

Online Information and Fake News



Digital technologies such as Internet search engines and social media platforms are an increasingly popular way of accessing news and information. This note considers how people access news online, how algorithms (sequences of instructions) and social networks influence the content that users see, and options for mitigating any negative impact.

Background

In 2017, the proportion of UK adults consuming news online exceeded those who watched news on TV (74% versus 69%).¹ Meanwhile, a smaller proportion read news in print (41%), compared to in 2013 (59%).^{1,2} Social media platforms (PN460) and Internet search engines can help users to find the items that they consider most interesting or useful by filtering content. Some suggest that filtering could lead to users seeing only content that conforms to their pre-existing opinions.³⁻⁶ Others argue that users still see more diverse views than, for example, via print, TV or radio.^{3,7} Internationally, politicians, journalists and others have raised concerns about false information online, and the effect that it may have on political events such as elections.^{8,9} This POSTnote explores:

- how people in the UK access and share news online
- the effects of filtering
- the factors driving fake news and its effects
- approaches to addressing the challenges.

Accessing and Sharing News Online

People can either access online news directly – via websites or applications (apps) – or through intermediaries such as social media platforms, Internet search engines and news aggregators (that select and present news from multiple sources). Content is created not only by traditional news providers, but also by other organisations and individuals.

Overview

- Social media platforms and Internet search engines have made it easier to produce, distribute and access information online.
- These technologies, combined with user behaviour, filter the content that users see. Some studies suggest that this limits users' exposure to attitude-challenging information, while others argue that users still see a wider range of information than offline.
- Online fake news has the potential to confuse and deceive users, and is often financially or politically motivated.
- UK efforts to address these issues are largely led by industry and focus on fake news. They include better identification, fact-checking and user education.

The Reuters Institute and Ofcom found that the websites or apps of TV and radio companies are the most popular source of online news in the UK.^{1,10} For instance, 47% of UK adults who accessed news online (surveyed in 2017) said that they had used BBC News online in the past week.¹ People are increasingly using social media to access news in the UK;^{1,11} 41% of adults asked in 2017 reported using it as a source for news in the past week, up from 20% in 2013.^{1,2} Search engines are also key for finding news; 36% of adults who accessed news online in 2016 did so via a search engine, up from 16% in 2013.^{10,12} Children's online news consumption may differ from adults', however the available data is limited.¹³

Social Media Platforms

Facebook (39 million UK users) and Twitter (22 million UK users)^{14,15} are the most popular social media sources of news in the UK (Table 1). They have two main features that provide content:

- a personalised list containing material from the user's connections (e.g. friends, followers or 'liked' pages)
- a list of popular (trending) topics from the site (Box 1).

Internet Search Engines

Globally, Google, Bing and Yahoo are the most-used search engines, with estimated monthly visitors of 1.6bn, 400m and 300m respectively.¹⁶ Users typically type a query into a computer (or ask a question via a voice-activated platform

Box 1. Accessing News on Facebook and Twitter

Facebook

Users connect to other users, and publish and share content (posts). Content is selected and displayed via:

- **News Feed:** a stream of posts selected by algorithms (Box 2), on the basis of a user’s online activity and connections (friends). Posts with many comments and reactions (e.g. ‘likes’), and posts by the friends that a user interacts with most, appear higher in the list.¹⁷ Users can also pay for posts (e.g. adverts) to be displayed in the News Feed.¹⁸
- **Trending:** a list of topics and headlines that have recently become popular. They are determined by the number of publishers posting articles about the same topic and the engagement (e.g. likes and shares) around that group of articles.¹⁹ Topics are not personalised to the user, but to all users in a particular geographic area.

Twitter

Users can broadcast and read 140 character-long ‘tweets’. Content is selected and presented to users via:

- **Timeline:** a list of tweets from other Twitter accounts that the user has chosen to follow, shown in reverse-chronological order. It also includes tweets that have been selected by algorithms if, for example, many other users have already engaged with them, they come from accounts that users interact with most, or they have been paid-for (e.g. adverts).²⁰
- **Trends:** a list of popular topics, determined by an algorithm based on factors including the volume of tweets on a subject and the rate at which a conversation grows. The list is tailored to the user by default, based on their interests, location and other factors.²¹

Table 1. Most used social media for finding, consuming and discussing news in the UK (weekly) in 2017.¹

Platform	All Adults	18 - 35 Yrs	Over 35 Yrs
Facebook	29%	35%	27%
Twitter	12%	17%	10%
YouTube	7%	9%	7%

such as Google Assistant, Amazon Alexa, or Apple’s Siri) which algorithms then process to find webpages that are likely to be most relevant (Box 2). Google Search results are determined using over 200 factors, including: previous searches (by the user and others); user location; and ‘PageRank’, which rates the importance of a webpage based on the number of other pages that link to it.²²

The Effects of Filtering

The aim of filtering with algorithms is to allow people to find information that is relevant to them (Box 2). User behaviour (e.g. selecting who to follow or pages to like) also enables users to tailor their social network to their interests. The role of algorithms and extent of user choice vary between services. Filtering is personalised, unlike traditional news sources where readers experience the same bias (e.g. the editorial line of certain newspapers). Users may be unaware of this tailoring. One study found that 63% of participants were not aware that Facebook’s News Feed is curated by an algorithm.²³ These technologies can be open to exploitation (Box 3). Further, some suggest filtering could unintentionally limit the range of information that users see. Two phenomena have been proposed:

- **Echo-chambers** – suggested to occur both online and offline,²⁴ when people form social networks with those who largely reflect their own views, limiting their

Box 2. Algorithms in Social Media and Search Engines

Social media and search engines use algorithms for a number of purposes including to: find or personalise content, target groups of users with adverts, and identify and block abusive or illegal content (e.g. hate speech). This note focuses on algorithms that find or personalise content. These select content based on many factors, such as a user’s past online activity, social connections, location, and if content has had a large number of user interactions. Detailed information about these algorithms is not publicly available, due to their commercial sensitivity. They are also changed regularly (e.g. Facebook made nine major updates to their News Feed algorithms in 2016).^{25,26} Some use machine-learning, enabling them to learn from past experience (PN534).²⁷ This can make it difficult (some argue impossible) to understand fully how they make decisions, presenting transparency and accountability challenges.²⁸⁻³⁰

exposure to attitude-challenging opinions or information.^{5,7,31-33} They are thought to form in two ways: when users choose only to connect with those they agree with, and when users block content or unfriend/unfollow those that they disagree with.^{7,34-36}

- **Filter bubbles** – postulated to occur when algorithms used by search engines, social media sites and news aggregators automatically recommend content that an individual is likely to agree with, based on the previous behaviour of both the user and others.^{3,6,7,37}

Evidence for the Effects of Filtering

Research in this area is limited. It faces challenges such as restricted access to data about people’s online behaviour (PN460), lack of transparency about the algorithms (Box 2), and difficulties in identifying how online content influences behaviour.³⁸ Studies indicate that echo-chambers and filter bubbles can form, but their effects on users are uncertain.

Narrowing of Viewpoints

Studies have found that algorithms can limit the amount of attitude-challenging information a user sees, indicative of filter bubbles.^{39,40} However, a growing body of research suggests that this does not fully eliminate exposure to attitude-challenging information on social media, for example, because users typically have a diverse network spanning multiple geographic regions.^{3,34,35,41-45} Users’ perceptions of their exposure varies. For example, in a 2016 US survey, 53% of Facebook users said that the people in their network held a variety of political views, 23% said they held similar views to their own and 5% said they held different views (19% were unsure).⁴¹

Scale of the Effects

A 2016 study reviewed the evidence for filter bubbles. It concluded that although some websites do automatically personalise content, and people do select content to fit their own ideas, there is currently no empirical evidence to justify strong concerns that this is harming democracy (e.g. by cocooning people in rigid positions that hinder consensus building). However, this may change as the technology and its use changes.⁴⁶ Academics trying to measure filter bubbles on Google Search found that, on average, search results varied by 12% between users.⁴⁷ Personalisation was greatest for queries about politics, news and local firms.

Box 3. Manipulation of Social Media and Search Engines

There have been reports of deliberate manipulation of social media sites and search engines for financial or political gain.

Automated Social Media Accounts (Bots)

Social media 'bots' are computer controlled accounts that automatically interact with other users.^{48,49} An estimated 23m active Twitter accounts are bots.⁵⁰ Although many can be useful, for example providing live information about earthquakes,⁵¹ some are created for political purposes.^{48,49,52} For instance, bots can automatically post content, increase follower numbers, support political campaigns, spread fake news (Box 4) or attack political opponents.^{48,53,54}

Manipulation of Search Engines

Many organisations use 'search engine optimisation' to increase the visibility of their websites on search engines and so boost the number of visitors.⁵⁵ However, some groups have been found to deliberately exploit this.^{56,57} There have been instances of extremist and fake news sites creating a network of links to each other and to genuine sites, manipulating Google's PageRank algorithm, so that their webpages have dominated certain search results on topics such as women.^{58,59}

Researchers at Facebook found that the actions of users filtering the content they see, has a bigger role in reducing the diversity of information seen than algorithmic filtering.⁷ However, some academics have criticised this study, saying that it looked at a small subset of users (with stated political affiliation) who do not represent the average user.⁶⁰⁻⁶²

Political Polarisation

Studies have found that many users form their online social networks on an ideological basis, creating online echo-chambers.^{63,64} Some researchers suggest that this may exacerbate political polarisation.⁴⁶ A 2017 study concluded that echo-chambers are more likely to form on social media for people who are more ideologically extreme, but that communication still occurs between people with different ideologies.^{4,7} The effects of filtering may also be exacerbated by cognitive biases (PN512). For example, confirmation bias can lead people to seek, weigh or interpret information in a way that conforms to their pre-existing beliefs or assumptions.⁶⁵

Attitudes to Filtering

The Council of Europe has voiced concerns that the ranking of results on Internet search engines limits the information that people see.⁶⁶ A public dialogue by the Royal Society identified potential benefits and risks of using machine learning algorithms (Box 2), including concerns that they could filter out challenging opinions.⁶⁷ A 2016 Reuters Institute survey found that 31% of UK adults were happy for news to be selected by algorithms based on what they had read before (39% were unhappy), compared to selection by editors or journalists (20% were happy, 41% were unhappy), or based on what friends had consumed (13% were happy, 58% were unhappy).⁶⁸

Fake News

There is no agreed definition for fake news (Box 4). It is not a new concept and how it differs from propaganda is unclear.⁶⁹⁻⁷⁴ Generally, it is defined as content intended to misinform or influence the reader (often called disinformation). It may also be applied to content that unintentionally misleads (misinformation). Content can be

Box 4. Different Types of Misinformation and Disinformation

Fake news has been used by some to describe content published by established news providers that they dislike or disagree with,⁷⁵⁻⁷⁷ but is more widely applied to various types of false information.⁷⁸ A spectrum of false information has been proposed, including:

- **Fabricated content** – completely false content
- **Manipulated content** – distortion of genuine information or imagery, e.g. a headline that is made more sensationalist
- **Imposter content** – impersonation of genuine sources, e.g. by using the branding of an established news agency
- **Misleading content** – misleading use of information, e.g. by presenting comment as fact
- **False context or connection** – factually accurate content that is shared with false contextual information, e.g. when the headline of an article does not reflect the content
- **Satire and parody** – presenting humorous but false stories as if they are true. Although not usually categorised as fake news, this may unintentionally fool readers.

wholly fabricated or may mix fact and fiction. It may also include unreliable information or bias. Social media content can be shared among users without verification or editorial judgement.^{79,80} Research also suggests that social media users often share webpage links without reading them.⁸¹⁻⁸³

Drivers of Fake News

Although fake news may be created for a range of reasons, it is often financially or politically motivated.^{75,84}

Financially Motivated Fake News

Academics and others argue that fake news is amplified by social media and search engines because of their business models.^{85,86} For instance, when a user views an article, the hosting website displays adverts with it to generate revenue. This could encourage the hosting of sensational fake news that garners many clicks (clickbait) and is more likely to be picked up by algorithms.⁸⁷ During the 2016 US Presidential Election campaign, the media reported that at least 140 websites with sensationalist or false news (many with pro-Donald Trump content) were set up from Macedonia.^{88,89}

Politically Motivated Fake News

Commentators have suggested that fake news stories may have influenced political events (Box 5). Academics have also found that bots (Box 3) have been used extensively, for instance during both the US and French Presidential Election campaigns,^{49,90} and the UK General Election.⁹¹ Governments and security services have voiced concerns about foreign interference in domestic politics through the spread of disinformation on social media. The US Senate Intelligence Committee heard claims that Russia ran a disinformation campaign on social media to damage Hillary Clinton's Presidential campaign.^{92,93} Russia's President denies this.⁹⁴ The EU has set up a task force to address the issue of disinformation coming from Russia.⁹⁵

Negative Effects of Fake News

In a 2016 US survey, 64% of people believed that fake news causes a great deal of confusion about current issues and events,⁹⁶ and 39% said they were very confident that they could recognise fake news. However, a 2017 survey commissioned by Channel 4 found that only 4% of people correctly identified true and false stories.⁹⁷ Other research

Box 5. Political Fake News on Social Media

The Oxford Internet Institute examined content shared on Twitter during the 2017 UK General Election, 2017 French Presidential Election and 2016 US Presidential Election. They reported that UK users shared a higher proportion of information from professional news outlets (54%) compared to US users (34%), but a lower proportion than users in France (57%, before Round 1 of voting).⁹¹

BuzzFeed News found that in the final three months before the 2016 US Presidential Election, Facebook users' interactions with fake news stories overtook interactions with mainstream news.⁹⁸ However, in the UK they found that, on social media during 2016, the most popular shared stories containing misinformation came from established news outlets (e.g. newspaper websites). These tended to contain some truth, but were generally distorted or exaggerated. Overtly false stories spread less.⁹⁹

shows that people are more likely to believe a false claim if it is repeated, even if it contradicts their prior knowledge.¹⁰⁰⁻¹⁰²

Addressing the Challenges

The UK Government has no specific policies for addressing fake news, filter bubbles or echo-chambers. Attempts to address these issues have mainly focused on fake news. They are largely industry-led (Box 6), although other approaches include regulation and user education.

Regulation and Legislation

Some communications (e.g. TV, radio and on-demand video services) are regulated by Ofcom,¹⁰³ but others are not, such as printed news, social media and online written content.¹⁰⁴ Most newspapers, magazines and associated websites have agreed, backed by legally enforceable contracts, to follow standards set by the Independent Press Standards Organisation or the Independent Monitor for the Press.^{105,106} Larger online media outlets (e.g. BuzzFeed News and Huffington Post) are not members of either.

News organisations have legal liability for the content they publish, but social media platforms and search engines do not.¹⁰⁷ Concerns about fake news have led other countries to consider regulatory approaches (Box 7). Social media companies like Facebook, state that they are technology (rather than media) companies, as they do not generate or alter content and “do not want to be the arbiters of truth”.¹⁰⁸ The UN Special Rapporteur on Freedom of Opinion and Expression has warned that efforts to counter fake news could lead to censorship.¹⁰⁹ Under the EU Charter of Fundamental Rights, preventing the publication of a fake news story would need to meet several criteria, including being necessary, proportionate and lawful.¹¹⁰

Education

Commentators suggest that improving users' digital media literacy and ability to appraise information critically, could reduce some negative effects of filtering and fake news.^{111,112} Ofcom reports that 21% of adults think that if a website has been listed by a search engine, it will provide accurate, unbiased information;¹¹³ while 27% of 12-15 yr olds assume that they can trust a website returned by

Box 6. Industry-based Approaches in the UK

Several initiatives aim to reduce the effects of fake news, for example:

- **Removing economic incentives** – by making it more difficult for fake news publishers to advertise on Facebook.¹¹⁴
- **Easier reporting** – Facebook has an option that allows users to report posts as false.¹¹⁴
- **Fact-checking** – the number of fact-checking bodies has increased,^{115,116} although the effects of fact-checking on users are not well understood.¹¹⁷ The majority are independent or civil society organisations, although many are linked to established news institutions such as Channel 4 News or the BBC.¹¹⁵
- **Labelling** – Google has introduced a ‘Fact Check’ label which can be displayed next to search results for articles produced by registered news publishers or fact-checking organisations.^{118,119}
- **Automated identification** – Google has given £44,000 to the UK based charity, Full Fact, to develop an automated fact-checking tool for journalists.¹²⁰ Similarly, the EU-funded Pheme project has created tools for checking the veracity of stories on social media.¹²¹
- **Demotion** – fake news that has been identified on Facebook and Google now ranks lower in the News Feed and search results.^{114, 122}
- **Removing fake accounts** – Facebook says it removed tens of thousands of fake accounts (including bots or accounts generating fake news, Box 3) in both the UK and France during the 2017 General and Presidential Election campaigns, respectively.^{123,124}

Box 7. Approaches to Fake News in Other Countries

Other governments are addressing fake news. Examples include:

- **Germany:** a bill has been passed that allows fines of up to €50m for social media firms that do not remove hate speech and defamatory fake news quickly (from within 24 hrs to 7 days, depending on content).¹²⁵
- **Italy:** the President of Italy's competition authority has called for EU Member States to set up independent bodies to remove fake news and impose fines.¹²⁶
- **Czech Republic:** a government unit has been set up to target foreign disinformation campaigns.^{111,127}

Google Search.¹²⁸ Attempts are being made to address this among general users and in schools.

User-targeted Education

Several projects aim to improve digital media literacy. Facebook and First Draft News (a non-profit organisation) have promoted advice on how to identify fake news, on users' News Feeds and in the press, in the run up to the 2017 General Election.^{114,129,130} Technology and news organisations are also collaborating on projects such as the News Integrity Initiative, to increase online news literacy and trust in journalism.¹³¹⁻¹³³ Some research suggests that it may be possible to “inoculate” against misinformation, for instance by pre-emptively warning people about politically motivated attempts to spread misinformation.¹³⁴

In Schools

England's National Curriculum requires 7-11 yr olds (Key Stage 2) to be taught how search engines select results, and how to be discerning when evaluating digital content.¹³⁵ A 2017 House of Lords Committee recommended that digital literacy should be a fourth pillar of education alongside reading, writing and mathematics.¹³⁶

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