Reference and Information Services

An Introduction

Seventh Edition

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Chapter 10

Introduction to Information Creation and Dissemination

Laura Saunders and Melissa A. Wong

INTRODUCTION

Part III of this book introduces the tools that information professionals use to locate answers and fulfill information needs. The following chapters will provide an overview of various resources grouped broadly by type or format, such as encyclopedias, bibliographies, and indexes as well as by subject area, such as government, health, and legal information. While each chapter will introduce a variety of specific reference titles, the real focus is on the purpose, function, and utility of the resource type. In other words, while most information professionals will be familiar with the *Encyclopaedia Britannica*, it is more helpful to know that sources *like Britannica* are helpful for general adult audiences to get an overview of a broad array of subjects, and for high school and college students to engage in pre-research to gather background information on a topic. Similarly, while it is useful to be familiar with *PyscINFO* or *ABI/INFORM Global*, it is more important to know that indexes *like* these compile information—usually peer-reviewed articles but often conference proceedings, trade

publications, book reviews and other pertinent materials as well—that offer researchers in-depth access to the literature of a discipline.

In fact, as resources continue to morph online, and as libraries make difficult collection decisions with reduced budgets, it is impossible to know what specific resources any information professional will have at their disposal in any institution. Thus, rather than learning individual titles, information professionals should understand how broad types of resources work, how to use those resources efficiently and effectively, and what kinds of questions or information needs are best served by those resource types. Once librarians understand the function, purpose, and use of resources like catalogs, bibliographies, or dictionaries, they can transfer that knowledge to evaluate and search whatever resources are available to them.

Part of understanding the purpose, function, and use of various information resources is understanding the information life cycle. Each type of information resource, and, indeed, each piece of information, passes through various phases from the initial creation of the information to its publication, which may or may not include various editorial processes, to dissemination, organization, and retrieval. Understanding the stages of the information life cycle, and the various permutations of the life cycle that apply to different information formats, can help the information professional identify the appropriate resource needed to answer a particular type of question or information need. Further, in understanding the information life cycle, librarians and other information professionals can examine the various methods for accessing different formats and types of information and can analyze where and how bias might be reflected in the sources.

This chapter provides a framework for Part III of this text. It describes the general information life cycle, as well as several variations on the life cycle specific to particular information formats. It examines trends in publishing and scholarly communication and

describes how disciplinary differences impact access and use of information sources. Finally, it concludes by examining issues of bias and representation, including how these manifest in the sources upon which information professionals rely, and how those professionals can recognize and minimize their impact.

THE INFORMATION LIFECYCLE

The information lifecycle describes the process through which any piece of information moves from an idea to a representation that can be saved, stored, accessed, retrieved, and shared. Figure 10.1. offers an illustration of that cycle.

THE INFORMATION CYCLE

When an event occurs, information becomes available in stages.

DAY OF

Social Media
Television
Breaking news information, may lack detail or contain errors.

WEEK OF

Newspapers
Provide more detail, may offer background information or context.

WEEK AFTER

News Magazines
Popular Magazines
Provide more detailed coverage, offer information on background, causes, impact.

MONTHS AFTER

Scholarly Journals
Provide in-depth information and analysis, focus on specific aspects of event.

YEAR OR LATER

Books
Government Reports
Offer in-depth information with commentary or analysis, may discuss social or policy impacts.

Encyclopedias / Reference Works
Summarize event and its impact.

<<INSERT Figure 10.1 filename:fig10-01 Caption: The Information Cycle Infographic: This figure depicts the progression of media coverage of a news story, from hours after the event unfolds, through the days and weeks following, up to a year or more after the event.>>

Broadly, each piece of information—each book, article, index, and so on—goes through a five-stage cycle:

1. **Creation:** An idea or event is captured in a material representation such as a book, image, or article.
2. **Publication or Dissemination:** The information representation is made available to others, either through a traditional publishing process such as an article printed in a scholarly journal, or through a self-publishing process such as a blog or social media post.
3. **Organization and Storage:** The published information is tagged with metadata and stored in such a way that it can be discovered and accessed by others. Such "tagging" could be a formal and manual process, such as library cataloging, or could be automated, such as by a web crawler. The information could be stored in a library, bookstore, archive, database, or the cloud.
4. **Access and Retrieval:** The information is searchable and discoverable by other people. In some cases, access to the information might be limited by paywalls and subscriptions, and in other cases it may be freely available.
5. **Re-use:** The discovered information will often serve as the basis for new ideas and the cycle starts over.

While the above list describes a broad information lifecycle through which nearly any piece of information flows, there are variations on this process that apply to specific formats and types of information. These are expanded upon below.

The Information Lifecycle of News Events

When an event takes place, or news "breaks," reporting on and analysis of that news will follow a particular cycle (University of Nevada Libraries 2016). Even as the event unfolds, information will be created and shared. Depending on the severity and anticipated interest of the story, local and perhaps national broadcast news stations will follow the story and offer updates, often promoted as "breaking news" stories. At the same time, eyewitnesses and others might share news about the event through social media platforms such as *Twitter* and *Facebook*. It is worth remembering that it can be difficult to verify facts in the midst of an unfolding event. While news outlets will strive to only share verifiable facts, in the rush to post news, some outlets might share misinformation. Over the next few days, newspapers will publish stories reporting the main details of the event, while broadcast stations will continue their coverage with additional details and perhaps some early analysis. During this time, news outlets will generally correct any misinformation from initial broadcasts. Discussion of the story might continue on social media. These initial reports on a story can be considered primary source material, as they were created in the moment.

Over the next few weeks, the story might get picked up by news magazines, which will generally gather all of the details and provide an overview of the story up to that point, along with an analysis of the event's significance or effects. With time and further analysis, the story might be covered in scholarly articles and books. Often scholarly articles will offer an in-depth examination of one aspect of the story. Books might offer a history or gather various

perspectives on the story. These magazines, scholarly articles, and books are considered secondary sources, as they report on and analyze events after the fact. Eventually, the story might also be covered in tertiary sources like encyclopedias that offer summaries of significant events.

The news information lifecycle can be illustrated with an event like the 2018 eruption of the Kilauea volcano on the island of Hawaii. The volcano began erupting in May of 2018. Major media outlets covered the eruptions almost immediately on television and online through social media and other streaming services. At the same time, residents, tourists, and members of the public shared information on social media. As often happens, in the chaos immediately following the event, some inaccurate information was shared which led to confusion about the scale of the eruption, the extent of the damage, and how much of the island was impacted. Over the next few days, news outlets continued to cover the story, verifying and correcting details, and providing updated information. In the weeks and months following the eruption, the U.S. Geological Survey (2023) issued daily and weekly updates on its website and scholarly articles were written about the event.

The Information Lifecycle of Scholarly Information

Scholarly information, including scientific discoveries, have their own unique information lifecycle. Scholarly information is often based on research, ranging from experimental research taking place in a lab to historical research poring over primary resources in an archive. Scholars test theories and develop ideas, which they share through journal articles or scholarly books, called monographs.

Most scholarly information goes through an extended editorial process known as peer review. During the peer review process, book and journal editors recruit scholars to read and comment on manuscripts that have been submitted for publication. These scholars are experts in

the field, and their job is to review the manuscript for overall quality and adherence to the ethical and research standards of the field. As peer reviewers read the manuscript for the quality and logic of the argument, they are also expected to assess whether researchers have employed appropriate methodologies and statistical tests, considered all of the relevant literature on a topic, and drawn reasonable inferences and conclusions based on their data. The reviewers will generally make a recommendation to the editor to publish the manuscript, reject the manuscript, or ask the author for minor or major revisions. Many publishers use a double-blind peer review process meant to reduce bias. In this process, the manuscript authors' and reviewers' identities are not revealed to each other.

While peer review is considered an important check on quality, it can slow down the publishing process, with some manuscripts taking six months to two years to move from submission to publication. It is also important to note that the peer review process is not perfect. Although experts in their fields, peer reviewers work on a volunteer basis and are generally performing reviews as an added task on top of their own research and other scholarly and teaching responsibilities. Tight deadlines and lack of reviewers mean that scholars might occasionally be called on to review manuscripts that are not very well aligned with their personal areas of expertise. As a result, some mediocre, flawed, and even falsified research has occasionally passed through the review process and reached publication. In time, many of these writings have been retracted (*Retraction Watch* is one source for identifying retracted research). However, the misinformation shared in these writings often persists even after retractions. Thus, when conducting literature searches, it is important for information professionals to assess each source on its own merit, regardless of whether it has been previously peer-reviewed, and to teach

their patrons to do the same. Further, as discussed in more detail later in this chapter, peer review is subject to bias in the same way as other information publications and productions.

While scholarly information is usually published first in academic journals and monographs, some intriguing or popular topics will eventually be picked up by mainstream news sources as well as magazines and websites. For instance, an article in the *Los Angeles Times* (Netburn 2023) discusses a study from *PNAS* which shows that "relational diversity," or engaging in a variety of types of social interactions on a regular basis, supports well-being (Collins et al. 2022). Some research might eventually be covered in tertiary sources like encyclopedias. The entry on social support in the *Encyclopedia of Environmental Health* cites several research studies like the one from *PNAS* (Stansfield and Khatib 2020). See Box 10.1 for an activity on the information life cycle.

Start Box 10.1: Activity: The Information Life Cycle

Choose a piece of information of interest to you. This could be a favorite book, an interesting newspaper or journal article, or even a tweet. See how much information you can discover about each stage of the information life cycle for that information.

Questions for Reflection and Discussion:

1. Creation: Who created the information? What can you learn about them?
2. Publication or dissemination: How was this information shared? Who might have had access to this information? Did it go through any editorial, fact-checking, or other kind of review process? How do you know?
3. Organization and storage: Where and how was this information stored? Has the information been organized in some way that might help you to find it (e.g., does it have a subject heading, hashtag, or other metadata attached to it)?

4. Access and retrieval: How might an interested person go about finding this information? Is it listed in a library or publisher's catalog, in an index, or online? Would one need to subscribe to access it?
5. Re-use: Can you find any examples of the original information being reused in some way? Has it been cited somewhere? Made into a movie, television show, or even a meme? Has it been shared on social media?

<<End box>>

Disciplinary Differences

Recognizing that scholars engage with one another by sharing their research, and that new scholarship builds on existing ideas, often attempting to replicate, extend, or challenge previous research, the Association of College and Research Libraries (ACRL 2016) describes scholarship as a conversation. In its in its *Framework for Information Literacy for Higher Education,* ACRL explains that:

> research in scholarly and professional fields is a discursive practice in which ideas are formulated, debated, and weighed against one another over extended periods of time. Instead of seeking discrete answers to complex problems, experts understand that a given issue may be characterized by several competing perspectives as part of an ongoing conversation in which information users and creators come together and negotiate meaning.

ACRL (2016) goes on to note that it can be challenging for novices to enter the conversation but that "developing familiarity with the sources of evidence, methods, and modes of discourse in the field assists novice learners to enter the conversation." In other words, understanding the information landscape means not just understanding the information lifecycle

and the types and formats of sources as they are laid out in this textbook, but also understanding that across disciplines certain kinds of information are preferred or sanctioned over others. In order to fully participate in the conversation of the field, scholars must recognize and learn to negotiate these landscapes.

For instance, while peer-reviewed journal articles are favored in most disciplines, humanities and history scholars also rely heavily on monographs. Physical scientists are often concerned with lab reports and original research studies. Many natural and social scientists are also interested in access to data sets. Historians and scholars in related disciplines like anthropology often seek access to primary and archival documents. Political scientists and journalism and communications scholars might be as interested in the newspapers of the day as they are in peer-reviewed research. The preferred format and source for each scholar depends on their discipline, but also on the focus of their research question. A scientist involved in cutting-edge medical research will likely only want the most current data and original research reports, while a scholar studying the history of science might also be interested in the diaries, letters, and lab notes of scientific researchers.

Research suggests not only that these disciplinary differences in source preference exist, but that faculty members are interested in academic librarians expanding the range of resources they demonstrate to students during in-class instruction sessions to pay more attention to these differences (Saunders 2012). It is worth noting that different types and formats of information sources might also entail different methods of assessment. For instance, currency might be paramount for technical, medical, and scientific information, but less important for historical research. When evaluating research articles in the social sciences, readers must assess the methods used including sample sizes, statistical tests, and so on, while an assessment of a literary

criticism might focus more on the logic of the argument and interpretations and the faithfulness to the source text. Just as scholars must learn the methods and sources of their discipline in order to engage in the scholarly conversation, the same holds true for the information professionals who facilitate access and guide scholars and students in their research.

ACCESS MECHANISMS

The information lifecycle, along with disciplinary norms and values, influences how information is published, organized, and accessed. At the most basic level, librarians distinguish between primary, secondary, and tertiary sources. Distinct types of sources emerge at different stages in the information lifecycle and are collected and accessed in specific ways. Librarians also distinguish between different types of publications, recognizing that publication type contains clues to the information contained therein and that specific library tools were created to access different types of publications. For example, books contain more in-depth information and because they were traditionally purchased and added to a library's collection, are identified through library catalogs, while periodical articles may be briefer, but also more up to date, and are usually accessed via an index.

Increasingly, the lines between these access tools are blurring. Search engines, originally created to locate websites, now also draw on the content of books, periodicals, and special collections to provide relevant results to users. Within the library, discovery searching, discussed in Chapter 12, can provide access to a wide range of the library's content, from books and periodical articles to reference works, special collections, and library guides. Table 10.1 at the end of this section summarizes the three main types of sources and their access mechanisms.

Primary Sources

Primary sources are created during the course of an event or an individual's life activities. Photographs and video footage of events; personal and business correspondence; diaries and scrapbooks; organizational records; oral histories; autobiographies; and ephemera such as pamphlets, certificates, and broadsides are all examples of primary sources. Because they provide evidence scholars can use to determine what happened at specific points in time and how those alive at the time reacted, primary sources are used extensively in history and are often associated with that discipline. However, all disciplines reply on some type of primary source material. In literature, primary sources include poems, plays, short stories, and novels; in addition, scholars may seek out drafts of a literary work along with the author's diary or personal correspondence to better understand their literary intent.

Archives, special collections, and museums collect and organize primary sources in order to make them available to researchers and the general public. Traditionally, accessing these sources required a trip to the holding archive or museum to examine original documents. For famous individuals or events, one might be able to locate a collection of primary sources reproduced in book form, such as a volume containing the letters of a former president or photos from World War II. Increasingly, archives and museums are placing digital images of primary sources onto the Web, thus improving access for patrons of all ages and backgrounds. For example, the Los Angeles Public Library's *Tessa* database provides access to hundreds of thousands of digitized items from their special collections. However, such access may rely on the librarian knowing about the existence and location of a needed collection. Sites such as the *Digital Public Library of America* offer searchable access to the collections of hundreds of libraries, archives, and museums. Primary and archival sources, including methods of identifying and locating collections, are discussed in Chapter 23.

Secondary Sources

Secondary sources draw on primary sources to summarize and interpret events and topics. Secondary sources include a wide range of formats, such as books, periodical articles, and government reports, and are created for all types of audiences. Thus, secondary sources range from books that provide introductory information appropriate for an elementary school student to scholarly tomes that are hundreds of pages long, and from articles written for a current events magazine to reports on research. Because secondary sources encompass such a range of resource types, topics, and intended audiences, librarians have many options for locating this type of information.

The two most common types of secondary sources are books and periodicals. Because of their length, books typically contain in-depth information on a topic. They may convey original research or draw on the existing literature to summarize what is known about a topic, present it in a new way, or make it accessible to a particular audience, such as children. Traditionally, libraries created a catalog of the books and other materials held in their collections. With the advent of the Web, libraries have created shared catalogs that allow patrons to search the holdings of multiple libraries at once. At the same time, tools such as *Books in Print* lists what is available, regardless of whether it is in a particular library's collection. Chapter 14 discusses these bibliographic tools.

Similar to books, periodicals are available for every subject and audience. Scholarly journals, which can be published weekly, monthly, or quarterly, disseminate the results of original research. Articles are usually accepted on the basis of peer review, where a small group of experts evaluates each article to determine if it should be published. Because articles are written by scholars and researchers for other experts, they contain evidence, disciplinary jargon,

and extensive citations. Journals may also contain book reviews, editorials, and professional news.

Magazines, typically published weekly or monthly, are written for a lay audience. Magazines such as *Time* and *The Economist* focus on current events and general interest articles, while titles such as *Car and Driver* and *Sports Illustrated* are devoted to a specific topic. Articles are generally authored by journalists and undergo editorial review and fact checking. In addition to general interest and investigative stories, magazines will include book and film reviews, interviews, and editorials. Most magazines are dependent on advertising revenue to cover production costs and thus advertising features heavily within the pages of a typical magazine. Although library catalogs may list the journals and magazines available in a library's collections, one must use an index or discovery service to locate specific articles within a publication. Chapter 14 discusses indexes in general, while other chapters in Part III recommend key indexes in areas such as business, medicine, and law.

Newspapers are published daily or weekly and provide local, national, and international news along with investigative stories, editorials, and general interest articles on entertainment, fashion, sports, advice, and similar topics. Similar to magazines, articles are authored by journalists with editorial oversight. With the advent of the Internet, most traditional newspapers are available in print, online, and for libraries, through subscription databases. In addition, numerous websites provide access to current news. Chapter 15 introduces myriad of sources for accessing current news. Box 10.2 contains an activity to compare types of periodicals.

Box 10.2: Activity: Compare Periodical Types

Skim a newspaper or general interest magazine for an article about a recent study or scientific discovery. Trace the story back to where it was originally reported in a scholarly

journal (if the first article does not cite a specific source, you may be able to locate it using one of the indexes listed in Chapter 14).

Questions for Reflection and Discussion:

1. How does the language used in each article compare? Is one more technical? What audience was each written for?
2. How well do the facts align in each source? Do the sources present essentially the same findings and conclusions, or do the sources vary? If they vary, why might that be?
3. Can you find out anything about the authors of each article? What are their backgrounds and credentials? How might their background impact their presentation of the information?
4. As a reference librarian, to whom or when would you recommend each of these sources?

<<End Box>>

Tertiary Sources

Reference sources that provide brief summaries of a topic based on the existing secondary literature are considered tertiary sources. Tertiary sources are particularly valuable when the patron needs a concise introduction to a topic, either because only a brief introduction is needed or as a precursor to further research. Encyclopedias, handbooks, and biographical resources are all examples of tertiary sources. Chapters 13-24 introduce numerous tertiary sources by both resource type and subject area.

Source Type	Characteristics	Examples	Access Methods
Primary Sources	Materials created during the course of an event and/or	Letters, photographs, diaries, broadsides, ephemera.	Archives, personal collections, special collections.

	as part of a person's everyday life activities.		
Secondary sources	Summarize or interpret events, often drawing on primary sources.	Books, periodical articles, government reports.	Catalogs, bibliographies, and indexes.
Tertiary sources	Provide brief summaries of a topic based on secondary literature.	Encyclopedias, handbooks, biographical sources.	Print and online reference collections.

<<INSERT Table 10.1. Filename: tab10-01.docx Caption: Primary, Secondary, and Tertiary Sources. This table lists the general characteristics of primary, secondary, and tertiary sources, along with examples of each, and their primary methods of access. >>

CHANGES IN PUBLISHING

The information lifecycles outlined above describe a traditional model of publishing in which an article, book, or other type of manuscript is developed by an author, passed through a particular editorial process which usually entails some amount of fact-checking and quality control, and then formatted and disseminated by an established publisher. Many of these publications are indexed in the sorts of resources described in later chapters of this text,

enhancing their discoverability and access. For instance, newspapers like *The New York Times* are indexed in databases with a news focus, such as *ProQuest Global Newsstream*, while health and medical research can be found in databases devoted to medicine like *PubMed*. While these traditional publishers continue to be vital, changes in technology including the advent of the Internet and World Wide Web as well as the proliferation of social media platforms have ushered in significant changes to the worlds of scholarly and popular publishing.

Open Access and Open Educational Resources

One of the biggest changes to the traditional publishing field is the rise of open access publishing, often referred to as OA. The Scholarly Publishing and Academic Resources Coalition (n.d.) defines open access as "the free, immediate, online availability of research articles coupled with the rights to use these articles fully in the digital environment. Open Access ensures that anyone can access and use these results—to turn ideas into industries and breakthroughs into better lives."

In traditional publishing models, the end-user—whether that be a reader, researcher, school, business, or library—must pay to access published material, often by buying a book or a subscription to a newspaper, journal, or magazine. However, subscription prices for journals and electronic resources have skyrocketed in recent years, placing many materials beyond the reach of even large research institutions. Open access, on the other hand, flips the economic model by shifting the cost for publication to the author, or to the grants or institutions that support them, and making the publications freely available online. Thus, open access has a democratizing effect, making previously prohibitively expensive research available to everyone for free.

Publications can become open access through a variety of mechanisms. Dedicated OA journals function like traditional publications to solicit, review, and publish original manuscripts,

then publish articles open access. Some traditional journals have also implemented OA options. These publishers might give authors an option to pay to publish their work as OA, while others will publish articles in a traditional paywall format first but make articles available as OA after an embargo period. Still others allow authors to deposit a pre-publication version of their work in an OA repository, sites where authors can deposit digital copies of their work. Some OA repositories are subject-specific, such as *PubMed Central*, which focuses on biomedical literature, while others, such as institutional repositories, focus on collecting materials created by their members. Journals that publish new material immediately in open access format are referred to as Gold OA. Journals that allow access to pre-publication copies or move materials to OA after an embargo are referred to as Green OA.

Related to the open access movement is the open educational resources or OER movement. UNESCO (n.d.) defines OER as "teaching, learning and research materials in any format and medium that reside in the public domain or are under copyright that have been released under an open license, that permit no-cost access, re-use, re-purpose, adaptation and redistribution by others." Like OA, OER in part grew out of a concern for the rising costs of traditionally published educational materials, and the economic strain these resources put on students, schools, and libraries. OER can include textbooks, articles, training videos and tutorials, or entire courses and curricula. UNESCO points out that while OER are especially important for students and teachers in developing countries, who often do not have the resources to purchase traditional materials, OER can offer cost-saving alternatives to all. Because OER materials are either public-domain or open-license, they can be adapted for local use, including being translated into local languages, offering educators maximum flexibility.

It is important to note that while there are some dubious titles in the world of open access, many OA journals employ a peer-review process just like their traditional counterparts, and strive to publish only high-quality, valid, and reliable research. Information professionals and concerned scholars can identify trusted OA journals and repositories through the *Directory of Open Access Journals* and the *Directory of Open Access Repositories*. The *OER Commons* and the *Open Textbook Library* are two well-established repositories of OER materials. OA and OER are important movements aimed at increasing access to critical information sources. Information professionals have an important role to play in raising awareness about these resources, promoting their use when appropriate, and helping patrons locate, access, and evaluate these resources.

Social Media

Social media has created new avenues for sharing information and research. In some ways, social media has expanded the reach of traditional media. Individuals share links to news and magazine articles, potentially increasing readership of those articles, while authors and publishers use social media to announce new publications as part of broader advertising and outreach efforts. Social media has also created new avenues for generating and sharing information outside of established publication processes. Everyday citizens can share information, photos, and videos on social media platforms, distributing breaking news even faster than more established news outlets or providing perspectives not covered by the mainstream media.

Social media is also a place to discuss and engage with information, whether it is the general public discussing current news or researchers analyzing a scholarly study. Although people often decry the role of social media in the spread of misinformation or the vitriolic

conversations that can occur, social media has also enabled greater interaction between scholars and the general public. For example, *Skype a Scientist* enables schoolchildren to have a guest lecture and discussion with scientists from around the world, while professor Inna Kanevsky uses *Tik Tok* to fact-check and correct psychology-related misinformation (Ernest 2021). In academia, this democratic access can be particularly helpful for early career researchers and scholars from marginalized backgrounds who may have difficulty gaining recognition in traditional publishing channels.

CHALLENGES IN INFORMATION PRODUCTION & EVALUATION

It is a common saying that knowledge is power, and people create knowledge through their interactions and engagement with information. Thus, in its own way, information itself, and access to information, is power. Indeed, in their "Final Report" (1989), the American Library Association's Presidential Task Force on Information Literacy suggested that the ability to access, evaluate, and use information is essential to people's overall well-being and could help to balance socio-economic inequalities. The report asserted that people have a right to access information, but also warned that "citizenship in a modern democracy involves more than knowledge of how to access vital information. It also involves a capacity to recognize propaganda, distortion, and other misuses and abuses of information."

To fully understand and access the power of information, then, people need to be able to assess information for credibility and trustworthiness and to recognize when information is being manipulated or distorted. They have to be able to separate fact from opinion, and to recognize how bias and privilege can influence the representation of information. Most people understand the need to be skeptical of information that is shared on the Internet or through social media,

where anyone with access to the Internet can publish anything. However, even information from "trusted" sources can be mistaken, inaccurate, colored by bias, or limited by its perspective. The following sections outline three common issues librarians should keep in mind when assessing information: mis- and disinformation, bias, and representation.

Mis- and Disinformation, or "Fake News"

When guiding people to resources, conducting research, or building collections, librarians should always be aware of the accuracy of the materials they consult. The term "fake news" rose in popularity when it was discovered that hackers had exploited social media platforms to launch coordinated disinformation campaigns in order to influence elections around the world. However, the phrase "fake news" is somewhat problematic, as politicians and others have often co-opted it to label news that is negative or with which they disagree, even if that news is factually accurate (Wardle 2016).

Thus, information professionals generally use the terms "misinformation" and "disinformation" when discussing issues of accuracy. Misinformation refers to inaccurate information that is shared accidentally or without ill-intent. As noted earlier, misinformation is often shared during breaking news stories when it is difficult to confirm facts in the moment. Responsible writers and broadcasters will try to correct any misinformation they share as quickly as possible. Disinformation, on the other hand, is inaccurate information that is shared intentionally with the purpose of misleading or deceiving. Fake news campaigns on social media are a type of disinformation. While mis- and disinformation can have serious impacts, such as when unverified health information prompts people to make poor health decisions, one more light-hearted example is a (false!) story that two altar boys were arrested in Spain for putting marijuana in the incense burners (Evon 2018).

Needless to say, reference professionals can play a crucial role in helping patrons develop skills to identify false information. They can guide patrons to the kinds of resources outlined in Section III of this textbook, which are more likely to contain authoritative and trustworthy information. Likewise, they can introduce patrons to fact-checking resources, including ready reference sources such as those outlined in Chapter 13 as well as investigative outlets such as *Snopes* and *Politifact*, as discussed in Chapter 15. In addition, librarians can help patrons develop information and news literacy skills that will allow them to vet information on their own. They can teach patrons how to apply concepts such as authority, currency, and accuracy to determine if the information they find is indeed trustworthy.

They can also teach patrons skills and methods for engaging in their own fact-checking. Lateral reading is a method in which a reader double-checks information they come across in one source by comparing it to information on the same topic in several other sources, perhaps including the original source of information such as a scientific study (Caulfield 2019, Stanford History Education Group 2020). For example, suppose a patron is scrolling through their social media feed and comes across a story making claims about the impact of a proposed regulation on climate change. Using lateral reading, the patron would leave the site with the original claim and search other sources to see how they are reporting on the same issue, and whether these other sources confirm or contradict the claims being made. Increased attention to the challenges of mis- and disinformation has highlighted the instructional role of librarians and as such reference professionals will need to keep abreast of research-based methods such as lateral reading to ensure their patrons are developing the skills they need combat these challenges.

Bias

The online version of the *Merriam-Webster Dictionary* (n.d.) defines bias as "an inclination of temperament or outlook, especially: a personal and sometimes unreasoned judgement." People might be quick to recognize bias in certain situations. For instance, people will often assume political candidates are biased in their view on particular topics, and many people identify various media outlets as right- or left-leaning in their coverage of news stories. However, people will rarely think of the kinds of reference sources introduced in this textbook as potentially biased. In fact, this paragraph is a great example: when a person wishes to define a word, they will often turn to the dictionary, and whatever is written there will be accepted as definitive. Likewise, people will generally trust information they receive from encyclopedias, almanacs, or textbooks. Nevertheless, each of these resources could be biased in their representations.

Anthropologist Michael Oman-Reagan has argued that the *Oxford English Dictionary* uses sexist language in its example sentences by using negative gendered language for words that are not inherently gendered themselves. For instance, example sentences for the word "rabid" include "a rabid feminist," and shrill includes "the rising shrill of a woman's voice." He also noted that the sentences for doctor, scientist, and smart tended to use male pronouns (Pai 2016). Dictionary editors also make choices about which words to officially accept into their lexicon and which to leave out, and sometimes label words with terms like "offensive" or "slang." The impact of these decisions is that language favored by certain communities might not be represented in the dictionary at all or, if it is included, might be identified as somehow less acceptable or appropriate than other words.

Reference and other information sources can be biased in other ways as well. For instance, the country of Burma was renamed to Myanmar after a military uprising in 1989.

Although the United Nations and many countries recognize Myanmar as the official name of the country, the United States has not done so and the *The World Factbook* still lists all relevant country information under the name Burma. Some resources might be biased in their scope and coverage. For instance, while the title *Bibliography of the History of Art* sounds global in scope, it actually limits coverage to the history of Western art. Such biases do not necessarily invalidate a resource, especially if the resource recognizes and identifies limits to its scope and coverage within its introductory or explanatory materials. However, it is crucial for information professionals and their patrons to be aware of the potential for bias across information sources and to carefully assess each source before relying on it. Furthermore, librarians should identify and collect resources on non-Western and marginalized communities in order to ensure their collections are balanced and adequately reflect a variety of world views and experiences. Currently, finding such materials can require some effort, as they may not be as readily available through mainstream publishers. Librarians will need to develop strategies for locating these materials, including examining title lists from smaller, independent publishers and looking at open access resources.

Representation

Related to bias are issues of representation in publishing and scholarship, or the question of whose stories are being told, and whose voices are telling the stories. Issues of representation have been discussed widely in the world of fiction, where movements like *We Need Diverse Books* (n.d.) and the *Cooperative Children's Book Center* (n.d.) have documented the staggering disparity between the numbers of books that include "diverse" characters, and the number of books written and/or illustrated by "diverse" authors. As explained in more depth in Chapter 4, diverse books are crucial both to serve as mirrors that allow people of color, LGBTQIA+

individuals, disabled people, and others to see themselves reflected in the books they read, and also to serve as windows and sliding glass doors that allow readers to experience the perspective of others. Issues of representation also surface questions of authenticity. Can a white author write authentically about characters of color, or a straight author about LGBTQIA+ characters? Even though books by such authors might be genuinely well-written, there remains a question of why publishers would not seek out authors from historically marginalized and under-represented communities to tell their own stories, especially when the market is already well-represented by white, male, and heteronormative authors. Thus, movements like *We Need Diverse Books* seek not only to increase representation within books, but to increase the number of authors from under-represented communities.

While fiction and children's literature have perhaps received more attention around questions of representation, the issue extends to non-fiction, reference, and scholarly works as well. April Hathcock (2016) notes that "there is a wealth of experiences, knowledge, and perspectives that is largely unseen and unheard in mainstream scholarship. Indeed, scholarly communication and academic discourse largely reflect the systemic biases we find in broader society." Charlotte Roh (2016) provided a breakdown of some of the issues of representation and diversity in scholarly publishing noting, for instance, that according to a *Publisher's Weekly* survey 89 percent of publishers are white, and that 70 percent of peer-reviewed scientific articles are authored by men while only 27.2 percent of scholarly articles are written by women. Importantly, Roh (2016) notes that this lack of diversity can impact content as well, essentially creating a "feedback loop in scholarship that privileges and publishes the majority voice, which is often white and male." Needless to say, the problem extends to other forms of publication as well. For instance, lack of diversity in journalism can impact both what stories are covered by

news outlets as well as how stories of marginalized communities are covered. The Internet and social media platforms have helped to balance the issue somewhat, by giving voice to under-represented communities and space to share their own stories. However, this impact is limited, especially since social media and other self-published materials like blogs are often not sanctioned as part of "legitimate" scholarly conversation.

The problem of representation extends to the library field as well. The field itself is severely lacking in diversity, with 81.4 percent of American Library Association (ALA) members identifying as white (Zippia 2022). Just as with publishing, this lack of diversity impacts library systems and service models. For instance, classification systems for call numbers, such as the Dewey Decimal System and the Library of Congress Classification, often reflect the bias of the white, Christian, heteronormative men who created them. Even the traditional reference model, which requires patrons to initiate contact by approaching a librarian, often at a physically imposing reference desk, privileges users who understand the system and expect the librarian to be ready to assist them. Yet, as described in Chapter 6, there can be many physical, emotional, and cognitive barriers to people asking for such assistance. The lack of diversity can also impact librarians of color, many of whom report experiencing microaggressions on the job (Alabi 2015; Hathcock and Sendaula 2017; Swanson, Tanaka, and Gonzalez-Smith 2018).

Information professionals have an obligation to recognize and work against the limits of lack of representation. Indeed, the ALA's "Library Bill of Rights" (2019) exhorts librarians to collect widely and seek out diverse materials by stating that "Materials should not be excluded because of the origin, background, or views of those contributing to their creation," and that librarians "should provide materials and information presenting all points of view on current and

historical issues. Materials should not be proscribed or removed because of partisan or doctrinal disapproval." Beyond simply seeking out more diverse materials, information professionals must also reflect on their own practice and the systems within which they work in order to identify and work against systemic and implicit bias. A new standard to the ALA "Code of Ethics," added in 2021, advocates this reflective and proactive approach to dismantling bias, stating that information professionals must "work to recognize and dismantle systemic and individual biases; to confront inequity and oppression; to enhance diversity and inclusion; and to advance racial and social justice in our libraries, communities, profession, and associations through awareness, advocacy, education, collaboration, services, and allocation of resources and spaces."

CONCLUSION

In providing a framework for Part III of this textbook, this chapter illustrates that the work of a reference professional entails much more than being familiar with source types like dictionaries, or even specific titles like the *Oxford English Dictionary*. Rather, the work involves a deep understanding of the purpose, function, and use of a wide range of source titles and types, beginning with an understanding of how information is created, disseminated, stored, and accessed, as well as a familiarity with a variety of publishing models and their purposes and limitations. The work also involves an ability to analyze and evaluate information across subjects, disciplines, and source types, and to critically reflect on information sources and systems in order to recognize and limit the impact of bias, mis- and disinformation, and lack of representation. The majority of Americans say they believe the library helps them to find trustworthy and reliable information and helps them find the information they need to make decisions (Geiger 2017). Information professionals must recognize the responsibility that goes

with that trust and be vigilant in their own assessment of information as they select resources for their collections, assist users in accessing information, and teach users the skills to assess information on their own.

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RECOMMENDED READINGS

Cope, Jonathon. 2010. "Information Literacy and Social Power." In *Critical Library Instruction: Theories and Methods*, edited by Maria T. Accardi, Emily Drabinski, and Alana Kumbier, 13-27. Sacramento, CA: Library Juice Press.

This chapter offers a solid introduction to critical approaches to thinking about information as it is situated within political and economic systems.

Hathcock, April M., and Stephanie Sendaula. 2017. "Mapping Whiteness at the Reference Desk." In *Topographies of Whiteness: Mapping Whiteness in Library and Information Science*, edited by Gina Schlesselman-Tarango, 247-56. Sacramento, CA: Library Juice Press.

This chapter, part of a larger work on whiteness in library and information science, specifically examines whiteness at the reference desk. The authors discuss the microaggressions that librarians of color face in a field so heavily dominated by white women, and in particular how the work, settings, and expectations of reference can function to reinforce systems of whiteness and oppression. The chapter ends with straightforward advice for combatting microaggressions and dismantling the system of whiteness within reference service and practice.

Inefuku, Harrison W. 2021. “Relegated to the Margins: Faculty of Color, the Scholarly Record, and the Necessity of Antiracist Library Disruptions.” In Sofia Y. Leung and Jorge R. López-McKnight, *Knowledge Justice: Disrupting Library and Information Studies through Critical Race Theory*, 197-216. Boston: MIT Press. https://direct.mit.edu/books/oa-edited-volume/5114/chapter/3075324/Relegated-to-the-Margins-Faculty-of-Color-the

Inefuku explores how scholarly publishing processes marginalize research by and about members of marginalized groups. This is an excellent starting point for understanding bias and representation with scholarly communication.

Patin, Beth, Melinda Sebastian, Jieun Yeon, Danielle Bertolini, and Alexandra Grimm. 2021. “Interrupting Epistemicide: A Practical Framework for Naming, Identifying, and Ending Epistemic Injustice in the Information Professions.” *Journal of the Association for Information Science & Technology* 72, no. 10 (October): 1306–18. https://doi-org/10.1002/asi.24479.

The authors show how epistemicide, the destruction or erasure of knowledge of marginalized communities, harms individuals, groups, and society, and is present throughout libraries, archives, and other knowledge organizations. The authors go on to suggest how information professionals and organizations can repair past harms and prevent future epistemicide. Essential reading.

University of Nevada Libraries. 2016. “The Information Life Cycle.” Last modified July 19, 2016. https://vimeo.com/175421451.

This brief and entertaining video illustrates the life cycle of information using a fictional example of an alien landing. The video demonstrates the coverage, treatment, and

dissemination of information from moments after an event occurs through the days, weeks, and years that follow.

Williams, Pip. 2021. *The Dictionary of Lost Words*. New York: Ballantine Books.

A work of historical fiction, *The Dictionary of Lost Words* traces the development of the *Oxford English Dictionary (OED)* through the eyes of Esme, daughter of one of the original editors and later herself a contributor to the dictionary. Through Esme's eye, the reader sees how some words are selected for inclusion in the dictionary and some, often those used by women and the working class to capture their experiences, are deemed not significant enough for inclusion. Simultaneously an engrossing story, a deep meditation on the power of words and reference works to define us, and a tribute to the often unrecognized contributions of women to the first edition of the *OED*.