Developing the Skill of Credibility Evaluation Through Online Teaching Interventions

Ryan Slattery

Department of Learning Technologies, University of North Texas

LTEC 5300: Cognitive Psychology

Dr. Jennifer Scott

March 4, 2023

Developing the Skill of Credibility Evaluation Through Online Teaching Interventions

Abstract

Modern communication transcends country borders and physical barriers, allowing people from all over the world to connect with and add to a vast network of information through the Internet. Social media platforms such as Twitter, Reddit, or Facebook have connected people and in turn, easily share information that can quickly propagate across the platform and beyond. However, the growth of 'fake news' has, in turn, increased the importance of being 'information literate' in an online environment. A significant aspect of information literacy is the skill of credibility evaluation and its instruction as well as development of the skill within learners tends to fall within the purview of many librarians within higher education. In response to the growth of the 'fake news' phenomenon, it is worth exploring to what extent online teaching interventions foster development of assessing credibility as an information literacy skill. This paper will give a brief overview of the 'fake news' phenomenon, the underlying processes regarding 'fake news' and 'credibility', the potential impact of information literacy instruction, and provide a brief review of a number of online teaching interventions for credibility assessment within the information literacy framework.

The Fake News Phenomenon

The growing expanse of the Internet, in all its myriad forms, has allowed a global, entirely online, forum of discussion to develop and evolve. A veritable network now spans across the world, a world wide web connecting disparate individuals to the greater expanse of humanity to form like-minded communities, bringing forth a new Age of Information that highlights the proliferation of information technology as well as the increasing ease in accessing and transmitting information. According to a report published by the Pew Research Center (2016), just over 60% of U.S. adults get their news through social media, largely through Reddit, Facebook, or Twitter. However, the advent of social media and other online avenues of discussion introduced a number of issues that levy a demonstrable impact on the world outside of the Internet. The rapid growth of mis-information, disinformation, and what many have termed 'fake news' has increasingly disrupted the public sector in various ways.

Fake news represents a recurring topic of discussion especially when notable incidents begin to trend on social media platforms, such as the infamous 'Pizzagate'. However, fake news existed before the term made its debut into the modern lexicon, before the heights of the U.S. presidential election of 2016 propelled it into the forefront of the national discourse. Watson (2018) gives a brief overview of notable historical occurrences, noting the use of propaganda in Ancient Rome, how the reputation of George Washington suffered with the publication of fake correspondence, and the mass-spread hysteria that resulted from the radio show *War of the Worlds* in the late 1950s as well as the advent of supermarket tabloids within the same era that circulated outlandish stories that had little to no basis in reality. The internet and the nature of social media simply made it much easier to disseminate fake news of all kinds.

The first step in comprehending the issue requires an attempt at defining fake news to establish a shared understanding of the modern phenomenon. Fake news may refer to a form of disinformation often levied for ideological ends as well as political motivations but the crucial aspect of the phenomenon relates to the presence of accuracy and credibility, or rather the lack of, in fake news and other forms of misinformation and disinformation. According to Tandoc (2019), the definition of fake news should account for the degree of facticity, the intention involved, as well as the format it is delivered in. However, the phenomenon of fake news still eludes a concrete definition as the discourse concerning the issue continues to evolve. For the purposes of this discussion, the working definition of fake news, as well as misinformation and disinformation, will emphasize the intent to deceive often with malicious purpose.

The Scope of Fake News

A concerning aspect of the fake news phenomenon is the potential volume it can present on social media platforms. One method of introducing misinformation to the online discussion is the spreading of fake news through the employment of numerous bots: automatons engaging with the online discourse with posts that share misleading or completely untrue information. A study conducted by Bessi et al. (2016) explored the extent of influence exerted through botting activity on Twitter during the 2016 U.S. Presidential election, to assess the possibility of public opinion manipulation by examining over 20 million tweets made by nearly 3 million users. Their findings suggest that 400,000 bots were largely responsible for nearly a fifth of the examined online conversation taking place on Twitter, seemingly attempting to sway the election with polarizing messages, adulations directed to a political candidate, and emulating a fervor similar to that of a legitimate grassroot movement.

Another troubling aspect of fake news lies in the speed at which it can disseminate, cascading through the social media platform like a raging wildfire. Vosoughi et al. (2018) conducted a study to assess how quickly falsehoods traveled through Twitter and discovered that truthful tweets took six times as long as tweets that propagated fake news. Furthermore, their findings also note that fake news of a political nature spread far more quickly than fake news of any other type, which can serve as a demonstrable concern regarding the potential impact of fake news, misinformation, and disinformation in future presidential elections and other significant political events.

Fake news also served as a public health concern during the COVID-19 pandemic, inducing uncertainty and psychological distress in many according to a systematic review conducted by Rocha et al. (2021) that indicated social media played a significant role in generating anxiety and stress in users when exposed to misinformation regarding the pandemic. Furthermore, the review touched upon the notion that the misinformation spread on social media platforms contributed to vaccine skepticism, which may carry unfortunate implications for the overall impact of the COVID-19 pandemic.

Assessing the information shared, as well as the sources of that information, to help recognize fake news can benefit users greatly in a variety of ways. A stronger foundation in media literacy can allow users to make more informed decisions regarding the news and other stories shared during the political process, becoming more engaged as citizens. Shoring up the gaps in health literacy can help the decision making process and make informed choices regarding their own healthcare, as well as the healthcare of family and friends. Fake news can bring about psychological stress, anxiety, and other mental woes, thus it stands to reason that

recognizing the falsehoods shared through social media may avoid the implicit perils associated with fake news.

Insight into Credibility and Trust

For the purposes of this paper, it is worth examining the cognitive thinking involved in the evaluation process regarding the credibility of information sources found online. Metzger et al. (2013) notes the variance in defining credibility, whether it lies in the source itself or the information presented, and that the evaluation process may have to take into consideration either definition or a combination of both. Furthermore, the article goes on to suggest that users navigating information resources may have a limited cognitive capacity due to the overwhelming amount of information presented and they fail to account for all the pertinent information that could play a factor in assessing credibility. Metzger et al. goes on to detail the cognitive heuristics involved in the evaluation process, some of which employ information-seeking behavior to identify credibility of a source based on reputation or endorsement while others rely on pre-existing knowledge to determine credibility. This presents a potential avenue of exploration in instruction in which users learn how to appropriately mitigate cognitive overload and identify applicable points that contribute to the credibility of the source or information given.

The volume of information consumed through social media rarely allows a user the time to sit down and consider a story carefully, often relying on a gut-check, an instinctual and intuitive process. Schwarz et al. (2020) likens it to the trust implicitly given in a run-of-the-mill conversation with a person, noting that engaging beyond simple acceptance may require both motivation and cognitive resources that aren't available. Familiarity and repetition contribute to the appearance of credibility but refer back to the issue regarding fake news in which it can pervade social media quickly and in great volume, often recurring on your feed as it's shared,

leading to the possibility that the falsehood takes on the veil of credibility. Schwarz et al. indicates that skepticism from the beginning, along with the wherewithal to investigate, is one of the best defenses against misinformation.

Information Literacy: A Remedy to the Infodemic

Users navigating the internet and assessing the credibility of the news now may require some measure of information literacy to do so accurately. Information literacy, which the American Library Association (2015) defines in their framework, encapsulates both a set of skills that help consumers navigate information sources, as well as an understanding of the production of information. One might make an assumption that students who routinely use the internet and social media since they were old enough to do so might have naturally acquired the skills to appropriately assess credibility of the information sources. A report published by Stanford Education Group (2016) describes the results of a series of tests seeking to examine the online reasoning skills in students in K-12 to undergraduate level college, noting that despite their status as "digital natives", the majority of students had difficulty evaluating a website or assessing the source of an assertion made through Twitter. This gap in performance suggests the necessity of preparing students how to navigate the information landscape responsibly in order to combat the fake news phenomenon through the incorporation of information literacy into the curriculum.

A study identified an association between accurate identification of fake news with information literacy, concluding that the instruction of information literacy can help users recognize fake news (Jones-Jang et al., 2021). A crucial aspect of information literacy has acquired a particular emphasis in response to the misinformation crisis: the evaluation of credibility. The instruction of information literacy, as well as the evaluation of credibility in

particular, traditionally falls within the realm of librarianship, taken up by librarians working in primary or higher education. The goal of successful information literacy instruction is to not only equip students with the skills and knowledge to appropriately assess any 'fake news' they may encounter but to hopefully allow them to engage with the information and the sources themselves on a more critical level.

Credibility Assessment in Information Literacy Interventions

Since much of the information processing occurs in an online, digital environment, it stands to reason to also deliver relevant instruction and training in an online format, to help emulate a similar environment in which users may encounter fake news and other forms of misinformation. Martzoukou (2020) makes an argument that in response to the teaching challenges associated with the shift to online learning during the COVID-19 pandemic, academic librarians must prioritize fostering the digital literacy of their students, develop new approaches for education in a digital, online format, and delivering instruction in information skills. For the purposes of this paper, the following review will emphasize interventions either delivered in an online format or utilized significant online components to students enrolled in higher education, with a focus on those teaching credibility assessment.

Watson et al. (2011) engaged in an examination of the change in cognitive states during the evaluation process following information literacy instruction of undergraduate students, which can help demonstrate the impact of online instruction on the students' evaluative behavior although the focus of the paper was the observation of cognitive states. The study entailed the design and delivery of three learning interventions and upon review, found that the learning intervention that employed an online discussion component had significant impact on the evaluative behavior of the students. They described a reduction in the feeling of uncertainty as

well as a sense of motivation after the online discussion process, which entailed posting in an online forum and responding to posts made by other students after reading an article. Furthermore, they were able to identify applicable criteria for information evaluation through the process of discussion with other students without direct exposure to that information typically given in a face to face lecture. This might hold implications for potential future development of fostering information literacy solely through discussion held in a social media environment, a notion worth exploring in another study or review.

Scheibenzuber et al. (2021) begins with an overview of the fake news phenomenon then discusses potential teaching interventions that would help develop information literacy skills in response, before engaging in a review that highlights the promising opportunity in the problem-based approach. The article lays out the framework of a credit-bearing online course geared to undergraduate students, structuring it around the fake news phenomenon, as well as the criteria for determining whether the students met the established learning goals successfully. The course largely centered around student groups engaging with the course content together, engaging in a collaborative project throughout the semester culminating in a final course paper at the end of the course. The findings showed an improvement in the scores between the pre-test and post-test, as well as strong academic performance upon completion of the course. Furthermore, the students had the opportunity to share feedback with the instructors on various aspects, such as the online learning environment, the course overview, and the communication with their instructors or peers. Overall, the article indicates that an online learning experience centered around collaborative problem-based learning would serve as a legitimate and successful approach to information literacy instruction.

The approaches thus far both discuss the design and development of an online course, but sometimes the resources available do not allow for a full-fledged credit-bearing course. Auberry (2018) demonstrates a nuanced approach to information literacy instruction, discussing a tutorial module that could be incorporated into pre-existing courses throughout multiple disciplines. However, the article only discusses the initial design and preliminary attempt in implementation, failing to demonstrate whether the modules were successful or not.

Conclusion

In the literature examined regarding online teaching interventions in information literacy and credibility assessment, several recurring items of import were identified. An online discussion component allowing students to engage with their peers to explore the learning objectives, as well as demonstrate and share their knowledge, seems to help the students meet learning goals successfully. Furthermore, a problem-based approach in course or instruction design serves as a promising avenue in future information literacy instruction efforts.

References

American Library Association. (2015). *Framework for Information Literacy for Higher Education*. American Library Association. https://www.ala.org/acrl/standards/ilframework

Auberry, K. (2018). Increasing students' ability to identify fake news through information literacy education and content management systems. *The Reference Librarian*, *59*(4), 179-187.

Bessi, A., & Ferrara, E. (2016). Social bots distort the 2016 U.S. Presidential election online discussion. *First Monday*, *21*(11). https://doi.org/10.5210/fm.v21i11.7090

Jones-Jang, S. M., Mortensen, T., & Liu, J. (2021). Does media literacy help identification of fake news? Information literacy helps, but other literacies don't. *American behavioral scientist*, *65*(2), 371-388.

Martzoukou, K. (2021). Academic libraries in COVID-19: a renewed mission for digital literacy. *Library management*, *42*(4/5), 266-276.

Metzger, M. J., & Flanagin, A. J. (2013). Credibility and trust of information in online environments: The use of cognitive heuristics. *Journal of Pragmatics, 59*(Pt B), 210–220. https://doi.org/10.1016/j.pragma.2013.07.012

Pew Research Center. (2016). News use across social media platforms 2016.

Rocha, Y. M., de Moura, G. A., Desidério, G. A., de Oliveira, C. H., Lourenço, F. D., & de Figueiredo Nicolete, L. D. (2021). The impact of fake news on social media and its influence on health during the COVID-19 pandemic: A systematic review. *Journal of Public Health*, 1-10.

Scheibenzuber, C., Hofer, S., & Nistor, N. (2021). Designing for fake news literacy training: A problem-based undergraduate online-course. *Computers in Human Behavior*, *121*, 106796.

Schwarz, N., & Jalbert, M. (2020). When (fake) news feels true: Intuitions of truth and the acceptance and correction of misinformation. In *The Psychology of Fake News* (pp. 73-89). Routledge.

Tandoc Jr, E. C. (2019). The facts of fake news: A research review. *Sociology Compass*, *13*(9), e12724.

Vosoughi, S., Roy, D., & Aral, S. (2018). The spread of true and false news online. *Science*, *359*(6380), 1146-1151.

Walton, G., & Hepworth, M. (2011). A longitudinal study of changes in learners' cognitive states during and following an information literacy teaching intervention. *Journal of Documentation*, *67*(3).

Watson, C. A. (2018). Information literacy in a fake/false news world: An overview of the characteristics of fake news and its historical development. *International Journal of Legal Information*, *46*(2), 93-96.

Wineburg, S., McGrew, S., Breakstone, J., & Ortega, T. (2016). Evaluating information: The cornerstone of civic online reasoning. *Stanford Digital Repository*. http://purl.stanford.edu/fv751yt5934