger, 2017). In parallel with the decline in traditional funding, crowdfunding has become more common (Aitamurto, 2011, 2015; Hunter, 2015; Jian & Shin, 2014).

Millions of dollars have been raised for journalistic stories covering various topics. However, despite the rise of crowdfunding, it typically offers only partial financial support to a journalist. The evolution of crowdfunding in this context thus reflects the general state of business models of digital journalism: None of the revenue sources can provide funding

that is as stable as traditional advertising- and subscription-based models, but to make up the deficit digital journalism is increasingly being funded through several sources, including crowdfunding. Thus, crowdfunding is not the sole solution to the decreasing resources in newsrooms, nor can it finance holistic and systematic coverage that fills the gaps created by diminishing coverage. Instead, it represents one potential funding mechanism: a source that can complement other revenue streams and fund journalism that would otherwise remain unpublished.

Crowdsourced funds are distributed among various types of productions: single stories, continuous coverage and beats, new platforms or publications, and supportive operations such as news organizations' delivery mechanisms and marketing. In journalism, crowdfunding is typically described as *ex ante* crowdfunding, which means that donors support journalistic productions before the stories are published. By contrast, *ex post facto* funding involves paying for a completed product, as in the case of digital tip jars (Kappel, 2009). Crowdfunded journalistic initiatives are often designed as campaigns, with a pre-determined period for accepting donations. The campaign starts with a project pitch on an online platform, such as Kickstarter, that communicates the project's motivations and goals. Donors typically decide how much money to give by choosing from among several options. The power of crowdfunding as a revenue model is based on a large quantity of relatively small donations, often ranging from \$5 to \$20. The donations can be compared with votes; that is, by donating, a donor votes for a certain story to be produced. The aggregated donations—or votes—represent the emergence of the collective intelligence of the crowd.

Benefits of Crowdsourcing: Support of Journalistic Norms

Crowdsourcing and journalistic norms have a reciprocal relationship in which each supports and challenges the other. These norms form the normative boundaries of journalism, determining what is considered to be journalism. Professional journalists claim that these aspirational norms lead to independent, objective, and accurate reporting (Ward, 2004), although facts and values are largely inseparable. While the journalistic norms are unreachable ideals, they legitimize journalism as a truth-telling enterprise, which distinguishes it from other communication practices such as advertising, advocacy, and propaganda (Carlson, 2009). Journalistic norms are operationalized in journalistic practices implemented in, for example, sourcing and data verification practices.

Objectivity, or impartiality or neutrality, is one of the core norms of journalism. Journalists are supposed to report the facts in as fair and balanced a manner as possible, although absolute objectivity is impossible to attain (Soloski, 1989). According to the norm of accuracy, journalism should provide verified facts. The norm of transparency instructs journalists to communicate ethical choices to the public and transparency about the production process (Kovach & Rosenstiel, 2007). The norm of autonomy is about maintaining journalistic control over the content without dependencies or conflicts of interest that could bias

the reporting (Bennett, 1996; Society of Professional Journalists, 2014). However, advertisers, readers, and political authorities, among others, continuously exercise power over newspapers' editorial decisions (Christians, Glasser, McQuail, Nordenstreng, & White, 2009).

The two fundamental features of crowdsourcing—its capacity to reach a large crowd and its low cost—can help journalists in their pursuit of these aspirational norms. Crowdsourcing can support the norms of neutrality and objectivity by helping journalists efficiently solicit knowledge from a large number of sources. This access to information that would otherwise be unavailable can lead to more accurate reporting. Studies on crowdsourcing in journalism show that by deploying crowdsourcing, journalists can effectively conduct investigations into important and timely societal issues. The large pool of informants increases the chances that journalists find knowledge that would otherwise remain hidden.

Crowdsourcing can also support journalistic norms by exposing a multitude of diverse perspectives, thus contributing to more impartial, objective reporting. By expanding existing perspectives, the journalist can extend his or her point of view. And, through crowdsourcing, people who otherwise would not be heard can express their opinions. Compared with traditional journalism, a broader population has the chance to influence the story process.

One of the most pronounced differences between traditional and crowdsourced journalism is the greater transparency of the latter, which can bolster this journalistic norm. The fact that the topic of a story is announced to the public before the story itself is completed is a new aspect of journalistic practice, which has traditionally kept topics secret to prevent leaks to competitors. This transparency, which is necessary to announce the open call for participation and to receive the crowd's contributions, spreads awareness of the journalistic investigation and may prompt readers to contact journalists and share information for potential use in the story process. As a result, crowdsourcing becomes an open journalistic practice. In open journalism, the process is opened up to the public to a certain degree, but the process is never fully open (Aitamurto, 2016A).

Similar to crowdsourcing, crowdfunding can support journalistic norms. In seeking funding from the online crowd, journalists break free from the institutional constraints of traditional funding sources (i.e., news organizations). At the same time, they have the opportunity to differentiate their reporting from the mainstream media news agenda, which is determined by traditional news values (Galtung & Ruge, 1965) and the financial and commercial pressure to create profit for shareholders. As a result of such pressure, news organizations feel compelled to cover topics that attract a large readership and can be monetized through advertising revenue and subscription costs. Crowdfunded journalism, by contrast, can offer more autonomous reporting and coverage about topics that are outside the mainstream news agenda. Crowdfunding can also have epistemic import, in support of the norm of accuracy, if crowdsourcing is applied as a knowledge-search method during the crowdfunding campaign.

Drawbacks of Crowdsourcing: Normative Challenges

The same aspect of crowdsourcing that supports journalists in their pursuit of objective, accurate, transparent, and independent reporting—namely access to numerous potential sources of information—can also challenge journalistic norms. Greater openness and transparency come with a multitude of costs, changing the very nature of traditional journalism. The use of crowdsourcing as an open journalistic practice incurs costs at five different stages of the process: (1) preparation; (2) interaction, moderation, and iteration; (3) analysis and evaluation; (4) verification; and (5) synthesis and aggregation (Aitamurto, 2016A).

The quantity and quality of crowdsourced input challenges the norms of accuracy and objectivity, leading to complications in the analysis/evaluation, verification, and synthesis stages of the process. The more active the crowd's participation is, the more data there will be to analyze. Traditionally, a journalist interviews sources one at a time, in a direct personal interaction. The data accumulate gradually, and the journalist's ongoing contact with each source enables continuous data verification. But in crowdsourcing, the information is typically submitted by many anonymous participants, so direct personal contact is impossible. In keeping with traditional journalistic practice, journalists should verify all of the data they collect. However, with hundreds or even thousands of crowdsourced submissions, verification may not be possible. By compromising the data verification process, journalists risk violating the norm of accuracy.

The synthesis of crowdsourced data presents another challenge, given that a larger and more diverse crowd can yield contradictory information. The situation is further complicated when the crowdsourced data are unstructured (i.e., in an open-ended format). This is often the case when the input consists of comments ranging from a single sentence to long paragraphs of text, without a systematic, repeated rhetorical structure. Often, such data can be analyzed only qualitatively, by trained personnel. In practice, this means that the journalist needs to analyze the crowd's input one submission at a time, a labor-intensive process. If the crowdsourced input is in numeric format, however, the analysis process is faster because quantitative data analysis methods can be used and the analysis can be at least partially automated.

Moreover, crowdsourcing is based on self-selection, which leads to an inherent participation bias. The input does not reflect a random, representative sample of a population, so it should not be treated as such. If the journalist erroneously treats the crowd's input as a representative sample, there will be an increased risk of biased reporting, a partial point of view, and an inaccurate picture of the topic. Furthermore, the crowd's input may not be accurate. To ensure accuracy, journalists need to verify all data prior to publication. Crowdsourcing may yield too much data to be verified with traditional methods. As a result, the journalist may either abandon the data or publish them without verification. The latter choice would compromise the norm of accuracy.

Greater transparency in crowdsourced journalism can also lead to complications. The crowd plays a more active role in the story process than in traditional journalism, and this activity can apply pressure that may affect the reporting. For example, the public may contact the journalist en masse, prompting the journalist to deviate from standard practices and compromise journalistic norms (Aitamurto, 2013). Public pressure can risk the objectivity, accuracy, and autonomy of the reporting. Moreover, to attract attention to articles, journalists may feel increased pressure to write articles the crowd requests from an angle the crowd chooses. Such attempts to please the reader may cause the journalist to compromise norms and news values; for example, if the journalist overlooks a relevant topic that the crowd is not interested in and instead pursues a story that the crowd is keen on. In that case, the goal of balanced, independent reporting may be at stake.

Audience pressure can be especially strong in crowdfunded journalism. The transparency of the funding process creates a direct dependency between the donor and the journalist: The journalist knows who is funding what, and at what amount, which can lead to pressure to follow donors' wishes regarding the reporting. Such compliance can compromise the journalistic norms of accuracy, objectivity, and autonomy. Moreover, successful crowdfunding is dependent on the funders' willingness to donate to a project. The donors' interests are unpredictable and do not necessarily align with those of the journalist, and the crowd may have a different idea of what makes a topic relevant or important. What is "relevant" may be determined through the notion of the public good or through sheer self-interest. A conflict between the crowd's and the journalist's agendas may make the journalist lose interest in covering topics that lead to difficulties in fund-raising. As a result, the journalist may ignore relevant and important topics in favor of subjects that are easier to communicate to the crowd and are more likely to attract donations.

Thus, paradoxically, the properties of crowdsourcing that create the potential for more autonomous, objective, and accurate reporting may compromise these same norms. Similar pressures exist in crowdfunding. The challenges of determining the normative boundaries of crowdsourced journalism reflect other instances in which new technologies and methods are applied in journalism (Aitamurto, 2019). The normative boundaries of journalism are subject to constant negotiation, and new methods, such as crowdsourcing, can intensify these concerns.

Crowdsourcing and the Monitorial Role of Journalism

Journalism performs a monitorial role in various informational practices, in either a more active or a passive capacity (Christians et al., 2009). Crowdsourcing can help journalists carry out these informational practices, thus supporting journalism's monitorial role. The monitorial role refers to the ability of journalism to provide information to the public by monitoring power holders, political processes, and news events. By scrutinizing world events in an organized way, journalism serves the informational needs of the public and the sources of information (Christians et al., 2009; Westley & MacLean, 1957). The mean-

ing of the term “monitorial” in this context can be deconstructed into three levels, following the definition put forward by Christians et al. (2009, p. 140). The first level involves “an organized scanning of the real world of people, conditions, and events, and of potentially relevant sources of information.” The second level involves evaluation and interpretation, which are guided by relevance, significance, and normative frameworks for the public arena. Relevance and significance are operationalized in news values (Galtung & Ruge, 1965), which determine the news agenda. This curatorial process differentiates journalism from other informational services, such as search engine searches, which do not curate material on the basis of journalistic news values. The third level concerns vigilance and control—specifically, surveillance.

According to Christians et al. (2009), “News is selected according to the anticipated information needs of the audience. The intervention extends to providing sources with feedback about public response, which also serves as a guide for the media organization in its decisions about news priorities” (p. 140). Journalism aims to contribute to the democracy by developing monitorial citizens—that is, people who actively search for information and participate in democratic processes. Ideally, journalism could provide information and analyses in a balanced, just manner with data that are as accurate, complete, relevant, and well verified as possible, following the paradigm of objective reporting (Christians et al., 2009; Schudson, 1998).

In fulfilling its monitorial role, journalism can make use of crowdsourcing in a variety of informational practices, including receiving and transmitting notices of events and observing, reporting, and publishing information. Journalism assumes a more active and engaged role in these practices when issuing warnings to the public and when seeking, investigating, and exposing transgressions. The most impactful contribution that crowdsourced journalism can make resides in the tasks that require journalism to play a more active role. The following subsections address the role of crowdsourcing in those informational practices.

Crowdsourcing and Investigative Reporting

Investigative reporting is one of the most engaged forms of informational practices where the monitorial role of journalism is concerned. In one example of the effective use of crowdsourcing in investigative reporting, the *New York Times* sought information for a story about the descendants of slaves traded in 1838 to fund Georgetown University in Washington, DC. In 2016, the *Times* gave readers access to digitized documents about the trade and asked for information about the slaves sold in this transaction. The crowd’s input allowed the reporters to trace several family lineages, revealing crucial details about the trade and sparking a national conversation. The reporters interviewed descendants of the slaves for several follow-up stories.

In another example, the *Medium*, an online publication based in San Francisco, California, conducted a thorough investigation into the fate of a refugee boat that disappeared in the Mediterranean Sea. The boat departed from Tripoli, Libya, in 2014 with hundreds

of passengers on board. The investigation into the “Ghost Boat” was divided into 10 sequential parts. The *Medium* obtained access to satellite images of the boat’s purported departure point. By asking a crowd of 75,000 volunteers for help in analyzing the images, the *Medium* attempted to determine the boat’s direction of travel and ultimate fate. Despite intense efforts on the part of both the reporters and the crowd, the Ghost Boat’s destiny remains a mystery.

In a large-scale investigation into mortgage interest rates in Sweden, the leading daily Swedish newspaper, *Svenska Dagbladet*, crowdsourced interest rates from more than 50,000 people on a map on its website (Aitamurto, 2015A, 2016). The readers could see one another’s submissions on the crowdmap and compare interest rates and other mortgage terms. The results of the investigation revealed inconsistencies in how banks, including a state-run bank, advertised their interest rates, and prompted a comment on the situation from the Swedish finance minister. This investigation provided access to otherwise inaccessible data and helped to mitigate the power and knowledge asymmetries between the banks and their customers. Some readers even returned to their banks to negotiate better mortgage deals on the basis of the information they obtained from the crowdmap. In this investigation, therefore, crowdsourcing helped journalism to satisfy one aspect of its monitorial role, namely “acting as a fourth estate in political matters by mediating between government and citizens and providing a means for holding government accountable at the bar of public opinion” (Christians et al., 2009, p. 144). The challenge in this case was the quantity of the data, which the journalists were not able to verify. As a result, the journalists compromised the norm of accuracy, which is customarily achieved by data verification.

In an investigation in Finland, a journalist employed crowdsourcing to uncover a questionable holding company arrangement. This journalist, working for *Helsingin Sanomat*, the leading daily newspaper in Finland, was investigating short-selling of stocks, an unethical practice among stockbrokers and other financial professionals. The investigation involved publishing thousands of documents related to stock-trading documents and instructing the crowd to search them for signs of short-selling. A valuable tip from a reader led the journalist to discover an arrangement in which executives at a Finnish cooperative bank had misdirected revenue to avoid paying taxes (Aitamurto, 2015A, 2015B). The transparency inherent in crowdsourcing thus gave the journalist access to valuable, previously inaccessible knowledge. Crowdsourcing allowed the journalist to act as a watchdog, a key aspect of the monitorial role of journalism.

A Dialogic Process: Co-creation

In enacting its monitorial role, journalism must maintain an interactive relationship with the public (Christians et al., 2009). Crowdsourcing strengthens this relationship through dynamic and interactive communication with the crowd, creating space for collaboration. This is especially true in co-creation, which is a subtype of crowdsourcing. “Co-creation” is a dialogic and dynamic process in which journalists interact with the crowd on online platforms. The goal of co-creation is to find and use information obtained through interac-

tions among the journalists and the crowd at various stages of the journalistic process. Apart from its epistemic import, co-creation also strengthens the relationship between journalists and readers. When participants interact with journalists online they start to feel more closely connected to the journalistic process and its outcome. Participation in crowdsourcing thus strengthens readers' sense of ownership of the journalistic process and its product (Aitamurto, 2013, 2015A, 2016).

Another import from co-created journalistic processes involves access to readers' needs. Readers reveal their tacit knowledge about subjects that matter to them. This tacit knowledge can provide journalists with new perspectives, which in turn can lead to new interpretive frames. Interpretive frames shape the monitorial process and are typically limited by mainstream elite and popular opinions, among other factors (Christians et al., 2009). Moreover, by providing information to journalists about the public's needs, crowdsourcing can shape the journalistic agenda. Ideally, this agenda would "signal current problems and issues according to criteria of relevance and significance to the audience and society" (Christians et al., 2009, p. 145). Crowdsourcing can shape the agenda to better fit the audience's needs and demands resulting in journalistic content of greater interest and relevance to the public.

Increased collaboration with the crowd represents a fundamental shift from traditional journalism practice in which the audience's role—as consumers of the story—begins only when the story is ready and published. In crowdsourced journalism, the audience takes a more active role while the story is being developed. To ensure successful collaboration, journalists have to provide a collaborative space for interactions with the audience. The nature of this space varies according to the specific goals of the journalistic process. For example, the crowd's submissions can be gathered through email interactions with the journalist, a process that entails only vertical transparency. By contrast, the crowd can be invited to participate in specific online platforms designed for co-created journalistic processes. Such platforms demonstrate horizontal transparency, as crowd members can collaborate not only with the journalists but also with one another.

Future of Crowdsourced Journalism

Crowdsourcing as an open journalistic practice has proved to be useful in professional journalism. It supports knowledge production and engagement, and in doing so it strengthens the monitorial role of journalism. However, crowdsourcing also challenges journalistic norms and practices by accumulating large quantities of data that journalists may struggle to verify. These challenges can cause journalists to compromise traditional journalistic norms and practices, such as accuracy through data verification, which complicates the monitorial role of journalism. Some of these challenges could be addressed through the use of natural language processing and machine learning. These technologies, however, will not fully solve the normative risks posed by crowdsourcing. Therefore, crowdsourcing must always be deployed with caution and attention to the ways in which its properties affect normative boundaries in journalism.

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