Information literacy and fake news: How the field of librarianship can help combat the epidemic of fake news

Saoirse De Paor[a], Bahareh Heravi[b],*

[a] Maynooth University, Ireland
[b] University College Dublin, Ireland

ARTICLE INFO

ABSTRACT

This paper studies how the field of librarianship can help counteract the phenomenon of fake news and misinformation. A literature review was conducted to identify the current themes, patterns, correlations and gaps within the existing literature on fake news, information literacy and librarianship. Findings centre on defining fake news, analysing contemporary and emerging information literacy frameworks, and outlining the current efforts and initiatives exercised by libraries to refute the spread of fake news and educate communities on how to navigate through an era of untruth and disinformation. The paper outlines effective initiatives developed by those within the Library and Information Systems (LIS) profession while highlighting considerations and recommendations as to how librarians can continue to enhance their role in the digital age and make successful contributions to the professional field.

Introduction

As society moves further into the digital age the nature of information consumption, assimilation and circulation has changed drastically. We are now exposed to information at an overwhelming rate and volume that has influenced how they interpret, share and utilise it. With the ever-expanding digital world and its large quantities of unregulated data, individuals have reacted by filtering information to a form that is not only more comprehensible, but also relatable and consistent with their worldview. The overconsumption of information fuelled by the internet has produced a so-called "post-truth" society in which people consume information that reaffirms their pre-existing beliefs and ideologies rather than attempting the difficult task of identifying the truth. As the online environment becomes more complex and harder to navigate, doubt and uncertainty continues to grow with people more likely to value familiar facts than reliable ones (Gallagher, 2016).

As part of this change in information behaviour, the emergence and popularity of social media platforms have complicated the relationship between human and information further by facilitating the spread of fake news stories through their tools and functions. Creators of fake news stories have exploited this societal trend to attract and circulate fake news stories for the purpose of propaganda and/or to generate income (Ohleiser, 2016).

In the past, information was more rigorously controlled by members of the media, journalists and librarians, however the open and ubiquitous nature of the digital world has made it more difficult for these traditional gatekeepers to control and verify information. This spread of misinformation and disinformation, however, has potential catastrophic and dangerous implications for political and societal spheres.

While fake news, and the spread of misinformation and disinformation, has become the centre of discussion within many fields, it has become of increasing concern for those in the field of librarianship and information science. Librarians have always been considered the traditional gatekeepers and fact-checkers of the information world providing reliable, unbiased, and verifiable information to the public. They have traditionally valued equal access to information and recognised the importance people's ability to think independently and critically for producing an effective and functioning democratic society. However, due to the increasing speed and quantity of information produced online and the abandonment of truth and fact within society, their role is being challenged. As librarians can no longer compete with the masses of misinformation being circulated on a daily basis, their role is shifting from fact-checker to educator.

Information literacy has been identified as one of the most feasible and effective methods in combatting fake news (Batchelor, 2017). The current literature emphasises the potential and importance of critical thinking skills in the war against fake news and recognises the librarian

* Corresponding author.
E-mail addresses: saoirse.depaor@mu.ie (S. De Paor), Bahareh.Heravi@ucd.ie (B. Heravi).

as the expert and specialist in teaching these set of skills (Eva & Shea, 2018).

It is therefore not a surprise that the epidemic of fake news and the spread of misinformation has become a prominent and popular issue within the community of information specialists and librarians. With the belief that the widespread issue of fake news has not yet reached empirical stages of research within the field of librarianship, this paper will review and explore the current literature to establish a foundational basis for future research and initiatives. The paper provides an indepth overview of the current state of fake news in the literature, and how it is particularly effecting and altering the profession of librarianship. It presents potential recommendations to help librarians improve their methods of informing and educating the public while promoting their multifaceted role that can help assist and inform others regarding this issue.

Scope and procedure

This paper investigates the convergence of the two related fields of fake news and information literacy, and the ways in which librarians and information professionals can help counteract fake news. This is done via a review of the literature in order to identify the current themes, patterns and gaps within the existing literature on fake news, information literacy and librarianship. A search string was curated at the beginning of the literature review process which included the primary concepts of librarianship, fake news and information literacy to form a variety of search terms that helped find relevant and reliable information on a broader scale. Using a combination of search terms encompassing the primary concepts of misinformation, disinformation, information literacy, critical thinking and the role of librarianship in the battle of fake news, ensured that the scope of searching was wide among academic and scholarly sources such as library catalogues, web-based sources including Google Scholar and JSTOR, and subject-specific electronic databases including Emerald, Taylor & Francis, SAGE journals, ERIC (Education Research Information Centre), and Academic Search Complete. Searching within academic and scholarly databases also ensured that the quality of literature collected was of a high standard. From within journal articles and databases, previously used subject terms were consulted and re-used to ensure that all relevant keywords were utilised.

A specific focus was placed on library orientated journals such as the journal of Library Information Sciences Abstracts (LISA), the journal of College and Research Libraries, the journal of Library and Information Science Research and the Journal of Information Literacy. To retrieve and collect the most relevant literature on the following topics, searching tools within library catalogues and databases were utilised such as refining tools to filter results by content type, dates, subject terms as well as Boolean logic and advanced searching. Boolean logic formed links between concepts, for example "fake news AND libraries" and "fake news AND information literacy" which eliminated the retrieval of papers which discussed only one of the main concepts in isolation. A variation of terms was also used to ensure all pieces of relevant literature were retrieved, for example "library, libraries and librarian" and "fake news, misinformation, and false information". The use of backward and forward reference searching was applied during the literature search to expand the scope of the search (Levy & Ellis, 2006). Bibliographies and reference lists were consulted and reviewed to identify experts in the field while also expanding the search to identify recent, relevant and credible literature on the research topic.

The majority of journal articles and research papers were peer-reviewed to ensure reliability and a high-quality standard. However, a small portion of mainstream news sources and university websites were also consulted to gain a broad overview of the issue of fake news in both political and social spheres as well as within the library domain. These types of information sources were established as credible and reliable based on authority, affiliation, audience level and currency. Other types

of information collected form the library domain were blogs and websites where professionals in the field discussed the issue of fake news which facilitated various perspectives and opinions within the field. Authors and researchers of the literature were mostly professionals within the field of librarianship and information science, however due to the topical nature of fake news some studies were published by those in the field of education, journalism and academia which presented alternative views and perspectives on the issue and contributed to the findings and future recommendations.

The scope of the literature review was not limited to one particular area of librarianship or region as the issue is at the premature stages of empirical research within the field of Library Information Systems (LIS). A broad scope provided a wider overview and perspective of the impact and influence of fake news on those in the field of librarianship which presents valuable and new findings for those conducting future research in this particular subject area. A substantial amount of literature was retrieved and reviewed on the issue of fake news which presented a multitude of themes.

When analysing the extrapolated literature, a set of methods were utilised to ensure each piece of literature collected was relevant and contributed meaningfully to this study. These include scanning and screening, note-taking, tagging, and quality appraisal proposed by (Okoli, 2015).

A practical screening process was applied to identify relevant literature for inclusion. Papers which discussed the key concepts of fake news, misinformation, disinformation and information literacy were selected. The literature search was not limited to library-specific databases and papers, but included literature in the area of journalism and information systems also. Papers that solely discussed fake news in a political context were excluded, mainly those which centred on an in-depth analysis of the U.S Presidential Elections, as the purpose of the literature review was largely to understand the relationship between libraries and fake news, and not how it has influenced political discourse.

Data was extrapolated and synthesised from the literature through the qualitative method of thematic analysis (Byrne, 2017) which was determined by a) Whether the themes identifying corresponded with the purpose of the paper b) Where repetitive themes emerged within the literature, illustrating a significant pattern. Regarding quality appraisal methods, the majority of literature collected had undergone the peer-review process. Information retrieved from outside of academic and scholarly databases were evaluated under a criterion. This criterion included critically evaluating credibility, reliability, authority, accuracy and purpose of the publication (Blakeslee, 2004).

Findings

Defining "fake news"

While the term "fake news" has become a buzzword, the concept goes back a long time in history, even before the time of the printing press. False and fictional stories have always been part of society whether for the purpose of entertainment, politics, malice, or business and this has continued to the internet age (Burkhardt, 2017). Burkhardt (2017) refers to various examples of "fake news" dating as far back as 554 A.D, when Procopius of Caesarea — a historian of Byzantium — used false stories to discredit the Emperor Justian. She defines earlier examples of "fake news" as satirical and fictional accounts produced by individuals to discredit one another or simply for the purpose of amusement. This may indicate that the concept around the phrase "fake news" has not changed in its function but has changed in its nature and how it is now circulated.

The definition of "fake news" is complex, transitional and often misconstrued as in recent years it had direct political affiliation. However, the term itself is often used to represent a broader landscape of false or warped information, which could be intentional

(disinformation) or un-intentional (misinformation). Wardle (2017) proposes a typography of definitions for classification of terms under the broad umbrella of "fake news". She arranges these definitions into two categories – misinformation and disinformation. They each sit on a scale that is measured on the intent to deceive. Misinformation is positioned at one end of the scale and defined as the "inadvertent sharing of false information" while disinformation sits at the opposing end and constitutes as "the deliberate creation and sharing of information known to be false" (Wardle, 2017). Seven definitions of fake news exist within these categories: *Satire or Parody, Misleading Content, False Connection, False Context, Imposter Content, Manipulated Content and Fabricated Content* (Wardle, 2017). The scale helps differentiate the various definitions of information that constitute as "fake news". In addition, when using the term "fake news" within this paper, all definitions of Wardle's typography apply. It is important to clarify that while some forms of fake news stories are more dangerous and consequential than others, all types listed in Wardle's typography play a key role in the information war and require a critical and analytical consciousness.

Tandoc Jr et al. (2018) reviewed the current literature on fake news and how it is being defined by other researchers through an analysis of 34 scholarly articles published between 2003 and 2017. They discuss the recent social and political effects of fake news on society by drawing on well-known events including the Pizzagate Conspiracy and the U.S presidential election of 2016 (Hagg & Salam, 2017). Both events are used as examples to illustrate how fake news is not only proactive online but also in the real world having dangerous and detrimental repercussions to individuals. Tandoc Jr et al. (2018) present their definition of fake news as being viral posts based on fictitious accounts made to look like news reports. Other researchers have defined it as being news articles that are intentionally and verifiably false that attempt to mislead the reader (Allcott & Gentzkow, 2017).

Tandoc Jr et al. (2018) also present their own typology of definitions that have emerged from previous and current literature that are applied to a model based on facticity and intention. Six types of fake news are identified by Tandoc Jr et al. (2018), including: *news satire, news parody, news fabrication, manipulation, advertising,* and p*ropaganda*. The findings identify four consistent definitions that coincide with the intention to deceive, similar to Wardle's (2017) typography of definitions – news fabrication, manipulation, advertising and propaganda. This typology provides another example of how various types of fake news exist and differ based on their intention. Furthermore, their typography illustrates how fake news is increasingly complex and a misinterpreted "buzzword" mostly used to discredit journalism and legitimate news sources while promoting patrician polarisation (Tandoc Jr et al., 2018). However, the common component identified from the majority of definitions is the element of deceit, similar to Wardle's (2017) typography of definitions.

Rochlin (2017) takes a different approach to concept of fake news, highlighting how facts and evidence have been replaced by personal belief and emotion-based markets due to the emergence of the post-truth era. She outlines how the definition of fake news no longer encompasses slanderous or factless news but news that is seen to attack a person's pre-existing beliefs. This particular definition has been exercised by U.S President Donald Trump to delegitimise claims that threaten his position, reputation and beliefs. Using the term "fake news" to challenge or discredit an opposing view contributes to the blurring and uncertainty around its meaning. Rochlin (2017) argues that news is being upsold on the notion of opinion as opposed to fact. Similar to Tandoc Jr et al. (2018) who state that social media is adding to the spread fake news, Rochlin (2017) discusses the emergence of "selected exposure" and "confirmation bias" which claims that people tend to search for information that reaffirms and compliments their pre-existing views. Therefore, if fake news resembles an ideology or popular worldview it will be shared and circulated without being verified. Rochlin's (2017) definition of fake news is presented as a societal

movement rather than a one-dimensional concept.

Spohr (2017) discusses the influence of social media on fake news by its facilitation of echo chambers and filter bubbles. This means online users are exposed to content based on algorithmic technology that allows individuals to customise their newsfeed so that they are exposed to news and content that they are in agreeance with or content shared within their network of friends. This method of news circulation creates a "bubble" or "chamber" where content is filtered down by personal preference while thoughts, beliefs and opinions are echoed within the user's online environment. Not only does this method reinforce polarising views but it eliminates entry barriers allowing creators and producers of fake news to manipulate the algorithmic curation to attract users and spread misinformation and fake news stories for political and financial purposes (Spohr, 2017).

Further examples in Burkhardt's paper (2017) illustrate the influence of technology on the circulation of fake news stories, and how their effects have magnified due to lack of regulation and restrictions that technology permits online. Burkhardt (2017) discusses how the dissemination of news had always been thoroughly regulated and reviewed before reaching the public, whether through newspapers, the radio or television. However, at present the freedom and unregulated nature of the internet has contributed to the large masses of fake news stories being created and circulated online causing confusion among society. She also discusses the financial component of fake news that has made it a profitable and effective tool for advertisers and businesses (Burkhardt, 2017). Twenty-first century economic incentives have increased the motivation to supply the public with false news as the incentive to make money outweighs the incentive to inform the public with the truth (Ohleiser, 2016).

While the definition of fake news is analysed and perceived differently in the existing body of literature, it represents a variety of false news stories that are both shared and circulated for the purpose of intentional deceit, financial gain or entertainment. The term "fake news" has been more commonly used in LIS literature as opposed to misinformation and disinformation which takes precedence in other fields such as the field of journalism, communications and computer science. For the purpose of this paper the meaning behind the term "fake news" will encompass all kinds of fake news discussed in this section unless referenced directly. While the concepts of misinformation and disinformation will be discussed within the paper to address particular contexts and issues, "fake news" is the term predominantly used in this paper due to its purpose and context. When using the term "fake news" within this paper, all definitions of Wardle's typography apply.

The solution to combatting fake news not only focuses on the purpose of its circulation which is often how it is defined, but the ways in which it is circulated and disseminated which is equally contributing to societal distrust, confusion and doubt. Those in this field of research should therefore recognise and accept that the issue of fake news cannot be stopped but can be contested with widespread literacy (Rochlin, 2017). In addition, reviewing the concept of information literacy is required to establish whether it is a valuable tool of defence in the war against fake news.

Information literacy - a tool to combat fake news

Information literacy has traditionally been associated with the field of librarianship as it initially emerged from the concept of bibliographic instruction which assisted information consumers with locating and retrieving information. The concept received great attention when the American Library Association (ALA) officially defined the term in 1989 claiming that an information literate individual should recognise when information is needed and have the ability to locate, evaluate and use effectively the needed information (ALA, 1989).

In 2004 one of the leading library and information associations in the United Kingdom, the Chartered Institute of Library and Information Professionals (CILIP), developed their own definition for information

which centred on knowing when and why you need information, where to find it, and how to evaluate, use and communicate it in an ethical manner (Williams & Wavell, 2007). However, in 2018 this definition was reviewed to promote the broader function of information literacy which was applicable to various contexts, from education and the workplace to everyday life. CILIP agreed upon the revised definition as "the ability to think critically and make balanced judgements about any information we find and use. It empowers us as citizens to reach and express informed views and to engage fully with society" (CILIP, 2018). The concept has gradually transformed and adapted providing criteria for individuals to assess information to ensure credibility and reliability.

On a broader scale, information literacy has also been identified as a vital component for proactive citizenship as it enables one to locate, access, retrieve, evaluate, interpret and act on information. This allows one to participate in community affairs, to develop community involvement, and to have an informed opinion about problems occurring locally, nationally and internationally (Correia, 2002). Information literacy is therefore recognised as a tool of empowerment which provides individuals with the necessary skills and competencies to become informed citizens that actively contribute and engage in their communities and in society.

In her book on information literacy, Andretta (2005) discusses how the concept has emerged and developed to address the requirements generated by information overload and consumption caused by the rapid advancement of technologies that have been influenced by the needs of the information society. She emphasises how critical and analytical skills associated with information literacy can help consumers of information identify credible sources while refuting fake news. Making reference to a paper by Lichenstein, the evolving and complex digital environment has exposed individuals to an abundance of diverse information choices that are unfiltered and come in a range of formats, making it extremely difficult to verify and validate (Andretta, 2005). She argues that it is therefore imperative that all members of society have strong critical and evaluative skills applicable to all formats of information, both offline and online (Andretta, 2005).

A multitude of information literacy frameworks and models have emerged within the field of librarianship that are based on a criteria of skills used to inform and educate information consumers. Many of the frameworks were created to educate and teach students of higher education how to locate, evaluate and utilise information ethically. However, broader definitions have arisen due to the issues emerging from the information age including fake news. An example is CILIP's information literacy model which contains eight competencies that an information literature individual should have an understanding of: (1) A need for information, (2) the resources available, (3) how to find information, (4) need to evaluate results, (5) how to work with or exploit results, (6) ethics and responsibility of use, (7) how to communicate or share your finding, and (8) how to manage your findings (CILIP, 2018).

The CILIP model forms a one-size-fits-all approach requiring an information literature person to demonstrate each competency. While the model presents the basic skills associated with information literacy, it offers a more generalised overview that fails to elaborate on how these skills may be applied to different situations and contexts.

The Society of College National and University Libraries (SCONUL), on the other hand, developed the Seven Pillars of Information Literacy Model in 1999 which was revised and adapted in 2011 to reflect the changing environment of information (SCONUL, 2018). The model depicts a three-dimensional structure constructed of seven competencies. Unlike CILIP's more linear model, the Seven Pillars Model is represented as a cycle and process where one can develop each competency independently, at different times and within different contexts. The primary seven competencies include: Identity, Scope, Plan, Gather, Evaluate, Manage and Present (Bent & Stubbings, 2011). SCONUL also developed a set of four different lenses applicable to each of the seven competencies depending on the context of the information consumer, whether in research, education or healthcare. The model provides a holistic approach to information literacy that acknowledges how individuals engage with different skillsets within different fields and at various points of their life, and also how those competencies are subject to change based on the evolving digital landscape (SCONUL, 2018). However, information evaluation is only half of the solution in combatting fake news. Not only should people have the ability to evaluate information, but they should understand the environment in which information is circulated, created and disseminated.

Alternative literacies

While information literacy frameworks outline the fundamental skills required to participate and engage in the 21st century information age, the literature also discusses other literacies that have developed and emerged to reflect the times. Literacies such as media literacy and the newly coined metaliteracy provide frameworks that particularly address the skills needed to actively participate and manage information in digital and multimedia environments.

Schwarzenegger (2020) states that media is dependent on the trust of its audiences and that without trust, it fails to carry out its democratic duty and facilitate civic engagement. Therefore, the role of fake news has significantly impacted how people interact with media due to the lack of trust emerging from information systems such as social media platforms. New and concerning behaviours around media authentication and verification have emerged that have increased the vulnerability of people to fake news and disinformation. People tend to use their own sense of judgement to authenticate information as well as their experience with media sources while also observing the reaction of authorities from their social and institutional spheres (Tandoc et al., 2018). In comparison, Schwarzenegger (2020) states that verification is usually sought through the evaluation of multiple media sources or by solely relying on what they consider to be a single credible source. It is apparent that these behaviours are entirely insufficient when used to authenticate and verify information online, particularly due to the influence of social media mechanisms like algorithms, bots that can impact how information is circulated online. These are some of the reasons why there is a substantial need to analyse and engage with media literacies and frameworks.

The definition of media literacy was initially coined in 1992 by Aufderheide who identified it as a movement "which is designed to help one to understand, to produce and negotiate meanings in a culture of images, words and sounds" (Koltay, 2011). In 2007 The European Commission adopted a similar definition while stressing the significance of the critical components within the concept, stating how "media literacy is generally defined as the ability to access the media, to understand and to critically evaluate different aspects of the media and media content, and to create communications in a variety of contexts" (Koltay, 2011).

Regarding the issue of fake news, Mihailidis and Viotty (2017) discuss the value of media literacy as a response to "spreadable spectacle" which they defined as a form of dramatised and false media constructs. The paper discusses the spread of misinformation and false news stories recognised as "media spectacles" that are primarily influenced by the post-truth society (Mihailidis & Viotty, 2017). The authors analyse the impact and effectiveness of media literacy as a tool in combatting the problem. While they agree that skill-based frameworks of media literacy offer potential solutions to the problem of fake news, they call for a repositioning of media literacy that not only responds to the spread of "spectacle" but takes a broader approach to the post-truth culture. By this they intend on emphasising the civic role of media literacy in society as opposed to its more general function in making people competent in managing and utilising information.

Another literacy framework which presents considerations and competencies for managing information in the information age is metaliteracy. The term was coined by Mackey and Jacobson in 2011 and

has been described as a combination of media literacy, digital literacy, visual literacy, cyberliteracy, transliteracy, and information fluency (Mackey & Jacobson, 2011). The authors believe that information literacy is still considered of central importance but must reflect the needs of the information society. This reframing of information literacy as a metaliteracy challenges the traditional meaning of the term in response to the innovations of social media and online communities. Therefore, metaliteracy is a concept that directly addresses the skills needed to manage and utilise information in collaborative and participatory online environments (Mackey & Jacobson, 2011).

The metaliteracy framework consists of six considerations which centre around identifying and understanding dynamic information formats, content evaluation, content creation, production and sharing, and understanding ethical dimensions regarding privacy and intellectual property (Mackey & Jacobson, 2011). Two sections which focus on the evaluation of user-generated information and dynamic content discuss the issues emerging online, particularly the blurring of opinion over fact and the difficulty identifying credible sources. The concept of metaliteracy is therefore particularly applicable to the issue of fake news as it encourages individuals to not only have the ability to locate, identify, evaluate and manage information, but to be aware of the inner-workings and mechanics involved in information dissemination, circulation and engagement online.

The discourse of fake news and library initiatives

In light of the U.S presidential elections of 2016 and the increasing exposure to fake news stories and misleading clickbait, information professionals and librarians have positioned themselves at the front lines of the information war. As the literature on libraries and their efforts to combat fake news is at an embryotic stage, initiatives and strategies are gradually emerging within the field. Using methods of library guides, fact-checking websites, information literacy programmes and advocacy, librarians are using all resources available to inform and educate the public about fake news in the form of both misinformation and disinformation to help empower them to navigate successfully through the online world.

A research study conducted in 2016 by The Stanford History Education Group illustrated how student's ability to evaluate information was extremely weak (Banks, 2016; Jacobson, 2017). The students were required to distinguish between a news item and an advertisement which many failed to do (Jacobson, 2017). In addition, academic librarians have been some of the first in the field to combat these issues through the implementation of instructional programmes, workshops and guidelines. Librarians at Indiana University East in Richmond developed a library "LibGuide" which offers students criteria of questions to ask when investigating the reliability and credibility of a source or piece of information (Banks, 2016). LibGuides have become increasingly popular in the academic library sphere having been implemented in many other university libraries around the U.S including Harvard Library, Cornell University Library, Penn State University Library and Portland University Library. Fake News LibGuides have also been developed in other parts of the world, including Newcastle University in the United Kingdom and University College Dublin and Maynooth University in Ireland. As well as library guides some universities have included fact-checking resources and websites to help students verify information accurately (Eva & Shea, 2018). Some of these would include websites such as *FactCheck, Politifact, Snopes and The Washington Post Factchecker* which have been awarded on their usefulness and effectiveness (Batchelor, 2017).

Instructional programmes have also developed in response to the fake news crisis. The University of Michigan Library debuted a one-credited course titled "Fake News, Lies and Propaganda: How to sort Fact from Fiction?" which was implemented in 2017 (Eva & Shea, 2018). While feedback has yet to be released, a librarian from the university stated that students would learn how to construct their own

perspective around information while identifying bias and subjectivity rather than pointing out what information is wrong or right (Dollinger, 2017). Similarly, the University of Washington implemented a one-credited course called "Calling Bullshit: Data Reasoning in a Digital World" which was later expanded to three-credits due its popularity (Eva & Shea, 2018). The Cornell University Library has also implemented a set of workshops that sought to teach students how to identify trustworthy news sources. Some professors encouraged students by offering them extra credit for attending the workshops, recognising the importance of these skills for assignments and research purposes (Lefkowitz, 2017).

While the role of academic librarians has always been situated in instruction and education, public libraries are now adopting some of these methods to help inform communities and the public about fake news. Using information and media literacy, Dallas Public Library held an eight-week training course in community journalism for high-school students (Banks, 2016). Librarians collaborated with reporters from the *Dallas Morning News* as well as local journalists to inform students about good and bad journalism. As part of the project titled "Storytellers with Boarders", journalists taught students how to ask focused questions while librarians described how to use databases to find reliable information (Banks, 2016). Oakland Public Library currently hosts interactive workshops within and outside of the library. Their staff travel to local schools and organisations to help students discern real news from fake news (Eva & Shea, 2018). Other methods that have originally emerged from academic libraries is the CARS and CRAAP tests which present a criterion to which people of all educational backgrounds can utilise to verify information. The CARS method stands for credibility, accuracy, reasonableness, and support and has been used not only in higher level institutions but in schools (Jacobson, 2017). The CRAAP test, developed at Miriam Library at Chico in 2010 is an invaluable resource for patrons looking to evaluate and identify credible and reliable information (Batchelor, 2017).

The literature also highlights how librarians recognise the epidemic of fake news as an opportunity for change as well as for effective action. Eva and Shea (2018) discuss the ways in which librarians have capitalised on the issue of fake news to market themselves and their information literacy programmes. While acknowledging the low level of critical skills demonstrated by students, Eva and Shea (2018) stress their concern regarding the public's inability to distinguish between true and false facts which makes the consequences of fake news a public concern as well as an institutional one. Therefore, librarians are not only needed by students and academic faculty but by the general public. Librarians have developed a multitude of guidelines, infographics, workshops and programmes to help inform and educate their patrons while also promoting their own professional role as the original fact-checkers and information experts (Eva & Shea, 2018).

The American Library Association (ALA) have currently capitalised on the "librarian as information shepherd" brand in their *Libraries Transform* marketing campaign. One of their posters particularly addresses the issue of fake news and how it can have *real* consequences (Eva & Shea, 2018). An infographic developed by IFLA, the International Federation of Library Association and Institutions, received widespread recognition as it presented a "check-list" on how to spot fake news which was translated into a multitude of languages to be shared worldwide (Eva & Shea, 2018).

Finley et al. (2017) also discuss fake news as an opportunity for "real librarianship" listing the ways in which libraries can actively participate in the global effort to combat the phenomenon. They state that the role of librarians is to "accurately inform the general public about fake news, and equip them with tools to navigate information sources" which focuses on collection development, programming and instruction, and advocacy (Finley et al., 2017). Regarding collection development, they believe that access to print resources for news and current events is crucial to ensure that patrons are being informed appropriately. Therefore, a multitude of credible news sources should

be made available at both ends of the political spectrum. While quality control is central, they believe librarians must navigate the metaphorical line between selection and censorship in accordance to their traditional values (Finley et al., 2017). As academic libraries already hold a position in implementing information literacy programmes and workshops, Finley et al. (2017) emphasise how public libraries must think more creatively when developing similar services as they are serving a variety of users. Lastly, advocacy is outlined as a key component for how librarians can advocate for themselves as well as the skills that are needed to help inform the public about fake news, including misinformation and disinformation. Finley et al. (2017) stress the importance of advocacy within political, administrative and civic spheres as well as within the public sphere. Legislators, policy makers, business leaders and citizens must be aware of the librarian's vital role within the field of public education and active citizenship (Finley et al., 2017).

On an additional note, Alvarez (2017) emphasises how public libraries are extremely well-positioned for not only delivering training and instructional programmes around fake news, but having the opportunity to gain the trust of their communities. In a post-truth society, public scepticism and a distrust in the establishment is at the root of the problem (Alvarez, 2017). In addition, The Pew Research Centre reported that 77% of Americans still believe that libraries are essential to providing the resources they can trust (Alvarez, 2017). Therefore, public libraries have the opportunity and potential to gain the trust of their communities by welcoming all members of society into a safe space where constructive and respectful discussions can be exercised around what is happening in the world. However increased advocacy and outreach is essential in highlighting their true significance within the communal sphere (Alvarez, 2017).

While the majority of literature on how libraries are making proactive efforts in combating the spread of fake news has been positive, a paper presented by Sullivan (2018) challenges these solutions and casts doubt on their effectiveness. Sullivan (2018) suggests that librarians have perceived the problem of fake news as being a "loss of control, context and capacity" within the world of information. It is perceived that too much exposure to information and a lack of skills has led to the spread of fake news. Therefore, librarians have proposed solutions that are primarily based upon the traditional values of the library. Firstly, it is believed that unfettered access to information is the best way to counter disinformation and media manipulation (Sullivan, 2018). This view is endorsed by the ALA who believe that efforts to ensure people have access to quality information are at the forefront of their civic responsibility to the public (Sullivan, 2018).

Secondly, librarians believe that the majority of fake news can be combatted through basic critical evaluative skills taught through information literacy programmes. Sullivan (2018) critiques these solutions and suggests that much consideration is still needed. From reviewing the current research, he argues that information literacy is a problematic solution. He also challenges the assumption that by imparting a level of critical and evaluative skills, patrons will be equipped to combat fake news in any form. He refers to previous research which illustrates how high levels of education do not automatically protect against the effects of misinformation and disinformation (Sullivan, 2018).

Regarding fact-checking and crap detecting initiatives, Sullivan (2018) highlights the apparent but overlooked tension between these methods of control and the traditional values of librarianship. He presents these tensions as the realisation of reliability-enhancing measures and individual autonomy against the freedom to provide and to gather information, and privacy norms. The presumption that patrons will be better informed with quality information also undermines the psychological and behavioural factors that have contributed to the spread of misinformation and fake news. By belittling the issue of fake news down to a lack of truth and fact, librarians will fail to directly and proactively combat the issue of fake news. Sullivan (2018) draws from

psychological and sociological studies that discuss "conformation bias" and "motivational reasoning" to support his arguments against the solutions posed by librarians. He suggests that librarians fail to understand the true causes as to why people are susceptible to fake news, and how it is only when they are identified that they can make a significant contribution to the overall issue.

Recommendations

From what the literature has presented, it is apparent that fake news is a complex and changing phenomenon that is having a direct impact on society. It is further apparent that librarians hold a strong position in society, whether in the communal or academic sphere that provides them with the opportunity to make a difference and contribute to this information epidemic. In the following we provide a list of recommendations that should be considered and discussed when deliberating ways in which librarians can help combat fake news and prepare society for the future.

Advocacy

A call for advocacy is essential in helping librarians make significant and valuable contributions to the widespread problem of fake news. While librarians cannot stop the influx of unregulated information online or change the way people are creating and circulating information, they can offer some guidance. One of the first and foremost duties of the library is to facilitate a place of trust for their users. Fear and distrust are some of the primary reasons why people have changed their information searching behaviours that have left them vulnerable to fake news, especially disinformation. As public libraries are positioned at the centre of communities, they have the opportunity to promote themselves as safe and inclusive spaces where people can feel confident and reassured about the information provided. This is one approach that public libraries should consider as part of their overall strategy to help counter the post-trust culture that is fuelling the spread of fake news.

While academic libraries have already established a trust with their students, they need to create a stronger relationship with faculty members to help improve the levels of information literacy in higher education. This can be accomplished by capitalising on the topical issue of fake news and using the current research to illustrate the vulnerabilities of students against misinformation and disinformation, while continuing to provide and develop guides, tools and resources online and within the library.

Revisiting and re-evaluating library values

Libraries will also need to revisit and re-evaluate their position of neutrality regarding information access and collection development to reflect their strong opposition to fake news. As fake news functions to misinform and deceive, it stands in contrast to the ethos of libraries which is to build and serve an informed and democratic society. Public libraries in particular have a duty and responsibility to ensure that the public are being provided with credible, trustworthy and balanced information. However, this task will prove difficult for librarians as the definition and concept of fake news is not a clear cut. With the conflict between fact and popular opinion becoming a common concern in mainstream media, libraries worldwide will need to consult and revise their policies around ethics, regulation and censorship and decide how they might protect their communities against fake news and who will make these decisions without jeopardising their neutrality.

Collaboration

While public libraries are currently making concerted efforts to inform and educate their patrons on fake news, collaboration is necessary to ensure that these strategies and efforts are being recognised and

acknowledged at a level where progress, development and investment can occur. Public libraries should continue to embrace the topical nature of fake news and collaborate with local schools, organisations and community groups to help reach out to wider audiences. Positioned within the public sphere, public libraries have the opportunity to collaborate and communicate with a multitude of patrons, county councils, and politicians to further educate and inform the public about the dangers associated with fake news and encourage people, particularly those in power to take action against it.

Academic librarians should also collaborate with faculty members and teachers in helping to implement information literacy and critical skills as part of the curricula in preparing students better for the online world. By collaborating with faculty, librarians have the opportunity to advocate for the importance of information literacy skills in student learning and research skills.

Reframing information literacy

Lastly, we must acknowledge the difficulty librarians have experienced advocating for information literacy instruction. As new and contemporary frameworks such as metaliteracy have evolved and immerged over the last decade, it may be an appropriate time for information professionals and librarians to consider utilising and promoting these frameworks that may be more accepted and adopted by those working outside the field of LIS. While information literacy provides a foundational model of skills-based approaches, it may be insufficient for the revolutionary social and technologies currently prevalent online. As metaliteracy reflects and corresponds to alternative literacies such as digital literacy, social media literacy, visual literacy, media literacy and transliteracy it produces an independent, cognitive and reflective learner (Mackey & Jacobson, 2011). It can provide students with the ability to collaborate, produce and publish information in a range of different formats and within both scholarly and non-scholarly environments. While information literacy should always be included as an important and foundational framework in education, metaliteracy may prove resistant to the barriers experienced by information literacy, particularly in higher education. Metaliteracy offers a new and contemporary framework that reflects the current digital environment and provides effective approaches that can help prepare individuals for the information age. Librarians should therefore consider reframing and repositioning information literacy at a time where their expertise is being given much attention and their solutions greatly welcomed.

Discussion and Conclusion

From critically analysing and reviewing the literature on fake news and the impact it is having on the field of librarianship, significant and insightful findings were identified.

Understanding the various factors impacting the spread of fake news is vital for those in the field of librarianship in helping to minimise its effects. One of the main contributors discussed in the literature was the social media, which facilitates the circulation of unregulated and unverified information that lacks the control of previous gatekeepers of information. As a result, users of social media cannot decipher where information originates and whether it can be trusted. Studies have discussed the various human behaviours that have emerged to help authenticate and verify information (Torres et al., 2018). Unfortunately, these behaviours fail to understand the innerworkings of these platforms and become victims of confirmation bias and filter bubbles. These behaviours differ based on various factors, with those demonstrating a higher standard of digital and media literacy identifying fake news easier. However, the majority of online users lack in digital and media literacy skills and therefore fail to make informed decisions. The relationship between information systems and humans has become increasingly complex and the lack of regulation means that

fake news has become increasingly difficult to detect and identify. However, implementing any level of control or regulation has been criticised as a form of censorship which challenges the traditional values of the library. It is therefore essential that librarians revisit and reassess the library's values when deciding on an appropriate approach for these issues and concerns.

As the literature mostly discusses fake news in regards to a skills deficiency, a more complex but equally influential factor is the impact of the post-truth culture. Much of the research outlines the primary issue of fake news as the inability of individuals to distinguish between fact and fiction due to the exposure of overwhelming amounts of information and a lack of critical and analytical skills. However, underlying and more complex concerns exist based on psychological and behavioural factors. As people have become increasingly sceptical of the establishment they have also become less trustworthy of traditional news sources which subsequently change how they search for information (Trebicka, 2018). A gap in the literature is therefore apparent which calls for those in the field to acknowledge the epidemic of fake news as a symptom of societal distrust and uncertainty as well as a critical skills deficiency. This is a factor that must be revisited, considered, and discussed in future research.

As the literature review touches on the concerning deficiency of critical and information literacy skills in society, solutions proposed to resolve these issues are confronted with many barriers. The implementation of information literacy programmes and workshops in academic and public libraries has been met with much doubt and uncertainty from faculty members, specifically regarding a questioning of its importance and effectiveness (Badke, 2010). In addition, the concept of information literacy itself has been slow to expand outside the field of LIS (Library and Information Studies) with many experts from other fields failing to see its holistic value (Badke, 2010; Bury, 2011; Dubicki, 2013; McGuinness, 2006; Weetman, 2005). As those in the field are aware of this gap, new information literacy frameworks are being developed and published in the literature. Many of these frameworks correspond to the traditional skills associated with information literacy but also present relevant and contemporary skills applicable to the world of technology and digitisation that may be better accepted by other disciplines.

While scholarly research and literature on fake news in the context of librarianship is premature, library initiatives and programmes implemented to help tackle the epidemic are currently being presented and discussed on a range of library websites, social media platforms, newsletters, and in mainstream media (Banks, 2016; Batchelor, 2017; Eva & Shea, 2018; Finley et al., 2017; Jacobson, 2017; Lefkowitz, 2017). It is therefore apparent that collective and collaborate efforts are being made by both academic and public libraries to promote the issue of fake news and provide online resources to assist people in identifying and evaluating information accurately (Alvarez, 2017). However, concerns are raised regarding the effectiveness of these initiatives and whether libraries are in a position to make significant contributions to the fight against fake news (Sullivan, 2018).

Author statement

Saoirse De Paor: Conceptualisation, Methodology, Data curation, Analysis, Writing – Original draft. **Bahareh Heravi**: Supervision, Writing - Reviewing and Editing.

References

Allcott, H., & Gentzkow, M. (2017). Social media and fake news in the 2016 election. *Journal of Economic Perspectives, 31*(2), 211–236. Retrieved from https://pubs.aeaweb.org/doi/pdfplus/10.1257/jep.31.2.211.

Alvarez, B. (2017). Public libraries in the age of fake news. *Public libraries online*. January 11th. Retrieved from http://publiclibrariesonline.org/2017/01/feature-public-libraries-in-the-age-of-fake-news/.

American Library Association (1989). Presidential committee on information literacy:

Final report. [White Paper]. Retrieved from http://www.ala.org/acrl/publications/whitepapers/presidential.

Andretta, S. (2005). *Information literacy: A practitioner's guide*.

Badke, W. (2010). Why information literacy is invisible. *Communications in Information Literacy, 4*(2), 129–141. Retrieved from https://search-proquest-com.ucd.idm.oclc.org/docview/896170529/54D2F81B5AE9452DPQ/8?accountid=14507.

Banks, M. (2016). Fighting fake news. *American libraries*. December 27th. Retrieved from https://americanlibrariesmagazine.org/2016/12/27/fighting-fake-news/.

Batchelor, O. (2017). Getting out the truth: The role of libraries in the fight against fake news. *Reference Services Review, 45*(2), 143–148. https://doi.org/10.1108/RSR-03-2017-0006.

Bent, M., & Stubbings, R. (2011). SCONUL seven pillars of information literacy: Core model for higher education. *SCONUL Working Group on Information Literacy*. Retrieved from https://www.sconul.ac.uk/sites/default/files/documents/coremodel.pdf.

Blakeslee, S. (2004). The CRAAP test. *Loex Quarterly, 31*(3), 6–7. Retrieved from http://commons.emich.edu/loexquarterly/vol31/iss3/4.

Burkhardt, J. M. (2017). History of fake news. *Library Technology Reports, 53*(8), 5 – 2. Retrieved from https://search-proquest-com.ucd.idm.oclc.org/docview/1967322040/abstract/32BE018C856D42F8PQ/1?accountid=14507.

Bury, S. (2011). Faculty attitudes, perceptions and experiences of information literacy: A study across multiple disciplines at York University, Canada. *The Journal of Information Literacy, 5*(1), 45–64. https://doi.org/10.11645/5.1.151.

Byrne, D. (2017). Data analysis and interpretation: What is thematic analysis? *Sage Research Methods Core*. https://doi.org/10.4135/9781526408570.

CILIP (2018). *What is information literacy?* CILIP. April 4th. Retrieved from https://www.cilip.org.uk/page/informationliteracy.

Correia, A. M. R. (2002). Information literacy for an active and effective citizenship. [White Paper]. Retrieved from https://www.researchgate.net/publication/228765129_Information_literacy_for_an_active_and_effective_citizenship.

Dollinger, A. (2017). Can librarians save us from fake news? *Vice*. March 21st. Retrieved from https://www.vice.com/en_us/article/pgwwgz/can-librarians-save-us-from-fake-news.

Dubicki, E. (2013). Faculty perceptions of students' information literacy skills competencies. *The Journal of Information Literacy, 7*(2), 97–125. https://doi.org/10.11645/7.2.1852.

Eva, N., & Shea, E. (2018). Marketing libraries in an era of "fake news". *Reference & User Services Quarterly, 57*(3), 168–171.

Finley, W., McGowan, B., & Kluever, J. (2017). Fake news: An opportunity for real librarianship. *The Illinois Library Association Reporter, 35*(3), 8–11.

Gallagher, B. (2016). What impact does fake news have on the real world? *Mary Jane*. December 5th. Retrieved from https://merryjane.com/culture/fake-news-internet-impact.

Hagg, M., & Salam, M. (2017). Gunman in "Pizzagate" shooting is sentenced to 4 years in prison. *The New York Times*. June 22nd. Retrieved from https://www.nytimes.com/2017/06/22/us/pizzagate-attack-sentence.html.

Jacobson, L. (2017). The smell test: Educators can counteract fake news with information literacy. Here's how. *School Library Journal*. January 1st. Retrieved from https://www.slj.com/?detailStory=the-smell-test-educators-can-counter-fake-news-with-information-literacy-heres-how.

Koltay, T. (2011). The media and the literacies: Media literacy, information literacy, digital literacy. *Media, Culture and Society, 33*(2), 211–221. https://doi-org.ucd.idm.oclc.org/10.1177/0163443710393382.

Lefkowitz, M. (2017). Library tackles fake news with workshops, resources, advice. *Cornell University Library*. July 4th. Retrieved from https://www.library.cornell.edu/about/news/archive/library-tackles-fake-news-workshops-resources-advice.

Levy, Y., & Ellis, T. J. (2006). A systems approach to conduct an effective literature review in support of information systems research. *Informing Science, 9*, 182–212. https://doi-org.jproxy.nuim.ie/10.28945/479.

Mackey, T. P., & Jacobson, T. E. (2011). Reframing information literacy as a metaliteracy. *College & Research Libraries, 72*(1), 62–78. https://doi.org/10.5860/crl-76r1.

McGuinness, C. (2006). What faculty think – Exploring the barriers to information literacy development in undergraduate education. *The Journal of Academic Librarianship, 32*(6), 573–582. https://doi.org/10.1016/j.acalib.2006.06.002.

Mihailidis, P., & Viotty, S. (2017). Spreadable spectacle in digital culture: Civic expression, fake news, and the role of media literacies in "post-fact" society. *The American Behavioral Scientist, 61*(4), 441–454. Retrieved from http://journals.sagepub.com.ucd.idm.oclc.org/doi/10.1177/0002764217701217.

Ohleiser, A. (2016). This is how Facebook's fake-news writers make money. *The Washington Post*. November 8th. Retrieved from https://www.washingtonpost.com/news/the-intersect/wp/2016/11/18/this-is-how-the-internets-fake-news-writers-make-money/?noredirect=on&utm_term=.8b08a30bb277.

Okoli, C. (2015). A guide to conducting a standalone systematic literature review. *Communications of the Association for Information Systems, 37*(43), 879–910.

Rochlin, N. (2017). Fake news: Belief in post-truth. *Library Hi Tech, 35*(3), 386–392. https://doi.org/10.1108/LHT-03-2017-0062.

Schwarzenegger, C. (2020). Personal epistemologies of the media: Selective criticality, pragmatic trust, and competence–confidence in navigating media repertoires in the digital age. *New Media & Society, 22*(2), 361–377. https://doi.org/10.1177/1461444819856919.

SCONUL (2018). Seven pillars of information literacy. *SCONUL*. August 21. Retrieved from https://www.sconul.ac.uk/page/seven-pillars-of-information-literacy.

Spohr, D. (2017). Fake news and ideological polarization: Filter bubbles and selective exposure on social media. *Business Information Review, 34*(3), 150–160. Retrieved from http://journals.sagepub.com.ucd.idm.oclc.org/doi/full/10.1177/0266382117722446.

Sullivan, M. C. (2018). Why librarians can't fight fake news. *Journal of Librarianship and Information Science*. https://doi.org/10.1177/0961000618764258.

Tandoc, E. C., Ling, R., Westlund, O., Duffy, A., Goh, D., Zheng Wei, L., ... Faculty of Social Sciences (2018). Audiences' acts of authentication in the age of fake news: A conceptual framework. *New Media & Society, 20*(8), 2745–2763. https://doi-org.jproxy.nuim.ie/10.1177/1461444817731756.

Tandoc, E. C., Jr., Lim, Z. W., & Ling, R. (2018). Defining "fake news". *Digital Journalism, 6*(2), 137–153. https://doi.org/10.1080/21670811.2017.1360143.

Torres, R., Gerhart, N., & Negahban, A. (2018). Epistemology in the era of fake news: An exploration of information verification behaviors among social networking site users. *ACM SIGMIS Database: The DATABASE for Advances in Information Systems, 49*(3), 78–97. https://doi.org/10.1145/3242734.3242740.

Trebicka, S. (2018). How "fake news" affects American politics. *The Spotlight*. December 18th. Retrieved from https://slspotlight.com/our-world/2017/12/18/how-fake-news-affects-american-politics/.

Wardle, C. (2017). Fake news. It's complicated. *First Draft*. February 16th. Retrieved from https://firstdraftnews.org/fake-news-complicated/.

Weetman, J. (2005). Osmosis - Does it work for the development of information literacy? *The Journal of Academic Librarianship, 31*(5), 456–460. https://doi.org/10.1016/j.acalib.2005.05.007.

Williams, D. A., & Wavell, C. (2007). Secondary school teachers' conceptions of student information literacy. *Journal of Librarianship and Information Science, 39*(4), 199–212. https://doi-org.jproxy.nuim.ie/10.1177/0961000607083211.