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The technology behind fake news

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Introduction

The phrase "fake news" has become a cultural phenomenon, used by everyone from politicians to commentators. It is a broad, imprecise term that is used primarily to discredit. However, it also has a basis in real phenomena that are driven, in part, by technology trends with real implications for how library patrons process information. Technologically powered Web-based publishing platforms have made it easy (and profitable) to create professional-looking websites, while social media technology has helped foster an environment that rewards certain kinds of information-sharing over others. This technology is powered by algorithms, but built on fallible human tendencies and is likely to be the source of ongoing problems. This column will examine some of these trends, with an eye toward understanding how libraries can help ensure their users can find accurate information.

What is fake news?

As the phrase is commonly used, "fake news" has become a catchall term that seeks to discredit a source, typically unaccompanied by any other supporting evidence. This kind of claim has been used to refer to everything from websites that has been deliberately created to propagate fictional stories (and then pass them off as real news) to news stories that are poorly sourced, as well as news stories and scientific studies that meet the highest standards of their profession, but which nonetheless have inspired someone to be interested in discrediting them. Part of the power and utility of this term is exactly this – that it can conflate all of these ideas into one. It, therefore, allows the person using the phrase to express of a host of related meanings, without forcing them to specify, or justify, which one they mean.

Questionable news being widely shared is not new, and the overall influence of these types of stories has often been overestimated (Illing, 2017). But in retrospect, it is easy to see the trends that led to them rising to prominence now. Just as the term "fake news" encompasses many meanings for its user, it also can contain many tensions within a society. It can be used to talk about anxiety over the ever more obvious role of technology in mediating our news consumption as well as concern about how "others" are being misled by the news. It also serves to give name to a general mistrust in elite information sources, which have proven themselves fallible and disconnected from the lived experiences of many.

For the purposes of this column, I will use "fake news" in its most limited sense: as a phenomenon of misleading or false news stories that are shared widely on social media which appear to have been created without regard for their factual basis (Hunt, 2016). This definition of fake news fits squarely within librarians' concerns about providing accurate information and, in its modern incarnation, would be impossible without the technological ecosystem that surrounds us.

The role of technology

The spreading of this type of "fake news", then, is dependent on a number of different technologies and their related business models. It is founded on Web platforms that make it easy to create professional-looking websites. It is profitable because news sites often depend on advertising revenue, which has created incentives to mass-produce content that will be seen by as many people as possible, regardless of the quality.

An example can be illustrative. According to Buzzfeed, one of the most shared fake news stories of the 2016 US election season was from WTOE5News.com, titled "Pope Francis shocks world, endorses Donald Trump for President, releases statement". If this headline were true, it would have been surprising for a number of reasons (not the least of which is that the Pope, as leader of the Catholic Church, does not typically endorse political leaders). The name and look of the host site were designed to be similar to any number of local news sites around the world that produce legitimate news. In fact, WTOE5News was part of over 40 sites that collectively created over 700 fake news stories (Silverman, 2016). The ability to create not one but many versions of websites is only possible because Web publishing technology (from Web hosting to platforms such as WordPress) has become relatively easy to use.

The first in-depth reporting on this particular story was done by Buzzfeed, which rose to prominence as an entertainment site focusing on viral entertainment. Viral sites try to find content (say a list of cute cat photos) that will be widely shared on social media and put it into a frame (i.e. variable titles, ways of displaying or commenting on the content), so that their version is the one that everybody shares (Marantz, 2015). Often the copyright or origin of the original content is obscured in this process, which has led to a trust problem for Buzzfeed's news operation (Fisher, 2017). More broadly, this general business model is a natural outgrowth of how Web advertising (largely funded by companies such as Google's AdSense) works. Advertisements are placed on sites by third-party vendors, and site visits are largely driven by search or social media sharing, a system which rewards by driving the highest possible number of visitors to a page for the least cost (Ohlheiser, 2016). It is also the basic reward structure seen on social media, where users often share content to express something about themselves and that content is amplified according to what elicits the strongest emotional reaction in others.

A headline that appears in a Facebook feed or from a Google search that contains a shocking "too good to be true" revelation will likely elicit engagement. Even if most of the people who click on the story end up dissatisfied, or do not believe the story and are only sharing it for entertainment, there is still monetary incentive to create that story and attempt to get it shared as widely as possible. News articles are ideal for this, as their format and style are easy to mimic (particularly if no consideration is given to ensuring accuracy).

The role of social media

When it comes to sharing news, social media drives an increasingly large part of our news consumption, with 62 per cent of adults in America getting some of their news from social media. Of those, Facebook is by far the largest player, by consistently resisting calls for it to make the kind of editorial decisions that newspapers and other media outlets traditionally made (Segreti, 2016). Yet, the same algorithms that power the rest of Facebook have embedded within them many editorial implications (Lee, 2016). These algorithms are designed to do certain things, and favor sharing certain kinds of content, with a strong incentive toward encouraging engagement. They want customers to use Facebook as much as possible, and everything about the platform is designed to encourage people to engage with the system. The end result is that, while most users will only see a selected portion of their friends' posts, the content that Facebook favors and promotes is content that is attention-grabbing – regardless of its accuracy.

It is easy to see why. Social media posts are tied up with an individual's emotional experience as well as the user's personal identity. Sharing content online is in part a means of maintaining and expressing an individual's identity (Blommaert and Varis, 2017). What this filter means can vary widely, as people have many different identities. An esoteric article about foreign relations may be of interest to me (or of particular interest to someone for whom that issue is a key part of their identity), but if that interest is not part of the identity I want to display to my social group on Facebook, I am unlikely to post it or comment upon it. While a newspaper may feel that it is important to share that same story on its front page for any number of reasons. Similarly, I am even less likely to share a complicated article that challenges me, or an article that contains great content but a poorly worded title.

If the original post is generated in part because of personal identity, what others react to (and thus what social media promotes) is often driven by both identity and what elicits a strong emotional reaction (Libert, 2014). That reaction can be positive (think a cute picture of a kitten) or negative (think an article about someone hurting kittens); the important thing is that it makes many people want to comment on it and let the world know what they think about it – ideally, relatively quickly. Viral content like the lists that Buzzfeed gained fame for was designed and tested to accomplish this task and by making easily shareable lists of items. An article about the Pope endorsing Trump has a number of features that tap into this paradigm. It taps into a number of identities (i.e.

religious affiliation, political affiliation) along with raw emotional engagement (i.e. shock, bemusement, excitement, outrage). Shares designed to mock it or to express their outrage over it were equally valuable for both the social media companies and the host site.

Technology companies respond

Sharing content that makes other people engage with their site is a large part of what makes social media sites valuable. Importantly, technology companies are legitimately reluctant to engage in obvious censorship. However, these limitations take on a different set of implications when the content is not personal photos or cute animals but distributing facts and news. Moreover, this shift is not happenstance – Facebook has moved aggressively to incorporate news into its site, launching programs such as the trending stories news feature and launching an Instant Articles program in partnership with key trusted news sources. Given social media's evolving role in the larger information ecosystem, as well as their active efforts to incorporate news content, the policies of large social media companies will continue to have practical implications for news consumers. The result is that they cannot absolve themselves entirely from any obligation to make editorial decisions (or escape the fact that they already inadvertently have) even if that endangers their ability to be seen as neutral, algorithm-driven technology companies.

In the aftermath of all the recent coverage on this topic, many technology companies have admitted to the need to change how they operate. Facebook is experimenting with ways to remove known propagators of fake news and offering ways to flag stories as problematic. It is also changing the structure of how the platform operates to discourage fake news (e.g. removing the ability to edit link previews, adding a "disputed" label and minimizing the impact of high-frequency posters, which have been associated with fake news stories). Meanwhile, Google has further tweaked its news algorithm, and Twitter is considering similar changes (Breland, 2017; Cohn, 2017; Dwoskin, 2017; Locklear, 2017). Perhaps even more intriguing for libraries, Facebook has invested in efforts to help teach its users how to spot fake news using potentially problematic stories as just-in-time learning opportunities (Price, 2017). These changes are unlikely to solve the core issue, but they are admissions that the way news is structured in these systems matters.

Role of libraries in a social world

Technology companies can do more, but as long as these trends continue, there will be incentives for companies to exploit them for profit. Both technology companies and libraries need to recognize that a core aspect of the problem is social in nature. The most obvious tool that libraries have at their disposal is the promotion of information literacy. Often the basic idea behind information literacy efforts is to give patrons the ability to know when there is an information need and be able to find and evaluate information to meet that need. Implicit in the idea of evaluating information sources is the idea that we have a shared reality that we can know and measure, and that, through the application of reason and science, we can come to an even-better understanding of the world. Without that assumption, users may be able to find information that meets their needs, but much of the social good of libraries would be lost.

Libraries often attempt to remain neutral in the resulting debates, but that neutrality is predicated on the idea that the debates are taking place on a post-enlightenment playing field and that, eventually, the best ideas will succeed. Or at least that, over time, reasonable people will develop a shared set of facts and tools for assessing and discussing that reality. This allows the library to accomplish good for its users by providing access to materials and the skills needed to properly evaluate them. Yet if fake news demonstrates anything, it is that factors such as the technological platform, as well as basic human psychology, can have a distorting effect on how information moves through society. In some sense, this has always been true, but that does not make it any less problematic.

Conclusion

Given the discourse around this issue, it can be easy to either overestimate the scope of this problem, or discount solving it as irrelevant to the libraries' mission. Recent studies have shown that the scale and impact of fake news is less significant than much of the initial reporting would suggest. While many people get their news from social media, they do not always consider it their primary source of information (Illing, 2017). Moreover, the basic trends that drive fake news include an increasingly partisan media culture that predates social media (Mittell, 2016). Perhaps most importantly, there is evidence to suggest that when people are presented with "inoculating" messages beforehand, for example information about the scientific consensus or information about the general strategies used in misinformation campaigns, it made a significant positive difference in how they interpreted subsequent information even when it taps into their preexisting identities (Cook *et al.*, 2017; van der Linden *et al.*, 2017). That is to say, the rise of fake news, while a serious problem, does not signal a general inability for people to identify and process facts or that there are no strategies that can effectively counteract these tendencies. Rather it signals something important about how emotions and identities, particularly when exploited by technology platforms, can influence our understanding of new information. Moreover, outside of those emotionally driven, identity-based incentives, there is less of a reason for people to use technology to generate purposefully misleading information.

Yet, just as the technology companies' first impulse was to ignore their newfound responsibilities as media companies, libraries too must begin to re-think their obligations in light of the ways people are actually using information. Already, both librarians and other stakeholders are working to reconfigure information literacy instruction. As we look to the future, the definition of purposefully fake news used at the outset of this column may be less relevant, as new variants of these themes complicate the picture. There are many factors that can lead to patrons being misled (both purposefully and accidently) by

information sources. Efforts to update information literacy are beyond the scope of this column, but it will be an ongoing effort that will continue to evolve as the profession grapples with new research – both research into how people interpret information as well as how various actors attempt to deceive them. As poll numbers demonstrate, these trends are occurring even as people's trust in institutions diminishes. While trust in libraries remains relatively high, the overall trend is worrisome for institutions of all kinds.

What a deep understanding of technology can do for this effort is highlight the systemic forces that allow misinformation to spread. This includes the incentives behind socially shared news, which are, in turn, built on human-created algorithms to harness basic human impulses. Across the board, people are, and always have been, bad at recognizing and accepting information that goes against their preconceptions. As psychologist Jonathan Haidt suggests, in many arenas, we may believe we are rational scientists, coldly evaluating information, but in reality, we operate more like press secretaries, spinning available facts to confirm our preexisting beliefs (Haidt, 2013). It is, therefore, valuable and important work to provide updated information literacy practices to library patrons. It has the potential to change their lives and help create a better society. Yet it is likely not sufficient in and of itself, simply because of the limited scale, and, perhaps, more importantly, the inability to reach people who most need this assistance.

There are no easy answers for how to meet this need, but understanding the technology trends in action suggests part of the path forward. It suggests that information literacy efforts must help users to not only identify reliable sources but also recognize and take into account how their own tendencies can mislead them. That to be effective, information literacy must spread beyond people who desire to be active participants, and instead be built into widespread tools. This will require partnerships that connect interested individuals, libraries and technology companies. In short, it will be an ongoing challenge.

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