# Table of Contents

## General Articles

Persistent Identifiers and the Next Generation of Legal Scholarship [2024-6]  
*Aaron Retteen and Malikah Hall-Retteen*  
133

Using Content and Tone to Deliver Effective Feedback on Legal Research [2024-7]  
*Nicole Downing*  
159

Confronting the Climate Crisis: Incorporating Climate Change into Legal Research Instruction [2024-8]  
*Sue Silverman*  
181

## Review Article

Keeping Up with New Legal Titles [2024-9]  
*Chava Spivak-Birndorf and Matt Timko*  
207

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**BoK Domains Key**

<table>
<thead>
<tr>
<th>Domain</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>P-L</td>
<td>Professionalism + Leadership At Every Level</td>
</tr>
<tr>
<td>R-A</td>
<td>Research + Analysis</td>
</tr>
<tr>
<td>IM</td>
<td>Information Management</td>
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<tr>
<td>T-T</td>
<td>Teaching + Training</td>
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<tr>
<td>M-O</td>
<td>Marketing + Outreach</td>
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<tr>
<td>M-B</td>
<td>Management + Business Acumen</td>
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This article discusses the importance of the most common persistent identifiers in scholarly communications—the digital object identifier and the ORCID identifier—to legal scholarship. Persistent identifiers help preserve and disseminate academic content and data-driven services that leverage this information standard are now integrated into the publication process. Because legal publishers have not widely adopted persistent identifiers, the legal discipline cannot enjoy the benefits offered by this system. This article looks at barriers to implementing persistent identifiers among legal publishers and provides an anecdotal example of creating a sustainable workflow between the law library and student-run law journals.

Implications for Practice

1. Digital object identifiers and ORCID identifiers are two examples of persistent identifiers that are used by many academic publishers today. ORCID iDs are owned and registered by authors, whereas DOIs for multiple publications can be centrally managed and registered by a law library.
2. Law libraries can help overcome many barriers to adoption of persistent identifiers in legal scholarship.
3. Registering DOIs for law journals is neither costly nor time consuming.
4. By using persistent identifiers, legal scholars and their work are more discoverable, and institutions can track the impact and reach of legal scholarship.

Introduction ................................................................. 134
What Are Persistent Identifiers, and Why Are They Important? .................. 135
Pervasive Use of Persistent Identifiers in Other Academic Disciplines ....... 137
Introduction

Introduction

1 Scholarly communication workflows have evolved to adopt persistent identifiers to preserve, disseminate, analyze, and discover academic content. A persistent identifier is a unique string of letters, numbers, or symbols that is associated with digital content and never changes over time. Persistent identifiers exist in different forms and for different functions; this article discusses the important and relevant roles of the digital object identifier (DOI) and the ORCID identifier (ORCID iD) in legal scholarship.

2 The use of persistent identifiers in academic publishing is so pervasive that data-driven services that leverage this information standard are now integrated into the publication process. Publishers of legal scholarship and other legal materials, however, have not widely adopted persistent identifiers; as a result, the legal discipline cannot enjoy the benefits offered by this system. In addition, legal scholarship will be left out of future innovations that rely on persistent identifiers to measure impact and other bibliometrics of scholarship.

1. Scholarly communication “is the system through which research and other scholarly writings are created, evaluated for quality, disseminated to the scholarly community, and preserved for future use.” Principles and Strategies for the Reform of Scholarly Communication, Ass’n of Coll. & Rsch. Librs. (June 24, 2006), http://www.ala.org/acrl/publications/whitepapers/principlesstrategies [https://perma.cc/VU7Q-76R6].
Getting law journals and legal scholars to adopt persistent identifiers is possible, especially with the help of law libraries. This article identifies existing barriers regarding the implementation of persistent identifiers among publishers of legal scholarship and provides an anecdotal example of creating a sustainable workflow between the law library and student-run law journals. This article concludes with a call to action for all stakeholders in legal publishing to adopt persistent identifiers and usher in a new generation for legal scholarship and other legal materials.

What Are Persistent Identifiers, and Why Are They Important?

With the ongoing development of digital infrastructure to manage information, authors, readers, and other stakeholders within academic publishing can make new and exciting insights. When content is published on paper, information networks and intuitive links to related content are difficult for readers to see and access. If academic authors and publishers within the legal community want to take advantage of the new ways that information can be digitally linked, the traditional, print-based ways information connects needs to be updated and adapted.2

Persistent identifiers are a component part of a digital information framework supporting enhanced discovery, retrieval, and bibliographic analysis of scholarship. McMurry and colleagues compiled a table of 13 characteristics describing identifiers that provides a helpful overview, such as unambiguous (associated to no more than one entity), unique (identified by no more than one URI), stable (stays the same over time), persistent (unable to be deleted), and more.3

The persistent identifier framework can be elegantly interwoven between varying degrees of granularity,4 enabling more precise citation, easier discovery of objects, and richer search experiences for researchers. One prevailing example of article-level persistent identifiers is the digital object identifier (DOI).5 The DOI framework produces a valuable information ecosystem by combining persistent identifiers, stable and

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4. Identifiers can be applied to a wide range of actors and objects within the publishing industry, such as institutions and their various subunits, journal titles, specific volumes and issues, individual authors, articles, and even specific figures or tables within articles. See Jue Wang, Digital Object Identifiers and Their Use in Libraries, 33 SERIALS REV. 161, 162 (2013), https://doi.org/10.1080/00987913.2007.10765116.

5. The DOI was developed by the Corporation for National Research Initiatives (CNRI) and is “designed to provide an efficient, extensible, and secured global name service” for use on the internet and potentially future information networks developed over time. Rajesh Chandrakar, Digital Object Identifier System: An Overview, 24 ELEC. LIBR. 445, 446–47 (2006), https://doi.org/10.1108/02640470610689151.
long-term access to objects, metadata and description associated with each object, and
governance and policy created for and by participants. Figure 1 helps visualize how the
DOI framework improves long-term access and discovery.

7 Within the DOI framework, a DOI name is the persistent identifier assigned to
an object. For the example illustrated in figure 1, the full DOI name for the object is
“10.1000/123,” where “10.1000” is the unique DOI prefix assigned to the entity register-
ing the DOI and “123” is the DOI suffix that identifies the object. In this example, the
DOI name is associated with a website URL. Using the DOI framework’s resolution
system, anyone who knows the DOI name of a resource (i.e., through a citation) can
enter the DOI name and be sent to the associated website URL. If at any point the origi-
nal website URL changes, the DOI metadata can be updated so user access is uninter-
rupted. The DOI framework is further leveraged and reinforced by the International
DOI Foundation (IDF), which manages the DOI infrastructure, provides a system for

6. For more information about metadata, see Jenn Riley, Understanding Metadata: What Is
7. Chandrakar, supra note 5, at 446–47.
8. DOI FOUNDATION, The DOI Handbook 16 (2023) (citing Figure 5, direct redirection to a web-
site), https://doi.org/10.1000/182.
/doi-namespace.html [https://perma.cc/EA7S-BXBR].
governance to maintain reliability and persistence, and fosters member-driven, supplemental services and improvements in areas like fragment identification, discovery, and metadata management.¹⁰

¶ 8 A prevailing example of an author-level persistent identifier framework is ORCID.¹¹ Anyone in the world can register with ORCID to receive a unique, persistent identifier known as an ORCID iD.¹² The ORCID iD is affiliated with an online record that can store metadata such as full name, institutional affiliation, education history, presentations, and works.¹³

¶ 9 Persistent identifiers like DOIs and ORCID iDs offer stakeholders an extensive array of use cases and benefits for a relatively low implementation and management cost. Robust information ecosystems—consisting of author profiles, institutional repositories, content indexes, impact dashboards, and large scholarship data hubs, to name a few component parts—have grown around the use and adoption of persistent identifiers. Academic disciplines that have not yet implemented persistent identifiers within their publication and citation workflows cannot integrate with these systems, which underscores the importance of legal scholarship publishers adopting this information standard.

Pervasive Use of Persistent Identifiers in Other Academic Disciplines

¶ 10 Many academic disciplines have already implemented persistent identifiers within publication workflows,¹⁴ with over 300 million DOIs assigned to content and around 500 DOI resolutions per second,¹⁵ and more than 9.2 million active ORCID iDs registered by researchers.¹⁶ DOIs have experienced accelerated growth and adoption since the system’s inception and, for several years now, have been used by nearly every field of scholarship in addition to being accepted as the standard digital identifier for scholarly publishing.¹⁷ DOIs are recognized in a number of citation style manuals that academic disciplines rely on.¹⁸ More and more individual researchers are also adopting

¹². About ORCID, ORCID, https://orcid.org/about/what-is-orcid/mission [https://perma.cc/5LTF-74GP].
¹³. For more information about what information an ORCID record can contain, see Updating Your Record, ORCID, https://support.orcid.org/hc/en-us/categories/360000663114-Building-your-ORCID-record-connecting-your-iD [https://perma.cc/B3ZG-LRFF].
¹⁸. See, e.g., AM. PSYCH. ASS’N, APA Style: DOIs and URLs, https://apastyle.apa.org/style-grammar
ORCID iDs every year, catalyzed by publishers requiring ORCID iDs be used by contributing authors.

¶11 The quick adoption of persistent identifiers by authors and publishers across disciplines reveals the extent to which this system benefits users. Beyond the community benefits offered by DOIs, some have attributed the widespread adoption of DOIs to the framework being well aligned to journals’ business goals in tracking citations at an affordable cost.

**Benefits of Using Persistent Identifiers in Academic Publishing**

¶12 Persistent identifiers provide a variety of benefits for all stakeholders in academic publishing. This section provides an overview of these benefits in the context of academic and legal scholarship. In general, persistent identifiers enable better article tagging and metadata management, a richer reading experience, and increased discoverability. Crossref, DataCite, ORCID, and other successful collaborative projects have shown that unity around persistent identifiers benefits everyone involved in the research and publishing lifecycle, even as this approach evolves along with the internet and other technology that changes the way information is cataloged, discovered, and accessed.

**DOIs Enable New Ways of Measuring Scholarly Impact**

¶13 More and more, universities are assessing colleges and departments in part on scholarly impact and quantitative metrics. One gold standard of scholarly impact

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23. Although the use of the DOI was originally intended for the publishing industry, applications have extended into other industries, such as electronic commerce. See Wang, *supra* note 4.


25. *Id.*

measurement and assessment is counting the number of downloads and citations a work or scholar accumulates. The current landscape for legal scholarship bibliometrics uses text-matching algorithms to provide citation counts, which is prone to errors due to typographical mistakes in a citation string, improper metadata associated with an article (particularly around an author's name), errors due to text conversion with scans and PDF images of scholarship, improper and inconsistent use of citation rules by authors and editors, and programming errors within the algorithm itself. By adopting DOIs, stakeholders in legal publishing can leverage a centralized and standardized means of linking publications, enabling content providers like Westlaw, LexisNexis, and HeinOnline to build tools around a common point of reference. The potential of this one aspect of persistent identifiers to usher in a new way of engaging with legal scholarship and other published legal content is staggering.

Adoption and implementation of the DOI framework in legal publications will enable law librarians and other metadata specialists to improve the reliability and usefulness of scholarly citations to legal works. Aligning with current blog and social media practices of legal academics, DOIs will enhance the ability of law journal articles to enrich extensive background discussion and research documentation with accurate and reliable reference retrieval, and enable authors and journal editors to peer into how works are being accessed and cited across the globe.

**DOIs Provide Access to Altmetrics**

The use of DOIs when citing material enables innovative tools to gather alternative metrics (or altmetrics), such as mentions of articles on blogs, X (formerly Twitter)
and Facebook feeds, and popular news sources, in measuring scholarly impact. One popular platform providing institutional and author-level impact data of this type is Altmetric, which uses persistent identifiers like the DOI to measure direct attention across multiple sources. The Altmetric platform uses an algorithm to calculate an Altmetric Attention Score that represents a weighted count of the amount of attention picked up for a research output. Persistent identifiers, particularly DOIs, are what enable integration with these innovative platforms, and, with APIs like Crossref Event Data, mentions can be captured across the internet on sites such as Wikipedia, X, and Wordpress, to name a few.

¶16 In 2013, Altmetrics collected around 1,200 mentions varying from a tweet containing a link to a scientific article to more comprehensive analyses. In 2023, the Altmetric database contained over 256 million mentions of over 24 million research outputs, and only an output, identifier, and a trackable source are required for it to work. Legal scholarship is published throughout these trackable platforms, but most content today lacks an identifier and is largely not included in this valuable resource as a result.

**DOIs Eliminate Link Rot**

¶17 Link rot occurs when a cited online resource becomes unavailable due to website hosting expiration, webpage reorganization, or other changes that lead to a “404 Not Found” error or other unresolvable webpage. More insidious than link rot is the growing issue of reference rot, which occurs when a link within a reference leads to an incorrect rather than broken location, which can be harder to detect and manage.
DOIs allow users to discover an article wherever it is located online at any given time by allowing multiple changes to the resource URL without changing the DOI itself.\(^{41}\) The DOI system provides powerful point-of-need delivery of content to users, while simultaneously resolving problems with broken links and lowering the cost of maintaining linking infrastructure.\(^{42}\) Beyond link rot and reference rot, the DOI framework enables content ownership and online location to change over time, which occurs frequently and often leads to new URLs for resources and publications.\(^{43}\) Moreover, the DOI framework was designed with optimizing copyright management from the outset,\(^{44}\) and some have raised concerns over copyright issues posed by services like Perma.cc.\(^ {45}\)

§18 The way the legal profession disseminates scholarly works has fundamentally changed over the past 30 years, shifting from print to electronic distribution and access.\(^ {46}\) For legal scholarship specifically, studies have shown link rot is undermining the usefulness of law journal citations to online sources,\(^ {47}\) and the online publishing efforts of law journals have only increased since these studies were conducted. “Research shows that more than 50% of links do not survive two years.”\(^ {48}\) As aptly put by Susan Lyons when conducting early studies of this issue, “an article with dead sources is a dead end.”\(^ {49}\)

**DOIs Improve Discoverability**

§19 The adoption of DOIs enables an efficient, scalable solution for publishers to manage and keep track of content.\(^ {50}\) As a result of publishers directly issuing and managing DOIs, the DOI framework makes it easier for readers to discover the publisher's
official, most updated version of a work. Using DOIs eliminates the need for users to determine which version of a work is the final published version or which source is reliable. From an intellectual property perspective, the DOI framework enables asset protection in a digital environment, easily linking users to content owners, facilitating electronic commerce, enabling automatic copyright management for all content and media types, and extending the framework for managing such content in any form and at any level of granularity.

¶20 The design and functionality of the DOI framework enriches the end-user experience for individual users and the scholarly research process overall, and the system guarantees the persistent access of articles and other objects assigned with DOIs. The user experience is enhanced because the researcher can resolve any DOI in a web browser, and libraries and other open access organizations can create standards, like OpenURL, to connect users with a legal and freely available copy of a work that may be locked behind a paywall. More generally, vendors and publishers can create innovative discovery layers, assessment tools, or other applications that integrate with the DOI framework. Implementing DOIs within and across academic disciplines enhances discoverability of the multidimensional context of content, such as how OpenScience was able to create a network of 14 million articles and article records that may be explored by researchers in exciting new ways. The improved discoverability offered by DOIs aligns with the mission to provide access to educational materials and outputs at land-grant or otherwise publicly funded educational institutions.

DOIs Enhance Interdisciplinary Engagement

¶21 “For journals that publish exclusively online or are interdisciplinary, assigning DOIs to their own articles may be a prudent measure to better ensure long-term digital access and citation by scholars in other fields.” The current landscape of measuring and assessing legal scholarly impact—curating data points and impact statistics from discipline-specific databases such as HeinOnline, Westlaw, and SSRN—does not leverage the DOI framework and systemically excludes legal scholars who publish articles in interdisciplinary journals or books and book chapters. As a result of these discipline-specific databases excluding nonlegal resources within their indexes, the concurrent lack of persistent identifiers embedded within legal scholarship, and the impact

51. See, e.g., Keele, supra note 41, at 37.
52. Chandrakar, supra note 5. For more information about copyright management issues from a law review perspective, see generally Benjamin J. Keele, Managing Copyright Issues for Law Reviews, in The Scribes Manual for Law Review Editors 281 (Darby Dickerson & Brooke J. Bowman, eds., 2022).
53. See, e.g., Boudry & Chartron, supra note 17, at 1455.
55. See, e.g., Keele, supra note 21, at 120; Keele, supra note 2.
56. Online tools and applications like Academic Analytics, PlumX, and Altmetric dashboards.
57. Dawson, supra note 24.
58. See, e.g., Anderson-Wilk, supra note 39.
59. Keele, supra note 2, at 1.
assessment framework, interdisciplinary scholars who have an interest in publishing in nonlegal resources will need an alternative method of calculating the impact of their work.60

¶22 “A count that excludes citations in social science journals will likely underestimate the impact of interdisciplinary scholars compared to those who produce more traditional legal scholarship.”61 The “lack of familiarity with or access to legal databases may present obstacles to research or non-legal scholars.”62 With more university libraries eliminating or renegotiating their contracts with big publishers like Elsevier,63 assigning a persistent identifier to interdisciplinary scholarship may become crucial for linking nonsubscribing researchers to open access versions of works.64 Overall, adding legal scholarship and legal resources to the DOI network will lead to increased interdisciplinary discovery and engagement while offering solutions for the invisibility of interdisciplinary scholarship within the legal academy.

**Author Identifiers Offer Additional Benefits to Individuals and Institutions**

¶23 The ORCID iD system was designed around improving the ability of researchers and information professionals to accurately maintain associations between specific works and individual authors, which was becoming more difficult with the growth of online dissemination and discovery of scholarship.65 When assigned a unique, persistent identifier, individual researchers no longer need to worry about name changes, transliteration issues, being mistaken for a researcher with a similar name, or having an algorithm miss a citation to a work due to a typo or other human error in the editing process.66 By using ORCID iD profiles as a central record of scholarly activity, authors—and their affiliated institutions—can share information about their publications or other research activities with institutional repository systems, faculty profile systems,

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60. See Osborne & Miller, *supra* note 26.
64. See, e.g., Keele, *supra* note 2, at 10–11.
Combined with persistent identifiers assigned to articles, ORCID iDs help make research more discoverable, reduce administrative time manually entering data into systems, and support efficient and accurate analysis and reporting. In 2016, workflows already existed for “authors to register for an ORCID iD, for publishers to attach ORCID iDs to articles, and for DOI registration agencies to provide DOIs for those articles.”

ORCID iDs enable authors to connect a variety of different persistent identifiers that are assigned to works—such as DOIs, arXiv IDs, and PubMed IDs—to one representative profile, and a key strategic goal for the ORCID organization is to integrate with as many persistent identifiers as possible over time. A notable synergy has emerged between the DOI and the ORCID iD: a DOI can have ORCID iDs embedded directly within its metadata, which will then automatically be associated with that author’s ORCID profile, and authors can easily import works to their ORCID profile using a DOI if the DOI metadata does not include a contributor’s ORCID iD. This linking capability is also leveraged by other popular academic platforms: millions of ORCID iD and DOI connections are searchable through the ORCID registry and discovery databases like Web of Science, Scopus, PubMed Central, and the MLA International Bibliography. Once the process of linking a work with a DOI to an author with an ORCID iD occurs, any system—such as institutional repositories, researcher information systems, researcher profiles, and more—can integrate with this framework. Overall, this design enables seamless access to metadata about works and authors without having to recreate the wheel to access this information in each individual use case.

Beyond the benefits offered to individual researchers, ORCID iDs and the persistent identifier infrastructure as a whole offer large-scale benefits for publishers and

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69. See supra note 20, at 108–09.
72. Brown, Demeranville & Meadows, supra note 68.
73. See Meadows, supra note 19, at 24–25.
74. See, e.g., Brown, Demeranville & Meadows, supra note 68; see also Registering a Public API Client, ORCID, https://support.orcid.org/hc/en-us/articles/360006897174 [https://perma.cc/WK45-DDZT].
institutional stakeholders. Large publishers like Elsevier and Springer are already incorporating ORCID iDs into the publication process beginning at the manuscript stage, allowing stakeholders to leverage benefits like easy cross-platform metadata transfer and automatic profile updates. Platforms used widely by legal scholars have also begun incorporating ORCID iDs into their systems, including author profiles offered by SSRN, HeinOnline, and BePress.

¶27 ORCID is also helping to make the contributions of peer review throughout academic disciplines visible. Indeed, around the same time persistent identifiers were gaining traction with large publishers, a rise in web citations within law scholarship was being noted, which indicated early on the relevance and potential benefits of adopting at least some part of the emerging persistent identifier infrastructure.

¶28 In 2014, Texas A&M University—a top-tier research institution and flagship public university with more than 4,000 faculty and staff and 55,000 students—recognized the benefits of ORCID iDs. In conjunction with its university libraries’ recommendations and assistance with continued maintenance, Texas A&M University joined ORCID as a member organization to help faculty and graduate students create ORCID iDs, maintain their scholarly and professional identities, and track research outputs over time. “In addition to offering ORCID training to specific groups of researchers, Texas A&M University librarians created an ORCID ‘care and feeding manual’ for graduate students describing how to initially set up an ORCID profile and manage its settings.” Part of the goals of this initiative were to ensure the broadest possible access to campus scholarship and tracking the productivity of campus scholars over the long term to help demonstrate the university’s effectiveness in meeting its taxpayer-funded, public mission. This pioneering effort and continued support has led to ORCID’s integration into the university’s custom research information system, Scholars@TAMU. By participating in identifier systems like DOI and ORCID iDs, a vibrant information ecosystem offering a variety of benefits becomes accessible.

75. See supra note 20, at 109.
76. Id.
80. See, e.g., Lyons, supra note 42, at 681–82.
81. Thomas, Chen & Clement, supra note 67.
82. Id.
83. Id.
84. See About Scholars@TAMU, Tex. A&M Univ. Librs., https://scholars.library.tamu.edu/vivo_editor /pages/about_scholars/ [https://perma.cc/7PK2-UBS4].
Barriers to Adoption of Persistent Identifiers in Legal Scholarship

§29 Despite the widespread adoption of persistent identifiers in other disciplines and the demonstrated benefits for stakeholders, law journals have largely not incorporated the DOI into the publication process. This section explores some reasons why legal scholarship has lagged behind other academic disciplines in adopting persistent identifiers.

Lack of Scholarly Communications Expertise

§30 A prerequisite to adopting persistent identifiers like ORCID or DOI is that editorial boards making procedural decisions must be aware of the concept and benefits. Law review editorial boards are comprised of law students who, in general, have no formal education in library and information science or exposure to publishing best practices. As a result, the groups making decisions about how to publish legal scholarship do not have the expertise and training to understand what a DOI or ORCID iD is, how to create DOIs for articles, how to use ORCID iDs to disambiguate author names, and why the editorial board would want to invest the time and money into implementing persistent identifiers in the first place. This article seeks to bridge this knowledge gap and provide editorial boards with the foundation to successfully implement article and author identifiers into their workflows.

Decentralized Publication Processes

§31 The decentralized way in which law journals are published does not lend itself to collective action. Most law journals at different institutions make editorial decisions independently of each other. While many editorial boards look to peer institutions to develop similar policies regarding article submission and internal membership rules, this framework has not yet produced a discussion and iterative development of the processes by which law journals are published and connected to each other. Further, law journal students do not have a robust, national network or organization dedicated to implementing and maintaining discipline-wide publishing practices. On this point, it is understandable as to why this is difficult to accomplish: law journal students are hard-pressed to find the time and mental capacity to focus on library and information science best practices or the money to travel to a conference addressing these issues.

§32 Over the past several years, law journals have transitioned to publishing content online without collectively updating the underlying citation and publication framework.

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86. The only comparable organization is the National Conference of Law Reviews, which has been inactive since 2017. Information about this organization and prior conferences reveal it could have been a good venue for catalyzing a national shift to persistent identifiers. Recent online workshops organized and presented by Scribes, the American Society for Legal Writers, have also addressed issues raised in this article. For more information, see Law Review Project, Scribes, https://www.scribes.org/law-review-project/ [https://perma.cc/43F4-6AW7].
that supports and enhances online discovery and dissemination. Subscription content
providers, such as Westlaw, LexisNexis, and HeinOnline, also have channels for law jour-
nals to provide electronic copies of volumes. It is interesting to note that for the typical
legal scholar with access to research resources provided by a law library, getting online
access to law review articles is not a challenge. However, this access provides only a sur-
face-level impression of an organization and is likely a part of why law journals and legal
scholars have not fully understood the need to incorporate persistent identifiers into the
publication process. While this framework has provided limited discovery and persis-
tence benefits, it does not fully capture the systemic benefits offered by persistent identi-
fiers like ORCID iDs and DOIs, particularly regarding interdisciplinary engagement,
cross-platform linking, and citation counting.87

33 Additionally, since the publication of legal scholarship has not been conducted
in tandem with large academic publishers like other disciplines, law journals were
largely left out of the entire process leading to the development of the current online
scholarly communications landscape. Interestingly, while companies like Elsevier and
Thomson Reuters provide and publish legal content, they do not own or manage the
intellectual property stemming from most law journals. In many ways, because of the
decentralized nature of law journal publication, the large publishers would have had
difficulty attempting to institute publication workflow changes that cascaded into
updated citation practices across multiple disciplines.

Turnover Rate of Law Review Editorial Boards

34 Compounding the issues of a lack of expertise and decentralized publication
processes is the cyclical turnover in law review editorial boards. Editors for law reviews
are students on a three-year track for graduation, and most students on law reviews are
in their second or third year of study. This leads to editorial boards turning over every
academic year. Without a stable connection to institutional knowledge and scholarly
communication expertise through a permanent staffer or library liaison, the task of
keeping the publication in line with publishing best practices becomes more difficult.88
Practically speaking, any large organizational change in process for a law review will
require the membership to spend their limited time debating the issue and articulating
policies that fit their established procedures. These student groups are capable of pub-
lishing content with DOIs, but implementing new processes into an organizational
framework that turns over so frequently may be challenging.

Technical Knowledge to Create DOIs

35 Even though most publishers in most disciplines publish content with DOIs and
have been doing so for years, the process to create and register a DOI with a registration
agency was not very user-friendly to anyone without certain technical competencies.

87. See supra ¶¶ 12–28.
88. Andrew W. Lang & Annalee Hickman Pierson, Working with Law Librarians, in MANUAL ON LAW
REVIEW EDITORS: THE SCRIBES MANUAL FOR LAW REVIEW EDITORS 103 (Darby Dickerson & Brooke J.
Bowman eds., 2022); see also supra note 107, at 392–93.
For example, until recently, to register a DOI with Crossref, a publisher had to create and submit custom XML documents. For years, Crossref offered its customers a web form to help them register DOIs,89 but that form did not cover a lot of important content types and did not offer any batch registration functionality. However, Crossref released a beta version of a tool called Metadata Manager,90 which has an optimized and modern interface for nontechnical users to register DOIs for journal articles. DataCite, another popular DOI registration agency, also offers its customers a web interface to register DOIs to content.91 As more organizations and institutions outside of the commercial publishing industry have created accounts with DOI registration agencies, more user-friendly means of registering DOIs to content have become available. The most efficient way to register hundreds of DOIs all at once is still by creating custom XML documents, but web deposit interfaces make it possible for anyone who can use a browser to register DOIs to articles.

**Costs to Assign DOIs to Content**

§36 Relative to other annual costs from legal organizations, the costs associated with registering DOIs to content would not be viewed as prohibitive. However, there is a cost to registering DOIs to content, and the cost varies based on each institution and the registration agency they choose to register content with. Crossref ties the annual membership fee to an organization’s revenue and expenses from publishing operations, such that the fee for organizations with total publishing revenue or expenses less than $1 million is $275.92 Most law schools should fit within this category. Crossref supplements the annual membership fee with content registration fees that vary depending on content type and how old the content is.93 For example, journal articles published within the previous two calendar years are defined as “current” content and have a DOI registration fee of $1.00, whereas journal articles that are older have a DOI registration of $0.15. DataCite assesses an annual membership fee of 2,000€ ($2,200 to $2,300 U.S.) and calculates the DOI registration fee based on the number of total new DOIs created every year.94 As of the writing of this article, DataCite’s pricing structure and limited applicability to legal scholarship makes Crossref the most relevant and affordable registration agency for legal scholarship.95

93. *Id.*
95. In some cases, it may make sense for a library to use DataCite, particularly where the library has access to a consortium membership or may not have to pay directly for registration costs.
§37 Research conducted on the flagship law reviews at the top 50 law schools as ranked by *U.S. News* confirmed a wide variance of total volumes, issues per volume, and articles per issue, which makes providing generalizations about the cost of implementation difficult. Using this data, an average number of volumes and a typical number of issues per volume and articles per issue can be extrapolated to provide some insight: 86 volumes on average, with about six issues per volume, and about eight articles per issue. The fee to register DOIs to each volume of historical content with Crossref totals $6.30, and the cost to create DOIs for each volume of recent content with Crossref totals $42. Table 1 demonstrates the cost of DOI implementation using this data.

**TABLE 1**

Estimated Cost to Implement DOIs

<table>
<thead>
<tr>
<th>Year One Costs for DOI Implementation for Flagship Journal (Crossref)</th>
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<tbody>
<tr>
<td>Crossref annual membership</td>
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<tr>
<td>Historical content registration fees (84 volumes x 6 issues x 8 articles) ($0.15 fee per article)</td>
</tr>
<tr>
<td>Current content registration fees (3 volumes x 6 issues x 8 articles) ($1.00 fee per article)</td>
</tr>
<tr>
<td><strong>Total Year One Costs</strong></td>
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</tbody>
</table>

<table>
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<tr>
<th>Future Year Costs for DOI Implementation for Flagship Journal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crossref annual membership</td>
</tr>
<tr>
<td>Current content registration fees (1 volumes x 6 issues x 8 articles) ($1.00 fee per article)</td>
</tr>
<tr>
<td><strong>Total Year Two Costs</strong></td>
</tr>
</tbody>
</table>

§38 As indicated by table 1, the total year-one costs for DOI implementation are higher than future year costs due to the need to register historical content with DOIs. It should be noted that the annual membership fee is assessed per publisher, as opposed to per publication; if centrally managed by the law library, additional law journals can register DOIs without the law school incurring additional annual membership fees.

**Lack of a Bluebook Citation Rule for DOIs**

§39 At the time of this writing, the *Bluebook* does not publish a rule incorporating DOIs into citations, however, the *ALWD Guide to Legal Citation* has recently been updated to include guidance related to DOIs in citations. As a heavily used reference

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96. Thanks to the efforts of our research assistants, Jessica Wells and Jonathan Stoughton, who counted and cataloged the law reviews at top law schools to determine the average number of volumes, issues per volume, and articles per issue.

97. Crossref defines historical content as any content older than two years from the date of DOI registration. As a result, for any given year, the first year of implementing a DOI will potentially span two previously published volumes and one forthcoming volume.

98. See Carolyn V. Williams, 30.3(c) Digital Object Identifier Alternative to URL, in ALWD GUIDE TO LEGAL CITATION 337 (7th ed. 2021).
manual within legal publishing, the *Bluebook* should incorporate a rule recognizing DOIs to help law journal editors maintain consistency in citations; many articles already cite to interdisciplinary articles published using DOIs, and many law journals have already adopted DOIs for their own articles. These manuals already provide examples that use Westlaw’s and Lexis’s unique database identifiers, indicating that the editors recognize the role and importance of unique digital identifiers for discovery and reference. A citation rule for journal articles, books, and other resources that includes persistent identifiers like the DOI would help to embed its use within best practices for citing legal materials and would help impose a standardized way of tracking citations. Citation manuals used in other academic disciplines, such as APA, MLA, and Chicago, have also included DOIs within their citation rules.

The impact of citation manuals adopting DOIs from an access to justice perspective can reach beyond legal scholarship. Currently, LexisNexis, Westlaw, and court systems do not use DOIs, and practical law documents are not issued DOIs, even though the discoverability between systems would be improved. For legal scholars, DOIs in practical law materials could revolutionize the impact and assessment conversation by bringing to light connections that would be otherwise difficult to discover. For interdisciplinary researchers and members of the general public, finding and citing the most current, authoritative legal materials would be easier than ever before.

**How to Achieve Adoption of Persistent Identifiers in Legal Scholarship**

It may seem hard to imagine how the legal discipline can collectively implement a transition to newer scholarly communications best practices. The two primary stakeholders in the academic legal publication process—law students who select articles for publication in law journals and legal scholars who write those articles—are largely disconnected from engaging in developments coming from the library and information science field. As the adoption and implementation of persistent identifiers have proliferated in other disciplines, in conjunction with a global open access movement,
academic libraries have emerged as the crucial connective between subject experts and smaller, usually noncommercial, academic publishers.¹⁰⁴

¶42 In various ways, student-run law journals and the broader legal publication system are analogous to the many examples of publications and publishers relying on academic libraries for training, support, and sustainability. Specifically, most law journals operate as stand-alone, open access publishers.¹⁰⁵ As a result, they do not receive the embedded support and underlying updated scholarly communications infrastructure offered to other disciplines published in journals owned and operated by large, commercial publishers.¹⁰⁶ Additionally, by nature, law journal membership is subject to rapid, cyclical turnover as students graduate, making retaining institutional knowledge and updating long-standing, interinstitutional publication practices a challenge. For these reasons, law libraries are best situated to help law journals adopt persistent identifiers while maintaining the sustainability of implementing new citation practices.¹⁰⁷ Moreover, the increasing importance of implementing best practices in scholarly communications provides law libraries with an opportunity to “assume a critical institutional role” alongside traditional support roles for scholarship and teaching.¹⁰⁸

¶43 Academic law librarians are already providing robust scholarly communications services within law schools: consulting on article submission and placement, copyright transfers, negotiating author rights, and issues regarding fair use;¹⁰⁹ promoting and managing institutional repositories;¹¹⁰ and, collecting and measuring data and other metrics to help faculty construct a scholarly impact narrative.¹¹¹ In providing these services, academic law librarians are maintaining workflows that would benefit from the disciplinary adoption of persistent identifiers.


¹⁰⁶. Large publishers, like Elsevier or Taylor & Francis, hire staff and third-party companies to help optimize the information organization of thousands of titles.


¹⁰⁸. Neacsu & Donovan, supra note 27, at 454.

¹⁰⁹. See, e.g., Keele, supra note 52.


Embedded Librarianship as a Model for Adoption

¶44 This section explains how the Texas A&M University School of Law used embedded librarianship as a model for obtaining adoption of persistent identifiers for legal scholarship and law scholars.

¶45 From 2015 to 2023, the faculty size at Texas A&M University School of Law has grown significantly, and the school experienced a meteoric rise in the *U.S. News & World Report* rankings.112 During this time, the law library launched several initiatives to accommodate and aid the increased scholarly output level. These library initiatives included adding faculty librarian positions—one for reference and one for scholarly communications—and launching or expanding several digital resources that collect, disseminate, and track the scholarly works of the law school. The reference and scholarly communications librarians worked collaboratively with these initiatives in mind. A faculty liaison program assigned faculty members to reference librarians, who would forward requests for scholarly communications assistance to the scholarly communications librarian, who, in turn, would refer faculty requesting reference assistance to the appropriate liaison. This symbiotic relationship between law library departments enables the law library to work diligently and improve the benefits for faculty and students.

¶46 One externally prominent component of robust scholarly communication services is maintaining an institutional repository. A majority of the top 100 law libraries maintain an institutional repository, which stores and provides access to faculty and student scholarship, law journals, and other legal materials.113 At Texas A&M University School of Law, the scholarly communications librarian manages the institutional repository by processing document uploads and helping keep track of relevant data like downloads and location access history. Launched in 2015, the Texas A&M Law Scholarship Repository114 is hosted by bepress Digital Commons. Combined with bepress Experts Gallery Suite,115 the repository system provides visual dashboards for all repository collections and individual authors, which allows the law library to provide scalable impact assessment services. Other scholarly communication products managed by the scholarly communications librarian include author profiles on SSRN,116


Google Scholar,\textsuperscript{117} HeinOnline,\textsuperscript{118} and ORCID.\textsuperscript{119} Each of these products would benefit from legal scholarship adopting persistent identifiers. Two promising signs for the future have demonstrated that vendors are listening to law librarians: HeinOnline has recently added DOI and ORCID functionality,\textsuperscript{120} and bepress has developed an API for customers to engage with their metadata and data in new ways.\textsuperscript{121} In many ways, the stage is already set and waiting for publishers of legal materials to begin assigning persistent identifiers to content. Once adopted, all stakeholders—from law librarians to authors to institutions—will be able to leverage the growing digital publication infrastructure of platforms and APIs built around persistent identifiers like DOIs and ORCID iDs.

\*\textsuperscript{47} An important piece for ubiquitous adoption of persistent identifiers is getting law journals up to speed and involved in the process. At Texas A&M University School of Law, the scholarly communications librarian consulted with the two active law journals—the Texas A&M University Law Review and the Texas A&M University Journal of Property Law—about implementing persistent identifiers into their publication workflows. The editorial boards responded positively to the suggestion of updating their publication process to accommodate newer best practices in scholarly communications. Importantly, the law library committed to supporting the students by paying for all costs associated with implementing article identifiers and by being a reliable resource for troubleshooting and answering questions about the process. Within a few short meetings with each journal, the editorial boards were able to understand why DOIs were important and how to change their workflows to accommodate assigning them to articles going forward. Using a naming convention to make DOI strings predictable, the students are able to assign DOIs to all future articles prior to publication, notify the law library of new DOIs that need to be registered, and place DOI hyperlink strings on individual articles.\textsuperscript{122} However, the burden of placing DOI hyperlink strings on histori-
cal content presented a challenge for the students to manage, simply because of the high number of articles to process. Sensitive to the law journal students’ limited time to process articles from older volumes, the law library’s professional technical services staff assisted with the task of placing a hyperlinked DOI string in the PDFs of articles. The project was completed in less than a month thanks to the skills and knowledge of the staff and an easy-to-follow workflow.

¶48 Other law schools and law libraries can use the provided roadmap to achieve persistent identifier adoption within legal scholarship and sustain the effort over time. However, libraries need the support of law library management and law school administrations to provide this support. Without that support, the successes at Texas A&M University School of Law would not have been possible. By providing the law library with time during faculty meetings, encouraging engagement with scholarly communication services, covering costs associated with implementation, and understanding how this can directly impact the law school’s scholarly reputation by improving the discoverability, dissemination, and accessibility of the faculty’s scholarship, the law library was able to obtain the necessary buy-in and participation from all stakeholders to make this work.

Creating DOIs for Legal Scholarship

¶49 A primary goal of this article is to provide practical guidance to readers interested in creating and assigning DOIs to legal scholarship and other content published at law schools. What follows is a general roadmap for achieving DOI adoption within legal scholarship and sustaining the effort over time.

Understand the DOI Handbook

¶50 Anyone interested in creating and assigning DOIs should read the DOI Handbook to more fully understand the history and development of the DOI as an information standard, the numbering system, technical details about how the system works, the role and function of registration agencies, and rules and procedures for the registration and maintenance of DOI names and associated metadata. The DOI Handbook serves as a tool for general introduction and overview, as well as a reference document for publishers and content creators registering DOI names. While reading through the DOI Handbook for the first time may produce more questions than answers for some, the document provides a necessary foundation to understanding and exploring DOIs.

Become a Registrant with a Registration Agency

¶51 DOI registration agencies provide services to registrants, such as allocating DOI prefixes, registering DOI names, providing infrastructure to maintain metadata, and other value-added auxiliary services not directly involving the DOI. A “registrant” is defined as “any individual or organization that wishes to uniquely identify

124. Id.
entities using the DOI system.”125 The International DOI Foundation (IDF) maintains a list of authorized registration agencies and their scope of coverage based on either geographic location or content type.126 Based on the list of registration agencies in 2023 and their stated scopes, most, if not all, law schools within the United States should become a registrant with Crossref, and in some cases with DataCite, or even both organizations at the same time if funding is available. Between these two registration agencies, understanding the fee schedule for membership and services is helpful for projecting budgetary requirements.

Create Naming Schemas and Implement Assignment Workflow

§52 While not technically required, implementing DOI naming schemas for different publications and content types is helpful for simplifying the DOI creation and assignment process. Since law journals publish on cycles of volumes and issues, a convenient schema may be created using these descriptive properties. For example, the Texas A&M Law Review and Texas A&M Journal of Property Law created schemas combining an abbreviation identifying the journal, the volume number, the issue number, and an article number: the DOI “10.37419/LR.V6.I1.1” represents the Law Review’s first article in volume 6, issue 1. This predictable schema allows the journal students to create and assign DOI names to articles within the manuscript as part of the journal’s routine article layout preparation process.127 The law journal students notify the law library of the new articles and DOI names, and the law library works with the students to publish the articles online and register the DOI name with the registration agency.

Register DOI Names

§53 Once DOI names are created, the next step is to register the DOI names with the registration agency. With Crossref, the process to register DOI names is relatively simple and straightforward using the web deposit form to register DOI names for journals, books and book chapters, conference proceedings, reports, and dissertations.128 DataCite offers a similar online interface called DataCite Fabrica.129 For most law schools, the online interfaces should be sufficient to register DOI names to most, if not all, published content. These tools enable easy management and administration since anyone comfortable with meticulous data entry—such as a law librarian, law journal student, or law school staff member—can log into the system and register DOI names with ease.

125. Id.
127. For specific instructions and examples of how to display DOI names, see DOI Display Guidelines, CROSSREF, https://www.crossref.org/education/metadata/persistent-identifiers/doi-display-guidelines/ [https://perma.cc/65AF-YSDL].
128. See supra note 89.
129. See DataCite Fabrica, DATACITE, https://doi.datacite.org [https://perma.cc/3LUS-E57D].
More advanced users can engage directly with the metadata deposit schemas of Crossref and DataCite. These schemas ensure all members use the same rules to create metadata about their research content. Crossref provides helper tools for members, but, at base, knowledge of how to create and manipulate XML is needed to make the most use of these schemas. For example, Crossref users can conduct additional actions beyond what is currently available through the Metadata Manager or web deposit form by creating custom XML, in particular batch creation and revision actions. For users comfortable creating custom XML documents, registering large amounts of historical content or even batches of upcoming content can be far more efficient than entering the same data by hand on a form. Crossref created a flow chart to help users assess what method to use and a table outlining what registration method can be used for each content type. Crossref also provides users with some sample XML documents for content registration, which can be a helpful jumping-off point for anyone without a lot of custom XML document creation experience. Additionally, there are countless resources online and in libraries dedicated to educating new users to XML, which is ultimately a markup language akin to HTML in terms of its technical complexity.

Maintain Registered Metadata and Conduct Assessment

One of the primary commitments publishers make when joining organizations like Crossref or DataCite is to maintain the metadata associated with DOI names being created. With the exception of fields like an object’s URL, most metadata for published content will not change over time. Whenever changes to an object’s metadata do occur, or whenever some other system error crops up (such as a conflict between multiple DOI names), it is important to address the issue and make necessary updates. This is another aspect underscoring the importance of implementing this system through a stable, central location like the law library.

Crossref provides members with a robust set of online tools and email reports to help manage and assess metadata quality and DOI name performance. Crossref members receive monthly resolution reports that show the number of successful and

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132. Id.


134. See Become a Member—Member Obligations, CROSSREF, https://www.crossref.org/membership/ [https://perma.cc/6AVS-MLPN]; see also Become a Member, DATACITE, https://www.stage.datacite.org/become.html [https://perma.cc/7KR6-YK4N].

failed DOI resolutions for the previous month, triggered DOI error reports if a user reports a broken link, monthly conflict reports if two or more DOIs have been submitted with the same metadata, and periodic metadata quality reports. These reports help members react to issues that may otherwise be difficult or time consuming to notice.

**Conclusion**

§57 Persistent identifiers have been widely adopted across multiple disciplines in academia to help publishers, authors, and institutions manage, disseminate, and track scholarly works. However, publishers of legal scholarship and other legal materials have not widely implemented identifiers like DOIs or ORCID iDs. As a result, legal scholarship will not be included in the information ecosystem that has developed around identifiers. To enable the adoption process to be seamless and easily maintained over time, law schools and law journals should look to law libraries, which already have experts in information organization that work with law faculty and students. Law librarians and law library staff who play a role in scholarly communications, faculty services, and technical services have the skills and expertise to handle assigning and updating persistent identifiers. Law schools will benefit from increasing the efficiency of managing faculty metadata by enhancing the functionality of scholarly communication tools already in use.

§58 When identifiers are implemented into publishing workflows, a cascading series of benefits occurs that increases access and efficiency and enhances the ability of scholarly communication tools to provide useful insights into impact. By adopting and promoting these identifiers, law libraries demonstrate their commitment to implementing best practices in scholarly communication and information organization. The landscape of digital publishing has already grown and evolved such that publishing without key pieces like persistent identifiers are leaving authors, institutions, and other stakeholders out of new developments in scholarly communications and information management. This evolution not only strengthens the foundations of legal research but also reaffirms the vital role that law libraries play in facilitating the dissemination of legal knowledge and the advancement of the legal profession.

§59 Barriers to adoption exist and can explain why persistent identifiers have not already been adopted for legal scholarship and other legal materials, and these barriers can be overcome with stakeholder education and planning. Law libraries can bridge the...
knowledge gap for law journals, advise during the publishing process, and help pay for the costs of registering DOIs. A stable, central connection between law journals and the law library would help overcome membership turnover challenges. The support of law school and law library administration is crucial for the success of any persistent identifier implementation plan. Texas A&M University School of Law has used this model of embedded librarianship to educate stakeholders and adopt ORCID author identifiers for faculty and DOIs for the law school’s law journals.

¶60 Beyond advocating for law libraries and law journals to work together and adopt modern best practices in scholarly communications, more work can be done to make the process easy to integrate into library workflows. For example, a tool to process spreadsheet data into valid XML for DOI registration would help reduce the time to register content to minutes. Following the lead of the ALWD Guide to Legal Citation, the Bluebook and other legal citation manuals should update rules to include DOIs in citations. Faculty advisers to law journals and organizations like Scribes’s Law Review Project should help educate student editors about publishing best practices.

¶61 As persistent identifier adoption in legal scholarship continues to grow, exciting research possibilities will emerge, such as developing data-driven information visualizations and creating research networks broken down by various levels of granularity. Publishers of legal scholarship and other materials should implement persistent identifiers so legal scholarship can integrate with modern platforms, algorithms, and applications. The incorporation of persistent identifiers into legal scholarship represents a transformative step toward a more accessible, interconnected, and sustainable legal research ecosystem.
This article reviews the important role feedback has in teaching legal research. It draws on educational scholarship to provide an overview of strategic considerations in planning for feedback. By focusing on written feedback as a mode of providing comments to law students, this article applies research on how to use content and tone to deliver effective feedback that engages students by being specific, positive, constructive, and personalized. Examples of how content and tone may be used to improve comments on legal research assessments are provided.

Implications for Practice

1. Feedback is a crucial skill to be developed by teaching librarians because legal research courses often utilize formative assessment through which students have multiple opportunities to demonstrate improvement based on feedback.
2. To deliver effective feedback, teaching librarians must engage students through comments that are specific, positive, constructive, and personalized.
3. Careful consideration of content and tone will allow teaching librarians to craft comments that achieve maximum effectiveness.
Introduction

 ¶1 When librarians discuss teaching legal research, they tend to categorize the subject as a skill.¹ Accordingly, their legal research pedagogy strongly emphasizes skill-based instruction.² Ironically, law librarians themselves may not develop the skills they need to be effective instructors, often because they are needed as teachers as soon as possible.³ Just as students need to learn, develop, and practice legal research skills, librarian teachers need to learn, develop, and practice teaching skills.⁴ Fortunately, scholarship, workshops, and conferences increasingly focus on teaching librarians how to

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2. See, e.g., Dunn, supra note 1.


4. SUSAN BROOKHART, HOW TO GIVE EFFECTIVE FEEDBACK TO YOUR STUDENTS 1–2 (2d ed. ASCD 2017).
develop teaching skills. This article contributes to these efforts by tackling the skill of delivering feedback, specifically effective written feedback, to legal research students.

Feedback is a crucial part of student learning, especially when teaching a skill like legal research. Because legal research instructors often assess students’ written work product, offering feedback in written form is especially effective. In addition, effective feedback engages students through comments that are specific, positive, constructive, and personalized. Delivering this effective written feedback may be achieved through thoughtful and purposeful use of content and tone. Just like learning any other skill, teachers need to study and practice how to write feedback to make it an engaging part of the learning process.

The first part of this article explains how and why feedback needs to be part of the legal research learning process. The second part outlines factors to consider in developing strategies for providing feedback. Next it focuses on what (content) and how (tone) to comment on legal research work product to make feedback effective. The article ends by summarizing strategies for increasing student engagement after the written feedback is delivered.

Note that the feedback strategies discussed in this article are widely studied in scholarship on educational theory. However, as many librarians are not trained educators, they may not have had the chance to study this literature. This article applies the well-developed literature on feedback to legal research to introduce these materials.

While this article is written for legal research instructors working in formal classroom settings, the feedback strategies apply equally well in other settings, such as courts and law firms, or for other work products, such as scholarship or survey projects.

Feedback as Part of the Learning Process for Legal Research

The Role of Feedback in Assessment

Elizabeth M. Bloom's article on incorporating feedback in law school classes highlights how crucial feedback is to student learning. Indeed, feedback is “one of the most powerful influences on learning.” Feedback can be incorporated into the two categories of assessment required in law school courses by the American Bar Association (ABA): summative and formative. Summative assessment is provided at the end of a learning process, like a module or course, with the feedback usually taking the form of a grade. This does not provide much opportunity for dialogue between the teacher and student or for demonstratable change by the student.

5. Examples include the scholarship cited in footnote 1, the Teaching Legal Research class at the University of Arizona, and the Teaching the Teachers Conference for law librarians.
9. MICHAEL HUNTER SCHWARTZ, SOPHIE M. SPARROW & GERALD F. HESS, TEACHING LAW BY
Formative assessment is provided at multiple points throughout the learning process and accompanied by feedback in the form of a grade or, ideally, substantive comments. This provides students with the opportunity to demonstrate improvements and change based on feedback. The American Bar Association (ABA) more narrowly defines formative assessment methods as “measurements at different points during a particular course or at different points over the span of a student’s education that provide meaningful feedback to improve student learning.”

As demonstrated in the ABA’s definition, feedback is a crucial part of formative assessment. Feedback itself becomes formative when it is “information communicated to the learner that is intended to modify his or her thinking or behavior for the purpose of improving learning.” Essentially, the feedback “forms” new behavior. Formative feedback is most beneficial as it can be used to adjust student learning for the future.

Formative feedback also facilitates learning through the dialogue that develops between teacher and student. This is particularly important for written feedback, where the default assumption is that the student passively receives the feedback. However, written feedback becomes engaging when it calls the student to action or encourages future changes. Repeated opportunities for feedback, both written and verbal, help build an engaging, “continuous, collaborative partnership” between the teacher and student.

The Unique Role of Feedback in Legal Research Assessment

While most students benefit from formative feedback, legal research students are particularly well served by this type of assessment. There are many reasons for this. First, legal research is a skill students need to develop. First-year and upper-level research classes often receive skill or experiential designations, which require specific standards from the ABA. Learning a skill requires repeated practice, so it makes sense that experiential courses involve “multiple opportunities for performance.” With repeated student performance comes repeated opportunity for feedback.

Second, most legal research classes use assignments, not a final exam, as the primary assessment method. Multiple assignments allow students to not only receive feedback but to apply it moving forward within one class. This is more than can be done

10. ABA Standards, supra note 8, at 23 (Interpretation 314-1).
12. Bloom, supra note 6, at 235.
13. Id. at 255; see also Drake, supra note 1, at 14–15 (discussing how millennial learners value collaborative relationships).
14. ABA Standards, supra note 8, at 16 (Standard 303).
16. ABA Standards, supra note 8, at 16 (Standard 303(a)(3)(iii)).
17. Gerdy, supra note 1, at 78.
by other law teachers instructing in doctrinal courses. Considering how many law classes are doctrinal, it may be the best opportunity students have for feedback.\(^\text{18}\)

¶ 12 Third, current law students seek these opportunities for feedback. Most law school students now enrolled are Millennials (born between 1981 and 1994) and Gen Zers (1995–2012).\(^\text{19}\) Scholars describe both generations as eager to receive feedback.\(^\text{20}\)

¶ 13 Finally, librarian teachers of legal research classes are uniquely visible to students outside of the classroom.\(^\text{21}\) Students spend time in libraries, where librarians sit at the reference desk, meet with students, and work with the collection and space. This may make librarians seem more approachable than other teachers, and it also provides students with opportunities to casually engage with librarian teachers outside of the classroom.\(^\text{22}\) This may help strengthen the bond between student and teacher, which is necessary to achieve effective formative feedback.

### Goals and Strategies for Delivering Feedback

#### Feedback Goals

¶ 14 By providing feedback, a teacher communicates to a student that they read and thought about the student’s work.\(^\text{23}\) This can be incredibly impactful to students who often feel that a letter grade is minor acknowledgment of the time and effort that goes into submitted exams. However, librarian teachers have stronger goals for feedback than only acknowledging a student’s work.

¶ 15 Two overarching goals support effective feedback: (1) show students what they did right and wrong, and (2) identify areas of improvement for future work. When identifying the strengths and weaknesses of student work, it is very important to explain the reasoning behind the feedback. The reasoning should allow the student to understand why the comment is worthy of being communicated to the student. The goal is not to praise and criticize but to make substantive, positive comments and constructive critical comments.

¶ 16 Positive feedback does not rely on praise or false platitudes. Positive feedback identifies the strength in a student’s work by identifying what they did well.\(^\text{24}\) To be substantive, it connects the strength with the skills taught, the rubric criteria, and the

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18. To meet ABA curriculum requirements, students may enroll in other experiential and writing courses that also heavily incorporate the use of formative feedback, including clinics and externships.
20. *Id.* at 297–98; see also Bloom, supra note 6, at 229–30 (summarizing scholarship on millennial students’ requests for multiple forms of feedback).
22. *Id.*
23. Brookhart, supra note 4, at 1 (“Somebody cared enough about my work to read it and think about it!”).
24. Schwartz, Sparrow & Hess, supra note 9, at 162.
student's capacity to demonstrate those skills. Identifying weaknesses can also be done positively by including suggestions for how to improve.

Constructive feedback addresses actual improvements that can be made in the future. Feedback that helps the student to improve future performance is known as "feedforward." The comments move the student forward in the learning process rather than keeping them in the same place.

To summarize, the best feedback is positive and constructive. Most of the language in this section is directed at providing feedback to a single student. One-on-one attention acknowledges that student's work and leads to student-specific feedback. While there are opportunities to provide group feedback, feedback designed to improve a student's performance is most effective when it is personalized. So, feedback should also be specific and personalized.

How do these descriptive terms support a pedagogical definition of effective feedback? One study reviewed the field of scholarship on formative assessment to synthesize seven principles for "good feedback." The study defines good feedback as "anything that might strengthen the students' capacity to self-regulate their own performance," with self-regulation being demonstrated by a student's ability to process feedback from a teacher and improve by applying it to their next assessment. These seven principles may be used to measure feedback:

1. Helps clarify what good performance is (goals, criteria, expected standards).
3. Delivers high-quality information to students about their learning.
4. Encourages teacher and peer dialogue around learning.
5. Encourages positive motivational beliefs and self-esteem—encourages and motivates.
6. Provides opportunities to close the gap between current and desired performance.
7. Provides information to teachers that can be used to help shape the teaching.

Discussing all of these principles goes beyond the scope of this article. It focuses on how the use of content and tone in written feedback can meet many of these principles for good feedback. It particularly focuses on how effective written feedback engages students by being specific, positive, constructive, and personalized.

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26. Id.
28. Brookhart, supra note 4, at 75.
30. Id. at 205.
31. Id. at 199–200; see also Bloom, supra note 6, at 230–31.
32. Nicol & MacFarlane-Dick, supra note 29, at 205.
Feedback Strategies

¶21 When creating strategies for delivering feedback, a teacher must consider the group of students, the subject being taught, and the method of assessment. This article focuses on four of the many elements legal research teachers consider when making strategic choices about feedback: format, audience, amount, and timing.

Format and Audience

¶22 One of the first considerations for providing feedback is the mode of feedback: oral or written. Oral feedback may be delivered via a recording or in a live setting (in person or virtually). It may be provided to an individual student via research conferences or informal conversations, or it may be provided to a class via lecture or demonstration. Oral feedback, especially a one-on-one research conference, is invaluable for providing a student with the opportunity to talk about their assessment; they can ask questions about the feedback and discuss strategies for moving forward.

¶23 Librarian teachers have an excellent primer on the importance and use of research conferences in legal research with Alyson Drake’s article On Embracing the Research Conference. This article focuses on the creation of written feedback, which is often a precursor to one-on-one oral feedback. However, guidance on content and tone may be carried into the conversation during conferences that provide feedback on legal research.

¶24 Written feedback may be electronic or handwritten. It may be provided to an individual student via in-line comments or overall comments, or it may be provided to an entire group or class of students via overall comments. The focus here is on written feedback to individual students. As individualized feedback is also personalized, it helps contribute to the goal of building a dialogue with the student that cannot be attained with group feedback.

¶25 There are many challenges to written feedback, including the use of tone, determining appropriate content, and building trust with the student. However, when done effectively, written feedback benefits the student by directly attending to their work and sending the message that their work is valued. Trust may be built through careful consideration of the tone and content of comments. While ultimately effective feedback creates a dialogue between the teacher and student, written feedback may also provide the student with some needed distance between the message of the feedback and the teacher conveying the message.

33. Brookhart, supra note 4, at 12. Brookhart specifically evaluates the categories of mode, audience, amount, timing, and content individually. Id. at 13–14. This article selects and highlights pieces of this discussion to apply to legal research.
34. Chew & Pryal, supra note 27, at 433–35.
35. Drake, supra note 1, at 9.
36. Drake, supra note 1.
38. Brookhart, supra note 4, at 36.
39. Id. at 37.
¶26 When providing written feedback, there are many practicalities to consider, and choices should be made with clear pedagogical intent. This article advises that written feedback be delivered electronically and directly to the student. Electronic delivery eliminates communication issues and student frustration due to illegible handwriting, while also saving the teacher time in writing the feedback. While it is important that individual feedback remain tailored to each student’s work, themes often emerge, and similar comments may be copied, pasted, and edited in the electronic environment.

¶27 Feedback may be written electronically in many different places on a particular assessment: on the student’s work, a rubric or grade sheet, or both. While feedback written directly on the student’s work generally targets specific comments, the rubric or grade sheet may include a mix of specific and global comments.

¶28 Wherever a teacher selects to write the feedback, it is important to consider whether the assessment is graded or ungraded. For formative feedback, it has been established that there must be multiple opportunities for assessment. There is another question of whether the assessment should be graded or ungraded for the feedback to be most effective. Feedback literature repeatedly stresses that feedback is most effective with ungraded assessment. When students receive an assignment with both a grade and comments, they often focus on the grade instead of the comments. However, many law librarian teachers do not have a choice in providing graded assignments due to law school mean and curve requirements.

¶29 Whether the class is graded or ungraded, teachers can focus on providing ungraded opportunities for feedback before a major graded assignment. Written feedback should be set as an expectation early in the course before it is delivered alongside a grade, and it should be used with strategies that prepare students to receive feedback as discussed in the final part of this article.

**Amount and Timing**

¶30 Two related aspects of feedback strategy are amount and timing. Determining the amount of feedback to provide goes to the question of how much feedback is enough, while determining the timing of feedback goes to the question of when to provide feedback. Teachers need to balance providing enough feedback to be effective with returning feedback in a timely manner.

¶31 Concerns over determining the appropriate amount of feedback include both how many comments to make and how much to write in each comment. The analysis is different for in-line comments versus global comments; however, some guiding
principles apply to both efforts. First, pick the most important points to comment on. Next, focus on points that line up with the rubric or grading sheet that reflect the objectives of the assessment. Finally, consider the needs of the specific student and what will help them improve moving forward. For example, if a student repeatedly demonstrates weak skills in relation to one criteria, comment on that issue one time rather than each time the problem is demonstrated.

One useful approach when assessing what areas most require feedback is to review a student’s work three times: first, for the big picture; second, to provide comments; and third, for completeness and consistency. By first reviewing the research assignment holistically, teachers can identify the important issues in need of attention in the comments.

There is no doubt that providing written feedback is a time-consuming process, but it still needs to be provided in a timely manner. While providing a guide on right and wrong answers can be done immediately, more time is needed to perform a comprehensive review of student thinking and processing. Written, personalized feedback is not a method that is always best suited to providing feedback, especially if there is limited time and/or a large class of students. In that event, other methods of feedback discussed in the previous section may be considered, specifically written or oral comments directed to an entire class.

What qualifies as a timely manner? Students need to receive feedback in time to use it for the next assignment. Remember, effective feedback improves future performance. Feedback is best provided when a student has an immediate opportunity to use it: “the longer the time between receiving feedback and recalling it, much less using it, the more the feedback message fades from specific descriptions and suggestion to a general memory of evaluation.”

As such, teachers need to balance efforts to provide comprehensive, substantive feedback with time constraints, both in course schedules and their own work schedules. Librarian teachers are often in the unique position that teaching duties are placed on top of their primary duties as a librarian, compounding the need to consider timing in determining the amount and format of feedback to provide.

There may be a point at which feedback is no longer timely or likely to provide opportunity for improvement. While there is not an exact timeline for when feedback loses its efficacy, it is something to consider in weighing the amount of time to contribute to writing feedback. For example, a final assignment might receive only minimal

47. Brookhart, supra note 4, at 13 (figure 2.1 lists three considerations for determining the amount of feedback to provide).
48. Id.; see also Chew & Pryal, supra note 27, at 430–32 (discussing what feedback will have the biggest effect).
49. Brookhart, supra note 4, at 13; see also Schwartz, supra note 9, at 162–64 (discussing how rubrics aid in providing students with specific feedback).
51. See Chew & Pryal, supra note 27, at 422 (modified from the discussion of a three-step structure for students to peer-review other students’ legal writing).
52. Brookhart, supra note 4, at 77.
feedback or feedback upon request because it occurs too late in the course to spur future improvement.

**Using Content and Tone in Delivering Feedback**

¶87 The feedback strategies discussed here may guide teachers in planning the mechanics of delivering feedback. These mechanics lay the groundwork for effective feedback, which ultimately relies on the feedback itself. Feedback that is specific, positive, and constructive focuses on important content and is delivered in the right tone. This section begins by identifying general principles to guide the use of content and tone in feedback. It then applies these principles specifically to legal research with examples.

**Content: What to Comment**

¶88 Many studies have examined how to create effective feedback; John Hattie and Helen Timperley reviewed these studies to create a model of feedback.53 Their model identifies four “levels” that impact the feedback’s effectiveness.54 Feedback may be about the task, about the processing of the task, about student self-regulation, and about the student as a person.55 Feedback about the student’s work and their performance of the work is the most effective, while personal comments about the student (such as positive or negative comments on their intelligence) are not effective for learning.

¶89 Feedback about the work addresses the tasks completed;56 it comments on the work product and not the student.57 Compare “You did not demonstrate …” with “The research log did not demonstrate …” Compare “You did not conclude …” with “The memo did not conclude ….” Using this language helps the teacher to ensure they are writing about the work and not about the student.

¶90 Feedback should be compared to a rubric, learning objectives, or other criteria set out for the assessment.58 In doing so, feedback should teach students how to meet the assessment criteria rather than how to attain higher grades.59 It may also be compared to the student’s past work, but it generally should not be compared to the work of other students.60 There may be rare instances when a student’s work may be compared to other students. This is most often productive when the class is full of successful

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54. *Id.* at 88.
55. *Id.* at 88–97.
56. See generally Shute, *supra* note 11 (creating a review of literature focused on task-level feedback).
57. See CHEW & PRYAL, *supra* note 27, at 451 (advising students in peer review to comment “on the writing rather than the writer”).
58. Schwartz, *supra* note 9, at 164; BROOKHART, *supra* note 4, at 27.
59. See Shute, *supra* note 11, at 178 (reviewing literature cautioning against the use of grades with feedback).
60. See *id.* at 167 (providing a review of literature critiquing comparing student performance to that of other students).
learners,61 where a sense of comradery may result from noting that many students missed a certain criterion, like identifying a hard-to-find statute. However, it may be less productive to unsuccessful learners, as it compares them to the “norm” in ways that may be damaging.62

¶41 As the feedback is meant to be formative, it also addresses the strengths and weaknesses of the student’s work. What did the student do right, and what did the student do wrong? Why? When identifying a strength of the work, usable feedback explains why it was done well so the student understands how to replicate good work. When identifying a weakness in the work, usable feedback includes substantive suggestions for change that the student can apply in the future. However, a delicate balance is needed to make sure mistakes are still encouraged and supported. Mistakes are an opportunity to learn and grow as legal researchers.

¶42 As discussed earlier in considering the amount of feedback, effective comments are streamlined in terms of the topics or problems addressed. They do not comment more than once on a mistake made multiple times,63 but let the student make the connection moving forward as part of self-regulation. Making the same comment multiple times weakens the strength of individual comments; limiting comments helps students to recognize their importance.

¶43 Finally, comments should not judge the circumstances of a student’s work, especially weak student work.64 For example, assuming lower performance or late assignments result from laziness or lack of effort damages the relationship between teacher and student. Comments should provide a student with an opportunity to address the weaknesses with the work rather than assuming the reason for it.

Do

1. Focus on the student’s work, the student’s process, and the student’s reflection.
2. Compare the student’s work to identified criteria and/or to the student’s past work.
3. Describe strengths and weaknesses.
   - Use positive comments that describe what is well done.
   - When identifying weaknesses, provide ideas for fixing the problem.
4. Continue to encourage mistakes.

Don’t

1. Focus on the student personally.
2. Compare the student to other students.
3. Correct the same type or category of error multiple times.
4. Judge.

61. Brookhart, supra note 4, at 28.
62. Id.
63. Id. at 16–17.
64. Id. at 29 (discussing how students read judgment into descriptive language).
Tone: How to Comment

¶44 Teachers generally have a lot to say about a student’s work. Considering how to write the comments is just as important as knowing what content to include. First and foremost, comments should be specific and clear.65 If a student cannot understand what a comment means, they may become frustrated and stop reviewing feedback.66 However, comments should not be so specific that a student’s work on the next assignment is done for them. The guidelines from the earlier discussion on content and assessment checklists are useful in making this distinction.67 Be clear and specific in identifying how a weakness can be fixed and how a strength can be repeated in the future.68

¶45 Word choice is incredibly important to tone. Questioning language that asks students to “think,” “consider,” “try,” or “wonder” both engages them and gives them control over making improvements.69 Supportive and encouraging words positively affect learning. Compare these terms with commanding language like “must,” “should,” or “do not.”70 Commanding language takes away the student’s ability to engage with their own learning by having autonomy in their choices on the next assignment.71

¶46 Other word choices and phrasing to avoid include judgmental language.72 Nonjudgmental comments demonstrate respect for the student’s time, energy, strategy, and work. One-word comments such as “good,” “wrong,” or “maybe” are also not effective as they do not explain why.73 “No” is particularly damaging to the psyche of a student when reviewing feedback, as it does not move them forward with learning but instead creates a hard stop.74

¶47 An exception to the recommendation to avoid one-word comments may be made for short comments that demonstrate a teacher’s engagement with the student’s work product. For example, a teacher may include a “haha” or “LOL” to acknowledge a joke in a research log or a happy face emoji to demonstrate a student’s positive reflection on a class lesson. Most writers, students included, appreciate this kind of demonstration that their work is appreciated and being positively responded to.

¶48 Sarcasm and humor are often hard to convey via writing. Rather than risk a comment being misinterpreted, it is best to avoid using jokes. Another tricky piece of

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65. Schwartz, supra note 9, at 162–63; see also Shute, supra note 11, at 177 (identifying the goal of being specific and clear supported by scholarship on the point).
66. Shute, supra note 11, at 177.
67. Schwartz, supra note 9, at 162–63; BROOKHART, supra note 4, at 27.
68. See Bloom, supra note 6, at 249–50 (discussing the author’s efforts to be “forward-looking” in providing feedback).
69. Id. at 249 (discussing how questions engage students in the evaluation process); BROOKHART, supra note 4, at 17 (recommending that to obtain good tone, “choose words that cause students to think or wonder”).
70. Bloom, supra note 6, at 248.
71. See BROOKHART, supra note 4, at 25; Bloom, supra note 6, at 240; and Drake, supra note 1, at 11–12 (articles discussing the strength of self-regulated or self-directed learning of students).
72. Bloom, supra note 6, at 248; BROOKHART, supra note 4, at 29.
73. Schwartz, supra note 9, at 162–63.
74. Bloom, supra note 6, at 248.
phrasing to avoid is backhanded compliments, which may result from attempts to com-
pliment weaker assignments.\textsuperscript{75} For example, saying “you have so many areas to improve on for the next assignment” implies that this assignment was not good. A modification to “moving forward on the next assignment, focus on the following areas” identifies steps for moving forward and does not make implications about the quality of the work being reviewed.

**Do**

1. Use clear language and terms reflective of class concepts.
2. Be specific in identifying areas for improvement without making the improve-
ments for the student.
3. Respect the student’s time and work.
4. Ask questions and choose words that encourage the student to engage with the feedback and to consider future improvements.
5. Use encouraging or supportive words and phrases.

**Don’t**

1. Use unclear language.
2. Attempt to joke or be funny.
3. Use excessively judgmental language, false praise, or backhanded compliments.
4. Use one-word statements “no,” “yes,” “wrong,” “great,” etc.
5. Use commanding language.

**Content and Tone Guidelines Applied to Legal Research**

*Use of Content and Tone in Legal Research*

\textsuperscript{49} A teacher’s next step is to apply these guidelines to legal research assessments. Common assessment tools include quizzes, guided exercises, and open-ended exercises. This article focuses on examples for guided or open-ended exercises that allow students to demonstrate their methods and strategies for conducting legal research (like a research log) and/or their final work product based on those methods and strategies (like a memo, client letter, or brief).

\textsuperscript{50} Considering this type of work product, librarian teachers may focus on the student's work by identifying specific types of content to provide feedback on versus types of content that are not productive for feedback. This content should be developed from assessment criteria, in the form of objectives, rubrics, or assignment criteria.\textsuperscript{76} Examples of content that may be the source for legal research feedback in logs and work product include:\textsuperscript{77}

\begin{itemize}
\item \textsuperscript{75} Chew & Pryal, supra note 27, at 433.
\item \textsuperscript{76} Schwartz, supra note 9, at 164; Brookhart, supra note 4, at 27.
\item \textsuperscript{77} See Chew & Pryal, supra note 27, at 422–32 (focusing on topics for students to consider in reviewing legal writing, such as structure, flow, and grammar).
\end{itemize}
Organization/Process/Method  
Search Methods  
Database and Resource Selection  
Resource Authority  
Identification/Misidentification of Law  
Updating Law  
Discussion, Analysis, and Conclusions  
Reflection

¶51 Librarian teachers also make choices about what they will not comment on, due to time or other constraints. For example, if the research class is not held in conjunction with a writing class, feedback on grammar, punctuation, and typos may be limited so students can focus on comments related to research. Limiting these comments may also help prevent the teacher from being seen as nitpicky by the students (if it is not a writing class).

¶52 Librarian teachers may need to consider how to provide feedback on substantive analysis of the law, especially as they are not teaching a doctrinal course. How does a librarian teacher comment on a student who found the correct law but did not understand it substantively? Expectations on this issue may depend on a particular assignment, but communicating these expectations and any related assessment criteria to students is important.

¶53 Other areas that are best avoided when providing feedback on legal research include a student’s personal ideology and beliefs, which sometimes become clear in assignments, and a student’s intelligence. Examples of content that may not be the source for legal research feedback in logs and work product include:

- Grammar/Punctuation/Typos  
- Substantive Analysis Unrelated to Research  
- Student’s Ideology/Beliefs  
- Student’s Intelligence

¶54 While this identification of what content to focus on helps direct the student’s work in the legal research context, there were many other content guidelines that may be framed within the legal research context. For example, teachers are wise to avoid comparing the student’s work to others in the class: “Your research log was the shortest one in the class. You didn’t put enough detail in it.” or “Your research log was the best one in the class! Don’t change anything for the next assignment.” Neither option provides a weak or strong student with tangible steps for moving forward. However, comparing the student’s work to their own past work may be productive: “Your research log included more in-depth reflection than the first one. You clearly analyzed the findings in light of the client’s facts. Moving forward, consider utilizing findings to make thoughtful decisions about next steps.”

78. See id.  
79. See supra ¶¶14–36.
Judgment was raised as problematic in terms of both content and tone. For example, judgments about a student’s poor performance are seen in comments such as “Your assignment is late and will be deducted 20 percent” or “This log is incomplete, and the rubric will reflect that.” Comments cannot always be positive, but ideally they allow a student to explain why, for example, an assignment is late or incomplete. Providing this opportunity may make the student more receptive to substantive feedback and continue to build the trust needed for them to use feedback. These comments may be improved by writing: “I haven’t received your assignment yet. Can you please provide me with an update on how you are doing?” or “The memo reflects significantly more research conducted than was tracked. Let’s spend some time discussing the research log in a post-conference.”

Another content principle that is particularly relevant to legal research is the advice to encourage mistakes. Librarian teachers know that research is an iterative process, which means the first answer, term, or resource is not necessarily the right one. Effective feedback that leads a student to improve their skills acknowledges that mistakes are necessary to parts of the learning process. Research always involves correcting past searches, methods, and findings. The classroom setting is the time to try, fail, and try again.

This article continues to apply the use of content and tone in written feedback on legal research by providing comparative examples of feedback written via in-line comments and overall comments.

**In-line Comments—Content and Tone**

As discussed in the feedback strategies on format, one option for providing feedback is to make in-line or in-draft comments directly on a student’s research logs or final work product. In-line comments are an excellent way to provide feedback on both specific and global aspects of a student’s work.

Tables 1 and 2 show examples of ineffective comments using many of the content and tone principles to avoid, and examples of how those comments may be improved by using recommended principles for feedback.

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80. See id.
81. BROOKHART, supra note 4, at 34 (modified from examples in figure 2.12, “Examples of Feedback Content”).
82. See Shute, supra note 11, at 162 (discussing a conclusion from feedback scholarship that “mistakes are part of the skill-acquisition process”); BROOKHART, supra note 4, at 27, 79 (discussing how feedback may model mistakes).
**TABLE 1**

Content and Tone Applied: In-line Comments on Keyword Searching.83

<table>
<thead>
<tr>
<th>Before</th>
<th>After</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nice Boolean search!</td>
<td>Boolean searching was an excellent choice for searching law review articles on the narrow policy aspect of this issue.</td>
</tr>
<tr>
<td>Too soon for statutory research. What are your key terms?</td>
<td>Consider spending more time with secondary sources to gain a better understanding of the terms being utilized in statutes on this topic.</td>
</tr>
<tr>
<td>No results? Why didn’t this work?</td>
<td>What steps can be taken to broaden this search? Modification is an essential step in utilizing keyword searching, especially when receiving zero or unsatisfactory results.</td>
</tr>
<tr>
<td>You need to utilize an index.</td>
<td>When keyword searching codes are unsuccessful, try switching to an index search. Indexes allow you to utilize a controlled vocabulary to either help navigate to the right topic or help confirm that there are no relevant statutes on point.</td>
</tr>
</tbody>
</table>

**TABLE 2**

Content and Tone Applied: In-line Comments on an Office Memo.84

<table>
<thead>
<tr>
<th>Before</th>
<th>After</th>
</tr>
</thead>
<tbody>
<tr>
<td>This organization is confusing.</td>
<td>This organization may not allow an attorney to browse quickly for an answer. How could you add more subsections and conclusions throughout?</td>
</tr>
<tr>
<td>Citations aren’t specific.</td>
<td>When dealing with federal regulations, it is particularly important that citations reflect the precise section of the CFR being referenced whenever possible, rather than entire parts of the CFR.</td>
</tr>
</tbody>
</table>

§60 Most of the original comments were short, but they were not clear or specific. They may have used praising language, but they did not support it with reasoning for the praise. They asked questions, but not in a way that led students to form an answer. They also used commanding language as well as negative language about the student’s work.

§61 In revising the comments, the feedback became more specific to the student’s work and to the legal research methods assessed. Questions were crafted to lead students in how they can improve on their work, and language was supportive by using suggestive language.

83. Modified from feedback written on student research logs in Advanced Legal Research at the University of North Carolina School of Law.

84. Modified from feedback written on student research logs in Advanced Legal Research at the University of North Carolina School of Law.
An obvious comparison is the length of the comments. The revised comments are all longer than the original comments, but they are also more effective. Feedback strategies on the number of comments to provide must be relied upon here; limit the number of comments to allow for more effectively written comments. Additionally, by making comments electronically, teachers may copy and paste comments that apply to multiple students.

**Overall Comments—Content and Tone**

The other identified format for providing feedback is global or overall comments. These comments may be made on an otherwise summative assessment of the student’s work, usually a rubric or grade sheet. They may be used in conjunction with in-line comments or the totality of the personalized written feedback a student receives on the assignment. Overall comments focus on recurring themes that were identified in reviewing the assignment.

There are two methods for providing overall comments. The first is the familiarly pictured “feedback sandwich” method. This is where the feedback begins and ends with positive feedback and includes constructive feedback in the middle. It starts and ends on high notes, while the middle highlights a student’s weakness and areas for improvement. The second method is a “feedback taco.” It begins with positive feedback and moves to constructive feedback, like the feedback sandwich. Instead of returning to positive feedback at the end, it sprinkles on some encouragement and support.

**Content and Tone Applied: Global Feedback on a Statutory Research Assignment**

Great work! The tracked research demonstrated organization and an impressive variety of search methods. It is very clear that you have been listening intently in class to our discussions of resource types and the best methods to search specific resources. The log demonstrated identification of excellent authoritative secondary sources and utilization of a reasonable number of resources from Google. I encourage you to spend more time with the valuable authoritative sources identified; there was additional excellent content to review in both drug testing treatises identified on Westlaw. There were also times where authoritative law reviews and journals on Westlaw could have been utilized to answer state-specific research questions instead of returning to Google, although Google may at times be more cost-efficient.

The statutory research tracked in the log demonstrated an efficient jurisdiction by jurisdiction approach. However, the tracked research into statutory law was incomplete.

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85. Alexa Chew & Rachel Gurvich, *Giving Effective Feedback*, UNC Festival of Legal Learning, Chapel Hill, NC (Feb. 6, 2020) (continuing legal education program to teach attorneys how to provide feedback on students’ work product, resumes, and cover letters).

86. *Id.* (discussion by Professor Chew on how she modifies the feedback sandwich into a feedback taco).

87. Modified from feedback written on a student rubric in Advanced Legal Research at the University of North Carolina School of Law.
Consider the following recommendations to be more comprehensive with research into statutory law. First, try to utilize the statutory citations identified in secondary sources when transitioning to statutory research. There were many notes in the log on relevant statutes identified from secondary sources that were never viewed. Second, read the identified statutes closely and make sure they clearly answer your questions. Whether they do or not, exhaust your search for relevant statutes before moving forward. Finally, always check your pending legislation flags on statutes ultimately identified as relevant. The gaps in identified law translated into a memo that was well organized and well written, but it included some incorrect and missing statutory references.

¶67 Overall, the assignment demonstrated strong foundational skills in identifying resources and selection of search methods. Moving forward on the next assignment, focus time and attention on finding code sections ensuring that you have answered all questions/issues raised in the plan to help create a work product that covers all the relevant law.

¶68 This global feedback blends specific feedback for secondary sources and overall feedback for statutory research methods. However, in both instances, the feedback was targeted to strengths and weaknesses specific to this student. It began each of the first two paragraphs with positive feedback, before focusing on improvements for the future. It ends by reiterating the student’s strengths to encourage the student in making corrections for the next assignment. It is very important that the positive comments are genuine to ensure a student trusts the feedback.

¶69 There are weaknesses in the example comments, like the short sentence labeling the research as incomplete without providing specific examples. There could also be additional support in the final paragraph by offering to discuss this feedback or help plan for the next assignment referenced.

¶70 Whether using in-line comments, overall comments, or both, content and tone are critical in making the feedback effective. Feedback strategies need to be considered in conjunction with the feedback itself to meet this article’s defining principles of effectiveness: specific, positive, constructive, and personalized.88

### Increasing Student Engagement with Feedback

¶71 One of the guiding principles of effective feedback highlighted throughout this article is the development of a dialogue between the teacher and student. The lessons on content and tone are meant to help create this dialogue and engagement by being questioning, positive, and supportive. However, by its nature written feedback is less engaging than oral methods of feedback, and all extra efforts to engage students with feedback should be considered in combination with the written feedback. This part of the article outlines the challenges in getting students to use feedback in any form and provides strategies for overcoming these challenges for written feedback.

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88. See Nicols & MacFarlane-Dick, *supra* note 29 (listing the principles of “good feedback” used as a jumping-off point for this article’s definition of effective feedback).
Student Response to Feedback

¶72 When a teacher puts the time, energy, and thought into providing feedback that is outlined in this article, it is incredibly frustrating if a student does not utilize the feedback. Unfortunately, it is a common occurrence to feel like a student is not using feedback, and it is worth investigating why that is the case so that teachers can develop strategies to counteract it.

¶73 The first reason students may not use feedback is because it is not effective or sufficient. The methods outlined in this article for careful consideration of the content and tone of feedback will make it more effective for students. Another reason a student may not use feedback is that it is provided too late. As discussed in the second part of this article, it is important to give timely feedback that can be used almost immediately on the next assignment.

¶74 This article's further consideration of tone relates to one of the most challenging barriers to students' use of feedback: the emotional response to receiving feedback. When students have a strong emotional reaction to feedback, particularly a negative emotional response, it may impede their ability to implement the feedback. Professors Chew and Pryal identify three potential causes for these negative feelings in law students: (1) disappointment with their work product; (2) anger at a professor's fault finding; and (3) frustration at not understanding how they could have done better.

¶75 The best way a teacher can combat these negative feelings is to prepare students for receiving feedback. One of the final reasons that students fail to use feedback is that they lack the proper strategies for doing so. Teachers may expect that students with weaker performance would benefit the most from feedback. However, it may be that the weaker performers are also those less equipped to apply feedback moving forward.

¶76 Providing students with a strategy for implementing feedback helps prepare them to receive the feedback. By doing so, it may help manage negative emotional responses, and it will provide students with more potential to utilize the feedback.

89. Bloom, supra note 6, at 236; see also Teresa McConlogue, Giving Good Quality Feedback, in Assessment and Feedback in Higher Education: A Guide for Teachers 119 (2020) (discussing why students are dissatisfied with feedback).

90. Bloom, supra note 6, at 236.


92. Chew & Pryal, supra note 27, at 438. As The Complete Legal Writer is written for students, these factors are presented to aid in a student's own evaluation of why they are experiencing negative reactions to feedback.

93. Bloom, supra note 6, at 236–37; Schwartz, supra note 9, at 167–68.

94. Bloom, supra note 6, at 236–38 (discussing the issue of student's lack of experience receiving feedback). Bloom writes that one study “found that students with the lowest grades, who consequently one would expect to benefit the most from feedback, were less likely to seek it than the students with higher grades.” Id. at 238.
Student Engagement with Feedback

¶77 To prepare students for feedback, teachers may engage students in a class discussion that outlines the amount, form, and importance of feedback in the class. As part of that discussion, the students may be made aware of the expectation that future assignments need to demonstrate the application of the feedback, and this discussion may even bring in lessons on the pedagogy in support of these points.

¶78 Most importantly, students benefit from being provided with a method for reviewing the feedback that forces them to engage with it. The Complete Legal Writer presents the following method for students receiving feedback: (1) read all the feedback, (2) summarize comments/themes, and (3) consider how to apply feedback concretely to future assignments.95

¶79 This is a good starting point for advising students, and the method may be developed further for students struggling with identifying concrete steps for future work. Increase student engagement with feedback by providing specific questions to guide their review of the comments and themes. Recommendations for questions adapted from Powerful Teaching include:

- What surprised you about the feedback?
- What feedback did not surprise you?
- What did you think was the most helpful feedback?
- What are concrete steps for improvement on the next assignment?96

¶80 Finally, this method may be expanded with a call to action; specifically, provide students with the option or requirement to schedule a meeting with the teacher to discuss the answers to these questions. The research conference provides additional one-on-one attention to the student’s work and allows students to ask questions about the feedback.97

Conclusion

¶81 The amount of work that a teacher puts into providing feedback cannot be underestimated. It involves time devoted to thinking deeply and critically about a student’s work and performance. When applied to legal research, it involves considering a wide range of factors—research methods, search techniques, resource selection, and findings of law—in addition to analysis and reflection.

¶82 If the time is going to be devoted to these efforts, it is worth providing effective feedback, which is a skill to be developed as much as the skill being taught. Effective feedback engages students by being specific, positive, constructive, and personalized.

95. Chew & Pryal, supra note 27, at 437–43.
97. For a detailed discussion of the benefits and mechanics of conducting research conferences, see Drake, supra note 1.
These goals may be achieved by considering the content and tone of any written feedback for students. Most students have an emotional response to receiving feedback, so it is important that teachers prepare students for this process and prepare themselves to deliver it as effectively as possible.

This article reviews a large amount of literature on this topic and applies it to legal research assessment. Teaching librarians working to improve their feedback skills might consider starting with small changes and slowly incorporating more and more effective feedback strategies with each opportunity to provide feedback to students. Small changes have a large and immediate impact on feedback and, by extension, the development of a stronger dialogue between teachers and students.
Confronting the Climate Crisis: Incorporating Climate Change into Legal Research Instruction*

Sue Silverman**

Climate change and efforts to mitigate or adapt to it will affect every corner of our society, including legal practice. Lawyers in all practice areas will need to develop climate change literacy to contend with the effects of climate change on their clients. This article argues that legal research instructors are uniquely positioned to teach students the critical research and analysis skills they will need to confront novel legal challenges wrought by a changing environment. It builds on previous scholarship to propose ways legal research instructors can incorporate climate change literacy into a legal research course.

**Implications for Practice**

1. Readers will gain an understanding of the scope of the climate crisis.
2. Readers will appreciate the impacts climate change is having and will have on the legal profession.
3. Readers will gain ideas and inspiration for addressing climate change in their research instruction classes.

Introduction ................................................................. 181
The Breadth of the Climate Crisis ................................. 182
Climate Change in the Legal Research Classroom ............... 186
Lawyers and Climate Change ........................................... 189
A Climate-Conscious Approach to Legal Research ................. 189
Developing Climate Change Literacy ................................. 192
Using Metacognition to Develop Critical Analysis Skills ........... 193
Examining Underlying Power Structures ............................. 195

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As for the so-called “greenhouse effect” of carbon dioxide buildup, I recognize that this too may become a serious issue for the future.

—Rawleigh Warner Jr., Chairman Mobil Corp., 1982

You are all climate lawyers now, whether you want to be or not.

—John Kerry, U.S. Special Presidential Envoy for Climate, addressing the general assembly of the American Bar Association, August 2021

Introduction

¶ In an interview with the Boston Globe, Amelia Keyes, at the time a second-year law student at Harvard and an organizational chair for Law Students for Climate Accountability (LSCA), noted that “[m]ost of my classmates would pause at taking a job at Exxon, but they will go and work for law firms that help Exxon or similar companies avoid regulations and accountability …. There is a big disconnect there. Law firms are the enablers and supporters of that harm.” This disconnect between our professional lives and our values, fears, and hopes when it comes to climate change is jarring when outside the classroom, where we are inundated—at times literally—with the grim
effects of climate change. But in the classroom (or law firm), we address legal issues in a vacuum and treat climate change as a specialized field of study instead of a crisis that envelops our entire planet and everything on it.

¶2 In this article, I propose ways that law librarians and legal research instructors can integrate climate change literacy and critical analysis into a legal research course. The first and second parts of this article provide a background to the climate crisis. The third part argues that lawyers have both ethical and practical obligations to understand the scope of the challenges presented by climate change, and efforts to mitigate and adapt to it; it puts forth several ideas for addressing climate change in the legal research classroom. Finally, the appendix to this article, available online, offers a class plan for a half-semester course focused on climate change research. Instructors can choose any part of this course for a stand-alone research module or incorporate it in an introductory or advanced legal research course.

¶3 A climate change course would align legal research with the current zeitgeist. Students are demanding that law schools, universities, firms, and their governments do more to respond to the climate crisis. Increasingly, we are seeing young people tear down the barrier separating their personal values from their professional or educational lives. In 2019, millions of children and young adults worldwide skipped school to march in climate protests in what is believed to be the biggest climate demonstration in history—these students will soon be our law students. In 2022, students at Yale, MIT, Princeton, Stanford, and Vanderbilt, following similar lawsuits initiated by students at Cornell and Harvard, filed complaints against their colleges for investing in the fossil fuel companies that contribute heavily to the climate emergency. In 2020, LSCA published its Law Firm Climate Change Scorecard, which assigned a letter grade to law firms based on their role in exacerbating the climate crisis. A year later, LSCA launched a boycott of Gibson Dunn for its work derailing climate action and harming indigenous and frontline communities. Further, in August 2023, 16 youth plaintiffs won a landmark lawsuit in which a Montana state court found that the state Environmental Policy Climate/2023/7/11/23791452/nyc-flooding-brooklyn-weather-climate-change [https://perma.cc/8U37-RSAN].


8. Law Students for Climate Accountability, #DoneWithDunn FAQs, https://docs.google.com/document/d/1QophGPL2Mat0s2oDxwCqy6o6WZFs8e8rJpntKiVx70c/edit [https://perma.cc/8798-XNY8].
Act harmed the plaintiffs by preventing Montana from considering the climate impacts of energy projects.9

§4 The students initiating boycotts against law firms, suing their colleges, and skipping school to march in the streets understand the colossal stakes of the climate crisis. But more profoundly, they understand that it is not too late to do something about it.10 While the Intergovernmental Panel on Climate Change (IPCC) reports grow increasingly urgent, our technology continues to improve.11 The disconnect between climate change and our professional obligations will diminish as the climate crisis intensifies and the transition to renewables becomes more feasible and urgent. Climate change will force us to reconsider the economic and legal frameworks that have been taken for granted in a modern, capitalist society. These frameworks assume the potential for unlimited growth and human dominance over nature, that no matter what the problem, technology will offer a solution that allows the extraction of fossil fuels in perpetuity. This in large part is due to the massive public relations campaigns sponsored by the fossil fuel industry that initially led us to believe that climate change is debatable, that the responsibility for climate change falls on individual choices, that we cannot have a modern society without fossil fuels, and finally that the fossil fuel industry is part of the solution.12 None of this is true.

§5 Though climate science is complex, the bottom line is straightforward: emissions from fossil fuel combustion contributes to atmospheric concentrations of greenhouse gases (GHGs), which contributes to global warming and climate change.13 In 1982, the American Petroleum Institute’s own scientists accurately predicted that a doubling of CO2 in the atmosphere would lead to a temperature increase of 3°C.14 A half degree of

12. Geoffrey Supran and Naomi Oreskes conducted in-depth studies of ExxonMobil’s climate change communications, which they found mimic the tobacco industry’s propaganda by downplaying the reality and seriousness of climate change, focusing on consumer “demand” and individual choice and responsibility, and carefully using rhetoric such as climate change “risk” to justify the continued use of fossil fuels. Geoffrey Supran & Naomi Oreskes, Rhetoric and Frame Analysis of ExxonMobil’s Climate Change Communications, 4 One Earth 696 (2021), https://doi.org/10.1016/j.oneear.2021.04.014.
warming generates a significant increase in severe weather events such as the flooding caused by Hurricane Sandy all along the East Coast, the torrential rains that left a third of Pakistan underwater, the megafires that tore through the West Coast and turned Australia into a hellscape, the megadrought gripping the Southwest, the scorching heatwaves in the Pacific Northwest and Europe, and the record high temperatures in the Arctic.\textsuperscript{15} As these climate disasters proliferate, we will be forced to discard nineteenth and twentieth-century notions that fossil fuels and unending economic growth are \textit{sine qua non} to living in a modern society. As Naomi Klein warned, climate change will, whether we acknowledge it or not, change everything.\textsuperscript{16}

¶6 As teachers, we have a duty to provide our students with the tools they need to succeed as attorneys and contribute to the development of laws and policies that propel our society forward. Our students are more than future attorneys—they are future voters, influencers, policymakers, and leaders whose decisions will be informed by their ability to perform legal research and critical analysis. In a world where the power and influence of fossil fuel companies and corporate interests dwarf all other voices, legal research instructors can show students how to navigate the morass of mis- and disinformation, find reliable sources to learn about climate change, and conceive novel and creative approaches to unprecedented climate-fueled problems using the vast array of research tools available to them.

¶7 Furthermore, effective legal research goes hand-in-glove with critical analysis, and legal research courses offer a unique opportunity for students to stretch their curiosity and exercise their investigative, critical, and analytical skills. Much as critical race
theory challenges students and teachers to consider the bias and racism built into our legal institutions and structures, we can challenge ourselves and our students to consider how the prioritization of fossil fuel extraction, unfettered capitalism, and deregulation shaped our policies and legislation and hamstrings our transition to cleaner and safer energy sources. In doing so, students can see beyond legal and policy frameworks designed to protect economic growth at all costs, including irreparably harming our environment and inducing irreversible climate change.

¶8 Climate change is a daunting topic to tackle in any class. Some legal research instructors may feel apprehensive about the complexity of the issue or nervous that they are wading into a political minefield. As for the former concern, the ideas set forth in this article to develop critical analysis skills and foster creative legal research to tackle novel challenges presented by climate change do not require a deep technical understanding of climate science or policy. Regarding concerns about political resistance, several polls indicate that climate change is a significant concern for younger Republicans as well as those who identify as Democrat. Climate change does not discriminate between “red” and “blue” states. Whether Republican or Democrat or neither, young lawyers will have to contend with the challenges posed by climate change in their practice and in their personal lives and may benefit from developing the climate change literacy and analysis skills suggested in this article.

¶9 This article is meant to start a discussion, not end it. There are no doubt different and better ways of addressing climate change in legal research in different academic environments. My hope is that this article will inspire others to consider how to confront these issues in their own institutions.

The Breadth of the Climate Crisis

¶10 Thanks to a longer, dryer, sunnier climate in Burgundy, the region is producing some of its best vintages, once outliers in the erstwhile cooler climate that defined Burgundy viticulture. But a few hundred miles to the south in Italy, where average temperatures have risen 1.4°C above preindustrial levels, there was a 57 percent plunge

17. In a recent Gallup poll, 69 percent of Republicans ages 18–34 worry “a great deal” or a “fair amount” about the quality of the environment (compared to 52% ages 35–54 and 46% ages 55 and older); 44% of Republicans ages 18–34 believe global warming has already begun (compared to 29 percent of those who are 55 and older). Megan Brenan, Republicans’ Environmental Worry Varies by Age, Gallup (July 25, 2022), https://news.gallup.com/poll/394955/republicans-environmental-worry-varies-age.aspx [https://perma.cc/P364-3ECJ]. In another 2019 survey, 52 percent of millennials or younger who identified as Republican believed the federal government is not doing enough to limit global warming, compared to 41 percent of Republican Gen Xers and 31 percent of Republican boomers. Irfan Umair, Poll: Most Millennial and Gen Z Republicans Want More Government Climate Action. Most Boomer Republicans Don’t, Vox (Nov. 25, 2019), https://www.vox.com/2019/11/25/20981768/climate-change-pew-opinion-poll-republicans-ok-boomer [https://perma.cc/468T-HAW9].

in the olive harvest.\(^{19}\) On the other side of the world, Aspen’s ski season is one month shorter as temperatures in the Colorado Rockies have risen 1.7\(^\circ\)C since 1980.\(^ {20}\) Across the country, the Gulf of Maine has warmed faster than 99 percent of the world’s oceans, creating the ideal temperature for lobsters. Any benefit to the lobstering industry, however, will be short lived as continued warming is expected to cut lobster populations up to 62 percent.\(^ {21}\) Business owners in each of these situations will need to reexamine the products they offer, overhead costs, risks, and investments in equipment and resources to adapt to new and unpredictable weather patterns. Legal advisers would be remiss to ignore the effects climate change will have on their clients’ businesses.


\footnote{23. IPCC, \textit{Impacts}, \textit{ supra note 22}, at B.1.4.}

\footnote{24. \textit{Id.} at 11.}

\footnote{25. IPCC, \textit{ supra note 11}, at B.1.3.}
anthropogenic GHG emissions were approximately 59 GtCO₂.\textsuperscript{26} In August 2021, ahead of the U.N. Climate Change Conference in Glasgow (COP26), the IPCC issued an urgent warning:

Global warming of 1.5°C and 2°C \textit{will be exceeded} during the 21st century unless deep reductions in carbon dioxide (CO₂) and other greenhouse gas emissions occur in the coming decades....\textsuperscript{27} (emphasis added)

\textsection{13} The International Energy Agency (IEA) has also sounded the alarm, noting that limiting warming to 1.5°C “calls for nothing less than a complete transformation of how we produce, transport, and consume energy.”\textsuperscript{28} Yet the commitments made by the parties to the Paris Agreement, an international treaty pursuant to which member states commit to taking action on climate change, fall woefully short of the energy transition needed to reduce GHG emissions to sustainable levels and eventually net zero.\textsuperscript{29}

\textsection{14} Secretary-General António Guterres put it bluntly in a scathing indictment of the parties to the Paris Agreement:

We are on a pathway to global warming of more than double the 1.5°C limit agreed in Paris. Some government and business leaders are saying one thing but doing another. Simply put, they are lying. And the results will be catastrophic. This is a climate emergency.... The science is clear: to keep the 1.5°C limit agreed in Paris within reach, we need to cut global emissions by 45 percent this decade. But current climate pledges would mean a 14 percent increase in emissions. And most major emitters are not taking the steps needed to fulfil even these inadequate promises....\textsuperscript{30}

\textsection{15} With stakes this high, and a duty that implicates all of humanity, attorneys cannot escape the effects climate change, and efforts to mitigate and adapt to it, will have on their clients. Attorneys will be expected to provide reliable and ethical advice to clients impacted by and who have an impact on climate change. The ethical implications for attorneys is especially profound as the fossil fuel industry continues to invest in fossil fuel infrastructure to an extent that is incompatible with limiting global...
warming to 2°C. As Secretary-General Guterres lamented, “Investing in new fossil fuels infrastructure is moral and economic madness.”

For attorneys representing investors and beneficiaries of the fossil fuel industry, this begs the question, does their clients’ best interest align with the planet’s best interest? Or is their clients’ best interest transforming, considering threatened and actual climate-related litigation, regulations, and public outcry? And for those of us teaching future attorneys, we must consider how we can help law students navigate the moral and practical challenges posed by climate change and adaptation to new climate realities.

¶

Given the growing urgency of the climate crisis and the advocacy of groups such as LSCA, law firms are not likely to be shielded from public outrage for much longer and will have to face the ethical implications of this work. But even attorneys who do not work on behalf of the fossil fuel industry will have to take climate change into consideration when advising clients. Climate change reaches into all practice areas. From real estate and immigration to finance and industry, it is difficult to avoid the ramifications of the climate crisis. Even if it does not play into an attorney’s professional life, it will be impossible to avoid in daily life. Thus, whether for ethical or practical reasons, it is crucial that law students develop their climate change literacy and incorporate it into their professional decision-making when counseling clients. Moreover, attorneys and law students who wish to reform or change the law must not only develop climate change literacy but also understand the power structures and limitations in the research process that hinder legal reform.

Climate Change in the Legal Research Classroom

Lawyers and Climate Change

Climate change is no longer relevant only to environmental law. All areas of legal practice require knowledge about climate change. To this end, in August 2019, the American Bar Association (ABA) adopted a resolution calling on “federal, state, local, territorial, and tribal governments and the private sector to recognize their obligation to address climate change.” The ABA urged lawyers to take a climate-conscious approach to legal advice by advising their clients of the risks and opportunities that climate change provides.

As argued by Justice Preston, Chief Judge of the Land and Environment Court in New South Wales, Australia, climate change “places a responsibility on lawyers to

31. The combined discounted value of unburned fossil fuels and stranded fossil fuel infrastructure is projected to be $4 trillion from 2015–2050. See IPCC, supra note 11, at C.4.4.
33. Abel, supra note 3.
adopt a climate conscious rather than a climate blind approach in their daily legal practice.” Justice Preston argues that in advising clients, lawyers ought to be mindful of climate change consequences, along with financial, emotional, social, and ethical consequences of different courses of action. More specifically, Justice Preston continues, attorneys must be cognizant of the direct risk to businesses, beyond merely reputational risks, which he divides into three categories: physical risks to assets or supply routes, transitional risks associated with the process of adjusting to a lower carbon economy, and liability risks associated with the possibility of being held to account for contributing to climate change. As part of attorneys’ duty to their clients, they must advise about the potential risks, liabilities, and reputational damage that arise from activities that exacerbate the climate crisis. Moreover, the law related to climate change is rapidly evolving, with a significant uptick in climate litigation cases as well as new statutes and regulations placing obligations on companies to consider climate-related risks. In considering how to prepare law students for the challenges that await them in their legal practice, we cannot cling to a lawyering model that ignores the effects climate change will have on all aspects of our society.

As Warren Lavey points out, students are unprepared for the climate-related demands of their clients, because while climate-related laws and cases appear in environmental and natural resources law courses, they rarely appear in other courses such as contracts or torts. When a climate case does appear in a nonenvironmental law course, it is presented without context or explanation about climate change or its impacts. This is in part because those teaching the course were trained before climate change became an integral part of practicing law, and they may not necessarily keep up with climate change developments.

Lavey provides a toolkit for 10 doctrinal courses to help train law students in climate change law. Legal research instructors also have an opportunity to train students by teaching them how to navigate propaganda and obfuscation to find reliable sources on


37. Preston, supra note 35, at 53.

38. Id.


40. Lavey, supra note 34, at 516.

41. Id.

42. Id.
climate change. Further, research classes give students a chance to practice thinking outside the box when addressing novel legal issues that arise within the context of climate change. Climate change will affect the negotiation of contracts, test the reliability of supply chains, factor in business decisions and disclosures, spur litigation and strategies to avoid litigation, influence government regulation and policy, and shape domestic and international law. Lawyers as advisers, counselors, and litigators will be on the frontline of decision-making and advocacy when it comes to climate change and the energy transition. As such, they will need to understand the scope of the climate crisis and the effects it will have on their clients, as well as the effects their clients' acts will have on the climate.

¶21 We cannot assume students are literate in climate change. Nor can we assume that the skills we were trained in are adequate for the next generation of attorneys as they face the climate crisis. In the remainder of this article and the online appendix, I build on the many brilliant ideas put forth by other critical legal scholars to offer suggestions for how legal research instructors can bring climate change into the classroom.

A Climate-Conscious Approach to Legal Research

¶22 A climate-conscious approach to lawyering requires climate-conscious legal research. Climate-conscious legal research invokes both critical information literacy and creative approaches to novel legal problems presented by climate change.

¶23 The goal of legal research is to find the law—statutes, regulations, and case law—as well as other sources to support arguments to create or interpret law. Hicks defined legal research as “the inquiry and investigation necessary to be made by legislators, judges, lawyers, and legal writers in the performance of their functions.” As Barkan points out, this definition reflects a realist position that “information can be necessary and functionally related to law, without being identifiably legal.” Thus, the legal research task is not necessarily limited to finding statutes, regulations, and case law.

¶24 Because law is not created or interpreted in a vacuum, effective legal research requires that the researcher understand the social, cultural, and political contexts within which law is created and interpreted. Critical legal scholars argue that legal doctrine is indeterminate, i.e., that “the existing body of legal doctrines—statutes, administrative regulations, and court decisions—permits a judge to justify any result she desires in any particular case.” As such, “law is simply politics by other means…and…
the ultimate basis for a decision is a social and political judgment incorporating a variety of factors, including the context of the case, the parties, and the substance of the issues.”47

¶25 The fossil fuel industry and its supporters made it their mission to dilute the threat posed by climate change through massive campaigns that shaped policy, legislation, and even case law.48 Its behemoth effort to control the narrative on climate change has paid off when measured by the industry’s return to shareholders49 and our society’s willingness to remove mountaintops to extract every drop of fossilized carbon even when cleaner alternatives exist.50 In a climate-conscious approach to legal research, all “information necessary and functionally related to law” includes information about climate change and the economic and political factors that impair or delay our transition away from fossil fuels when we consider legal issues impacted by or impacting climate change. Reform-minded students can benefit from learning how to critically analyze information, navigate political realities, and pursue creative approaches to legal research. If law is simply politics by other means, then it follows that legal research should be a holistic, interdisciplinary exercise that encompasses current events, relevant history, and an understanding of the power structures and politics that create and interpret the law.

Developing Climate Change Literacy

¶26 To be climate change literate, students must recognize that headlines often distort the full picture, and they need to be able to differentiate between positive action and appearances of positive action. Even an environmentally savvy reader may be

47. Barkan, supra note 44, at 625 (quoting David Kairys, Legal Reasoning, in THE POLITICS OF LAW: A PROGRESSIVE CRITIQUE 17 (D. Kairys ed., 1982)).

48. It is well documented that not only did the fossil fuel industry know about climate change since the 1970s, but the industry studied it extensively, predicting that a doubling of CO2 in the atmosphere would lead to a temperature increase of around 3°C. See generally Neela Banerjee, John H. Cusman Jr., David Hasemyer & Lisa Song, Exxon: THE ROAD NOT TAKEN (2015). As reported in an investigation by Inside Climate News, the industry was mainly concerned with the effect global warming would have on its business since reining in the “greenhouse effect” would “require major reductions in fossil fuel combustion.” Id. at 24. Despite its own scientific findings on the buildup of CO2 in the atmosphere, Exxon chose to publicly undermine its own scientists, employing lobbyists to pressure government officials against passing any meaningful legislation mitigating climate change and pull out of the Kyoto Protocol, an international treaty to reduce greenhouse gas emissions, and instituting a massive public relations campaign to sow climate skepticism in the American public. Id.; see also Supran & Oreskes, supra note 12. For a collection of Exxon's, Mobil's, ExxonMobil's, and other fossil fuel companies' misleading advertisements and advertorials up to 2021, see Geoffrey Supran & Naomi Oreskes, The Forgotten Oil Ads That Told Us Climate Change Was Nothing, GUARDIAN (Nov. 18, 2021), https://www.theguardian.com/environment/2021/nov/18/the-forgotten-oil-ads-that-told-us-climate-change-was-nothing [https://perma.cc/E4MX-ZK3Z].

49. Can Big Oil’s Bounce-Back Last?, ECONOMIST, Jan. 12, 2022 (noting that “[a]s economies reopened last year…energy became the best performing sector in the S&P 500 index of large American firms …. It left environmentally friendly stock picks in the dust ….”).

surprised to learn certain technologies—for example, that algal biofuels that are trumpeted by fossil fuel industries in glossy blue and green ads—are not a commercially feasible option on a large scale.\textsuperscript{51} Climate change literacy thus requires critical analysis, a skill that can be honed in legal research classes through problem-posing and in-class questioning.\textsuperscript{52}

\textbf{Using Metacognition to Develop Critical Analysis Skills}

\textsuperscript{27} Unsurprisingly, given everyone has experienced the effects of climate change, consumers are demanding sustainable, eco-friendly options and alternatives to fossil fuels. Companies have responded by marketing themselves as partners and leaders in developing alternative resources.\textsuperscript{53} Often, however, this marketing is merely a change in appearance rather than an effective change in the company’s practices. Such “greenwashing,” defined as the “practice of misleading people to believe that a company is engaging in virtuous practices to cover up poor practices,”\textsuperscript{54} is difficult to avoid as it bleeds into media coverage and political discourse.\textsuperscript{55} If attorneys are expected to advise and educate their clients on sustainable business models and potential liabilities and reputational damage arising from activities that exacerbate the climate crisis (as well as encourage their clients to avoid exacerbating the crisis), they must be able to identify greenwashing and critically assess information sources about climate change.

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\textsuperscript{52}. Yasmin Sokkar Harker, \textit{Critical Legal Information Literacy: Legal Information as a Social Construct}, \textit{in INFORMATION LITERACY AND SOCIAL JUSTICE: RADICAL PROFESSIONAL PRAXIS} 206 (Lua Gregory & Shana Higgins eds., 2013) (“‘Problem-posing’ education presents material for student consideration and encourages them to critically perceive how they themselves exist in relation to it.”).


\textsuperscript{54}. \textit{Id}.

\textsuperscript{55}. As noted in \textit{Smoke, Mirrors & Hot Air}, “ExxonMobil and its public relations partners ‘develop and implement a national media relations program to inform the media about uncertainties in climate science.’ In the years that followed, ExxonMobil executed the strategy as planned, underwriting a wide array of front organizations to publish in-house articles by select scientists and other like-minded individuals to raise objections about legitimate climate science research that has withstood rigorous peer review and has been replicated in multiple independent peer-reviewed studies—in other words, to attack research findings that were well established in the scientific community. The network ExxonMobil created masqueraded as a credible scientific alternative, but it publicized discredited studies and cherry-picked information to present misleading conclusions.” UNION OF CONCERNED SCIENTISTS, \textit{Smoke, Mirrors & Hot Air: How ExxonMobil Uses Big Tobacco’s Tactics to Manufacture Uncertainty on Climate Science} 9 (2007), https://www.ucsusa.org/resources/smoke-mirrors-hot-air [https://perma.cc/64RJ-8SBZ]; see also Riley E. Dunlap & Aaron M. McCright, \textit{Organized Climate Change Denial}, \textit{in THE OXFORD HANDBOOK OF CLIMATE CHANGE AND SOCIETY} (John S. Dryzel, Richard B. Norgaard & David Schlosberg eds., 2011) (discussing how the fossil fuel industry, conservative groups, and corporate groups, including the U.S. Chamber of Commerce, collaborated to pursue an organized strategy of climate change denial, including manufacturing uncertainty and criticizing peer review, refereed journals, governmental grant making, scientific institutions, and the expertise and ethics of scientists).
 ¶28 Yasmin Sokkar Harker argues that law librarians should teach critical analysis skills, specifically, “[t]he ability to analyze and synthesize; to think in concepts and analogies; to reflect on the information found; and to move through an iterative, analytical process of problem solving ….”56 As Sokkar Harker points out, these skills are subordinated to the substantive topic or other lawyering skills such as legal writing in other law school courses, whereas in a legal research class, these skills are the focus of the class.57 Sokkar Harker suggests building these skills into legal research instruction by drawing from research on cognition and metacognition.58 Metacognition is the “ability to assess, not only the result, but the schemata, including the processes leading to the result. It is a kind of self-awareness and reflection of the research experience.”59

 ¶29 Metacognitive skills can be employed to improve critical analysis of any source of information, including information about climate change. Students are awash in news articles, opinion pieces, social media posts, press releases, and advertisements addressing the challenges of climate change.60 When teaching students about secondary sources, free resources, and Google searching, legal research instructors can encourage students to evaluate the sources they find by asking them to reflect on their decision-making process in using a source—why did they select a particular article to learn more about an issue, and how does that article fit into a larger narrative about climate change? Does the article clash with or support what the student thought they knew about climate change? Does it change the way the student views the issue, and if so, how and why? Does the student feel satisfied with the information provided in the article, or do they need to research the issue more deeply? Why is the student satisfied or not satisfied with the article?

 ¶30 In answering these questions, the student should take into consideration who wrote or published the article and ask why the article was written and what the author’s or publisher’s primary objective is. Is the author an expert in climate science? A journalist, and if so, what type of journalist? Who do they work for? Finally, does the student believe this is a reliable source of information about climate change, and why or why not? In reflecting on why they decided to use a source, how that source impacts the student’s understanding of the issue, and then analyzing who created that source, the student becomes an active instead passive consumer of information.

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57. Id.
58. Id. at 89.
60. Because of this flood of information, critical information scholars argue critical information literacy should “not solely focus on knowledge circulated through subscription databases, but also on a larger metacritical awareness of how all information circulates across networks, inside and outside the academy.” Andrew Battista, From “A Crusade against Ignorance” to a “Crisis of Authenticity”: Curating Information for a Participatory Democracy, in INFORMATION LITERACY AND SOCIAL JUSTICE: RADICAL PROFESSIONAL PRAXIS 90 (Lua Gregory & Shana Higgins eds., 2013).
Examining Underlying Power Structures

¶31 Maura Seale argues "[p]ower works not only by prohibiting certain forms of discourse, but also through the production of discourses. In essence, power operates through knowledge production."61 This rings especially true in evaluating climate change discourse where powerful actors in the energy industry have invested considerable resources to controlling the climate change narrative.62 Critical pedagogy centers social power relationships as the paradigm within which social reality is constructed. This paradigm "limit[s] the parameters of debate and prevent[s] certain questions from being raised."63 Critical information literacy thus "embrace[s] a collective questioning of how information is constructed, disseminated, and understood."64 In the context of climate change, this means closely investigating the stakeholders, including their motivations and interests, which shape the climate discourse.

¶32 Thus, in addition to the metacognitive questions about where an article fits into the student's understanding of the issue, the student should drill into the contents of the article and examine how the information conveyed might affect climate policy, who the stakeholders are, and how the information conveyed affects those stakeholders' material interests. Instead of accepting information at face value, this analysis will help students explore the issue they are researching more deeply and fit it into a larger climate-conscious context, with a better understanding of how policy is made.

¶33 For example, in a research class focused on analyzing news articles and background sources for international law, I had students examine a portion of the minutes taken of the negotiations on the final language for the IPCC's Summary for Policymakers, which had somewhat surprisingly noted that "CCS [carbon capture and storage] could allow fossil fuels to be used longer, reducing stranded assets."65 In the minutes that the students examined, it was noted that Saudi Arabia (whose representative worked for Saudi Aramco, the state-owned oil company) strongly advocated for references to CCS in the final Summary for Policymakers.66 The students then read an article on stranded assets and the $900 billion that the fossil fuel industry would lose if governments...

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62. See SMOKE, MIRRORS, AND HOT AIR, supra note 55.
64. Id. at 25.
65. IPCC, supra note 11, at C.4.4.
66. The minutes noted that “[o]n unburned fossil fuel resources, Saudi Arabia insisted that the estimated value of stranded assets only reflects the unabated part of fossil fuels, saying new technologies will make fossil fuels low carbon. The Bahamas said findings on limiting warming must reflect the 1.5°C level here and throughout the SPM. Delegates agreed to indicate that ‘[d]epending on its availability, CCS could allow fossil fuels to be used longer, reducing stranded assets.’ The term ‘stranded assets’ was further explained, and the difference between pursuing a pathway to 1.5°C or to 2°C for fossil fuel use was specified.” Summary Report, 21 March–4 April, 2022, 56th Sess. of the IPCC and 14th Sess. of Working Grp. III, INT’L INST. FOR SUSTAINABLE DEV., Earth Negotiations Bull., https://enb.iisd.org/56th-session-intergovernmental-panel-climate-change-ipcc-56-14th-session-working-group-III-summary [https://perma.cc/EA29-Z6TG].
aggressively pursued policies that restrict the rise in temperature to 1.5°C.\textsuperscript{67} I asked students to consider the effect powerful actors such as Saudi Arabia and other fossil fuel interests have on climate policy and law, and whether these interests might have anything to do with the focus on CCS as a potential solution to the climate crisis, despite doubts about its scalability and concerns about storage.\textsuperscript{68} Expanding on this, I asked students to think about the way in which they read and process information more broadly: when reading a report or news article, do they consider what influence each of the stakeholders, including the author, has on the information being presented and how it is presented? Through this exercise, students develop an understanding of the complex negotiations and power struggles behind climate change policies.

¶34 In this section, I offer suggestions for improving law students’ climate change literacy using exercises in metacognition and critical analysis. But legal research instructors can do more than help students develop their climate change literacy. We can also encourage students to think holistically about legal issues and conduct their research in a way that fosters the creativity needed to develop innovative solutions to unprecedented challenges by helping students break free of assumptions ingrained into our legal and societal frameworks.

Fostering Creative Legal Research—Thinking Outside the Box

¶35 In addition to developing climate change literacy, climate-conscious legal research requires new ideas and creative approaches to legal problems. Climate change disrupts many assumptions underlying modern legislation and policy. An integral component of critical thinking is “recognizing and researching the assumptions that undergird our thoughts and actions.”\textsuperscript{69} “Assumptions are the taken for granted beliefs about the world, and our place within it, that seem so obvious to us as not to need to be stated explicitly.”\textsuperscript{70} Climate change disrupts several assumptions we have about our world, and reform-minded students who wish to explore novel solutions need to break free of these assumptions. In this section, I first provide an overview of one of the assumptions that underlies much of our political and legal framework that climate change is undermining: the prioritization of economic growth actualized through cost-benefit analysis.\textsuperscript{71}


\textsuperscript{70}. \textit{Id.}

then summarize several methods proposed by other legal information scholars for fostering creative legal research to think outside of the frameworks defined by the infinite growth assumption.

**The Conceptual Limits of Cost-Benefit Analysis and Prioritizing Economic Growth**

¶36 Above all else, environmental and energy law in the United States is committed to economic development and growth, not environmental protection. Indeed, the modern “administrative state is geared almost entirely to the legalization of natural resource damage . . . , the majority of agencies spend nearly all of their resources to permit, rather than prohibit, environmental destruction.”72 Federal environmental policy uses an economic cost-benefit analysis—economic costs are weighed against economic benefits.73 Such an analysis inhibits any truly ambitious environmental policy since while costs are easily quantifiable, it is exceedingly difficult to quantify the benefits to human health and the environment.74 As Lisa Heinzerling points out,

[T]he benefits of environmental protection span an enormous range from protecting human life and health, to protecting ecosystems and species, to protecting crops and property, to protecting values like freedom, fairness, and community. 75

¶37 Further, the fact that a project might perpetuate our dependence on fossil fuels or contribute to global climate change is not a cost that is taken into consideration. Under this cost-benefit framework, where interference with ecosystems is quantified in dollars, there is no inherent monetary value in the environment itself.76 For example, Heinzerling describes a Clinton-era rule protecting roadless areas in national forests. The government estimated that the benefit of this rule would be $219,000, which reflected the costs that would be saved because the roads that would otherwise have been built would not need to be maintained. While the government acknowledged the rule would protect air and water quality, recreational opportunities, wildlife habitat, and livestock grazing, it could not quantify these benefits. Yet, as Heizerling points out, what could not be quantified in the cost-benefit analysis was the whole point of the rule! Cost-benefit analysis also discounts future benefits, so potentially huge benefits that would be realized years or decades into the future—as would be the case in any policy aimed at combating climate change—are minimized.77


74. Id. at 293.

75. Id.

76. Id.

77. Id. at 297. The Biden administration has instituted a new indicator to read side by side with GDP, Change in Natural Asset Wealth (CNAW), which will quantify ecological changes to demonstrate
Changing this paradigm requires activists to recognize it in the first place. To effectuate real change, students must understand the larger context of environmental law and policy and how the law advances and limits progress on climate action. In prioritizing economic growth, policymakers placed limits on environmental law’s ability to protect the natural environment.

How Electronic Legal Research Databases Ingrain Twentieth-Century Paradigms and Assumptions

The economic and legal structures that prioritize cost-benefit analysis and economic growth in our society are ingrained into our legal research framework. Electronic databases such as Lexis and Westlaw reflect, reify, and ingrain the assumptions, biases, and paradigms that undergird and frame our society. These biases, assumptions, and paradigms are “built into the systems” through algorithms that, as Susan Nevelow Mart reminds us, are created by humans who “make choices about how the algorithm would work.” These algorithms control and set limits on what information the legal researcher finds. A researcher may thus find no helpful results if the list of documents retrieved are “generated by a legal worldview that opposes the path the researcher is trying to forge.” If this worldview reflects the “taken for granted beliefs about the world,” then a researcher seeking creative approaches to unprecedented challenges in a world upended by climate change will be confined to twentieth-century paradigms, restricting their ability to imagine new solutions.

Moreover, as Nicholas Stump describes, legal taxonomies and hierarchies such as Key Numbers, topics, and headnotes are a powerful influence on how the law is organized and how legal research is conducted. A researcher can find a factually similar case that addresses their legal issue, choose the most relevant headnote, and follow its lead to additional cases with similar facts that fall under the same legal theory pronounced in the headnote, topic, or Key Number. While this has improved efficiency, it has also restricted creative thought and brainstorming by directing researchers to predetermined paths. This type of research reifies preexisting structures and discourages how the country’s resources are faring and draw attention to the tradeoffs between growth and sustainability.

To determine the CNAW, scientists will measure ecological changes such as water pollution, soil erosion, and degradation of wetlands, and economists will apply a price tag to this. The Biden Administration Aims to Quantify the Costs of Ecological Decay, ECONOMIST (Sept. 15, 2022), https://www.economist.com/united-states/2022/09/15/the-biden-administration-aims-to-quantify-the-costs-of-ecological-decay [https://perma.cc/8Y4M-7XCB]. While still operating in the cost-benefit paradigm that requires nature to be quantified, this will at least bring environmental destruction more fully into the equation.


Id. at 391.


See Robert C. Berring, Full-Text Databases and Legal Research: Backing into the Future, 1 HIGH TECH. L.J. 27, 32–33 (1986) (“For when West Publishing created the Key Number System, it not only enabled lawyers to research cases by subject, it also allowed and encouraged lawyers to fit every legal issue
innovative approaches and theories by effectively framing the issue for the researcher. It is research that focuses on the trees while losing sight of the forest. While this is a powerful research tool for addressing prosaic legal problems, this structure stifles imaginative approaches and new perspectives on law.

¶41 For example, Stump notes that one of the subtopics under Environmental Law is “Persons entitled to sue,” and as Stump states, “internalizing this explicit category” constrains legal thought. In fact, there is a growing movement to recognize nontraditional plaintiffs, such as future generations, animals, and inanimate or indeterminate plaintiffs—none of whom fit neatly under the category of “persons.” A researcher will not likely find these arguments, however, through the Key Number and Topic System. Worse, a researcher might presume that such arguments are foreclosed or not consider their possibility. These innovative arguments are excluded from the “world of thinkable thoughts.”

¶42 Fundamentally, the algorithms and legal categories on electronic databases curate the law as it is, not the law as it could be. It is important to emphasize to students that the purpose of these tools is to assist the researcher in finding the law, not in changing it. As of the time of this writing, there is no Key Number or topic for climate change, global warming, or obligations to reduce GHG emissions, and there is no categorical way to browse the explosion of climate litigation cases, domestically and globally, to explore the strategies used by pioneering plaintiffs. Nor is there a Key Number or topic that addresses the intersection of human rights and climate change or environmental racism, inequity, or indigenous movements to protect their land and environment. The topics and Key Numbers categorize preexisting legal structures but do not illuminate strategies for challenging those structures. Similarly, algorithms reflect the decisions made by those who created them, including their biases and assumptions.

¶43 Students and attorneys who wish to reform economic and environmental policy must break free of well-worn research paths paved by predictive algorithms and increasingly efficient, but also stifling, means of electronic research. The following sections summarize several ideas put forward by critical information scholars for how we can foster creativity and innovation in legal research by addressing the downsides and limitations to online research.

83. See Stump, supra note 81.
84. Id. at 638.
86. Stump, supra note 81, at 637.
87. Lexis Plus does have a subtopic under Environmental Law for climate change that covers green buildings, legislation, and greenhouse gas regulations.
88. Nevelow Mart, supra note 78.
Alternative Sources for Climate Change Research

§44 Stump makes several recommendations for alternatives to West and Lexis to avoid the “channeling” inherent in those databases. In addition, I propose two databases specific to climate change—the Sabin Center for Climate Change Law and the Chancery Lane Project—as well as international and foreign law.

Sabin Center for Climate Change Law and Chancery Lane Project

§45 The climate change litigation database hosted by the Sabin Center for Climate Change Law provides a platform for browsing or searching climate change cases in the United States and internationally by issue. For example, the researcher can navigate to U.S. Litigation, choose a category such as the Clean Air Act or Freedom of Information Act, and then browse summaries of cases brought under these statutes. The Sabin Center’s climate change litigation database facilitates brainstorming by allowing researchers to browse cases by category and explore climate change news and updates without the intellectually limiting biases of West’s topics and headnotes.

§46 The Chancery Lane Project is another climate change database that provides climate clauses to incorporate in commercial agreements. Here, the researcher can search or browse clauses by practice area or download a Net Zero toolkit that includes resources to help attorneys align their work with a decarbonized economy. An attorney representing a corporation that is concerned about its carbon footprint, for example, may choose to include a “choice of green governing law clause” requiring that the governing law is interpreted in a manner consistent with the objectives of the U.N. Framework Convention on Climate Change and the Paris Agreement. Browsing a database such as the Chancery Lane Project encourages attorneys to consider the possibility of climate-friendly business transactions.

International and Foreign Law

§47 It might be cliché to point out that in today’s globalized world, international and foreign laws are relevant even to domestic attorneys, but within the context of climate change, international and foreign laws not only are relevant but also can be sources of inspiration.

§48 For example, some countries have adopted rights of nature laws or recognized the rights of nature in judicial decisions. Under a rights of nature doctrine, an ecosystem is entitled to legal personhood status and, as such, has the right to defend itself in a court of law against harms, including environmental degradation caused by a specific

89. Stump, supra note 81, at 639–41.
91. Stump, supra note 81.
Article 71 of Ecuador’s Constitution states: “Nature, or Pacha Mama, where life is reproduced and occurs, has the right to integral respect for its existence and for the maintenance and regeneration of its life cycles, structure, functions, and evolutionary processes.” Similarly, Bolivia adopted a Law on the Rights of Mother Earth. In addition, Mexico City adopted the rights of nature in its city constitution; Colombia’s Supreme Court recognizes the rights of the Amazon River; the Municipality of Paudalho in Brazil enacted a rights of nature law; Uganda recognizes the fundamental right of nature to be, evolve, and regenerate; in Bangladesh, all rivers are under legal protection; and in New Zealand, the Māori tribes have given the Whanganui River and other areas legal personhood, which is recognized under New Zealand law. And finally, Italy recently approved a change to its constitution mandating that the state must safeguard the environment, biodiversity, and natural ecosystems “in the interest of future generations.”

Even in the United States, several localities, including Colorado, Pennsylvania, and Florida, are in varying stages of developing their own rights of nature resolutions and ordinances. While it remains to be seen whether these ordinances are upheld in...
court, there is no denying the ascendancy of this legal doctrine, which a student can learn about only through secondary sources. In advocating for these laws either in court or in local hearings, attorneys could find inspiration and ideas from the arguments used to support these laws in foreign jurisdictions. In Colombia, the Supreme Court found that “for the sake of protecting this vital ecosystem for the future of the planet,” it would “recognize the Colombian Amazon as an entity, subject of rights, and beneficiary of the protection, conservation, maintenance and restoration” that national and local governments are obligated to provide under Colombia’s Constitution. In its opinion, the court examined the doctrine of intergenerational equity and the precautionary principle, which enables decision-makers to adopt precautionary measures when scientific evidence about an environmental hazard is uncertain and the stakes are high.100

¶50 While there may not be time in a non-FCIL (foreign, comparative, and international law) research course to teach FCIL research, law librarians and legal research instructors could still introduce students to the idea of consulting international and foreign sources for ideas and inspiration. Climate change is a global problem, and ideas for how to address this crisis may come from anywhere in the world.

Reading Dissents

¶51 A researcher might also fence themselves in by ignoring dissents. Justices write dissents with the hope that their views will one day become law, and sometimes their views are in fact vindicated.101 For example, Justice Kennedy’s majority opinion in Lawrence v. Texas cited approvingly Justice Stevens’s dissent in Bowers v. Hardwick, noting that “Justice Stevens’ analysis, in our view, should have been controlling in Bowers and should control here.”102

¶52 Thus, researchers should never dismiss a powerful dissent, especially when the world is rapidly changing and the context within which a Supreme Court decision was issued may soon change. For example, in Michigan v. Environmental Protection Agency, a 5–4 decision issued in 2015, the Supreme Court found that the EPA acted unreasonably by declining to interpret the term “appropriate” in the Clean Air Act as requiring a cost-benefit analysis when deciding whether to regulate toxic air emissions from power plants.103 The dissent in Michigan v. EPA is well worth the read as it points out that determining whether a regulation is “appropriate and necessary” is only the first step in

the EPA’s rulemaking process under the Clean Air Act. The EPA determined that it
would be “appropriate and necessary” to regulate power plants’ hazardous emissions
given the harm they cause.104 The EPA then took costs into account when developing
specific emissions standards.105 It conducted a final cost-benefit analysis in which it
determined that quantifiable benefits, which included as many as 11,000 fewer prema-
ture deaths annually, along with a far greater number of avoided illnesses, would exceed
the costs up to nine times over—by as much as $80 billion each year.106

¶53 A researcher who reads only the headnotes and then skims Michigan v.
Environmental Protection Agency, ignoring the dissent, will accept that Scalia’s interpre-
tation is the final word on the matter and the EPA, before even deciding to regulate an
industry under the Clean Air Act, must consider the costs to the industry. However, if
the researcher reads the full opinion, including the dissent, they may find that Scalia’s
ruling rests on shaky ground. Environmental advocates should not limit their argu-
ments by internalizing Scalia’s problematic opinion, which arguably mischaracterizes
the EPA’s process. This is especially true if, as critical theorists argue, legal doctrine is
inherently political and “indeterminate.”107

Interdisciplinary Sources

¶54 Doctrinal, blackletter legal research draws on a closed universe of statutes, regu-
lations, and case law to ascertain and understand the law.108 As such, the law is treated
as a “sealed system,” and “legal developments can be interpreted, critiqued, and vali-
dated by reference to the internal logic of this sealed system.”109 Over the past several
decades, interdisciplinary approaches have broadened and enriched legal studies. As
summarized by Douglas Vick, in the 1960s and 1970s, law and society drew on sociol-
ogy, political science, and anthropology; in the 1980s, critical legal studies drew heavily
on ideas from sociology, anthropology, and literary theory; and the law and economics
movement combined rational actor models, mathematical theories, and statistical tech-
niques with more traditional methods of legal analysis.110 More recently, cultural legal
studies contextualize the law and draw on a multitude of disciplines to understand “law
as culture and culture as law.”111

¶55 When confronting the threat of climate change, legal research conducted
entirely in a hermetically sealed legal database merely reinforces the power structures
and legal paradigms that have evolved to serve corporate interests and protect individu-
alistc, deregulated capitalism at the expense of the natural environment. To dislodge
presumptions and underlying theories in law that favor capitalism at all costs,

104. Id. at 764 (Kagan, J., dissenting).
105. Id.
106. Id.
107. See Barkan, supra note 44.
109. Id. at 178–79.
110. Id. at 183–84.
researchers need to turn to other disciplines. For example, Stump demonstrated how feminist theory could shape and strengthen environmental arguments against mountaintop removal mining.112

¶56 Students should thus be encouraged to draw on their diverse academic and professional backgrounds and interests. In teaching legal research, instructors could remind students through hypotheticals and examples—such as Stump’s use of feminist theory in crafting a legal argument against mountaintop removal mining—that law reflects our society and is informed by nonlegal ideas and motivations. Legal research instructors can also highlight nonlegal databases such as SSRN, bepress, and Google Scholar where students can explore scholarly work from other disciplines. By taking a multidisciplinary approach to examining a legal problem, as Stump suggests, students may find multiple legal and nonlegal theories that can strengthen their legal arguments and strategies.113

Supporting and Inspiring Students

¶57 There is an irony to the fossil fuel industry’s cynical public relations campaign that shifted focus away from their culpability to individual responsibility.114 Today, it is individuals who have sparked the most successful climate action against fossil fuels; by taking matters into their own hands, these individuals now present the greatest threat to fossil fuels: from Greta Thunberg to the activists who shut down the Keystone pipeline, from the web of protests against localized oil and gas extraction that Naomi Klein dubbed “Blockadia,” to consumers demanding electric vehicles, from pensions divesting from fossil fuels, to voters in local elections choosing leaders who advocate for greener cities, and finally intrepid attorneys bringing lawsuits against governments and the fossil fuel industry.115

¶58 In this article, I put forth proposals to align legal research instruction with the imperatives imposed on teachers and students alike by the climate crisis. While these proposals address formal legal research instruction, law librarians can also act as informal mentors and sources of information for students who want to take concrete action against climate change. Law librarians can raise awareness of the climate crisis by creating research guides with climate change resources, highlighting climate change books

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112. Stump, supra note 81, at 650–56.
113. Id. at 640–57.
114. Supran & Oreskes, supra note 12.
in the library’s collection on social media and in displays, offering short presentations on how to research climate change issues, and providing research support to student groups such as LSCA. Law librarians can also examine their own institution’s contributions to the climate crisis and develop relationships with local organizations to pursue climate-conscious initiatives in their own communities.116

Conclusion

¶59 LSAC started with a group of law students asking what it means to be a lawyer during the climate crisis.117 We should be asking ourselves the same question: what does it mean to be a legal instructor during the climate crisis? What is our role in this crisis? Do we continue with business as usual in the face of unprecedented climate-fueled catastrophes? What do we owe our students, most of whom are in their twenties and will face increasingly dangerous climate outcomes in the decades ahead? Within the law school community, legal research instructors are best equipped to teach students the critical analysis skills needed to navigate the deluge of information (and misinformation) about climate change and the research skills attorneys need to transcend outdated legal doctrine and policy shaped by fossil fuel interests that fail to account for climate change. When climate change threatens every person and corner of the planet, we do not each have to be an expert in climate science or technology to play a role in mitigating the crisis; rather we must use our own specialized knowledge and expertise to contribute toward a solution.


Keeping Up with New Legal Titles*

Compiled by Chava Spivak-Birndorf** and Matt Timko***

Contents

Chinese Law and Legal Research (2nd ed.)
by Wei Luo

How Machines Came to Speak: Media Technologies and Freedom of Speech by
Jennifer Petersen

Radical Acts of Justice: How Ordinary People are Dismantling Mass Incarceration
by Jocelyn Simonson

Breaking Away: How to Regain Control Over Our Data, Privacy, and Autonomy by Maurice E. Stucke

Nongji Zhang 208

Samantha Duckworth 209

Lillian Velez 211

Caitlin Hunter 212

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 Reviewed by Nongji Zhang*

¶1 There are many challenges associated with finding information on Chinese law and government. The country’s lack of a central government clearinghouse or depository library, its contradictory and paradoxical legal systems, and government censorship are some examples. Faced with rapid growth and transformation in China’s legal system and publishing industry over the past two decades, anyone looking to research Chinese law would benefit greatly from guidance and regular knowledge updates in this area.

¶2 Wei Luo’s *Chinese Law and Legal Research* presents the perfect solution. This brief yet comprehensive overview of China’s political and legal systems offers insights into the legal publishing industry and an exhaustive review of China’s legal sources, making the book an extraordinary research tool. After a 19-year hiatus, Luo’s second edition captures the latest developments in legal publishing and resources. The book removes obsolete materials and presents the latest online and print sources for Chinese legal research. Keeping all the valid information from the first edition, the second edition incorporates major changes in China’s political and legal structures, legal education, and publishing industries, as well as legal resources. It is a much-needed improvement, beneficial for everyone from researchers to experienced law librarians and readers in between. This book would be useful for Chinese legal research and collection development.

¶3 It is rare to see a volume like Luo’s book that combines research instruction with coverage of publications and other resources in Chinese law. In fact, any of these aspects alone could be complicated and copious enough to fill more than one volume. Luo’s second edition is especially helpful for those looking for information on Chinese law or government who are not yet familiar with the Chinese legal system and information retrieval structure. Knowing the connections and interactions among these elements is important for effective research.

¶4 Another valuable feature of Luo’s book are the eight charts that describe Chinese government structure, the hierarchy of Chinese law, and related topics. These resources are hard to come by, and Luo’s charts are updated based on the latest information in the fields. Such visual illustrations help enhance the reader’s understanding of Chinese law, its legal system, and publications, and could be applicable for classroom teaching and research projects.

¶5 Finally, the book covers research tools and materials developed in China and the United States. It explores a wide range of sources, including a mix of both print and online, pay-walled and free, and Chinese and English language. The variability of presentation will be of service to a diverse range of readers and for creating a comprehensive library collection.

There are a few notable sources, such as the Faxin database (www.faxin.cn), which are not mentioned in the book. A suggestion for future editions (or as an added research strategy) would be to use an online research guide that has well-organized and direct links to the sources. This approach would be practical for students with time constraints. Even with these critiques, Luo’s *Chinese Law and Legal Research* is the most comprehensive scholarly and practical guidebook on Chinese law and legal research in English today.

Given the current situation of increased censorship and publication control by the Chinese government, researchers need all the tools they can get to find reliable information. Luo’s book serves as a valuable toolkit, recommended for scholars, students, practitioners, and anyone interested in Chinese legal research.


Reviewed by Samantha Duckworth*

If you select this title hoping to get some insight into how generative artificial intelligence (AI) and natural language processing fit into today’s legal landscape, you may be disappointed to realize that it was published in 2022, a fraction of a moment too soon to comment on ChatGPT and similar technologies that exploded the following year. However, Jennifer Petersen’s book is well researched and all but predicts the flood of technologies that are upending the way we write and use information. She presents her findings regarding the implications for the evolving definition of speech as being increasingly complicated by the inclusion of complex nonhuman speakers.

Indeed, the introduction promises “a discourse full of machines” (p.3) as the book examines legal concepts of freedom of speech. Chapter One provides an interesting yet natural foundation—moving pictures and films—as the birth of the tension of publicly disseminated information and the First Amendment. Petersen traces historical moments and case law that forced the eventual evolution of “speech” as a term of art in legal discourse (p.54). As a parent who regularly hears the term “mob” when it is referring to Minecraft, I was delighted to read about the late nineteenth and early twentieth century crowds that were problematic social formations, as “they were seen as dangerous congregations that might erupt into riots . . . that undermined social order and stability” (p.48). This is an important point in understanding film and its early influence on free speech decisions.

Petersen emphasizes that “crowd psychology was deeply entwined with eugenics, and some groups of people were considered more passionate and less capable of deliberation” (p.52). This had important implications for the decisions of that time, as judges in free speech cases where film was involved were concerned “with the ability of film to take viewers with limited literacy . . . to a realm of direct and potentially unruly...

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* © Samantha Duckworth, 2024. Librarian, Verrill Dana LLP, Portland, Maine, https://orcid.org/0009-0000-3188-963X.
influence” (p.52). Legal decisions came to see civilized versions of mobs, or publics, as an important distinct entity. “Reading was the substrate for public opinion” and required both formal education and rational thought, facets of a human mind that enabled the racist, gendered, and classist norms to prevail in the early nineteenth century” (p.54).

¶11 This view allowed censorship of films to prevail, as “the flickering images and bodies did not speak . . . [they were] mechanical projections on the screen” (p.55) that could be a dangerous source of influence to an uneducated mob. Petersen shows how this allowed the legal system to enable censorship as a form of communication “that stood outside the bounds of deliberation” (p.54). Speech, Petersen writes, is tied to “particular persons and their minds” and justices “looked behind the words for liberal individuals, wills, beliefs, or souls” (p.55).

¶12 The middle chapters provide an excellent analysis of legal decisions and historical moments that allowed a “legal conception of speech that was abstracted and disarticulated from particular speakers and their bodies” (p.120). Petersen shows how communication that was inconceivable when the First Amendment was written—film, broadcasting, computer code, algorithms, data, and even expressive nonverbal actions—have come under the protection of the courts. This is thanks to work from mathematicians, engineers, and communication technologies that worked out how information flows “indiscriminate about the identity of the sender” as speech becomes a “social good” in a “posthuman theory of speech” (p.154). This disarticulation of speech resulted in a transformation that prioritized the speech of corporations and institutions at the expense of the rights and interests of citizens.

¶13 The final chapters of the book focus on how legal conceptions of speech were abstracted and disarticulated from particular speakers and their bodies, interests, and rights (p.120), and the ways in which technology shapes the law (p.192). Freedom of speech included not only utterances, but also distribution of a message and the act of speaking. By the end of the twentieth century, there “is less distinction between speaking and the work of computation and also less need for speakers in legal reasoning” (p.194). The medium, we learn, is the message.

¶14 Jennifer Petersen’s book is an excellent addition to legal, academic, and public collections that want to include material on the history of free speech, and most importantly, material that provides direction and insight into where humans and computers reside as generative AI and other non-human models create and distribute thoughts. Petersen provides rationale and context for the 2024 anxieties over natural language processing, and we would do well to remember what shaped our society to bring us to this time.

Reviewed by Lillian Velez*

¶15 What if we were to think of the “we” in “we the people” through a flipped lens? Traditionally, a criminal case is styled as “The People v. [insert name of the defendant here].” The prosecutor represents citizens as the advocate for justice in our name in an adversarial battle with a criminal defendant. What if we challenged that view and allowed ourselves to see defendants as “the people” and the officials of the justice system as who they are: elite members of a network that disproportionately punishes people of color and operates to uphold an ideology of justice that supports an unjust system. Jocelyn Simonson, former public defender and current professor of law at Brooklyn Law School, deconstructs and challenges the existing unyielding and inflexible paradigm of American criminal justice in her first book, Radical Acts of Justice.

¶16 She writes with an optimistic tone in accessible language on methods everyday people can use to collectively make a difference in the lives of criminal defendants, primarily from marginalized populations targeted for the most punitive measures toward achieving so-called justice. Mass incarceration—removing people from their families and communities rather than offering community-based social supports—is not the most effective way to deliver justice to the people. Covering the period from 2015 to 2022, the book’s timeliness, depiction of real people, and calls to action serve to empower the layperson with hope and actionable steps.

¶17 Simonson is a leading national authority on community bail funds, and her work has been cited by the Supreme Court and discussed in The Atlantic, The New Yorker, the Associated Press, and other media outlets. She has also written for The New York Times, The Nation, and The Washington Post. She uses her introduction to give an overview of the ways to dismantle an unjust system from within and expounds on each method in the following chapters, which include: (1) Justice, safety, and the people wherein the author defines the ideology of justice that grassroots activists push against; (2) Community bail funds that gather money so people arrested can be freed on bond; (3) Courtwatching where community members observe the often hidden mechanisms of incarceration in a reclamation of courtroom spaces; (4) Participatory defense in which community members are trained to analyze police reports and create “sociobio” packets including documentation and photos to humanize the accused; (5) People’s budgets emphasizing the use of funds to support communities rather than continue to increase expenditures on police; and (6) Practicing justice and safety through observing, protesting, challenging, and using social media for communication.

¶18 Along the way, Simonson introduces the reader to abolitionist theory and the idea of “demosprudence,” a concept developed by Lani Guinier and Gerald Torres to explain how new understanding emerges from the actions of social movements. Thus,
the language of law is redefined and reclaimed communally via activism and inquiry. This well-researched book authored by a legal “insider” turned activist and academic would be an asset to public libraries, academic libraries, and law libraries.


*Reviewed by Caitlin Hunter*

¶19 In *Breaking Away*, Maurice Stucke describes how a handful of “data-opolies” (p.xi) have risen to exert near total control over consumer data and offers persuasive, insightful, and often counterintuitive guidance on how to fight back. In Chapters 1-2, Stucke outlines the tactics that Google, Facebook, Apple, and Amazon have used to cement their status as data-opolies that squash competitors and invade privacy rights. In Chapters 3-7, Stucke discusses the shortcomings of traditional frameworks for opposing data-opolies, including data ownership, competition, and privacy frameworks. In Chapters 8-11, Stucke provides advice on navigating the potential pitfalls of the competition and privacy frameworks to restore competition and reassert the right to privacy.

¶20 Stucke is most critical of the data ownership framework. This framework posits that regulators can protect consumer privacy by giving consumers ownership over their data and requiring companies to obtain consumers' permission to use their data. He persuasively argues that most consumers lack the time and knowledge to wade through purposefully confusing clickthrough agreements and privacy settings or to make informed choices about the risks posed by giving companies permission to use their data. Additionally, due to the data-opolies' control over the market, consumers who want to opt for privacy often lack access to viable alternative products that do not require them to share their data. Finally, even consumers who do make a point of finding and choosing privacy-friendly alternatives are still surveilled through their neighbors' Ring cameras, their friend's Facebook posts, and their relatives' 23andMe DNA kits.

¶21 Stucke is more positive about the competition framework but still highlights key shortcomings. The competition framework posits that data-opolies can pressure consumers into sharing their data because of their monopolistic control over the market. Accordingly, the key to improving privacy is more competition from privacy-friendly alternative products, like DuckDuckGo's privacy-friendly alternative to Google's search engine. Stucke agrees that weak antitrust enforcement enabled the rise of the data-opolies, and that stronger antitrust enforcement is key to fighting them. However, he also argues that, counterintuitively, more competition can spur a race to the bottom that worsens privacy. Advertisers can turn a profit on contextual advertising, which shows products related to the current website or search (e.g., ads for sports gear on a sports website); however, advertisers can turn an even larger profit on behavioral advertising, which stalks consumers across the web with personalized ads. The need to attract

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advertisers leads websites to compete with one another over who can collect the most consumer data and create the most effective, intrusive advertising.

¶22 Similarly, Stucke praises privacy laws but also argues that laws that prohibit selling data can inadvertently strengthen privacy-invading data-opolies’ control over the market. Stucke explains that Google, Facebook, and other data-opolies make money primarily by not selling the data they collect. Instead, they force behavioral advertisers to pay for a complex web of ad servers and predictive tools, while starving potential competitors of the data necessary to develop cheaper or more privacy-friendly alternatives. For example, DuckDuckGo cannot provide search results or serve ads as accurately as Google can, because it lacks access to Google’s data on what search results and ads consumers click. Paradoxically, privacy laws that restrict selling data can further concentrate data and power in the hands of a few anti-privacy, anti-competitive data-opolies.

¶23 Generally, Stucke does not attempt to prescribe a single, rigid response to the data-opolies, but instead surveys a variety of potential responses and highlights potential trade-offs and traps. For example, he points out that forcing data-opolies to de-identify and share their data can facilitate competition by companies such as DuckDuckGo, as well as facilitating academic research in medicine, psychology, and political science. At the same time, however, the more companies and researchers have access to a dataset, the greater the risks that it will be possible to re-identify the people in the dataset and that the dataset will be misused. He urges regulators not to fall into the trap of focusing exclusively on privacy or exclusively on competition or to be tricked by privacy protections that strengthen data-opolies’ control. Finally, he urges regulators to avoid the trap of focusing only on what is easily measurable. He argues that data-opolies partly owe their rise to antitrust regulators that exclusively considered mergers’ immediate effect on prices and ignored harder-to-measure harms to privacy and future competition.

¶24 Stucke’s detailed, on-the-ground knowledge of how the data-opolies operate allows him to develop a theoretical framework with powerful implications for legal and policy reforms. Since Breaking Away focuses on theory and policy, it does not provide the practical legal information appropriate for law firm and public law libraries. However, Stucke’s clear explanation of technical concepts makes the book appropriate for undergraduate students and lay audiences. (For example, he explains non-rivalrous vs. rivalrous resources as the difference between watching a TV show with your child and stealing your child’s Halloween candy.) At the same time, his rigorous reasoning and extensive footnotes make the book an excellent resource for faculty and students at law schools and other graduate-level programs. Overall, Breaking Away is highly recommended for law school libraries, academic libraries, and large public libraries.