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Digital watchdogs? Data reporting and the traditional 'fourth estate' role for journalists

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Abstract

As governments throughout the world transition to storing and releasing vast amounts of numerical information digitally, journalists are increasingly using digital data reporting as an investigative tool to report on issues in the public interest and to hold government - elected officials and bureaucracy – to account. Through a series of qualitative interviews with data journalists in 17 countries, this article examines the impact that digital data reporting is having on the traditional role of journalism as a fourth estate. Findings suggest the emergence of digital data reporting as a key tool in accountability journalism and in informing and engaging the public. However, the failure of popular 'tabloid' journalism to engage with data journalism means that a new technologically adept and data-informed elite class is on the rise, with important implications for democratic processes in advanced societies.

Keywords: data journalism; CAR; media and democracy; open government; accountability journalism; mapping; visualization.

Author biography

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Introduction

Journalists investigating important areas of public interest increasingly use research methodologies from the social sciences, including quantitative statistical manipulation and analysis. In recent years the advent of digital and online journalism has given rise to a new variant of journalism – digital data reporting. The increased availability of datasets from public bodies and more powerful software analysis tools has allowed journalists to report on issues that may have been previously impossible to investigate. Journalists working in this area have brought creativity and editorial flair in reporting stories to wide audiences, including using multimedia presentation tools to visualize data for mass consumption, telling often complex stories in easy-to-understand ways. Journalists are using data reporting as an investigative tool to report on issues in the public interest and hold government – elected officials and bureaucracy – to account. It is a new frontier for journalists and is becoming an increasingly important research tool for investigating issues such as public spending, procurement and public services.

Through a series of qualitative interviews with early adopters of digital data journalism in 17 countries across the globe, this paper examines the perceived impact that digital data reporting is having on the traditional role of journalism as the fourth estate. Responses suggest strong evidence for the emergence of digital data reporting as a key component in the journalists' 'toolkit', with a number of key respondents placing data within the domain of investigative journalism and as an important device to investigate and tell stories of public interest in an engaging way. However, the failure of popular 'tabloid' journalism to engage with data journalism means that a new technologically adept and data-informed elite class is on the rise, with important implications for democratic processes in advanced societies.

The role of journalism in democracy

In advanced democratic societies the differing branches of government – an executive that is separate from the legislature and the judiciary - are set up to ensure checks and balances. The news media, in carrying out an investigating and reporting function, essentially keep an eye on government and elected office holders. They thus have often been labelled the 'fourth estate', a term that was first espoused by Edmund Burke (Schultz, 1998). While most news organizations (except the BBC, some similar national state broadcasters and a minority of trust-owned newspapers) are commercial enterprises, journalists rarely see the pursuit of profit for their owners as their primary motivation. Most would agree that journalism has an explicit public-interest function, regardless of platforms (Galtung and Ruge, 1965; Harcup and O'Neill, 2001).

The role of journalism as the fourth estate is so important that a number of states, including the US, offer some privilege and protection to those working in the media. The First Amendment to the US constitution states that 'Congress shall make no law… abridging freedom of the press' (Federal Government of the United States of America, 1787). No such explicit protection is offered elsewhere, but almost all

advanced democracies recognize the right of journalists to investigate and criticize government and design transparency legislation such as FOI (Felle and Mair, 2015). The right to free expression and an implicit right to be informed are stipulated in the European Convention on Human Rights (Council of Europe, 1950) and the UN Convention on Civil and Political Rights (United Nations, 1966).

There are, of course, numerous cases where the media do not perform well as the fourth estate. Most news organizations in the US and the UK, for instance, failed to question the validity of the American and British governments' claims that Iraq had weapons of mass destruction in 2003 (Kumar, 2006: 48-69). In a number of Eurozone countries, including Spain, Greece and Ireland, the news media collectively failed to seriously question their governments' economic policies in the mid-2000s (Schechter, 2009), which led their economies to later collapse with severe social and financial consequences for citizens. However, despite falling short on occasion, the news media in advanced democracies have developed sophisticated mechanisms to serve as public interest watchdogs. Although it might be an idealistic notion, most news journalists espouse to this fourth-estate function. Even in the UK, where the role of the journalist and the news media might be said to be to entertain and to titillate people with entertainment scoops, sports and gossip, their mission to inform, engage, analyse, uncover, report events and issues of public interest and to hold power to account is still apparent and undeniable. Not all journalism brings down governments, but exposing the impact of health cuts, or uncovering favoured treatment or sharp practice in the awarding of public contracts, is every bit as valuable to citizens as investigations that lead to political resignations or sackings. Sometimes journalists uncover bureaucratic incompetence and occasionally political corruption. Even when no significant wrong leads to such consequences, such stories may be embarrassing, highlight hypocrisy, feather-bedding or pork-barrelling, or generate healthy public debate on the merits and demerits of policy decisions.

CAR, digital data journalism and democracy

The use of statistical data to report news is longstanding. Newspapers and broadcasting organizations have always reported on the latest official statistics from state agencies. Business news has contained charts and graphs to tell the financial stories of the day. Editors have commonly used graphics to display rising house prices. Many of these stories have had raw data as their source. Reprinting a table of figures may be unintelligible for audiences, so journalists have traditionally acted – or at least tried to act – as translators and story-tellers, taking the figures and reporting them contemporaneously, analysing what they mean, and giving context to help audiences better understand them.

Computer assisted reporting, or CAR as it became known, was first used by the US television network CBS in 1952 to predict the outcome of the US presidential election (Bounegru, 2012: 18-20). For more than 60 years journalists have compiled their own databases or sought to use official data when conducting investigations.

Rather than simply report on what a government press release says, or on 'spin' from private corporations, many have sought to independently verify facts and reveal truths, often with the help of social science methods and computers. It is noteworthy that this branch of journalism became known as a form of 'public service' journalism (ibid). While CAR has become well established, a newer data reporting community has emerged with the advent of digital journalism in recent years.

CAR was a tool used to conduct investigations. Digital data reporting, loosely defined, acts both as an investigative and a storytelling tool for journalists. Greater and more powerful computers and software have allowed journalists to operate far more effectively in sourcing and investigating stories. Large and complex datasets can be mined and cross-referenced as rich news sources, especially since the development of application programme interface (API) that allows users to query and manipulate data. But unlike CAR, digital data journalism also concerns story-telling techniques. The visual elements and interactivity features made possible by online journalism may equate a new form of storytelling. Visualization software such as Tableau and geo-coding with Google Maps allows for far greater interaction between the story and the audience and therefore has the potential to increase public engagement with stories. As Lorenz and others have argued, such tools make journalism more personally engaging (2012). Whereas a newspaper traditionally reports the headline figures, interactive data stories allow readers to drill right down to the individual or local level.

Digital data journalism, like CAR, has an important part to play in helping journalists to fulfil their key role as the public's watchdog on democratic powers and processes. Increasingly, governments throughout the world have moved away from paper-based bureaucracy, and now hold far more information in electronic forms. Access to large datasets is increasingly being made available as an outcome of a general move toward open government (Maude, 2012; Frey, 2014). O Murchu argues a central mission for journalists in this new open space is to become able to operate effectively as digital data reporters; to report and investigate what is published; to independently verify stories; and to 'scrutinize the world and hold the powers that be to account' (2012: 10). The 'fourth estate' role is heightened, as data creates possibilities to tell important stories and the use of software to find connections between data allows for far more complex investigations. Previously these stories might not be told fully, or may never be uncovered at all (Bradshaw 2013: 2).

However, there is a potential risk. In order for data journalism to well serve democratic processes, it needs to have an engaged and wide audience. There has been some criticism, however, that data reporting is fast becoming an exclusive domain for the technologically literate. Journalism scholars such as Dickinson (2013) have asked if data journalism is really producing tools that people can use in the democratic process.

Does making a spreadsheet available to users really democratize information? Does making something searchable by postcode really make it more useful on

the ground? Isn't it just creating a small, equally uncountable, data elite? Is it really just a good way to reposition (consolidate) journalism as gatekeepers? (Dickinson, 2013).

Those most likely to read tabloid newspapers, for example, are those among lower socioeconomic classes and most likely to be disengaged from politics (Hansard Society, 2012: 4). Conversely, news organisations that have invested heavily in digital data reporting include traditional ABC1 readership newspapers such as *The New York Times*, *The Globe and Mail*, and *The Guardian*. Rather than acting as a watchdog on behalf of all citizens, is data journalism creating a wider gap between those that can afford to be engaged, and large tranches of society that are becoming completely disengaged from the wider political process and thus effectively opting out of society? If this is the case, it is significant.

Methodology

Three key issues arise from the above discussion on the role that data journalism may play in democracy, namely (a) what impact it has in accountability journalism and whether it amounts to a new method of investigation; (b) what impact digital data reporting is having on engagement and storytelling; and (c) whether it is really broadening audience engagement or whether this contribution is confined to technologically literate elites. This study explores how data journalists might perceive these issues through in-depth interviews with them.

Snowball sampling was used to recruit participants for this research. Snowball sampling is a method pioneered by Becker (1963) in his interviews with drug users. Becker had knowledge of a number of users, who were in turn able to put him in touch with others. In this study, a number of active digital data journalists working for media organizations were known to this researcher. These were initially contacted and asked to participate. These respondents were in turn asked to nominate others who may be suitable. This snowball method is a valuable way of getting access to a group of people who would otherwise be very difficult, or sometimes impossible, to access (Burnham, Lutz, Grant and Layton-Henry, 2008: 107-108). A key weakness of this method is that the sample is very unlikely to be representative. It is therefore impossible to generalise anything from the data, though some tentative conclusions can be drawn.

In addition to the snowball sample, a social media search using Twitter was used to identify potential participants. Users of Twitter that described themselves as a data reporter, journalist, or editor on social media, and were subsequently verified as working for a media organization (newspaper or news magazine; online news outlet; radio or television channel), were contacted and asked to participate. Twitter was used because it allows quick and easy access to a large pool of people, some of whom may be potential respondents. The disadvantage of using a social media platform such as

Twitter is that the potential base of respondents to any research is largely limited to those who are engaged on social media. This research is therefore biased toward a likely technologically literate group. However it is reasonable to expect that, given the nature of their work, almost all active data journalists must be active on social media, including Twitter.

Following the use of snowball sampling and social media, initial contact was made with 49 potential respondents from 26 countries. Of those, 21 did not respond and two withdrew. Some 26 participants representing 17 countries in Europe, the Americas, Australasia and Africa participated in semi-structured interviews. Answers to questions were coded and key themes identified. Findings are outlined below.

A new form of accountability journalism?

The role of the data journalist is individual to each reporter. However, all respondents placed digital data reporting within the sphere of investigative journalism. Some 40 per cent of respondents went further, suggesting that digital data reporting was a new form of investigative journalism, while a further 40 per cent argued it was an evolution of investigative journalism rather than a fundamentally new method of such work. Some 20 per cent were unsure or had no opinion.

It is posited that digital data reporting has a central role to play in holding power to account, and allowing journalists to act as the 'fourth estate' in democracy. The reality is perhaps more nuanced in that digital data reporting is used by journalists to tell stories of pitches and plays in sports games as much as it is to report on government. Despite this, the role of the journalist as an agent of democratic accountability is well defined, and journalists working as digital data reporters strongly identify with this through the interviews. There was universal agreement of the role of journalism generally, and of digital data reporting, as a watchdog on democracy. Respondents also unanimously agreed that their work should be considered a new form of accountability journalism that was previously impossible because of the unavailability of datasets and the digital tools to analyse them. Accountability journalism can be considered different from other forms of reporting - such as political or current affairs journalism - because it has a specific public interest role of holding those in power to account.

There is strong evidence of this new form of accountability journalism in action through reporting such as election coverage using digital data methodologies in European countries, a great deal of political coverage in Canada, and public-interest investigations by media organisations in the US, the UK and Europe. Respondents pointed to the work by Australian data journalist Craig Butt at Melbourne-based *The Age* newspaper as robust evidence of accountability journalism in action using digital data reporting methods. An investigation by *The Age* into poker machine usage used datasets on household income and spending by neighbourhood to show gambling addiction in socially deprived areas of Melbourne. The story was front-page news in the newspaper, complemented by an interactive dataset online (Butt, 2012B).

Respondents also pointed to the work of journalist Kathryn Torney of the non-profit investigative news service theDetail.tv in Northern Ireland. In one investigation Torney examined religious segregation in education, and found a large percentage of schoolchildren went to schools where their peer group were either predominantly Catholic, or Protestant (Torney, 2012a). In another, Torney investigated gun ownership and found that a far higher proportion of people owned legally held firearms than was the case in the rest of the UK (Torney, 2012b). Such work was 'textbook examples of investigative journalism in the public interest,' according to one respondent from a US newspaper.

Respondents suggested that digital data reporting had an important role to play in allowing journalists to fulfil a public interest and public service function, and was being used quite often by newsrooms worldwide in doing so. One said this nuanced version of accountability journalism more accurately reflected the day-to-day work of digital data reporters:

> There is an accountability role with all journalism but sometimes it's not so much a question of government accountability as public interest journalism. Not every story will have a political angle or go viral but there is a lot of engagement nonetheless (Broadcast journalist, USA).

In summary, respondents view data journalism as a new method of conducting accountability journalism. As 'big data' from governments and multinational organisations becomes increasingly available, accountability journalism in this sphere will be increasingly ineffective or at least inadequate without the work of digital data reporters. They did not, however, see digital data reporting as a new form of investigative journalism, but rather as a continued evolution of CAR, as the method of investigation had not fundamentally changed. While CAR journalists pioneered the use of dataset inquiry, they argued, digital data reporters are conducting significantly more complex investigations into far larger datasets and presenting the results of such investigations in far more compelling ways using visualisation and interactivity tools. It should be noted here that CAR was always an investigative tool, never a storytelling tool. In the era of digital data reporting, however, these two cannot be considered separately – both the investigative method and its ensuing visual storytelling allow for greater accountability. Respondents cited a number of excellent examples to make this point, such as National Public Radio's 'State Impact' data journalism series on companies engaged in fracking in Pennsylvania (NPR, 2012a) and its 'Playgrounds for Everyone' series (NPR, 2012b).

Better storytelling, more engaging journalism

Significant audience engagement with journalism is a relatively new phenomenon. Online journalism allows for interactivity and engagement through various methods including the use of user generated content; social media; audience comments; and sharable links. Digital data reporting chiefly engages audiences through the use of

interactive maps and graphics and applications on news websites that allow for audience choice (such as address or age) to tailor stories to users based on answers to pre-set choices. All respondents agreed that storytelling was enhanced by using digital data journalism. New tools have allowed reporters as well as audiences to interpret, contextualize, examine and analyse news in quite different ways. Respondents suggested that this amounted to both a new method of engaging with audiences (readership) and a new method of storytelling. As one commented:

> Journalism will always be attracted to great stories, and data provides opportunities to tell great stories in a visually appealing way. In particular, the capacity of data to be presented with multimedia and interactivity elements to tell very big national stories, as well as individual stories, is really special. This is not just a new variant of what journalism always did - telling stories – it is fundamentally a different way of news reporting (Newspaper journalist, USA).

Audience engagement was seen as 'important' or 'very important' for a majority (72%) of respondents, although their experiences of audience engagement varied considerably, with respondents from US-based media organizations reporting far greater levels of engagement than those from other regions. Notable use of digital data journalism as a new method of engagement included a number of considerably successful reports by the US-based National Public Radio (NPR). When publishing a series on disability accessible playgrounds, for example, the broadcaster admitted that it was unfinished and invited listeners to visit the site and fill in the gaps, including adding their local playground to the map and listing whether it was accessible or not. The story proved extremely popular with audiences (NPR, 2012b). In Australia, *The Age* ran a series on bicycle accidents, using official statistics to map accident black spots as well as asking readers to add to the map their own stories and experiences (Butt, 2012a). In the UK, *The Guardian* successfully crowd-sourced on a number of major data stories, the most famous being its readers sifting through thousands of documents on expenses claimed by their Members of Parliament (Rogers, 2009).

Despite *The Guardian's* successes, the bulk of European and Australasian respondents had mixed success with crowd sourced stories, with inconsistent results. Respondents suggested that engagement often depended on the story. In some stories such as political campaigns, spending and elections, although the issues were worthy and in the public interest, engagement tended to be low. In other cases, especially stories that personally impacted on audiences, engagement tended to be higher. Respondents reported a number of occasions when analytics showed that audiences were engaging by reading stories and/or interacting with visualisations, but editors were reluctant to respond to such analytics or to make use of user-generated content. Crime, health, schools and personal finances/taxes were among the oft-mentioned areas that attracted most engagement, along with local angles to major national stories. German and Canadian interviewees reported more often than those from elsewhere

that politics elicited stronger engagement. However, elections were reported to tend to engage audiences everywhere, and data series that focused on election results ranked among 'most visited' on many respondents' websites. Respondents also noted that news organizations were beginning to synergise digital data reporting with their traditional strengths. News organizations with a long history of credibility in politics and business reporting, for example, are also focusing their data reporting in these areas. This was a reflection of both the ethos of the news organisations and their respective audiences' interests.

Methods used in digital data reporting are shared with, and come from, the academic social sciences. Publishing raw data is a common occurrence in academia, as it adds credibility to findings, though it is relatively rare in journalism for reasons of competition. However, a culture of sharing data has emerged in the digital data journalism community. Respondents suggested that sharing source data increased engagement and added credibility to reporting, as readers can see the source and those with vested interests have a greater difficulty in arguing or spinning against the story. As seen in the following comments:

> Making all source material available allows readers, if they are interested, to see for themselves the source of the story. It gives news organizations a lot of credibility. It also puts an onus on news organizations to triple check every detail to ensure there are no mistakes. The standard bar is set very high (News magazine journalist, Germany).

> People really like our work. We have a special relationship with our audience. It's harder for someone else to argue against the figures if you have proof and if anyone can go and do what you did and get the same results. It gives stories added credibility (Broadcast journalist, USA).

Visualization, such as mapping, when combined with interactivity tools can allow a potentially limitless number of stories to be told. Respondents generally agreed that the way stories are presented played a significant role in determining the extent to which readers are engaged with stories, with visualizations making stories easier to read and understand. For example, large and complex datasets could be displayed in an interactive fashion using visualisation tools to help readers to look at both the big story (overall picture) and individual (local) stories. While a newspaper might be interested in telling overall crime figure stories, readers are likely to be much more interested in the crime figures for their local area, which an interactive graphic on crime statistics would allow them to explore. *The Irish Times* (Lally, 2012), for example, told the 'macro' story of national crime figures in the print version, but allowed readers to engage at the local level of each police station in their online data series. A similar approach has been used by NPR with it 'State Impact' fracking series (NPR, 2012a), as well as various data stories published by *Der Spiegel* online (*Spiegel*,

2013) and by *Le Monde* (Léchenet, 2012; 2013a; 2013b; 2013c). Respondents observed that such stories tended to have a far longer shelf life, with repeated visits for weeks and months after the original story has been published.

Journalism has always sought to engage audiences through various means such as letters to the editor pages and writing competitions. With the advent of social media, engagement – through new means such as shares, likes and re-tweets - is now a regularly measured and closely monitored metric in newsrooms. It is reasonable to posit similarly that digital data reporting that uses interactivity has also become a new method of engaging with audiences. Such engagement was impossible before the advent of online journalism and the development of software applications that allow interactivity. Although the reporting – finding a story, fact checking and sourcing and attribution - has not fundamentally changed, it is arguable that there has been a fundamental change in how stories are read and understood as a result of how they are digitally visualised, which may be interpreted as a new method of storytelling.

The emergence of new technologically literate elites?

As discussed earlier, there is, perhaps with some justification, a perception that digital data journalism is for the elite. Media organizations that have a solid reputation for publishing data related stories tend to be ABC1 circulation publications, rather than 'low-brow' tabloids. Praiseworthy investigations concerning African governments' spending and mineral wealth by the Open Knowledge Foundation (Chambers, 2013) or *The Guardian's* UK riot data series (Rogers, 2012), for example, may never be read by many people directly or indirectly affected by those stories. Equally, stories on social disadvantage or inequality may only ever be read by those who are already likely to be from an affluent demographic, given the nature of the audiences of news organizations that are reporting these stories. Is that creating a technologically informed elite? Almost all respondents strongly disagree. Some argued that, if the logic of the argument that their reporting was elitist was followed, the corollary of that would be to not report the stories at all. As one respondent said:

> There have always been people that have been disengaged, or not interested in what newspapers report on. It is not the fault of newspapers; data journalism is not causing that. Most data reporting also appears in the newspaper, so the argument that readers may be missing out doesn't stand (News magazine journalist, Germany).

Many pointed out that all media organizations within a given region have a certain market share of the audience and do not reach everyone via traditional methods. Some also noted that the internet had made their reporting accessible to a far wide audience worldwide than was historically the case. As one argued:

> A lot of sharing on social media goes on, aggregators get content to tens of millions daily. The big websites – *The Guardian, Huffington Post, The New*

York Times – have millions of visitors. Spiegel online has 11 million monthly users. The internet is the motor of democratisation all over the world. Data is accessible, far more accessible than newspapers ever were (Online journalist, France).

This respondent also noted that news and data apps on mobile devices have made data journalism accessible for far greater audiences from a much wider demographic than would have traditionally been the case with newspaper readers.

Conclusion

As societies transition to digitalisation, more and more data is available in electronic forms. The role of journalism in the digital era must still be to report and to investigate in the public interest, but in order to do so it must deploy new methods. Digital data reporting is playing an increasingly important role in journalism both as an investigative method and an approach to engage audiences. The findings of this research suggest that digital data reporting is a significant resource for journalists in carrying out a democratic 'fourth estate' role as a watchdog on those in power – both elected government and bureaucracy. The study lends support to the hypothesis that the accountability role of journalists is strengthened by the use of data reporting methodologies to investigate and to tell stories in public interest. However, the journalists participating in this study do not necessarily see the use and manipulation of datasets for news as something that amounts, in and of itself, to a new method of investigation.

While such reporting may not be seen as a new form of investigation, it cannot be considered solely as the evolution of CAR because digital data reporting includes both investigation and storytelling. As little scholarly research has been focused on the implications for journalism of the use of digital data engagement tools, the views of the interviewed news professionals are interesting and noteworthy for future in-depth investigations. In the main, they – and the examples they cited – demonstrate a highly significant amount of engagement in their reporting. Increased audience engagement with interactive news, in particular via news apps that allow interactivity and individualisation, may point toward a future direction in the development of news. In an era of declining audiences, engagement can be considered a 'holy grail' for journalism, and storytelling approaches that increase engagement, such as data journalism, are important. This is an area worthy of further inquiry.

This research finds that journalists did not agree that data journalism is elitist, creating a new technologically literate class of readers. Instead, they believed that digital data journalism, being widely practised across all media platforms, is available to a wider demographic than before. In reality, however, this view might not be well supported. The reverse may be the case: media organisations with the heaviest investment in and strongest record of data journalism are among the least popular and

have elite niche audiences. For example, *The Guardian* and *The Times* are among the most pronounced media organisations with a significant digital data reporting presence in the UK. But *The Guardian's* combined print and online UK readership in February 2015 was 5.2 million, while that of *The Times* was only 4.5 million. The readership of both newspapers is overwhelmingly in the ABC1 category. Meanwhile, some 25.4 million readers read either *The Sun* or the *Daily Mail* during the same month; neither of these regularly deploys digital data methods in their reporting (Hollander, 2015). Hence, by virtue of the fact that news organisations that conduct data journalism are in the main ABC1 circulation publications or broadcasters with niche audiences, it is reasonable to argue that data journalism is still accessed primarily by those 'quality audiences' who are already engaged, rather than reaching audiences from all socio-economic backgrounds. In short, while digital data reporting is an important contributor to public-interest accountability journalism and has the potential to increase audience engagement, it might also be contributing to the creation of 'data elites' as espoused by Dickenson (2013), or at least reinforcing the established socio-economic structure of news audiences. A detailed, systematic content analysis to examine how digital data reporting is used by different types of news outlets is warranted to shed more light on this crucial issue.

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