COVID LESSONS ON INFORMATION LITERACY INSTRUCTION

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Abstract

This paper explores how the COVID pandemic and other geopolitical events highlighted the need for information literacy (IL) instruction in universities. We argue that teaching students to understand how corporatized information resources exist for profit is a cornerstone of helping transform them into responsible digital citizens and information-literate learners in the world. In this study, we explain misinformation and disinformation, then explore how our current information system spreads and nurtures this "disruptive communication" (Bennett & Livingston, 2021). Next, we provide examples of how academic libraries responded to the pandemic and sought to combat disruptive communication. This is contrasted with the catastrophic consequences witnessed worldwide due to the spread of misinformation and disinformation. To underscore the paramount importance of this, we provide examples of the outcomes of mis-/disinformation campaigns—including an attempted *coup d'état*. Because we have witnessed the devastation that a lack of IL can engender, it is evident that it should therefore be included in all university courses. we provide a handful of suggestions for instructors, along with teaching resources and other suggestions for further research.

Keywords: disinformation, information capitalism, information literacy, COVID-19, academic library

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Resumo

Este estudo explora como a pandemia da COVID e outros eventos geopolíticos destacaram a necessidade ensinar literacia informacional (IL) nas universidades. Neste estudo, defendemos que ensinar os estudantes que os de recursos de informação corporativos têm fins lucrativos é uma pedra angular para os ajudar a transformar em cidadãos digitais responsáveis e com literacia informacional. Neste estudo, explica-se o que é informação errada e desinformação e explora-se como o nosso sistema de informação atual dissimina e alimenta esta "comunicação confusa" (Bennett & Livingston, 2021). A seguir, dão-se exemplos de como as bibliotecas das universidades responderam à pandemia e procuraram combater a comunicação confusa. Contrasta-se esta prática com as consequências catastróficas testemunhadas em todo o mundo, devido à disseminação de informação errada e desinformação. Para sublinhar a importância deste facto, dão-se exemplos de resultados de campanhas de informação errada e de desinformação - incluindo uma tentativa de *coup d'état*. As consequências negativas que testemunhámos devido à falta de IL leva-nos a sugerir que esta competência deve ser incluída em todos os cursos universitários, pelo que apresento algumas sugestões para professores, juntamente com recursos didáticos e outras sugestões para mais investigação.

Palavras-chave: desinformação, capitalismo informacional, literacia informacional, COVID-19, biblioteca universitária

1. Introduction

During the COVID pandemic, access to authoritative, reliable information became a critical need around the world. Likewise, we are all increasingly concerned with information in the academic world. We teach it, consume it, analyze it, share it, question it, develop it,

and play with it. In a similar vein, it is vitally important in civic life, so much so that the United Nations, in Article 19 of the *Universal Declaration of Human Rights*, affirms that all human beings have the right "to seek, receive, and impart information and ideas, through any media and regardless of frontiers" (1948). Unfortunately, there exist few rules regarding the accuracy and veracity of that information, and companies or individuals profiting from knowledge have little reason to ensure access to authoritative information.

In this study, we explore the principle that "information has value" (ACRL 2016) and argue that students' understanding of this is essential for adequate information literacy (IL). For example, students should know that information has different kinds of value (i.e., economic, social, political), why it has value, who profits from it, to whom it is denied or restricted, how it is shared, and why it is exploited. Moreover, how do media outlets, influencers, and corporations make money from disruptive communication, and what do trolls and political leaders gain from misinformation?

The Association of College and Research Libraries (ACRL) defines IL as "the set of integrated abilities encompassing the reflective discovery of information, the understanding of how information is produced and valued, and the use of information in creating new knowledge and participating ethically in communities of learning" (2016). The ACRL Presidential Committee describes information literate people as those who "know how knowledge is organized, how to find information, and how to use information in such a way that others can learn from them. They are people prepared for lifelong learning, because they can always find the information needed for any task or decision at hand" (1989).

To teach IL, librarians may be embedded in courses for research help, provide one-on-one research assistance, or do one-shot instruction for classes in which they teach students how to search (besides by using Google), how to identify authoritative and/or appropriate sources, best strategies for research in databases, how to evaluate the validity of information they find, or simply how to physically navigate the university library. The

American Library Association (ALA) and one of its divisions, the ACRL, are two American organizations that have developed guidelines for IL standards. For higher education settings, the ACRL Framework for Information Literacy for Higher Education (ACRL, 2016) (referred to henceforth simply as the Framework) is a set of IL concepts that can be implemented and assessed through analysis of student knowledge practices and dispositions, which are also clarified in the Framework.

While it is beyond the scope of this work to provide step-by-step guidance on this, general suggestions for information literacy instruction are provided at the end of the study. All information consumers should therefore be aware of how information capitalism affects their information-seeking and -retrieval processes experience and thus their very reality. As academics, we should moreover be training students to interrogate information ecosystems, especially with a critical eye on the corporatization of information and the financial interests of those who act as gatekeepers to profit from it.

Before continuing, it is useful to define the terms "misinformation" and "disinformation." Bennett and Livingston (2021) use the umbrella term "disruptive communication" to encompass the terms "misinformation" and "disinformation." They characterize disinformation as "intentional falsehoods or distortions, often spread as news, to advance political goals such as discrediting opponents, disrupting policy debates, influencing voters, inflaming existing social conflicts, or creating a general backdrop of confusion and informational paralysis"; it is deliberate deception, in other words. Some examples include the following:

- Fake news such as news satire, news parody, "truthiness," news fabrication, advertising, propaganda, yellow journalism, defamation, decontextualization, clickbait, or sensationalism (Affelt, 2019; De Paor & Heravi, 2020; Singh & Brinster, 2018; Sahoo et al., 2021)

- Fake research including conspiracy theories, fake science (such as climate change denial), fake documents, fake history, or accurate information that is rejected or ignored (e.g., Holocaust denial) (Kakutani, 2018; Singh & Brinster, 2018)
- Fake content creators such as bots imitating real people (Kakutani, 2018; Walker, 2021)

Misinformation, on the other hand, is the result of sloppy research practices, unclear communication, or misunderstanding, and the intent is not necessarily nefarious. Examples include decontextualized photos, inaccurate memes, inexactness in details such as dates, or misleading hype.

2. University library responses to COVID

When the World Health Organization (WHO) declared COVID a pandemic on March 11, 2020, universities around the world responded by moving classes online. For academic libraries, working within newly introduced lockdown restrictions meant sending materials by mail or email, negotiating new licensing agreements with vendors, helping instructors adapt course content for learning management systems, creating specialized research guides known as libguides, and modifying patron services and programming.

Librarians archived the public's accounts of time spent in lockdown, recorded and published stories of the loss of friends and loved ones, helped patrons navigate and respond to developments in COVID research, and more. They curated data, research, and evidence synthesis resources, and created data visualization tools to help scientists stay informed and aid the public in health literacy (Yu & Mani, 2020; Xie et al., 2020). Medical and health science libraries worked to thwart the spread of disinformation and misinformation through information literacy instruction. They created libguides with special subject queries to connect users with organizations including the National Health Institute, Centers for Disease

Control and Prevention, the White House, and the National Science Foundation, all sites publishing credible, timely information (Yu & Mani, 2020).

The scholarly communications world also responded to the need for accurate, timely, and accessible information. Many scholarly journals switched to open access (OA) models, meaning that their articles and resources were no longer behind paywalls. OA also meant that researchers could easily and quickly share information, bypassing the lengthy peer review process. Researchers could now post their work online and invite their peers and the public to respond swiftly, making the article a living document constantly updated with the latest research. Besides helping researchers, OA meant that the public could follow along with the latest studies, providing "information transparency" (Xie et al., 2020). Even Netflix began providing Educational Screenings Permission for certain films, rather than charging licensing fees.

3. **Weaponization of information**

While the aforementioned examples of thoughtful information curation are encouraging, it is important to consider the opposite: the consequences of "disruptive information" (Bennett and Livingston, 2021) developed by bad faith actors.

Jonathan Haidt (2022) points out that the internet and especially social media played key roles in political movements in the 2010s. The Arab Spring in 2010-2011, for instance, was made possible through Twitter, Facebook, YouTube, blogs, and online media. In 2011, much of the Occupy Wall Street movement was archived online and the People's Library was set up; alternative media in the form of print newspapers, live streams, documentary films, and open-access journalism recorded and responded to events. The same year, Google Translate made translation simpler (and would soon become the bane of foreign language teachers' existence). Information sharing had become increasingly easy, and the information ecosystem seemed to be changing the world for the better.

Then, within less than a decade, information sharing had morphed into a threat to both democracy and the world's health. Information and truth had (for some) become merely performative, of value only insofar as it produces a desired result.

In one example, former president Donald Trump and his White House team began their tenure by embracing misinformation and disinformation for the sake of political gain, one example of how "information has value." They wielded information in the form of "alternative facts," and by declaring anything contrary to their narrative to be "fake news." The dishonesty only grew. "By the time President Donald Trump reached his 1,055 day in office (December 10, 2019), he had misled or lied to the American people 15,413 times. In one stretch prior to the 2018 midterm elections, he averaged thirty false or misleading statements per day" (Bennett & Livingston, 2021). Fact-checkers at *The Washington Post* newspaper even tracked this phenomenon for the public, filling a database with over 30,000 of his lies and misleading claims during his four years in office (Kakutani, 2018; *The Washington Post*, 2021).

Similar deployment of purposeful mendacity by public figures and news outlets has also had frightening consequences. Disinformation on sites such as Reddit, 4chan, and 8chan led one man to enter a Washington, D.C., pizza parlor with an AR-15 rifle, believing the site was the center of a satanic human trafficking and child sexual abuse ring headed by Democratic Party leaders (De Paor & Heravi, 2020; Jaeger et al., 2018). This conspiracy theory morphed and persisted, leading to the January 6, 2021 attempted coup at the United States Capitol.

> [The insurrection] revealed…the dire state of information literacy in [the US]…The mob terrorizing the Capitol was intoxicated by [Trump's] lies. By ignoring all of the very open and credible threats being discussed on social media in the weeks before the planned insurrection, the law enforcement officials tasked with protecting the Capitol also displayed a dire lack of

information literacy. Disinformation was a cause, if not the catalyst, for the events of that dark day. (Jaeger et al., 2018, p. 248).

In another example, a scholarly journal published an article in which the author claimed that COVID was not deadly. Those adhering to or promoting anti-vaccine and anti-mask measures quickly latched on to the supposedly authoritative piece. It went viral and was shared over 18,000 times on Twitter alone; r/conspiracy and r/Conservative subredditors shared it; the citation appeared in newspapers, and it was referred to on the Fox News channel as proof of a COVID conspiracy. Eventually, however, the article was retracted due to unsound methodology and instruments, and the research was not, in fact, peer-reviewed (Bajak & Howe, 2020). Nevertheless, the disruptive communication had done its damage. Consequently, Haidt characterizes present-day America as a "fractured country" where the public lives in two separate realities: "It's been clear for quite a while now that red America [i.e., conservatives] and blue America [i.e., leftists and progressives] are becoming like two different countries claiming the same territory, with two different versions of the Constitution, economics, and American history" (2022).

Such poisonous forms of information are, unfortunately, not only an American phenomenon. During the COVID pandemic, rumors spread throughout the world that the virus was being used by governments or by Jewish financier George Soros to manipulate citizens or to suppress Islam; people died from injecting bleach or drinking methanol, believing these were miracle cures for the virus; public figures calling COVID "the Wuhan flu" or "the China virus" led directly to a spike in hate crimes against Asians (Breakstone, et al., 2021; Escobar, 2020; Gostanian, et al., 2020; Haidt, 2022; Jaeger et al., 2018; Vazquez, 2020). Tedros Adhanom Ghebreyesus, Director-General of the WHO, underlines the consequently seminal role information has played during the pandemic, stating, "We're not just battling the virus…We're also battling the trolls and conspiracy theorists that push misinformation and undermine the outbreak response" (WHO, 2020). "A public health crisis

is also an information crisis," state Yu and Mani (2020, p. 2). The disinformation undoubtedly contributed to the over six million worldwide deaths from COVID and the over 600 million cases of it worldwide (WHO, 2022).

Disruptive communication practices have been employed throughout human history, but the current threat is largely due to the speed with which disruptive communication spreads without a check (Foster, 2022; Haidt, 2022; Sahoo et al., 2021; Walker, 2021). In fact, fake news is shared up to six times faster than legitimate news (Foster, 2022), consequently creating a climate of what Kakutani calls "truth decay" (2018). This lack of consensus means that there exists very little stable ground upon which a society can establish truth when groups of people experience different, contradictory realities, as pointed out by Haidt (2022) above.

4. Information capitalism

Thus, from an academic viewpoint, to be ethical information handlers, universities must embed IL instruction in their curricula and/or interrogate existing IL instruction and practices to match the "firehoses" (Haidt, 2022) of information with which students, faculty, and the wider public are faced. Traditional gatekeepers of information—such as the press, peer reviewers, teachers, or experts—no longer have the sole means of creating and sharing information. With the widespread availability of the internet and social media, more people are given platforms for sharing virtually any unverified and undigested information, and "[s]ocial media, network effects, search engine optimization, recommender algorithms, instantaneity, widespread usage of mobile devices, and data-driven micro-targeting" (Foster, 2022) connect the like-minded easily and keep us in information bubbles.

For these reasons, teaching the conceptualization of an information ecosystem shaped by information capitalism—i.e., "commodification of information, information labor, concentration of ownership, and audience data extraction/surveillance" (Foster,

2022)—can help make information consumers aware that their attention is a product. In the Information Age, information has become a form of currency, so data and knowledge have consequently become big business.

As just one example of this phenomenon, the largest scholarly journal publisher and data analytics company in the world, Elsevier, made over $4 billion in profits in 2019 (MIT Libraries, 2022). Amazon Books, Prime, and Amazon Web Services (i.e., its cloud) increased Amazon profits by 220% (Weise, 2021).

In *Algorithms of Oppression: How Search Engines Reinforce Racism* (2018), Safiya Noble explains this phenomenon: information is power and profit; that is, "information has value." Clicks mean money. Noble argues, "Ultimately the results we get [from our search queries] are about the financial interest that Google or SEOs [search engine optimization] have in helping their own clients optimize their rankings" (p. 49). Here are just three examples of how information capitalism has real-world consequences:

1) *Radicalization*: Noble found a pattern of exacerbatory search results that reinforced negative stereotypes and led users toward increasingly extreme content. As an example of the algorithmic rabbit hole, she points out that the terrorist who murdered nine black churchgoers in Charleston, South Carolina, USA in 2015 was radicalized this way, by being algorithmically manipulated towards more and more radical white supremacist content on YouTube. Users are essentially pulled into a black hole, an information bubble created in order to keep them online, with ad revenue growing with each click.
2) *Data profiteering*: Data harvesting by academic publishers has become ever more embedded in university libraries because of the increasing use of e-resources. At the same time, facing their own financial troubles due to the slow death of the printed scholarly journal, they have consequently moved into the field of predictive data analytics, collecting, bundling, and selling data from library users in order to turn a profit (Lamdan, 2019). Academic libraries have consequently become complicit as information marketplaces for user data at the expense of patron privacy.

3) *Gatekeeping*: Publishers increasingly control what information is available in libraries since they now sell academic journals mainly through what are called Big Deals, which are databases, ebooks, electronic journals, etc. bundled into digital packages, which universities are usually forced to purchase as a unit. (Some subscriptions for a single journal can cost tens of thousands of dollars; some Big Deals hundreds of thousands of dollars.) These publishers can also delete journals, ebooks, and platforms without even notifying a school, lessening librarians' control over their collections.
4) *Exploitation*: Copyrights, low-wage library labor, textbook sales by oligopolies such as Pearson and McGraw-Hill, pay-to-publish scholarly communications, paywalls, licensing deals, and fines/fees are some of the other ways that information capitalism operates in the academic library (Ellenwood, 2020; IFLA, 2021).

5. Suggestions for Universities

We like to say that our students are digital natives, i.e., that they have grown up with the internet. Thus, the reasoning follows, they must be savvy about using this technology; some indeed are. Most students use some sort of middleware such as virtual private networks, pop-up blockers, or firewalls to limit tracking. In addition, they may protect their privacy by having burner email addresses, multiple social media accounts, or messaging apps that provide encryption. They are thus aware, at least, of information manipulation by corporate and political interests (Head, 2021). In one study, a student stated, regarding online tracking, "It's a horrible, totalitarian hellscape, but it's kind of the best we can reasonably expect" (Head et al., 2020).

Despite such knowledge, however, most students do not understand the information ecosystem in which they are enmeshed. Studies show that most students do not understand the concept of peer review, cannot spot a fake scholarly or news article, and use only primitive search techniques in their research (Head, 2021; Head 2016; Head et al., 2013). These students will graduate and take part in civic life, and their preparation for this must

ready them for life in the Information Age; they must know how to locate and consume accurate information.

Librarians used to instruct students to apply acronymic tests to evaluate information, one being the CRAAP test in which students evaluated the currency, relevance, authority, accuracy, and purpose of information. Another was the SIFT test—stop, investigate the source, find trusted coverage, and trace claims to the original source. These are both useful rules of thumb, but were developed "in a time when *you found information*, before the dramatic shift to *information finding you*" (Bull et al., 2021) (original italics). CRAAP and SIFT have been described as "fairy-tale information literacy models" (Hicks, 2017, p. 74) that do not necessarily reflect real-world information-seeking behavior, which tends to be much less linear than these strategies.

Academic libraries and teaching faculty, as well as university administrators, should make information literacy a priority, using critical information literacy to interrogate information capitalism. If we understand the university as participating in the creation of social justice and civic education, this work must be built on a foundation of rigorous insistence on truth. This critical IL:

> [I]magine[s] education as a site for generating social change. Critical information literacy is not limited to instruction; instead, it is a way of thinking about information literacy as a whole as it is expressed across various sites, from libraries' educational efforts to the professional and societal forces that shape these activities. (Tewell, 2018)

Universities should therefore incorporate the following strategies:

1) Studies show that it is vital that IL be incorporated *across the entire curriculum*, at each stage of students' intellectual development, and that library faculty should collaborate with other teaching faculty to embed IL in all courses (Grafstein, 2008; Head et al., 2013; Head, 2016; Long, 2020).
2) Students must be trained to search for *information alternatives*: alternative search engines, different viewpoints in different formats, open access versus subscription content,

inclusion of BIPOC authors, use of traditional and indigenous knowledge systems, and so on.

3) They must be trained to *recognize and question power* in information. That is, whose work is published? Who can access it? How do we talk about historically marginalized groups in our metadata? Students must challenge colonized epistemologies and make room for different ways of knowing. Alison Hicks (2017) advocates for a sociocultural approach to information literacy, that is, acknowledging and incorporating "collaborative and shared information activities" (p. 77) such as storytelling, coffee talk, even the use of visual information due to lack of language proficiency (especially for refugees and migrants), or even the use of other senses such as smell.
4) Students should learn to practice *meta-awareness* of their own information behaviors.
5) In *Civic media literacies: Re-imagining human connection in an age of digital abundance* (2018), Paul Mihailidis advocates for *IL from a community-minded, social justice perspective*. Although he concentrates on media literacy in particular, he advocates for IL instruction and contextualizes it as a social good—if not a social necessity—and lays out five constructs that should drive information production, consumption, and distribution: caring, critical consciousness, imagination, persistence, and emancipation.
6) Faculty members should *collaborate* to seek out research on IL approaches. Academic librarians have developed IL courses, such as Google Is Goodish, to teach students that the best query results are not necessarily at the top of the results list; that search results can be manipulated according to the user's device or location; that special interests can nudge users towards fake websites and pseudoscience; that Google Scholar is not a true database; and more (Lacey, 2021). (A list of fact-checking sites and resources for IL are listed at the end of this study in Resources.)

6. Conclusion

A fundamental shift in human interaction with information consequently requires a wholesale change in attitudes towards IL by the university. Noble warns, "Internet-based

activities are dramatically affecting our notions of how democracy and freedom work, particularly in the realm of the free flow of information and communication. Our ability to engage with the information landscape subtly and pervasively impacts our understanding of the world and each other" (2018, p. 52).

Moving forward, Library and Information Science professionals, in concert with teaching faculty, should develop a praxis of examining the socioeconomic and political forces behind the production, interpretation, and distribution of information, as well as critically investigating those who participate in the information ecosystem. Possible future research avenues should be informed by the awareness of the weaponization of information. Topics for future study may include longitudinal studies of patron IL behavior, investigation into user surveillance by library vendors, and development of subject-specific IL learning modules.

Academic libraries continue to adapt their services and collections to the post-pandemic reality. With the inevitable changes these organizations face, greater awareness of the impacts of information capitalism should be combined with developing knowledge of best practices in libraries in order to combat disruptive communication.

7. Resources

From the ALA's resource guide, *Evaluating Information*:

- FactCheck.org

  A nonpartisan, nonprofit aid for US voters.

- Hoax-Slayer

  A go-to site on internet security to prevent scams, hoaxes, spam, and more; promotes IL.

- PolitiFact

  A fact-checking website focused on claims by US politicians.

- PunditFact

  Similar to PolitiFact, a fact-checking website focused on political pundits.

- Snopes.com

  Originally for researching urban legends, a site for checking a plethora of claims found on the internet.

- TruthOrFiction

  Provides research on topics usually forwarded by email, such as inspirational stories, urban legends, prayer requests, etc.

- Verified

  Launched by the UN to provide accurate information on COVID.

7.1 Resources for teaching IL:

- ALA Resolution on Access to Accurate Information: https://www.ala.org/advocacy/intfreedom/statementspols/ifresolutions/accurateinformation
- ALA, Libraries Respond: Combating Xenophobia and Fake News in Light of COVID-19: https://www.ala.org/advocacy/libraries-respond-combating-xenophobia-and-fake-news-light-covid-19
- Creative Commons: https://creativecommons.org/
- Framework for Information Literacy for Higher Education (in English, Mandarin, French, German, Italian, Persian, Spanish, Swedish): https://www.ala.org/acrl/standards/ilframework
- Hinchliffe, J., & Wolff-Eisenberge, C. (2020). US academic library response to COVID-19 survey: https://tinyurl.com/covidlibrary
- IFLA infographic, How to Spot Fake News: https://www.ifla.org/resources/?oPubId=11174

- LitCovid: for the most up-to-date research on COVID-19: https://www.ncbi.nlm.nih.gov/research/coronavirus/
- NewsGuard, Coronavirus Misinformation Tracking Center: https://www.newsguardtech.com/special-reports/coronavirus-misinformation-tracking-center/
- NYT Edu, "Evaluating Sources in a 'Post-Truth' World: Ideas for Teaching and Learning About Fake News": https://www.nytimes.com/2017/01/19/learning/lesson-plans/evaluating-sources-in-a-post-truth-world-ideas-for-teaching-and-learning-about-fake-news.html
- WHO: Mythbusters infographics: https://www.who.int/emergencies/diseases/novel-coronavirus-2019/advice-for-public/myth-busters

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