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From Syndication to Misinformation: How Undergraduate Students Engage with and Evaluate Digital News

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Abstract

To determine how undergraduate students engage with digital news, researchers at Davidson College surveyed 511 incoming first-year students on their news consumption habits and asked them to evaluate screenshots of news stories. The researchers found that a high percentage of the students were accessing news through social media platforms and that syndication and fake URLs posed challenges for them in making accurate evaluations. Additionally, students indicated they would share a tweet containing an impostor URL at higher rates than they would share the other news story examples. The findings have implications for how educators teach students to evaluate misinformation.

Keywords: undergraduate students, information literacy, digital news, misinformation, fake news, social media, source evaluation

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From Syndication to Misinformation: How Undergraduate Students Engage with and Evaluate Digital News

Introduction

Imagine the following: in order to teach students about the perils of misinformation, an instructor brings to class a fake news story about a pastor jailed in Vermont for refusing to perform same-sex marriages. The instructor plans on leading a discussion about how to evaluate the authenticity of this story. However, before the professor has time to clarify the context, students jump into a debate about the ethics of the jailing without first pausing to consider if all the facts are correct.

Today's information environment is rife with fake news stories, such as the example about the jailed Vermont pastor, and this classroom scenario really happened. At Davidson College, the researchers have been engaging faculty in conversations about fake news and students' abilities as information evaluators. During one of those conversations, a professor shared the anecdote above. This story stands out because it not only demonstrates instructors' aims to broach the issue of fake news with students but also underscores a crucial knowledge gap—educators do not always have a clear picture of how students consume and evaluate misinformation.

Considering the wide reach of fake news in digital environments (Allcott & Gentzkow, 2017), the researchers took a closer look at how the students at Davidson College engage with news in various digital formats. The researchers surveyed students on their news consumption habits and asked them to evaluate examples of news stories. The findings shed light on how undergraduates encounter and evaluate news in digital formats and has implications for how librarians and other educators teach students to detect misinformation.

Literature Review

Kuhlthau's work in the 1980s and 1990s on the process of information-seeking and model of the student search process (Kuhlthau, 1988; Kuhlthau, 1991) has been foundational to subsequent research in this area. During the 1990s, the widespread accessibility of computers and the internet for student research led to a focus in the literature on electronic information and information-seeking (Kuhlthau, 1987; Oberman, 1991). Scholars pointed

to the need for library instruction to help students learn and apply critical thinking skills to this new format (Dilevko & Grewal, 1998; Jacobson & Ignacio, 1997; Johnson, 1995;).

Recently, librarians have refocused on this issue of online information-seeking and critical thinking through the lens of misinformation in an increasingly digital environment. Fake news and its impacts have been broadly covered in the media since the 2016 presidential election, and librarians have taken the lead on providing instruction to students on how to best navigate and vet the news they encounter. From pop-up workshops (Wade & Hornick, 2018) to assignments in credit courses (Neely-Sardon & Tignor, 2018) to research guides and webinars (Batchelor, 2017), librarians are creatively applying their expertise to the issue of news literacy.

This new focus on misinformation highlights a change in how librarians and other educators are teaching students to evaluate sources. A good example of this pedagogical shift comes from Caulfield's (2017) suggestion that students should engage in four evaluative "moves" in order to read sources more like professional fact-checkers. These moves or evaluative practices stand in stark contrast to popular checklist tools like *CRAAP*, which have been mainstays in library instruction ever since they emerged as tools in the 1990s. This trend away from teaching checklist tools is not new. Critics of the checklist have underscored major weaknesses of the method, such as how it oversimplifies a nuanced process (Meola, 2004) or does not reflect the many different types of information-sharing sites that now exist (Ostenson, 2014). These arguments hold more weight in the current fake news-saturated landscape, especially those suggesting checklist tools can produce false positives when used on certain questionable sources (Breakstone, McGrew, Smith, Ortega, & Wineburg, 2018; Caulfield, 2016). This move away from checklist evaluation tools, in conjunction with the recent emphasis on fake news in library instruction, suggests new approaches are needed to teach students to detect misinformation. While scholars have suggested other methods to replace the checklist, such as problem-based learning (Auberry, 2018), investigation into how students evaluate misinformation beyond a checklist system is still an emerging area of research.

Wineburg and McGrew (2017) and Silva, Green, and Walker (2018) have delved into the topic of how students evaluate misinformation. Wineburg and McGrew (2017) contrasted how undergraduate students and expert source evaluators—professional fact-checkers and historians—evaluate information. They found that students and historians "read vertically" by focusing only on the content in front of them, which leads them to be more susceptible

to misinformation. In contrast, professional fact-checkers engage in “lateral reading,” by looking to outside sources for confirmation. Silva et al. (2018) investigated how students evaluate a variety of news sources, including biased news with inaccurate data. They found that students mainly based their evaluation on the sources in the article, previous experience, and bias judgment. Students in the study were given a chance to do some research on the claims in the articles, but this process had minimal impact on students’ mean scores for how they rated the reliability of each article.

Research on how students evaluate information and misinformation is vital for understanding how to help them become effective evaluators. Wineburg and McGrew (2017) and Silva et al. (2018) stand out in the literature because both involve study participants analyzing information and misinformation in its actual context. This present study aims to take a similar look at how incoming first-year undergraduate students evaluate digital news, including fake news.

Background

Davidson College is a private, liberal arts college with less than 2,000 students located near Charlotte, North Carolina. Davidson has a traditional undergraduate student body, with most students between the ages of 17 and 22 years old. In summer 2017, incoming first-year students completed an hour-long mini-course for the library as part of an orientation requirement. The researchers’ aim for the mini-course was to understand how incoming first-year students consume and evaluate news in digital environments.

Methods

The mini-course was administered in a course management system, Moodle, and consisted of a survey (see Appendix A) and a set of exercises (see Appendix B). Prior to administering the survey, the researchers obtained IRB approval from their institution. Due to the mandatory nature of the orientation requirement, 98% (n=511) of incoming first-year students completed the mini-course. The survey consisted of 9 to 14 branching questions, including multiple choice, Likert scale, open-ended response, and true-false. Of the survey questions, only four covered the topic of news consumption and evaluation; the other questions asked students about their research attitudes and experience and are not relevant to the study at hand. Two of the survey questions were adapted from a 2014 Pew Research Center survey (Mitchell & Weisel, 2014). The wording of the questions, “Please click on all

the sources that you got news from about government and politics from this past week” and “Click on all of the social networking sites that you got news from about government and politics from this past week,” was similar, but the researchers modified a few of the answer options to reflect current media trends. The remainder of the survey questions were created by the researchers.

Following the survey were three exercises, each containing a screenshot of a news story and three open-ended questions. The exercises aimed to identify students’ level of trust in each specific claim and to ascertain how students approached evaluation in different scenarios. The questions corresponding to each exercise were “How would you evaluate the claim made in the story?,” “How would you rank your confidence level in the claim?,” and “Would you or would you not share the news story via social media or other means?” The news stories were presented as screenshots as the researchers’ goal was to provide a news evaluation experience for the students that was as authentic as possible. The researchers would have preferred to share the actual links with students, but screenshots were used instead to ensure a uniform and user-friendly experience. Students were still able to see advertisements, URLs, and other native elements as if they were reading the news stories in the actual setting.

The researchers intentionally selected news sources that represented three distinct news formats, and each news story provided specific opportunities for evaluation. Exercise 1 contained a headline inconsistent with the text of the story; the researchers expected students to be able to identify this inconsistency. Exercise 2 contained a syndicated news story; the researchers wanted to explore if students would recognize the concept of syndication and how that would affect their evaluations. Exercise 3 was a tweet containing an impostor URL and a preview of a fake news story. Since impostor URLs are an emerging tactic of fake news websites, the researchers were curious if students would be able identify it. Based on these characteristics, the exercises will be referred to as Exercise 1 (Inconsistent Headline), Exercise 2 (Syndicated Story), and Exercise 3 (Impostor URL).

The researchers coded all qualitative data using a list of preset codes and emergent codes (see Appendix C). The emergent codes were developed as the researchers recognized themes appearing in the responses and the preset codes were informed by what the researchers expected to see from responses. For instance, one of the preset codes for Exercise 3 (Impostor URL) aimed to capture when students mentioned the impostor URL. If a student

response specifically recognized that the URL was fake or expressed suspicion related to the authenticity of the URL, it was coded as “mentioned impostor URL.”

Other codes allowed for more nuanced qualitative analysis. Some codes examined how a student considered the story’s publisher, specifically whether they trusted the publication or were skeptical of it. For instance, one of the preset codes for Exercise 3 (Impostor URL) was “evaluates NBC (positive/negative).” One trigger for a negative code was any mention of bias associated with NBC (e.g., liberal leaning). A response coded as “evaluates NBC (positive)” would include terminology that indicated credibility or trust in NBC.

Results

Survey

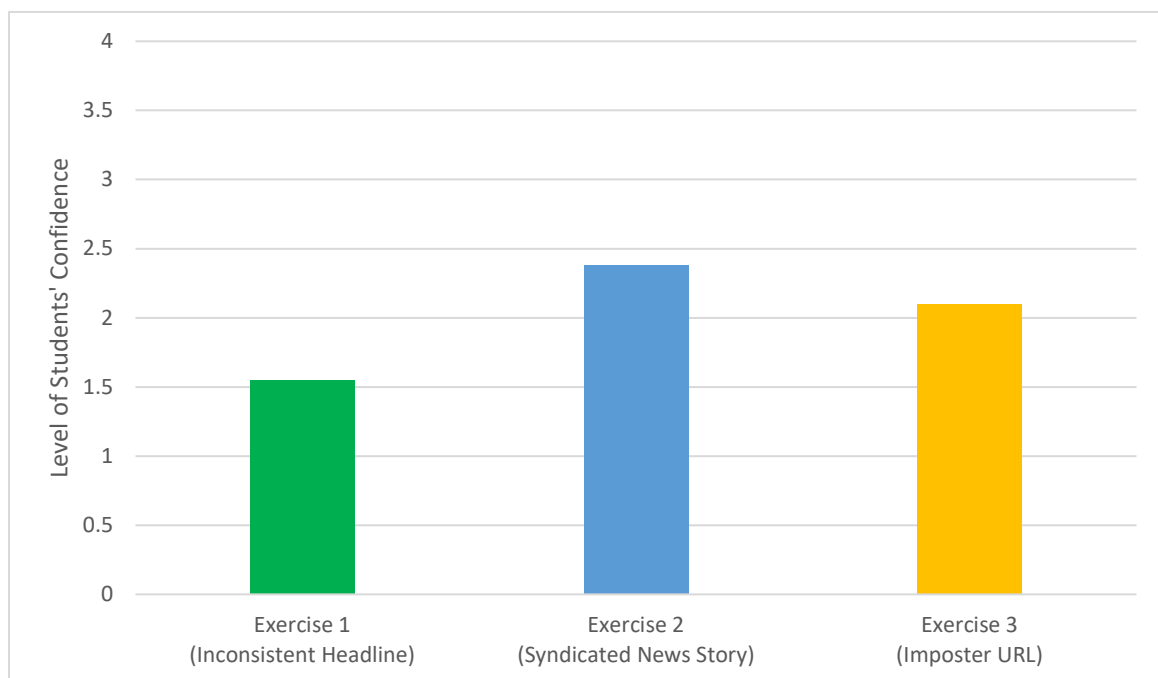
The survey and the exercise provided meaningful insights about how students engage with news in various digital formats. Regarding social media use, 82% (n=419) of students responded they had used at least one social media platform in the past week to get news about government or politics (see Table D1). The top sites represented in responses from the students, in order of popularity, were Facebook, Snapchat, Twitter, and YouTube. Student survey responses indicated they believe fake news is overall more a barrier for society than for themselves (see Table D2). When asked how much of a barrier they perceive fake news to be to society’s ability to recognize accurate information, the majority of students chose *extreme* or *moderate* on a Likert-scale, 41% (n=210) and 45% (n=230), respectively. However, when asked how much it is a barrier to their own ability to recognize accurate information, the majority chose *moderate* or *somewhat*, 27% (n=136) and 51% (n=262), respectively.

Exercises

A key finding from the exercises is that 24% (n=125) of students indicated that they would share the tweet presented in Exercise 3 (Impostor URL) via social media or other means. Their willingness to share this news story was higher than their willingness to share the news stories in the other two exercises; 12% (n=63) would share Exercise 1 (Inconsistent Headline) and 15% (n=77) would share Exercise 2 (Syndicated Story) (see Table D3). Additionally, of those students who said they would share the story from Exercise 3 (Impostor URL), only 16% (n=20) reported high confidence in the claim.

Students trust in the stories from each exercise varied, which is evident in the mean of their level of confidence. Students reported their level of confidence on a scale of 1 to 4: no confidence (1), slight confidence (2), moderate confidence (3), and high confidence (4). The average response for Exercise 1 (Inconsistent Headline) was between no confidence and slight confidence ($M=1.55$). For Exercise 2 (Syndicated Story), students rated their level of confidence as slight to moderate ($M=2.38$). Students tended to have slight to no confidence ($M=2.10$) in the claim in Exercise 3 (Impostor URL) (see Figure 1). The mean responses provide only part of the picture, however. A closer look at students' level of confidence within each exercise reveals notable trends (see Table D4).

Figure 1: Mean Level of Students' Confidence in Claims



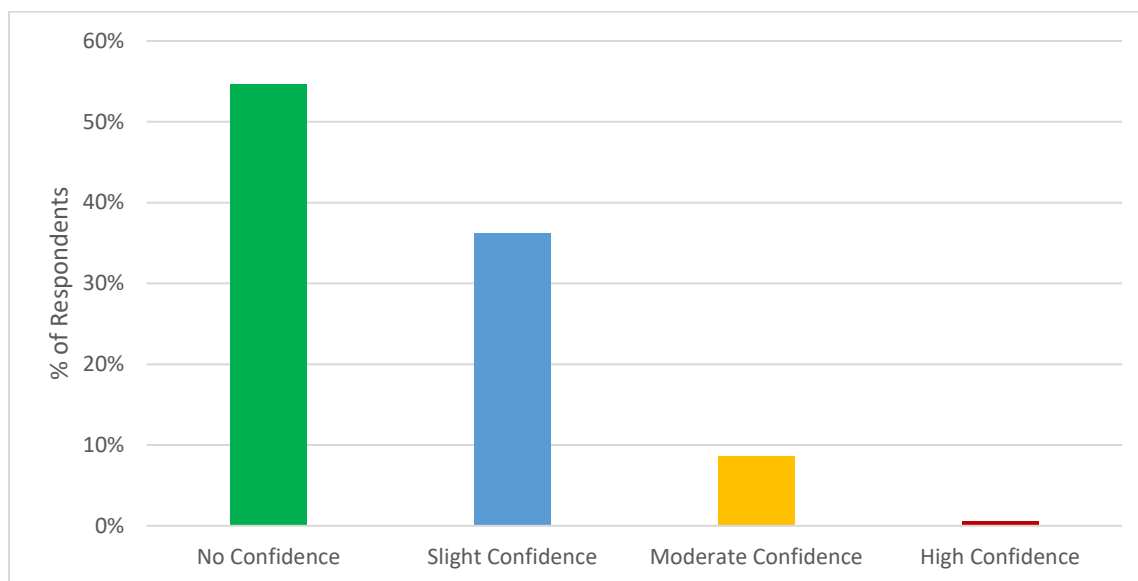
Exercise 1 (Inconsistent Headline)

Exercise 1 (Inconsistent Headline) featured an article from the *Washington Examiner* entitled “Study: One Third of Vegetarians Eat Meat When Drunk” (Takala, 2015). Only 14% ($n=69$) of students noted the claim made by the headline was inconsistent with the claims of the survey cited within the text. In contrast, students focused on other textual elements in the story: 44% ($n=225$) of students noted that the text referenced a marketing company, VoucherCodesPro, as the organization behind the survey and saw it as a sign of potential

bias, and 36% (n=182) critiqued the methodology of the survey described in the text of the story.

Overall, student responses indicated low levels of confidence in the article's claim that one third of vegetarians eat meat when drunk (see Figure 2). In total, 55% (n=280) of students had no confidence in the claim, and 36% (n=185) of students had slight confidence in the claim. Only 1% (n=3) reported high confidence in the claim, and 8% (n=43) reported moderate confidence.

Figure 2: Level of Students' Confidence for Exercise 1 (Inconsistent Headline)



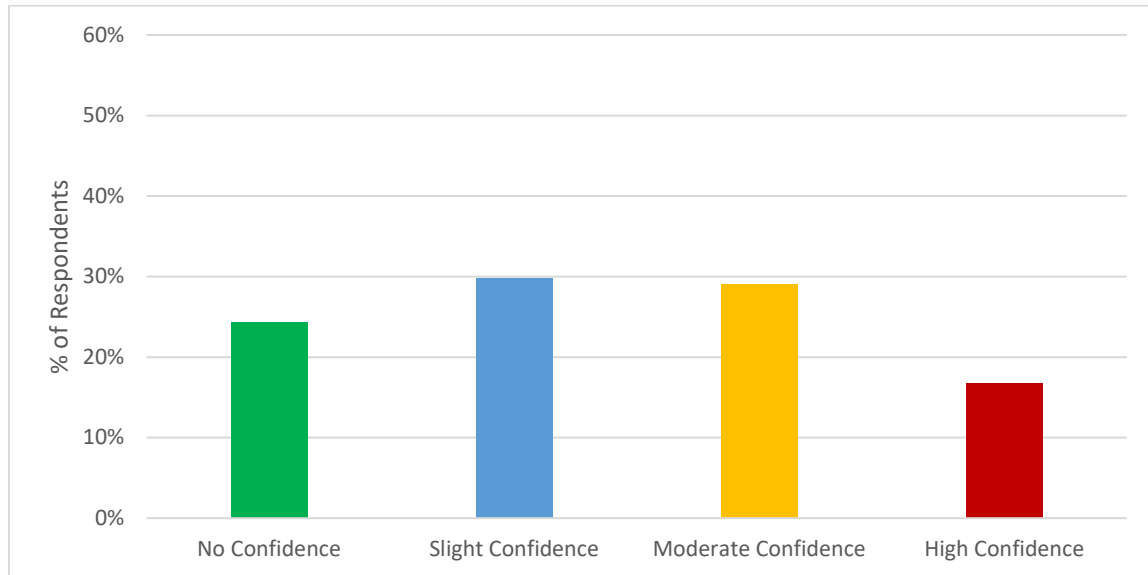
In their analysis of the source, many students focused directly on the text itself. In particular, they examined how the article described the cited survey. For example, 36% (n=183) specifically questioned the methodology of the survey described in the article. Moreover, 44% (n=225) of students expressed concern that the survey was designed by a marketing company. Notably, not many respondents referred to other elements of the publication as a factor for their evaluation. Only 7% (n=34) of students considered the source of the article itself (*Washington Examiner*) and very few students (2%; n=8) mentioned the presence of advertisements.

Exercise 2 (Syndicated Story)

Exercise 2 (Syndicated Story) featured a story on the Breitbart website about an aircraft interception between a Russian and an American fighter jet over the Baltic Sea on June 19,

2017 (Associated Press, 2017). The story itself was not written by Breitbart but was syndicated from the Associated Press (AP). Responses split fairly evenly across the categories of moderate, slight, and no confidence, with 29% (n=148) reporting moderate confidence, 30% (n=152) reporting slight confidence, and 24% (n=125) reporting no confidence (see Figure 3). A smaller portion of respondents said they had high confidence in the claim, 17% (n=86).

Figure 3: Level of Students' Confidence for Exercise 2 (Syndicated Story)



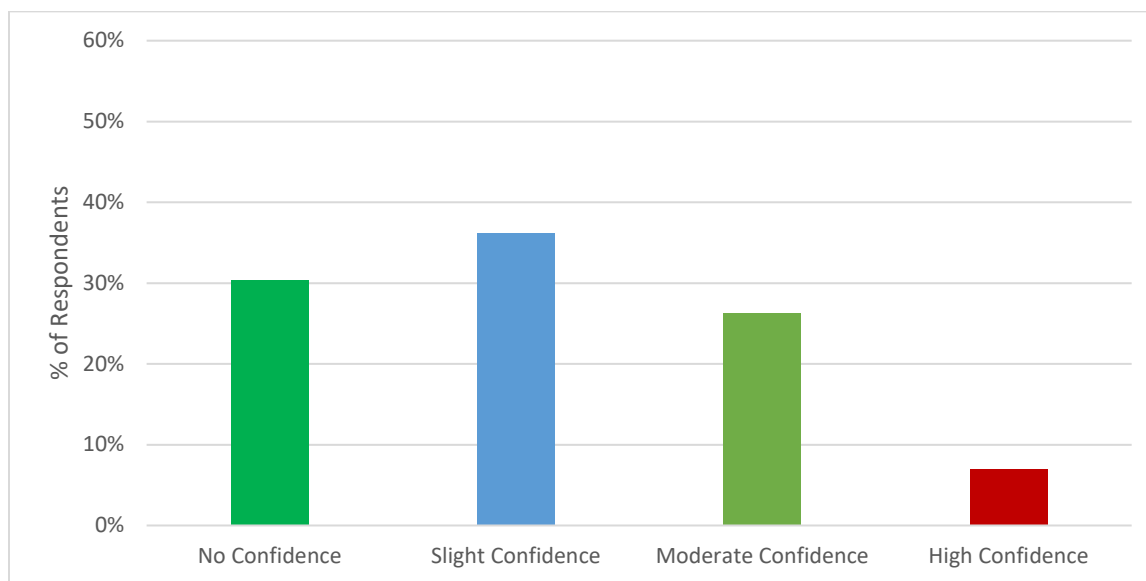
In their responses, most students did not identify that the content was from AP. Only 15% (n=75) specifically mentioned AP as the source of the content. Of these 75 respondents, 79% (n=59) had moderate or high confidence in the claim made in the story. More than a third of student respondents (35%; n=177) referred to Breitbart in their comments, and the majority of these students (69%; n=123) indicated slight or no confidence in the story's claim. Thirty-six of the 177 students also mentioned AP News. A small number of students (2%; n=12) were confused by the byline and thought the name of the author was "A. P." Likewise, some students (10%; n=50) expressed doubt about the authenticity of the story's accompanying photo.

Exercise 3 (Impostor URL)

Exercise 3 (Impostor URL) was a tweet that linked to a story claiming a Vermont pastor had been jailed for refusing to perform same-sex couple marriage ceremonies (Bream, 2015). The text of the tweet, authored by a Fox news correspondent, was accompanied by an

embedded preview of a story from NBC.com.co entitled “Christian Pastor in Vermont Sentenced to One Year in Pris...” The claim made in the embedded preview was, in fact, fake. NBC.com.co is an impostor website disguising itself as a legitimate news website. Regarding confidence in the story, 30% of students had no confidence in the claim (n=155), and an additional 36% (n=186) had slight confidence (see Figure 4). The rest of the responses mostly represented students with moderate confidence, 26% (n=134). A small number of students (7%; n=36) said they had high confidence in the claim.

Figure 4: Level of Students’ Confidence for Exercise 3 (Imposter URL)



Over a third of students (37%, n=190) struggled to recognize that the story came from an impostor source and mistook the story as coming from NBC. In their responses, students often paired NBC with terms like “reputable” or “credible.” Only 7% (n=37) of students recognized the suspicious URL, NBC.com.co. Of those 37 students, 89% (n=33) had no confidence in the claim while the remaining 11% (n=4) had slight confidence.

Students also noted that the story was presented in a social media environment, and some indicated this presentation was a reason not to trust it (14%; n=72). Comments ranged from cautious skepticism about news on social media to absolute distrust of content communicated through Twitter. Some students factored in the authority of the person who tweeted the story, specifically referring to the fact that the author of the tweet was a verified twitter user (5%; n=26).

Discussion

The survey and exercise findings have implications for understanding students' news consumption and evaluation practices. First, a large percentage of the students in this study indicated they are using social media platforms to access news. The news stories they encounter on these platforms are packaged in a certain format (tweet, post, etc.), which brings an additional angle to the evaluation process. Also, considering Allcott and Gentzkow's (2017) findings about social media and the spread of fake news, these students may be more likely to encounter fake news stories than users who access news outside of social media. This exposure to fake news is important when combined with the finding that students overall indicated that they perceive fake news to be more of a barrier to society's ability to recognize accurate information than to their own ability to do so.

Although students' news habits may increase their likelihood of encountering fake news stories, students may be less aware of the potential barriers fake news poses for themselves. One finding underscores this issue—students reported a willingness to share fake news. Of all the stories students engaged with in the exercises, the story from Exercise 3 (Impostor URL) was the one they indicated they would most readily share. However, most who reported they would share the story were not completely confident in its accuracy. Eighty-four percent (n=105) of the students who indicated a willingness to share the story reported a level of confidence in the claim of moderate or lower. More research is needed to understand the reasons that underlie this datapoint and whether it may be related to its format as a tweet or other factors.

Each set of student responses to the exercises contained notable trends. One trend across all exercises was the tendency for students to mention that they would like to examine additional sources as part of their evaluative process. For example, 23% (n=120) of respondents in Exercise 3 (Impostor URL) explained part of their evaluative process would involve tracking down additional sources. Some students who thought the source was from NBC might have reevaluated that belief if they had had the opportunity to search for corroborating information. Due to the nature of the screenshots, students were unable to click on the links within the news stories and could not easily pull up corroborating evidence. Further research could build on the work done with think-aloud protocols by Wineburg and McGrew (2017) and Silva et al. (2018).

In their evaluations of the story from Exercise 1 (Inconsistent Headline), students generally mentioned factors from within the text of the story, such as sample size, response bias, and word choice. While most students did not analyze the inconsistency between the story's headline and text as the researchers had expected, they often looked to textual clues in the main body of the story. Students who relied solely on these textual elements were generally distrustful of the news story. Few students mentioned elements external to the main text of the story, such as advertisements or the source of publication, as influencing their evaluation. Since Exercise 1 (Inconsistent Headline) contained essential information for making an accurate evaluation within the text, students likely could have made an accurate evaluation if the text of the story had been presented to them without other contextual clues.

The context, specifically the story's syndication, was key for students to make an accurate evaluation in Exercise 2 (Syndicated Story). Students who mentioned Breitbart in their evaluations tended to distrust the story, while students who mentioned AP had higher trust in the story. Of the students who mentioned AP, some realized the story was syndicated. Responses from these students included language like "republished in Breitbart" and "written by the Associated Press." Some other students, however, acknowledged the role of AP in the story—noting that the story "cites the Associated Press" or was "sourced from the Associated Press"—but did not include anything in their responses to suggest they understood the story was syndicated. Students who did not pick up on the syndication of the story, especially students who erroneously identified Breitbart as the creator of the story, tended to base their evaluation on factors that were not as key to the evaluation as the syndication. One striking example was a small set of responses that overanalyzed the content of the article. For instance, one student's response focused on the text:

Because of this recognized conservative slant, I would view the information in the article more critically in an attempt to recognize politically-charged claims . . . the use of the word in the title suggests a more violent, dramatic occurrence. This is a subtle yet effective way to draw the reader into the article.

Another response overanalyzed the story's featured photo: "I never trust news from Breitbart because they are so right wing and completely biased . . . the picture in the article appears fake to me." As was evident in the students' responses, knowledge of syndication as

a process can be valuable to a student's ability to make an accurate evaluation; conversely, this lack of knowledge can be a barrier.

In Exercise 3 (Impostor URL), like in Exercise 2 (Syndicated Story), the context surrounding the story was important to making an accurate evaluation. Only a small number of students acknowledged that the story linked in the tweet was published on a fake news site, NBC.com.co. All of the students who recognized that the story was from the fake website either had slight or no confidence in the tweet's claim about the pastor. Similar to the students who focused on Breitbart as the perceived content creator in Exercise 2 (Syndicated Story), students who based their evaluation on NBC in Exercise 3 (Impostor URL) were less able to make an informed evaluation of the claim made in the tweet. Nearly half of the responses that mentioned NBC had moderate confidence in the claim. For some students, the notion that NBC was the source clearly played a role in how they viewed the tweet's claim. For instance, one student used the misidentified publisher to resolve other misgivings about the story: "I'm generally skeptical of news on twitter, but [the tweet author] appears to be citing a reputable source in NBC." Other students relied on the publisher information to bolster their justification for believing the claim made in the tweet: "[the claim] is not so absurd that it is shocking or definitely false, and it also comes from a credible news source." The fact that many students missed the contextual clue of the URL underscores how agents of fake news and misinformation often target readers' overreliance on certain markers of credibility.

The findings from this study have implications for librarians and other educators. The major themes from Exercise 2 (Syndicated Story) and Exercise 3 (Impostor URL) fit well with the conceptual frames of the Association of College and Research Libraries (ACRL) *Framework for Information Literacy for Higher Education*. For instance, syndication relates to the frame "Information Creation as a Process." Students who detect syndication and factor it into their evaluation of a source are demonstrating an ability to consider "underlying processes of creation . . . to critically evaluate the usefulness of the information" (ACRL, 2015, p.14). By teaching about process-based elements of news media, like syndication, educators have an opportunity to help students grasp this important information literacy threshold.

The responses in Exercise 3 (Impostor URL) underscore the value students place on authority, especially in how they often cited NBC as a marker of credibility. This focus on authority brings to mind another frame from the *Framework*, "Authority is Constructed and

Contextual.” This frame encourages learners to be critical of social and knowledge systems because they are integral to what certain communities consider authoritative. While this frame highlights the importance of understanding the nuances of authority, it does not explicitly explore the implications of the type of false authority purported by fake news creators. The impostor URLs used by creators of fake news take advantage of readers’ trust in established news authorities, which is a very different sense of constructed authority than what is spelled out in the *Framework*. In this sense, when educators are asking their students to be critical of how authority is constructed, they should place emphasis not only on how authority is constructed within communities and systems but also on how bad actors can exploit authority within those systems.

Limitations

A limitation of the study is that students did not have the opportunity to explore additional sources before indicating their level of confidence in each story and whether they would share it. Many students indicated they would explore additional sources as a way to evaluate the claim, but, due to the nature of this study, the researchers were unable to take this aspect of evaluation into account. Additionally, the researchers provided screenshots of the news sources instead of links to the actual sources. While this approach was necessary to provide a uniform viewing and access experience for students and still include native content elements, like advertisements and the URL, it did not completely replicate the experience of reading the content in its original format. Because the orientation was required and had a time limit, the researchers were only able to present students with three examples of news media stories to evaluate. More time would have allowed for a greater variety of news media formats to be included and would have provided additional insights and data points.

Conclusion

Based on the data from this study, students are accessing digital news at high rates, particularly through social media channels. This finding is meaningful because of the complexities that digital news poses for readers, such as syndication and impostor URLs. This study indicates how these two features within today’s digital news environment present challenges to students in their evaluation processes. Additionally, the prevalence at which students in the study indicated they would share a tweet containing an impostor URL

highlights an urgency for educators to better understand how students evaluate digital news in order to help them learn to identify the fake news they may encounter.

The ability to effectively evaluate a claim made by a news source is a critical skill for students to develop. The opportunity for students to have authentic news evaluation experiences, to try out their skills in real time, and to learn to parse credible news from fake news will be vital now and in the future. The information environment is continuously evolving; therefore, students need exposure to real and fake news in an educational environment where they can learn how to become adept evaluators of the news they will encounter outside of the classroom.

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Appendix A: Survey Instrument

Q1-8 and Q13 of the survey involved questions related to past library use and research experience. Since these responses were not used in the present study, they are not included in this appendix.

Q9. Please click on all of the sources that you got news from about government and politics from this past week (Select all that apply)

- | | |
|--|---|
| <input type="checkbox"/> Local Television News | <input type="checkbox"/> MSNBC |
| <input type="checkbox"/> ABC News | <input type="checkbox"/> CNN |
| <input type="checkbox"/> CBS News | <input type="checkbox"/> PBS |
| <input type="checkbox"/> NBC News | <input type="checkbox"/> Glenn Beck Program |
| <input type="checkbox"/> NPR | <input type="checkbox"/> Ed Schultz Show |
| <input type="checkbox"/> Rush Limbaugh Show | <input type="checkbox"/> Rachel Maddow Show |
| <input type="checkbox"/> Sean Hannity Show | <input type="checkbox"/> The Wall Street Journal |
| <input type="checkbox"/> Washington Post | <input type="checkbox"/> USA Today |
| <input type="checkbox"/> New York Times | <input type="checkbox"/> Slate |
| <input type="checkbox"/> Drudge Report | <input type="checkbox"/> Politico |
| <input type="checkbox"/> Google News | <input type="checkbox"/> Mother Jones |
| <input type="checkbox"/> Huffington Post | <input type="checkbox"/> Yahoo News |
| <input type="checkbox"/> Breitbart | <input type="checkbox"/> Bloomberg |
| <input type="checkbox"/> The Blaze | <input type="checkbox"/> BuzzFeed |
| <input type="checkbox"/> Daily Kos | <input type="checkbox"/> Al Jazeera |
| <input type="checkbox"/> ThingProgress.org | <input type="checkbox"/> The Economist |
| <input type="checkbox"/> The Guardian | <input type="checkbox"/> A RSS Feed or a News App |
| <input type="checkbox"/> BBC | <input type="checkbox"/> I did not get news from any sources this past week |
| <input type="checkbox"/> The New Yorker | <input type="checkbox"/> Other _____ |
| <input type="checkbox"/> Fox News | |

Q10. Click on all of the social networking sites that you got news from about government and politics from this past week

- | | |
|--------------------------------------|--|
| <input type="checkbox"/> Facebook | <input type="checkbox"/> LinkedIn |
| <input type="checkbox"/> Twitter | <input type="checkbox"/> SnapChat |
| <input type="checkbox"/> Google Plus | <input type="checkbox"/> I did not use social media to get news in the past week |
| <input type="checkbox"/> YouTube | <input type="checkbox"/> Other _____ |

Q11. How do you define fake news? (Please provide your answer in one to two sentences)

Q12. Based on your definition of fake news:

	Not a Barrier	Somewhat of a Barrier	Moderate Barrier	Extreme Barrier
How much do you consider fake news a barrier to society's ability to recognize accurate information?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
How much do you consider fake news a barrier to your ability to recognize accurate information?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Appendix B: Exercise Set

Exercise 1

Examine the screenshot of the news article and answer the following questions below.

[The screenshot has not been included due to copyright restrictions. See Takala (2015)]

1. How would you evaluate the claim made in the story?
2. After looking at the screenshot of this article, how much confidence do you have that 1/3 of vegetarians eat meat when drunk? (Select one)
 - No confidence
 - Slight confidence
 - Moderate confidence
 - High confidence
3. Would you share this story with anyone via text, email, or social media? (Select one)
 - Yes
 - No

Exercise 2

Examine the screenshot of the news article and answer the following questions below.

[The screenshot has not been included due to copyright restrictions. See Associated Press (2017)]

1. How would you evaluate the claim made in the story?
2. After looking at the screenshot of the article, how much confidence do you have that a Russian jet intercepted a US jet over the Baltic Sea on June 19th? (Select one)
 - No confidence
 - Slight confidence
 - Moderate confidence
 - High confidence
3. Would you share this story with anyone via text, email, or social media? (Select one)
 - Yes
 - No

Exercise 3

Examine the screenshot of the tweet and answer the questions below.

[The screenshot has not been included due to copyright restrictions. See Bream (2015)]

1. How would you evaluate the claim made in the story?
2. After looking at the screenshot of the article, how much confidence do you have that a Christian pastor was jailed in Vermont for refusing to marry a same-sex couple?
(Select one)
 - No confidence
 - Slight confidence
 - Moderate confidence
 - High confidence
3. Would you share this story with anyone via text, email or social media? (Select one)
 - Yes
 - No

Appendix C: Qualitative Codes

	Exercise 1 (Inconsistent Headline)	Exercise 2 (Syndicated Story)	Exercise 3 (Impostor URL)
Preset Codes	<ul style="list-style-type: none"> Evaluates survey source/VoucherCodes Pro (Positive/Negative) Mentions inconsistency with headline or content Evaluates Washington Examiner/publication (Positive/Negative) Considers presence of advertisements as a sign of low credibility 	<ul style="list-style-type: none"> Evaluates the story's accompanying photograph (Positive/Negative) Evaluates Breitbart (Positive/Negative) Evaluates AP News (Positive/Negative) Considers presence of advertisements as a sign of low credibility 	<ul style="list-style-type: none"> Mentions impostor URL Evaluates NBC (Positive/Negative)
Emergent Codes	<ul style="list-style-type: none"> Critiques the statistics or methodology of survey Seeks additional sources for confirmation 	<ul style="list-style-type: none"> Expresses confusion of author byline Analyzes word choice of article Mentions prior knowledge of event or similar events Considers the use of citations in the story as a sign of high credibility Seeks additional sources for confirmation 	<ul style="list-style-type: none"> Indicates that the Twitter account is verified Notes the author of the tweet works for Fox News (Positive/Negative) Evaluates the reliability of social media (Positive/Negative) Mentions prior knowledge of event or similar events Seeks additional sources for confirmation

Appendix D: Selected Survey and Exercise Data

Table D1: Number of Students Who Reported Using Social Media in the Past Week to Get News

Yes	No
419	92

Table D2: Students' Perception of Fake News as a Barrier to Recognizing Accurate Information

Level of barrier	To society	To themselves
Extreme	210	25
Moderate	230	136
Somewhat	67	262
None	4	88

Table D3: Number of Students Who Indicated Willingness to Share a News Story

	Exercise 1 (Inconsistent Headline)	Exercise 2 (Syndicated Story)	Exercise 3 (Impostor URL)
Yes	63	77	125
No	448	434	386

Table D4: Students' Level of Confidence in News Story Claim

Level of Confidence	Exercise 1 (Inconsistent Headline)	Exercise 2 (Syndicated Story)	Exercise 3 (Impostor URL)
High	3	86	36
Moderate	43	148	134
Slight	185	152	186
None	280	125	155