



Academic library guides for tackling fake news: A content analysis

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ABSTRACT

Built on a pilot study, this study examined how librarians understand fake news and the specific methods or strategies they suggest for detecting fake news by analyzing their guides from academic libraries. A content analysis regarding a total of 21 institutional guides was conducted. The major findings include the following: 1) in the librarians' guides stating their definition of fake news, the two elements of falsity and the intention to mislead were explicitly stated. The other element of bias, however, was presented in only some guides. 2) The sub-elements of clickbait, a decontextualized content and omitted information were inconsistently or barely presented across these guides. 3) Only two institutional libraries put forth the notion of fact in relation to fake news in their guides. 4) All of the guides suggested checklist approaches to detecting fake news or evaluating news sources. Finally, 5) librarians acknowledge the influence of human biases on consuming news. However, psychological factors are minimally presented in most of the guides. This study provides a few suggestions. First, librarians must further clarify the term *fake news* so that it reflects its multiple layers. Second, librarians must incorporate new strategies, such as lateral reading and click restraints, in combination with a few prioritized elements of a checklist into their guides regarding detecting fake news. Finally, librarians must pay attention to psychological factors more when interpreting facts in their strategies about news sources and fake news.

Introduction

Fake news has been a serious public concern since the 2016 US presidential election. Academics, professionals and organizations have responded to the phenomenon of fake news by engaging in a range of activities, from conferences and empirical studies to fact checking. Librarians have also joined in these efforts. Some urge that librarians should take a leadership role in combatting fake news (Buschman, 2019; Cooke, 2017; Wade & Hornick, 2018). Similarly, others maintain that the current information crisis is an opportunity for librarians to promote the profession and demonstrate their value (Eva & Shea, 2018). Accordingly, there have been a number of efforts to tackle fake news within the profession (Buschman, 2019; Eva & Shea, 2018; LaPierre & Kitzie, 2019; Neely-Sardon & Tignor, 2018; Wade & Hornick, 2018). One notable activity introduced by librarians includes the creation of their guides for college students to discern fake news. By providing students with these guides, academic librarians have attempted to help students detect fake news and become savvy news consumers.

Librarians have displayed optimism regarding their role in fighting fake news (Buschman, 2019; Eva & Shea, 2018; LaPierre & Kitzie, 2019; Neely-Sardon & Tignor, 2018; Wade & Hornick, 2018). In fact, teaching students how to evaluate information has been a key role for librarians.

It is not surprising to see that librarians interpret fake news as an information literacy issue. They have assumed an active role in fighting such fake news. However, it is unclear how librarians understand the phenomenon of fake news. In fact, the literature shows that tackling fake news is a complicated matter for a number of reasons. First, the term *fake news* is ill defined (Mourao & Robertson, 2019; Tandoc et al., 2018). Second, the word *fact* is commonly used to assert something unquestionable, and thus, to debunk fake news. However, the notion of fact or factual truth is not self-evident, as one might assume. Instead, facts are a matter of interpretation, which is inevitably subjective (Arendt, 1993; Gordon, 2018). Third, Wineburg and McGrew's (2017) study shows that even professional historians who are skillful in evaluating traditional sources failed to distinguish between credible and non-credible websites or digital information. Based on their research, Wineburg and McGrew (2017) argue that a checklist approach is not suitable for discerning web information. Instead, they argue for new strategies, such as lateral reading. Finally, psychological factors affect one's receptivity to information or misinformation. In addition, correcting misinformation or false information is not often effective, and can even backfire (Flynn et al., 2017; Gordon, Quadflieg, Brooks, Ecker, & Lewandowsky, 2019; Lewandowsky et al., 2017; Margolin, Hannak & Weber, 2018). The literature implies that in order to effectively deal with fake news, librarians must understand its complexity by

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addressing these aforementioned issues. In turn, it would be necessary to investigate whether librarians address these issues in their guides.

This study was conducted based on a pilot study (Lim, 2020), which focused on the definitions of fake news in academic libraries. The pilot study characterizes fake news as six elements: the intention to mislead, falsity and partisan bias, clickbait (or misleading headlines), distorted context, and omitted information, on which the definitions of the guides were analyzed. The current study adopts the elements of *fake news*, however, categorizes them into two levels in exploring RQ1 described below. In addition, there needed to further clarify certain criteria in identifying its elements in the guides. As a result, this study reexamined the guides included in the pilot study as well as an additional set of guides.

Given the literature and the pilot study, the current study examines how academic librarians understand the phenomenon of fake news by analyzing a few key aspects in their guides. More specifically, this study explores the following research questions;

RQ1. How do guides define the term *fake news*?

RQ1.1: Do guides explicitly state the definition of fake news?

RQ1.2. Which of the following elements are manifested in librarians' definition of fake news in their guides: 1) the intention to mislead, 2) falsity and 3) bias?

RQ1.3. Which of the following sub-elements are manifested in their definition of fake news in their guides?: 1) clickbait, or misleading headlines, 2) a decontextualized content, and 3) omitted information.

RQ2. Do their guides deal with the notion of fact? If so, how is the notion of fact treated?

RQ3. What methods or strategies do these guides suggest for detecting fake news or evaluating news sources?

RQ4. Do these guides address psychological factors in detecting fake news? If so, how are they addressed?

Importance of this study

The study's significance lies in the following: first, it contributes to fake news research and information literacy education by clarifying the term *fake news*. Built on a pilot study (Lim, 2020), this study identifies the intention to mislead, falsity and bias as the key elements of fake news, and omitted information, decontextualized content, and clickbait as the sub-elements of fake news. This specification of the term *fake news* helps us consider its complexity. Second, by examining library guides for college students, this study attempted to identify how academic librarians understand fake news and the notion of facts, and what methods or strategies they suggest for students in discerning fake news. This study can help librarians develop more effective approaches to discerning fake news and becoming savvy news consumers in the current digital environment.

Literature review

Defining fake news

This paper identifies a few perspectives concerning fake news. The literature shows that other terms, such as *misinformation* and *disinformation*, are frequently used or preferred when referring to fake news. As a result, this review discusses these terms as well.

First, a group of researchers have characterized fake news as two elements involving falsity (or facticity) and the intention to deceive or mislead. This paper views the notion of falsity as essentially the same as that of facticity, as given that the opposite of factual truth (facticity) is deliberate falsehood or lies (Arendt, 1993). Allcott and Gentzkow (2017) define fake news as "intentionally and verifiably false" (p. 213)

news articles. Among this group of researchers, some view fake news as a continuum of these two elements. For instance, based on a review of 34 published academic studies regarding fake news, Tandoc et al. (2018) identify facticity and the intention to deceive readers as the two domains of fake news. Depending on the levels of facticity and intention, they classify fake news into six types, including news satire, news parody, native advertising, propaganda, photo manipulation and fabrication. Of these researchers, Lazer et al. (2018) narrowly define fake news as fabricated news. Similarly, Wardle and Derakhshan (2018) see fake news as a spectrum of information disorder involving the two elements of falsity and the intention to harm. However, they rather use the terms *misinformation* and *disinformation*, as the term *fake news* is sometimes used to discredit mainstream media. They further define fake news as a mixture of misinformation and disinformation. Here, misinformation refers to unintentionally false information, while disinformation refers to intentionally false information.

Second, Søe (2018) does not explicitly use the term *fake news*, nevertheless, her notion of misleadingness is useful in clarifying fake news. In Søe's view, the two elements of misleadingness and intentionality are important in distinguishing among information, misinformation, and disinformation. She defines information as "intentionally non-misleading representational content" (p. 328), misinformation as "unintentionally misleading" content, and disinformation as "intentionally (non-accidentally) misleading" content. Søe (2018) points out that literally true information can mislead readers by a meaning (implicature) or the omission of information or the context. As a result, she argues that the distinction between truth and falsity is not sufficient for detecting misinformation or disinformation. Instead, misleadingness is important in separating each type of information as well as intentionality. In addition, although the notion of misleadingness is not as central as Søe's (2018), Allcott and Gentzkow (2017) note that fake news could mislead readers in their definition.

Finally, Mourao and Robertson (2019) argue for a new perspective of fake news; they view fake news as a form of non-mainstream content targeted at a particular partisan audience. Their study shows that completely fabricated stories were rare among the known fake news stories in their study. Instead, they found that fake news stories commonly use a blend of mostly true information with misinformation and various genres such as partisan bias, clickbait, and sensationalism. Accordingly, they define fake news as a mixture of mainstream news, misinformation, partisan bias, clickbait, and sensationalism.

The literature suggests that there exists a continuum of fake news, with the core elements of intention to mislead and false information. Additionally, this paper identifies bias as another key element of fake news, as it stresses the motivation of the message sender in generating news stories to reflect her or his side, thereby leading to inevitably biased news. On the other hand, biased news is not necessarily intentional. This paper also acknowledges that other elements, such as omitted information, a decontextualized content, and misleading headlines or clickbait are notable characteristics of fake news. However, these elements could be considered as the sub-elements of the intention to mislead an audience and bias. In other words, omitted information, a decontextualized content, and misleading headlines or clickbait could be considered as the properties of the elements of intention to mislead the audience and/or bias. As a result, this paper identifies the intention to mislead, falsity and bias as the key elements of fake news, and the omission of information, decontextualized content, and misleading headlines or clickbait as sub-elements of the intention to mislead and/or bias. In turn, this paper defines fake news as intentionally misleading and biased representational information for the benefit of the message sender, which contains false information, with or without a blend of one or more components of omitted important information, a decontextualized content, misleading headlines

or clickbait. False information refers to information with no (or very little) basis of factual truth.

There are a few advantages of this definition in tackling the phenomenon of fake news, including the following:

- 1) It reflects the complexity of the current phenomenon of fake news, which helps us consider its multiple layers.
- 2) This definition acknowledges that fake news is more than false information. At the same time, it underscores the notion that falsity is still one of the key elements of fake news. This recognition is useful in discerning fake news.
- 3) This definition explicitly includes the element of bias, which is linked to the message sender's motivation to generate news stories for her or his benefit. This definition helps audiences become more attuned to these specific benefits behind such news stories.
- 4) By specifying the key elements and sub-elements (properties) of fake news, librarians can pay attention to each of these sub-elements, which may not be easily noticed, as well as each of the key elements.

Facts and fact checking

The word *fact* is often used to assert something unquestionable, and thus, is used as evidence to debunk fake news. However, the literature shows that the word *fact* is not as obvious as one might assume. In her work originally published in 1961, [Arendt \(1993\)](#) points out that facts are at risk of being distorted due to their questionable nature. Her insights into the notion of factual truth are helpful in understanding the current phenomenon of fake news. According to [Arendt \(1993\)](#), there are two types of truth: factual and rational. Factual truth is based on a record of events and constitutes the elementary data of history. The fall of the Berlin Wall in 1989 would be such an example. On the other hand, rational truth is derived from scientific and philosophical thought. Scientific truth with respect to the earth evolving around the sun would be an example of rational truth.

Factual truth is established through people's witnesses and testimonies. Human beings are notoriously unreliable; thus, factual truth can often be malleable and vulnerable to distortion. As a result, [Arendt \(1993\)](#) asserts that unlike rational truth, factual truth can never be certain and is subject to doubt. In other words, facts are not fixed, but rather easily refutable. Due to the contingent nature of facts or factual truth, [Arendt \(1993\)](#) argues that factual truth is not self-evident and is in danger of being distorted within a political realm. Facts are a matter of interpretation and inform people's opinions. In [Arendt's \(1993\)](#) view, it is impossible that facts exist independent of interpretation and opinion. Indeed, the evidence shows that people with different political affiliations tend to perceive and interpret the same facts differently ([Flynn et al., 2017](#)). Especially, facts are vulnerable to distortion when people seek out information that reinforces their beliefs, and when facts are politicized by elite individuals ([Flynn et al., 2017](#)).

In his discussion on Arendt's thoughts, [Gordon \(2018\)](#) remarks that due to the uncertain nature of facts, there is an opportunity for liars (who intend to deceive their audiences) to attempt to amend their stories regarding facts for their benefit. Furthermore, liars can make these stories plausible to their audiences, given that they know in advance what their audiences want to hear ([Gordon, 2018](#)). In fact, the evidence suggests that people are more likely to be fooled by plausible versus implausible information ([Rapp, 2016](#)). This finding implies that people may be easily susceptible to amended stories.

By acknowledging the unfixed nature of facts, not everyone is optimistic about fact checking, which is often expected to debunk fake news. [Graves \(2017\)](#) summarizes some critiques about fact checking,

with the major critiques including the following points: 1) offering decisive, factual conclusions is flawed, given that facts in politics are value-laden and take on contexts in which they occur; thus facts are open to a range of conflicting interpretations, and 2) fact checking grants a form of false equivalence to both Democratic and Republican parties in order to avoid charges of bias. Other critiques include concerns that fact checking is ineffective and that it often favors Democrats.

While [Graves \(2017\)](#) admits the complex nature of facts in politics, he argues for fact checking based on his observations of fact-checking practices. His study shows that the fact-checking process involves multiple steps, including 1) the selection of a claim to check based on newsworthiness, fairness and checkability, 2) contacting the speaker of the claim, 3) tracing the false claim, 4) consulting experts, and 5) demonstrating fact checker's work. This process shows that fact checking involves more than straightforward correspondence to a claim. Rather, it involves the triangulation of factual arguments. [Graves \(2017\)](#) argues that the practice of fact checking upholds the objectivity norm of traditional journalism, in which fact checking does not only offer decisive rulings about factual claims, but also explains the possibility of different conclusions regarding the claims. In other words, unlike opinions, factual arguments require factual coherence, which is supported by the best available evidence.

The literature suggests that understanding the uncertainty of factual truth, including contradictory interpretations about facts, is important in dealing with fake news. At the same time, this paper contends that fact checking (which seeks factual coherence in the midst of conflicting interpretations about facts) helps us approach the reality of factual truth. In this sense, librarians' efforts to provide students with fact-checking sites or the best available evidence should not be discouraged, but rather encouraged.

Psychological factors with regard to fake news

Some researchers offer explanations for people's vulnerability to misinformation or fake news based on psychological research. Bias in human thinking is well documented in the psychology literature ([Kahneman, 2011](#); [Lazer et al., 2017](#)). Human beings tend to seek or interpret information that is compatible with their existing beliefs, which is known as confirmation bias. Perhaps confirmation bias is the best-known phenomenon of problematic human reasoning in the psychology literature ([Nickerson, 1998](#)). Similarly, an empirical study demonstrates that both Democrats and Republicans are approximately 15% more likely to believe ideologically aligned headlines ([Allcott & Gentzkow, 2017](#)). In addition, human beings commonly use heuristics in processing and evaluating information ([Chaiken & Ledgerwood, 2011](#); [Lim, 2013](#)). People use the familiarity or reputation of sources as well as their pre-existing views as heuristics in their credibility or trust judgments of information ([Lazer et al., 2017](#); [Lim, 2013](#)). Similarly, on social media platforms, users rely on others' credibility judgments of information, and employ social endorsement cues as a heuristic ([Metzger et al., 2010](#)). Due to confirmation bias and the use of heuristics, people are likely to asymmetrically interpret political issues. Additionally, they tend to uncritically accept new information that confirms their existing views or information from sources that they perceive as credible ([Lazer et al., 2017](#)).

This literature suggests that correcting misinformation or fake news may not work in our minds. In fact, previous research has shown that correcting misinformation does not necessarily change people's false beliefs ([Flynn et al., 2017](#); [Gordon et al., 2019](#); [Lewandowsky et al., 2017](#)). For instance, [Lewandowsky et al. \(2017\)](#) observed that even

after being corrected, people continue to depend on prior false information. In a similar vein, according to Flynn et al. (2017), when people are motivated to search for information that reinforces one's existing beliefs, they tend to recall congenial factual information versus uncongenial facts that are consistent with other beliefs. In other words, directionally motivated reasoning aggravates the continued influence of false information, even after its being corrected. In addition, when the correction of misinformation challenges one's worldview, her/his false beliefs will increase even more so (Lewandowsky et al., 2017).

On the other hand, Rapp (2016) sees our innate tendency to uncritically accept information as a reason for people's vulnerability to false information. According to Rapp (2016), people tend to treat an unfamiliar information source as credible by default. As a result, people routinely tend not to challenge the credibility of information, and are thus susceptible to false information. Marcella and Baxter's (2019) findings support Rapp's (2016) by showing that their study participants rarely verified the facts of online political news stories. This literature suggests that one must consider psychological factors in effectively tackling fake news.

Methods

Data sources and sample

Librarians' guides likely represent how they define fake news, as well as the methods or strategies they recommend for discerning fake news or evaluating news stories. For this reason, these guides were selected as the data source of this study.

This study employed both purposive and random sampling methods. In order to identify the guides from academic libraries at 4-year colleges and universities, two types of sampling frames were used. First, three Library and Information Science (LIS) sources were used for purposive sampling. The sources include lists from The ALA Public Programming Office, (2017, February 23), Eva and Shea (2018), and Zook (2017). One more guide was identified through another institutional source. A total of 17 institutional guides were identified and included in this study. Second, a list of the Association of Research Libraries' (ARL) members was used to select more libraries. The ARL member libraries are mostly located in the US, but include some Canadian libraries. There are 124 ARL member libraries, of which 116 are college or university libraries (ARL, 2019). Out of the 116 institutions, 20% (n = 24) were randomly selected. The author examined each of the 24 member libraries to identify their library guides regarding fake news by using search the term *fake news* on their library websites and examining the content of each of the sites. As of November 2019, among the 24 institutional libraries, it turned out that a total of 5 libraries provided their guides regarding fake news, of which one institution (University of Minnesota) was identified at the first stage of the sampling process. A total of 21 institutional libraries were included in the final data analysis (See Table 1 for the data sources and Appendix 1 for the list).

Table 1
Data sources, sampling methods and sample size.

Sampling methods	Data sources	Number of institutions selected	Total sample of the study
First stage: Purposive sampling	The ALA Public Programming Office, (2017, February 23) Eva and Shea (2018) Zook (2017)	17	17
Second stage: Random sampling	List of the ARL member libraries	24 (Appendix 2)	5
Overlapping sample between two stages		1	1
Sample of the Study			21 (Appendix 1)

Content analysis

A content analysis of the guides of the academic libraries from a total of 21 institutions was conducted to answer the above research questions including a replicated question (RQ1) of the pilot study. This analysis primarily focused on the content that was drafted by each institutional library. Simply directing students to articles or sites without a description was only secondarily considered.

Data analysis and results

RQ1. How do guides define the term fake news?

RQ1 was answered through a set of sub-questions from RQ1.1. through RQ1.3. This study identified whether each guide explicitly states a definition of fake news. Instead of (or in addition to) their own definition of fake news, a few library guides state Zimdars' (2016) types of fake news, Wardle's (2017) types of misinformation and disinformation, or the like (e.g., types of fake news by librarians at Colby-Sawyer College). This study considered these types of fake news or misinformation and disinformation as definitions, given that each type of fake news or misinformation and disinformation presents its own definition. In addition, the current study identified which element of fake news was presented in their definition(s) in the guides, as compared to the elements of the author's definition, which includes the three key elements of the intention to mislead, falsity, and bias, and the three sub-elements of clickbait (or misleading headlines), a decontextualized content, and omitted information. A few guides present their definition(s) of fake news in more than one form (e.g., a list of definitional ideas, types of fake news, a broad description of fake news, etc.). Thus, in identifying each element and sub-element, all of the forms were examined for the current study, leading to the modification of certain criteria of the pilot study (Lim, 2020). Accordingly, the guides included in the pilot study were reexamined for the current study. With respect to RQ1, the most of the coding methods (identifying words for each element) of the pilot study (Lim, 2020) were retained for this study. This paper presents the summary of the results in both Tables 2 and 3.

RQ1.1: Do guides explicitly state its definition of fake news?

The guides from 17 out of 21 (81%) institutions explicitly state their definition(s) of fake news. Of which five institutional libraries simply refer to types of fake news by professor Melissa Zimdars at Merrimack College or Wardle's (2017) types of misinformation and disinformation without their own definition(s) of fake news (Table 2).

RQ1.2. Which of the following elements are manifested in librarians' definition of fake news in their guides: 1) the intention to mislead, 2) falsity, and 3) bias?

1) Intention to mislead

A combination of one or more of the following words or phrases was coded as the presence of an intention to mislead: Words such as intentional, deceptive, purposely, hoax, do harm, influence or persuade, “to generate likes, shares, and profits” for political or monetary gains, motivation, deliberate, distorted actual news, manipulation, misleading, misinformation, and disinformation.

All of the guides from 17 institutions that stated a definition(s) of fake news included words indicating the intention to mislead in their definition(s). This finding shows that librarians consider the notion of intention to mislead as a core element of fake news.

2) Falsity

The following words were coded as the presence of falsity: False information, fabrication, falsifying reports, misinformation, disinformation, and lies. All of the guides from 17 institutions that stated their definition(s) of fake news include one or more of the aforementioned words in their definition(s). This finding indicates that there is clear agreement on falsity as an element of fake news.

3) Bias

The following words in the definition or categories of fake news in the guides were coded as the presence of bias: One ideological viewpoint/slant, bias, and hyper-partisan. Only the guidelines from 6 institutions (29.4%) characterize bias as an element of fake news (Colby-Sawyer College, Miami Dade College, Purdue University, University of Toronto, Valencia College, and Wichita State University). Some libraries treat biased news as a separate category, distinguishing it from fake news (Penn State University, University of Wisconsin-Madison, University of Virginia and University of Washington).

In case of the University of Washington libraries, it is unclear whether the librarians themselves consider bias as an element of fake news. The findings show that there is inconsistency or ambiguity among librarians in dealing with biases regarding fake news.

RQ1.3. Which of the following sub-elements are manifested in the definitions of fake news in the guides?: 1) clickbait or misleading headlines, 2) a decontextualized content and 3) omitted information.

1) Clickbait or misleading headlines

The following words or phrases were coded as the presence of clickbait or misleading headlines: Clickbait, misleading headlines, distorted headlines, “a story gets clicked on,” splashy headlines, sensational headlines, or mismatched headlines. Approximately two-thirds of the libraries out of 17 institutions (n = 11, 64.7%, Bowdoin College, Colby-Sawyer College, Duke University, Indiana University, Miami Dade College, Pace University, Purdue University, University of Toronto, University of Virginia, University of Washington, and Valencia College) considered clickbait or misleading headlines as an element of fake news. Duke University Libraries indicate clickbait as a type of fake news by posting Wardle’s (2017) infographic instead of their own definition of fake news. In addition, the guides at the University of Michigan do not explicitly present the element of distorted headlines in its definition of fake news. Instead, it provides a linked article indicating that such headlines are often manifested in fake news (Wardle, 2017).

2) Decontextualized content

The following words were coded as the presence of a decontextualized content: False context, decontextualized content, out-of context or distorted context. Approximately 41.2% of libraries (n = 7, Bowdoin College, Colby-Sawyer College, Duke University, Indiana University, Miami Dade College, Pace University, and University of Virginia) indicate that decontextualized information is a type of fake news by referring to the categories of fake news (e.g., Melissa Zimdars’ or Wardle’s (2017) types). On the other hand, the guides from the University of Washington treat this element as a separate category of news, as compared to fake news. In addition, the guides of the University of Michigan libraries deal with this element indirectly by providing a link to an article described above (Wardle, 2017).

3) Omitted information

This study found that few libraries pay attention to this element. At most, only one library at Purdue University includes incomplete data in its list of characteristics of fake news. However, it should be noted that its guide lists several terms of fake news instead of providing a developed form of its own ideas.

Summary

The majority of guides (n = 17, 81%) state their definitions of fake news. However, most definitions tend to be presented as a collection of pieces involving definitional information than as a cohesive form of well-developed definitional ideas. Among the institutional libraries, only a couple of libraries (e.g., University of Toronto and Wichita State University libraries) provide a developed form of their own definitions of fake news to some degree.

This analysis shows that the two elements regarding the intention to mislead and false information are explicitly presented in the definitions of the guides from all of the libraries that state a definition(s) of fake news. On the other hand, other elements are inconsistently presented in these guides. More specifically, with respect to the element of bias, it seems that librarians have uncertain ideas about whether bias is a key characteristic of fake news. That is, some libraries present biased news as a separate category distinguished from fake news, while they state the element of bias in their guides. Penn State University, the University of the Virginia, University of Washington, and University of Wisconsin-Madison are such cases.

Regarding the sub-elements of fake news, approximately two-thirds of the libraries present clickbait in their guides. The sub-element of the decontextualized content is presented in less than half of the libraries (41.2%). The sub-element involving omitted information is hardly stated as a characteristic of fake news in the library guides (See Tables 2 and 3).

Table 2
Frequency of the elements of the definitions of fake news.

	Frequency	Percentage
Total number of sample institutions	21	21/21 (100%)
Presence of definition	17	17/21 (81%)
Main elements		
Intention to mislead	17	17/17 (100%)
Falsity	17	17/17 (100%)
Bias	6	6/17 (29.4%)
Sub-elements		
Clickbait	11	11/17 (64.7%)
Decontextualized content	7	7/17 (41.2%)
Omitted information	1	1/17(5.9%)

Table 3
Elements of the definitions of fake news in the guides.

Institution	Intention to mislead	Falsity	Bias	Clickbait	Decontextualized content	Omitted information
University of Arizona	X	X				
Bowdoin College	X	X		X	X	
Colby-Sawyer College	X	X	X	X	X	
Duke University	X	X		X	X	
Harvard University						
Indiana University- East	X	X		X	X	
Miami Dade College	X	X	X	X	X	
Michigan State University						
University of Minnesota						
Pace University	X	X		X	X	
Penn State University	X	X				
Purdue University	X	X	X	X		X
University of California-Berkley	X	X				
University of Michigan	X	X				
University of Oregon						
University of Toronto	X	X	X	X		
University of Virginia	X	X		X	X	
University of Washington	X	X		X		
University of Wisconsin-Madison	X	X				
Valencia College	X	X	X	X		
Wichita State University	X	X	X			

Note: X indicates the presence of each element.

RQ2. Do their guides deal with the notion of fact? If so, how is the notion of fact treated?

A majority of the guides (81%, n = 17) provide links to fact-checking sites. However, except for two institutions, the guides are silent regarding what they mean by a fact (See Table 4). The guides from the University of Toronto and Wichita State University are the two exceptions. Both institutional libraries state their definitions of a fact. That is, the guidelines at Wichita State University state that one must understand what a fact is in order to understand fake news. A few definitions of a fact from Wichita State University includes “something that really exists,” “something known to exist or to have happened,” and something experienced or observed. The guide notes that a fact can be articulated independent of one’s viewpoint (objectivity) or through the infusion of one’s viewpoint (subjectivity). One’s viewpoint based on a fact becomes an opinion ([http://libraries.wichita.edu/c.php?g=](http://libraries.wichita.edu/c.php?g=613382&p=4461585)

Table 4
Definition of fact, and fact-checking sites.

	Definition or description of fact	Fact-checking site	Uncertainty of fact
University of Arizona		X	
Bowdoin College		X	
Colby-Sawyer College		X	
Duke University			
Harvard University		X	
Indiana University-East		X	
Miami Dade College		X	
Michigan State University			
University of Minnesota		X	
Pace University		X	
Penn State University		X	
Purdue University		X	
University of California-Berkley		X	
University of Michigan		X	
University of Oregon		X	
University of Toronto	X	X	
University of Virginia			
University of Washington			
University of Wisconsin-Madison		X	
Valencia College		X	
Wichita State University	X	X	

Note: X indicates the presence of each element.

613382&p=4461585). The guide from the University of Toronto is similar to that from Wichita State University. Nonetheless, even these two libraries do not note the uncertainty of facts that are open to interpretation, which makes it difficult to assure the objectivity of such facts.

Given the evidence that people tend to interpret facts differently, according to their political affiliations (Flynn et al., 2017), and given that the current phenomenon of fake news is highly related to facts in politics, it would be important for those attempting to alleviate the harm of fake news to consider the uncertainty of facts and navigate different interpretations of facts. This analysis shows that library guides hardly address the contingent nature of facts.

RQ3. What methods or strategies do these guides suggest for detecting fake news or evaluating news sources?

All of the guides offer their methods or strategies for discerning fake news and/or evaluating news stories. They all suggest a checklist approach to detecting fake news or evaluating news sources in a broad sense. This paper identified at least three types of evaluation checklists that the guides employ.

The first category of evaluation checklists includes the CAARP (currency, authority, accuracy, relevance, and purpose) test, its variations (the same criteria, but different names), or the like. The criteria of this test are often recommended to evaluate academic resources, as some guides indicate (e.g., the University of Toronto, which adapted their list from York University’s PARCA Test, whose criteria are the same as the CAARP test). Several institutional libraries suggest the CAARP test, or a mixture of other criteria (e.g., authority, objectivity, quality, currency and relevance) for discerning fake news. The University of California-Berkeley, Indiana University, Miami Dade College, University of Oregon, Pace University, Penn State University, Purdue University, University of Toronto, Valencia College, University of Virginia and Wichita State University are such libraries.

The second category of checklists is oriented toward broadly evaluating news sources. Such checklists include SMART (source, motive, authority, review, two-source test), Savvy News Consumer (a combination of the SMART checklist and the IFLA’s checklist discussed below) or SMELL (source, motive, evidence, logic and left-out). The libraries from Bowdoin College and the University of Washington offer such lists. These checklists are more applicable to news stories than the CAARP test, as this approach is tailored to news sources.

The third category of checklists narrowly focuses on detecting fake news. This category includes resources such as How to Spot Fake News by IFLA/[FactCheck.org](https://www.factcheck.org), How to Fact-Check like a Pro, Melissa Zimdars' tips or the Breaking News Consumer's Handbook list. The majority of the institutions (15 out of 21 institutions) provide the infographic, "How to Spot Fake News," prepared by the International Federation of Library Associations and Institutions (IFLA), the infographic, "How to Fact-Check like a Pro," or a link to an article at [FactCheck.org](https://www.factcheck.org). The IFLA's infographic includes the checklist of sources, beyond the headlines, author, supporting sources, currency, the reader's own bias, and the type of news story (Is it a satire or joke?). The infographic of "How to Fact-Check like a Pro" includes a checklist of the author's credentials, media bias, source, currency and the reader/viewer's own effortful judgment.

Over half of the guides refer to lists by Zimdars' or Breaking News Consumer's Handbook. Zimdars' tips include both general and technical tips in detecting fake news. General tips include obtaining a variety of viewpoints, checking other news sites, or watching out for emotionally charged news stories. Some of the technical tips include avoiding certain domain names and using ALL CAPS. While technical tips are easy to check and use, they may fail to detect fake news or unreliable information. In fact, [Wineburg and McGrew's \(2017\)](#) study shows that both groups of Ph.D.-holding historians and students were duped by the webpages of seemingly representative names such as domain names (e.g., .org) and organizational names (e.g., the American Academy of Pediatrics). Furthermore, it is always possible to generate more sophisticated fake news stories that can pass such technical features. The list from the Breaking News Consumer's Handbook (BNCH) shares common characteristics with Zimdars' lists regarding tips and levels of presentation (e.g., more technical terms). Thus, BNCH has the same issues as Zimdars' tips.

In addition, Zimdars' tips use terms at operational levels (e.g., domain names) than at abstract levels of criteria (e.g., authority and/or source) that the checklists' first two categories employ. Both lists could be easily integrated into either the first two categories or the IFLA's list or the like. Alternatively, each library could offer an integrated approach that is tailored to evaluating news sources, including the detection of fake news, instead of posting two or more lists that essentially overlap with each other.

Among these guides, the University of Washington Libraries' guides offer more integrated resources regarding the evaluation of news sources than those from other libraries. Their guides have some unique characteristics. First, they deal with fake news under a large category of evaluating information. Then, they offer tips tailored to source types (e.g., scholarly sources, news sources, web sources, social media, data & statistics, fake news, etc.), of which the tips for each are presented in a poster. These posters reflect the current digital environment better, as compared to the traditional CAARP test. Second, and more importantly, they present a lateral reading, as compared to vertical reading, by linking to a video series for navigating digital information called "Crash Course Navigating Digital Information: 10-part video series." In fact, a Stanford History Group study showed that lateral reading is suitable to the web environment, and is effective in separating non-credible from credible information, especially when users do not have expertise in the topic ([Wineburg & McGrew, 2017](#)). Nonetheless, just like other library guides, even their customized tips tend to be a long list of checkpoints. In addition, the university guides post numerous links or relevant sources. Finally, the University of Oregon Libraries introduced lateral readings and provided relevant links as well (See [Table 5](#)).

Summary

The findings show that the libraries employ checklist approaches to detecting fake news or evaluating news sources. Only two libraries include a strategy of lateral reading in their guides. Each library tends to offer two or more popular checklists (e.g., CAARP, the IFLA's infographic) for discerning fake news or evaluating news sources, which could have been developed into a few strategies for evaluating news sources, including fake news. It appears that most libraries attempted to include popular evaluation checklists. For instance, the guides from the University of Toronto libraries offer multiple checklists, including the CAARP test, the IFLA's infographic, and the Breaking News Consumer's Handbook. Similarly, this analysis shows that nine institutional libraries provide at least two checklists, giving students alternatives for evaluating news. Finally, only two institutional libraries introduced the strategy of lateral reading.

The results of this study concur with [Sullivan's \(2019\)](#) criticisms about librarians' approaches to fake news. Among others, [Sullivan \(2019\)](#) argues that librarians' information literacy approaches to fake news are outdated. In addition, many guides have few original

Table 5
Methods or strategies for detecting fake news or evaluating news sources.

	Lateral reading	CAARP or the like	SMART or SMELL	How to Spot Fake News (IFLA), a link to FactCheck.org , or the like	Melissa Zimdars' Tips, a link to Zimdars' Tips, or the like	Breaking News Consumer's Handbook or the like
University of Arizona				X		
Bowdoin College			X	X		X
Colby-Sawyer College				X		X
Duke University						X
Harvard University				X	X	
Indiana University		X		X		
Miami Dade College		X				
Michigan State University				X		X
University of Minnesota					X	
Pace University		X		X	X	X
Penn State		X		X		X
Purdue		X		X		
University of California-Berkeley		X				X
University of Michigan				X		
University of Oregon	X	X				X Link to an online course
University of Toronto		X		X		
University of Virginia		X		X	X	
University of Washington	X		X	X	X	X
University of Wisconsin, Madison				X	X	X
Valencia College		X		X	X	
Wichita State University		X		X		

contributions. Indeed, the guides from most of the institutional libraries tend to direct students to relevant resources or post resources instead of developing their own integrated guides. Although these resources are useful as further readings, it would be more helpful for students to see more integrated guides without overwhelming them with numerous links and incoherent pieces of information.

RQ4. Do these guides address psychological factors in detecting fake news? If so, how are they addressed?

Only a few guides explicitly present human biases that affect the consumption of news stories. For instance, the guides from the University of Toronto state three types of biases, including explicit bias, implicit bias, and the selective collection of evidence (<https://guides.library.utoronto.ca/c.php?g=705826&p=5021876>). Explicit bias refers to conscious attitudes or beliefs regarding an individual, group, or idea. Implicit bias refers to unconscious attitudes or beliefs regarding an individual, group, or idea. Finally, the selective collection of evidence refers to the tendency to seek and interpret information in a way that confirms one's existing beliefs.

Similarly, the guides from the University of Wisconsin-Madison state both explicit and implicit bias and present the importance of understanding human biases in obtaining and interpreting information (<https://researchguides.library.wisc.edu/c.php?g=640444&p=4485002>).

On the other hand, the guides from the majority of the libraries present human biases only by either simply listing the term *confirmation bias* or by posting an item (e.g., reader's own bias) of an infographic (e.g., How to Spot Fake News) prepared by the International Federation of Library Associations and Institutions (IFLA), or the like (e.g., a link to an article at Fact.Check.org). The University of Arizona, Colby-Sawyer College, Duke University, Indiana University-East, University of Michigan, Michigan State University, University of Oregon University, Penn State University, Purdue University, Valencia College, University of Washington, and Wichita State University are such cases (See [Table 6](#)).

Table 6
Psychological factors in methods for detecting fake news.

	Explicit considerations	An item of an infographic, a term or a link
University of Arizona		X
Bowdoin College		
Colby-Sawyer College		X
Duke University		X
Harvard		
Indiana		X
Miami Dade		
Michigan State University		X
University of Minnesota		
Pace		
Penn State		X
Purdue		X
University of California-Berkeley		
University of Michigan		X
University of Oregon		
University of Toronto	X	X
University of Virginia		
University of Washington		X
University of Wisconsin, Madison	X	X
Valencia College		X
Wichita State University		X

These findings show that librarians acknowledge the influence of human biases on consuming news and provide some relevant information or links (e.g., an implicit bias test). However, psychological factors are minimally presented in most of the guides.

Discussion

This study provides a number of implications. First, the two elements of falsity and the intention to mislead are manifested in the definitions of fake news in the library guides. Less than one third of the guides characterize bias as an element of fake news. Among the sub-elements of fake news, clickbait was more noted than other sub-elements. These results show that what constitutes fake news varies among librarians except for the elements of the intention to mislead and falsity. In addition, some libraries (about 20%) do not even state their definition of fake news, which may indicate that some librarians take the term fake news for granted. Furthermore, the definitions of most guides are presented in the form of a collection of pieces regarding definitional information, quotations, or Zimdars' categories than that of their cohesive definitional ideas. Given the evidence that subtler forms of fake news are more common than complete fabrications ([Mourao & Robertson, 2019](#)), and given that people are most likely fooled by false information that aligns with accurate information ([Rapp, 2016](#)), there needs to be further efforts in understanding the complexity of this phenomenon by clarifying what librarians mean by fake news in order to tackle it effectively. Without a clear understanding of fake news, it is difficult to effectively deal with it.

Second, while most library guides direct students to fact checking sites, they tend to be silent about what facts are, despite its importance in understanding the phenomenon of fake news. This notion implies that most librarians in the study may have the assumption that a fact, in and of itself, is unquestionable. However, as described above, facts are not self-evident, but rather easily debated. As a result, it would be necessary for librarians to examine the notion of facts and invite students to consider the uncertainty of facts in order to play an active role in combatting fake news. By doing so, librarians would be able to invite students to navigate different perspectives about facts. In a similar vein, [boyd \(2017\)](#) remarks that understanding, appreciating, and bridging different viewpoints are important in dealing with the contemporary fake news.

Third, all guides employ checklist approaches to detecting fake news and/or evaluating news sources. Despite these guides being widely suggested by librarians, there are a number of criticisms about checklist approaches to detecting fake news or evaluating news sources. Most importantly, checklist approaches tend to focus on the mechanical aspects of information, which are inharmonious with critical thinking ([Hjørland, 2012](#)). Similarly, [Wineburg and McGrew \(2017\)](#) argue that a checklist approach may confuse users with respect to leaning more about the sites that they visit especially when such sites satisfy the checkpoints of the checklist. In other words, relying on checklists can make web users more vulnerable to scams by making them feel safe. In addition, [Beene et al. \(2018\)](#) offer the following criticisms: 1) The checklist approach evaluates information as binary (yes or no), which is too simplistic; 2) it is difficult to evaluate the credibility of sources without sufficient expertise of the topic covered; 3) a list makes the evaluation process linear; and 4) this approach does not prioritize each checkpoint. Moreover, [Lim's \(2013\)](#) literature review reveals that Web users hardly use certain elements of a traditional checklist, such as accuracy, authority, author, objectivity, coverage or currency. This finding suggests that typical checklist approaches are not practical. As a result, instead of checklist approaches, [Wineburg and McGrew \(2017\)](#)

suggest new strategies for digital information. Their study shows that such strategies enable professional fact checkers to distinguish between credible and non-credible digital information in a speedy and accurate manner. These strategies include taking bearing, lateral reading and click restraints. The strategy of taking bearing refers to making a plan before diving into unfamiliar digital content. Lateral reading refers to opening new tabs to learn more about the site or the claims that people encounter. Lateral reading enables Internet users to ignore massive irrelevant information and learn more about unfamiliar information. The strategy of click restraints refers to examining a list of search results (that involves reading Google's snippets and looking for results from reputed sources) instead of clicking the first result. These strategies are certainly applicable to detecting fake news and evaluating their credibility. The current study shows that only two libraries minimally introduced the strategy of lateral reading in their guides.

Fourth, it should be noted that new strategies, such as lateral reading alone, would not be beneficial without certain knowledge, which includes knowledge of the sources, Internet, and search skills (Wineburg & McGrew, 2017). That is, in order to choose a credible source among abundant online news sources, users must have knowledge about news sites across the political spectrum, the characteristics of reliable sources, Internet search structures, and Internet search skills. These findings imply that librarians still need to teach the process of evaluating sources, an area in which they have expertise. In this sense, evaluation methods tailored to news sources in the current digital environment would be helpful to students. For instance, the University of Washington Libraries provide evaluation methods customized to information sources in terms of making sense of the news. Nonetheless, each method tends to be a long checklist that needs to be developed into a few prioritized elements, as described below. In addition, these findings suggest that librarians should include the elements of an Internet search structure and Internet search skills in their instructional materials or instructions.

Five, in relation to knowledge about sources, checklist methods should not be discarded all-together. Instead, it is necessary to teach a few prioritized elements about checklists that are particularly difficult to evaluate in online environments (e.g., purpose, authority). Yet, the ways of teaching certain elements/criteria, such as authority, should be beyond mechanical checking. For instance, representative names (e.g., .org) could easily deceive readers/viewers, as discussed above. Teaching such elements in conjunction with lateral reading can be effective. In addition, librarians could teach the frame of "Authority is Constructed and Contextual" from the Framework of Information Literacy for Higher Education (ACRL, 2016) in the process of teaching the element of authority. The findings show that few libraries integrate the Framework or lateral reading into their guides in detecting fake news.

Six, this study suggests that librarians must pay attention to psychological factors more when interpreting facts in their strategies about news sources and fake news. In fact, Walton (2017) points out that information literacy education has failed to address confirmation bias in detecting fake news. In addition, Bluemle (2018) calls for attention to the role of emotion, and the relationship between evidence and its interpretation in evaluating sources by recognizing that people tend to disagree with evidence based on their perspective than on the evidence itself in the post-truth era. Similarly, boyd (2017) points out that understanding, appreciating and bridging different viewpoints have become important in dealing with fake news. In addition, psychological factors could be introduced in a broad context with regard to the frame of "Authority is Constructed and Contextual" (ACRL, 2016), as the frame stresses "a skeptical stance" and "a self-awareness of [one's] own biases and world view" in assessing information sources or content. This study reveals that library guides barely apply the ACRL Framework (2016). At most, the Framework is simply stated without its applications for detecting fake news.

Finally, a wide range of quality of information and the sheer volume

of information are circulated on the Internet. Social media amplify this phenomenon. As a result, no one is immune to being exposed to the risk of harm of fake news. In such an environment, the best way to approach the Internet content would be to have a skeptical stance in which everything must be questioned. In other words, librarians' instructions and their materials (such as guides) should focus more on helping students develop a habit of skepticism regarding the information that one encounters than on providing technical tips.

This study has certain limitations, as well as a few suggestions for further research that emerged from this study. First, the majority of the sample in this study was selected using purposive sampling. The findings show that there were few differences across the guides regarding the key elements of this study regardless of sampling methods or types of institutions (e.g., teaching or research institution). As a result, it seems that the sampling methods and the sample size were reasonable and practically manageable in analyzing the key aspects of the guides and in answering the research questions. Nonetheless, it should be noted that due to the purposive sampling method used in this study, caution must be exercised in terms of generalizing the findings to all guides at academic libraries.

Second, the guides posted on the web served the data source of this study. It was reasonable to expect that the guides would reflect how librarians define fake news and their approaches toward evaluating news sources or detecting fake news. However, it may be possible for librarians to omit other approaches to tackling fake news, or present their condensed ideas about fake news. As a result, further empirical research is needed in terms of how librarians understand the phenomenon of fake news and how to teach detecting fake news in their instructions by employing different data collection methods such as survey and observation.

Finally, the findings show that all libraries used checklist approaches in detecting fake news and evaluating news sources. Due to certain criticisms regarding checklist approaches, the literature suggests that new strategies, such as lateral reading are effective in distinguishing credible from non-credible digital information (Wineburg & McGrew, 2017). However, given the evidence that knowledge about information sources is required in order to effectively utilize lateral reading, certain prioritized elements of a checklist are necessary, especially for non-experts. At the same time, further empirical studies are needed with respect to when a prioritized checklist approach is effective or ineffective.

Conclusion

Built on a pilot study (Lim, 2020), this study examined how librarians understand the term *fake news* and their approaches to detecting fake news or evaluating news sources through guides in academic libraries. This study provides certain implications, thereby contributing to fake news research and information literacy education. First, this paper provides a new definition of fake news, which helps us consider multiple layers of the phenomenon of contemporary fake news. Second, this study suggests that the definitions of fake news in the guides need to be further clarified and refined so that they reflect the complexity of contemporary fake news. Third, new strategies, such as lateral reading and click restraints, in combination with a few prioritized elements of a checklist need to be incorporated into librarians' guides or instructions regarding fake news. Finally, librarians must pay attention to psychological factors more when interpreting facts in their strategies about news sources and fake news.

Declaration of competing interest

I declare that I have no competing financial, professional or personal interests that might have influenced the presentation of the work described in this manuscript.

Appendix 1. Sample libraries of this study

University of Arizona Libraries
<https://libguides.library.arizona.edu/newsliteracy>
 Bowdoin College Library
<https://bowdoin.libguides.com/friendly.php?s=fakenews>
 University of California, Berkeley Library
<http://guides.lib.berkeley.edu/fake-news>
 Colby-Sawyer College Library
<http://library.colby-sawyer.edu/fakenews>
 Duke University Libraries
https://guides.library.duke.edu/fakenews_international#s-lg-box-20706361
 Harvard University Libraries
<https://guides.library.harvard.edu/fake>
 Indiana University-East Campus Library
<http://iue.libguides.com/fakenews>
 Miami Dade College Library
<http://libraryguides.mdc.edu/FakeNewsResource>
 University of Michigan Libraries
<https://guides.lib.umich.edu/c.php?g=283063&p=4471741>
 Michigan State University Libraries
<http://libguides.lib.msu.edu/c.php?g=95580&p=4426732>
 University of Minnesota Libraries
<http://www.continuum.umn.edu/2016/11/become-better-citizens-information/#.WLCqO28rJtQ>
 University of Oregon Libraries
<http://researchguides.uoregon.edu/c.php?g=612324&p=4251698>
 Pace University Library
<https://libguides.pace.edu/fakenews>
 Penn State University Libraries
<http://guides.libraries.psu.edu/fakenews>
 Purdue University Libraries
<http://guides.lib.purdue.edu/c.php?g=686026&p=4847950>
 (Note: The guides were created for Scientific News Literacy for a Geography course)
 University of Toronto Library
<https://guides.library.utoronto.ca/c.php?g=705826&p=5021873>
 University of Virginia Library
<https://guides.lib.virginia.edu/c.php?g=600315&p=4156721>
 University of Washington Libraries
<http://guides.lib.uw.edu/research/evaluate/fakenews>
[http://guides.lib.uw.edu/c.php?g=611734&p=4247863](http://guides.lib.uw.edu/research/evaluate/smarthttp://guides.lib.uw.edu/c.php?g=611734&p=4247863)
 University of Wisconsin-Madison – College Library
<https://researchguides.library.wisc.edu/c.php?g=640444&p=4485002>
 Valencia College
<http://libguides.valenciacollege.edu/c.php?g=612299&p=4251520>
 Wichita State University Libraries
<http://libraries.wichita.edu/c.php?g=613382&p=4461585>

Appendix 2. List of the selected ARL member libraries for identification of guides

University of Arizona Libraries
 Auburn University Libraries
 Boston College Libraries
 University of California, Riverside Library
 Case Western Reserve University Libraries
 The University of Chicago Library
 University of Connecticut Libraries
 Duke University Libraries
 University of Florida Libraries
 University of Illinois at Chicago Library
 Kent State University Libraries
 McMaster University Libraries
 Michigan State University Libraries
 University of Minnesota Libraries

University of Nebraska–Lincoln Libraries
 Northwestern University Libraries
 Ohio University Libraries
 Princeton University Library
 Purdue University Libraries
 University of South Carolina Libraries
 University of Southern California Libraries
 University of Tennessee, Knoxville, Libraries
 Texas A&M University Libraries
 Virginia Tech Libraries

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