

Making Our Information Ecosystem Explicit

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ALTHOUGH CONVERSATIONS ABOUT INFORMATION LITERACY HAVE GROWN substantially since the ACRL *Competency Standards* (2000) and the *Framework for Information Literacy for Higher Education* (2016) were introduced, a significant amount of fuzzy concept use remains concerning certain information literacy ideas. Sometimes this fuzziness is the result of intentional omission, because the *Framework* and other official documents seek to give as much latitude as possible for developing information literacy instruction relevant to particular communities. This demonstrates a healthy level of flexibility. Elsewhere, however, definitions of concepts circulate among librarians that are problematically inexplicit. In this essay I will discuss one such inexplicit concept—the “information ecosystem”—and offer considerations for how to understand information ecosystems that are local to theological and religious studies disciplines.

The theoretical concern that underlies my argument in this essay can be seen as similar to that posed in a classic text of literacy education, E. D. Hirsch’s 1988 book *Cultural Literacy: What Every American Should Know*.¹ Hirsch famously (many would say infamously) argued against what he called “educational formalism,” an approach to learning that saw literacy as a skill or technique, which could be taught without reference to any particular content. Hirsch countered this approach to literacy by arguing that literacy always has a context and a large amount of background knowledge to which it constantly refers. In teaching childhood education, then, a reservoir of basic cultural knowledge is necessary for the development of basic literacy skills. I will argue that, in the same way, information literacy cannot be taught without reference to specific background content from which disciplinary researchers build their fluency. The

“information ecosystem” is that content-laden context. Making our information ecosystem explicit should, then, be an initial task in preparing for information literacy instruction.

What is an Information Ecosystem?

An information-literate researcher, like any literate person, is literate in some communicative system. For information literacy that system has been dubbed the “information ecosystem.” What an information ecosystem is, exactly, is less clear. One might infer that this jargon refers to the library itself, or the scholarly community writ large, but often information ecosystems are described in a way that implies an even more ambitious scope. In the literature, information literacy is also often tied to digital literacy and media literacy because these terms identify where the volume of new information creation is growing most rapidly. Here the information ecosystem is defined in a way that is format-dependent, in an attempt to identify and keep pace with technological developments relevant for research.

Elsewhere, however, the information ecosystem has been defined in terms of research methodology in a way that can obscure its purpose of referring to a field-specific system of information. In keeping with advances into new digital environments, information literacy has been redefined as a “metaliteracy,” or a reflexivity about one’s creation and use of information.² What sort of information ecosystem does the metaliterate researcher engage with? While proponents of the metaliteracy concept (such as *Framework* advocates) continue to associate it with the information ecosystem concept, the idea of an encompassing literacy across information formats distinguished by its self-critical nature does not seem to leave room for any actual system of information in which to claim fluency.³ Metacognition is surely an important aspect of critical thinking and research, but its very self-referentiality means that it is not meant to refer to any particular field of information, and this seems to exclude it from being a kind of literacy, properly speaking. Reflexive modes of research may be one aspect of information literacy, then, but they cannot be simply synonymous with it.

These concerns at the periphery of information literacy discourse highlight the fuzzy nature of the information ecosystem concept, but the concept itself does seem to be important. The *Framework for Information Literacy* describes a changing information ecosystem for which students and teachers require literacy. This ecosystem was recognized in communications about the *Framework* during its drafting phase, when the ACRL asserted that “since the publication of the first standards, the information environment has evolved into a fragmented, complex

information ecosystem that demands greater sense-making and metacognition from the student.”⁴ Language of the information ecosystem as something to be reckoned with was also retained in the final version of the *Framework*: “the rapidly changing higher education environment, along with the dynamic and often uncertain information ecosystem in which all of us work and live, require new attention to be focused on foundational ideas about that ecosystem.”⁵ If it is the case that researchers are uncertain about the nature of the information ecosystem in which they pursue their work, then attention to what is foundational about this ecosystem is warranted.

While the *Framework* emphasizes the complex and changing nature of the information ecosystem (in the singular), the IFLA Trend Report *Riding the Waves or Caught in the Tide? Navigating the Evolving Information Environment* offers a more detailed picture of what this ecosystem looks like in relation to the mission of libraries. Noting that “the amount of new digital content created in 2011 amounts to several million times that contained in all books ever written,” the report asserts that “how libraries evolve to remain relevant in the new information landscape is perhaps the most urgent question facing the profession today.”⁶ There is a latent normative assumption in statements like this: vast information content is a matter of relevance and urgency for libraries. At the very least this report implies that libraries are responsible for learning to engage with a new information context that dwarfs all past published print research. At most, it may even imply that libraries have a duty to preserve this content, organize it, and make it accessible to users because it is relevant to their research.

But how relevant is this global information ecosystem—measured in zettabytes of anonymous, corporate, recreational, or repetitive information—to any given academic research library, much less a small seminary library? As Sheila Anderson and Tobias Blanke have noted in their work on research infrastructures for digital humanities, “the humanities do not, and are unlikely to produce large volumes of digital data equivalent to the Large Hadron Collider.”⁷ Even where information forms a vast and research-relevant ecosystem, it is more likely relevant for the natural or social sciences than for the humanities. Humanities librarians, and religious studies librarians in particular, need not simply accept programmatic statements that identify a radical departure from past practices as obvious existential threats to the relevance of libraries.

From Information Manifold to Information Ecosystem

The massive output of new worldwide information *encompasses* the content that might become a genuine, functioning system of information but as it stands it isn't properly a system in its own right. The information ecosystem as it is portrayed in trend reports or similar forecasting documents (including the *Framework*) is singular, universal, and formidably complex. This idea of the information ecosystem is not, however, actually recognizable in the experience of researchers. To borrow a Kantian term, the information ecosystem as it is usually described is actually more like a "manifold" of information, meaning that it is simply the infinitely diverse array of phenomena that are given to us.⁸ This manifold can be synthesized in a way that functions rationally, and I would argue that at this point we have an information ecosystem to speak of—or, more accurately, a pluralism of interrelated information ecosystems. But an information ecosystem isn't just out there in the wild. It is always artificial and therefore needs to be constructed, or at least to emerge from human processes of organization.

Timothy B. Norris and Todd Suomela have recently emphasized this artificial nature of information ecosystems and questioned whether using the ecosystem metaphor for describing systems of information related to scholarly discourse is advisable at all.⁹ They critique the metaphor for unduly naturalizing human communication and data itself and for ignoring the natural environmental impact of information economies. Norris and Suomela therefore propose that "information economy" would be a more appropriate way of describing the systems of information and communication that form that landscape of scholarly research. These critiques are well-taken and, while I will continue to use the term "information ecosystem" in this chapter, I do hope to move beyond its under-theorized current state. Information ecosystems are not simply the sum total of all information; this is an overwhelming idea that has little relevance for any individual researcher or research institution. Rather, information ecosystems have functional characteristics related to the disciplinary and subdisciplinary work of the researcher.

Information ecosystems, insofar as they actually function as systems, are more local and diversified than the *Framework* implies. It is true that information ecosystems are usually formidably complex, and so the above-cited reports are correct to point librarians toward the important task of creating infrastructures for research and instruction for research literacy that are a good match for the massive expansion of information today.¹⁰ But in order for the information

ecosystem model to be serviceable for subject-specific information literacy, it needs to be defined more explicitly.

Ecosystems can arise from any number of organizing principles. For instance, an information ecosystem could be defined by the network of information updates surrounding a natural disaster or conflict zone. Organizations like Airwars (airwars.org) monitor and compile civilian casualty information from four ongoing conflicts, archiving incidents and publishing both reports and social media updates. Airwars incorporates information from Arabic language news sources and social media, NGO and governmental statements, military statistics, and even propaganda sources to identify and corroborate casualties. They also draw on geopolitical and mapping expertise and coordinate with other transparency groups with similar mandates. The emerging field of crisis informatics seeks to define information ecosystems in the sorts of situations that Airwars focuses on and to improve their quality based on analysis of current communication practices.¹¹ Crises like these offer good examples of how information ecosystems can be complex and widespread but still quite circumscribed by a particular organizational logic. The information ecosystem monitored and contributed to by Airwars is definitely explicit, even if it is emergent and constantly shifting. A similarly complex temporal dynamic has been modeled for natural disaster incidents.¹² In many ways, the goals of crisis-related information ecosystems correspond with the academic librarian's goals of information literacy, albeit under more distressed circumstances. Within the scope of a particular realm of knowledge production, we are concerned with providing researchers an entry into the complexities of communication and interpretation of data, so that these researchers can be responsible consumers of and contributors to human knowledge.

Nancy Foasberg has noted that while the earlier *Information Literacy Competency Standards* (2000) identified academic disciplines as important organizing structures for knowledge, the *Framework* goes as far as to say that “[disciplines] govern the production of knowledge. Disciplinary norms establish which kinds of information are valuable, which directions inquiry can take, and how conclusions can be drawn and supported.”¹³ Another way of saying this is that disciplinary communities make an information manifold into a genuine ecosystem where information is recognizable, organizable, and usable by the researcher.

Theological and religious studies librarians will be dealing primarily with information literacy instruction grounded in ecosystems of sources that are formed from academic disciplinary communication in theological, biblical studies, and religious studies fields. Before information literacy instruction can begin, theological librarians need to think about learning outcomes in terms of

fluency within a particular discourse context. How is theologically relevant information present as an ecosystem? What does fluency in this disciplinary (or subdisciplinary) ecosystem look like? Following are two examples of information ecosystems that librarians may encounter in their work. I have chosen these examples because they are grounded in relatively distinct information systems that present the researcher with complexities beyond basic content considerations such as primary and secondary sources, monographic and serial publication formats, etc.

Information Ecosystem Example 1: Canon Law

The fundamental components of the information ecosystem of theological and biblical studies researchers, and to a large extent of religious studies researchers more generally, are traditional textual modes of communications. These include sacred texts, commentary literature, confessional and canonical documents related to the establishment of community boundaries, as well as a less standardized array of homiletical and devotional literature. Even at this traditional level of the information ecosystem, we encounter complexities that are relevant to information literacy training.

Take canonical documents as an example. The Western Christian canon law tradition begins with an assortment of early writings, gathered into what is known as the *Apostolic Constitutions*, as well as a larger tradition of Roman secular law. In the early and high middle ages these sources and others that had been established over the intervening centuries were gathered and standardized in works such as the *Corpus Juris Civilis* of Justinian I (6th century CE) and Gratian's *Concordance of Discordant Canons* (12th century CE). Collections of canon law and legal commentaries on the Justinian and Gratian collections continued through the medieval and early modern period and were eventually modernized with the 1917 Code of Canon Law and the 1983 Code of Canon Law.

This is an abbreviated summary of two millennia of primary source documents related to an important but easily circumscribed subfield of theological and historical research. Much of this literature is available as affordable or open access translated texts, and these translated versions may be the extent of engagement that undergraduate or even seminary students have with canon law, if they have any at all.¹⁴ Apart from primary text translations, however, critical editions of texts and the manuscript versions upon which they are based offer further layers of complexity. Again, many of these texts are digitized and available online, for instance through the *Carolingian Canon Law*

Project of the University of Kentucky, or the Medieval Canon Law Virtual Library run by David Freidenreich of Colby College.¹⁵

The secondary literature on canon law presents another layer of the information ecosystem. Journals such as *The Jurist* are explicitly devoted to Roman Catholic canon law while others, such as *Ephemerides Theologicae Lovanienses* publish on a range of topics including but not limited to canon law. Meanwhile, journals on religious law like *The Ecclesiastical Law Journal* and *Zeitschrift für evangelisches Kirchenrecht* publish ecumenical and interreligious topics that are nonetheless relevant to the information ecosystem of studies in canon law. Research is coordinated within different interdisciplinary contexts as well. The field of medieval canon law is significant largely because of the above-mentioned work on manuscript evidence and as a key inquiry for establishing a genealogy of modern legal concepts such as human rights or representation. On the other hand, scholars like Norman Doe or Judith Hahn have done significant work on contemporary church law in an intercultural context.¹⁶ These studies can perform similar functions insofar as they offer a “concordance of discordant canons” in their own sense, but they are working with a very different set of texts and ecclesiastical situations.

The information ecosystem relevant for the canon law researcher is relatively traditional: almost wholly text-based and requiring distinctions between primary and secondary sources, manuscripts, print editions both critical and non-critical, historical and constructive work, and journal literature and monographic studies, among other formats. Like most religious studies disciplines and the humanities more generally, the canon law literature is migrating to a digital environment, offering new options for instruction, collaboration, and dissemination of information. These new developments also present challenges for the researcher, as digital projects in canon law are fragmented and require knowledge of a number of different important research hubs without any comprehensive federated search option. Again, this is representative of the digital humanities environment more generally.

Information Ecosystem Example 2: Ethnographic Theology

While the canon law literature may have some unique characteristics, it is representative of most theological fields of study and how their information ecosystems function. There may be a spectrum of textuality among subfields: philosophical theology, for instance, will be entirely textual in nature, while fields like biblical studies or liturgical studies may engage with religious material culture on some level. These fields will include non-traditional and non-text

objects as a regular part of their information ecosystem. But even in these cases, the textual and published nature of the information ecosystem predominates. Where unpublished manuscripts are consulted, the published critical edition or published translations are also often considered when available.

Ethnographic research methods are more often employed in non-theological religious studies fields like the anthropology and sociology of religion, although theologians are increasingly engaging with ethnographic research and, in doing so, they are incorporating new objects into the theological information ecosystem. These emerging research methodologies in turn affect the nature of researchers' literacy in sources of theological information. They are less dominated by textual information and require an attention to the difference in structure of their information ecosystem. Natalie Wigg-Stevenson offers a highly attuned account of these differing structures in *Ethnographic Theology*, which analyzes loci of theological research in light of structured interactions and observations in an adult education class that she leads at a Baptist congregation.¹⁷ Robert Orsi's *History and Presence*¹⁸ is another example of religious studies research that draws from ethnographic fieldwork (in this case a vast array of engagements, including pilgrims, interviews with sex abuse victims, religious comics, and autobiography) in order to contribute to theological knowledge about philosophical concepts like presence, transcendence, and history.

Christian Scharen and Aana Marie Vigen describe the information ecosystem relevant for ethnographic approaches to theology in terms of "triangulating data," a common methodological concept in the social sciences that seeks to reinforce the validity of research by employing multiple kinds of data, theoretical models, or data collection methodologies:

In general, the rule of triangulating data is important to consider. This means one has at least three overlapping but distinct angles of vision on a given project, each offered by virtue of a different method (interviews, observation, participation, document analysis). It also means that as a whole, a research endeavor often relates ethnographic data to relevant quantitative sources of information (e.g., Census data, health/healthcare statistics, poverty indexes, historical documents or narratives of a community, nation, or place). Resourcing quantitative sources of information can help to contextualize what one hears and sees through ethnographic study.¹⁹

Triangulation of data serves to create an information ecosystem from the cultural manifold that is robust and conducive to researchers' work. Like literacy in any "language," the meaningful cultural formations captured in ethnographic

research are always emergent and novel. Facility in their use means one has the ability to orient oneself within new constellations of knowledge and to respond meaningfully to them. A diversified information ecosystem like this may include observed ritual practices, lay description of religiosity conveyed in interviews, folk art depicting biblical episodes, or prayer cards. This is theological information that forms a meaningful system for ethnographic research, although it may be completely irrelevant to more traditional scholastic modes of dogmatic or historical theological research.

Ethnographic theological research is performed in many theological disciplines, from practical theology and ethics to anthropology of religion and missiology. For seminaries that don't tend to focus on social scientific studies of religion, the place where ethnographic work is most prominent may actually be in an MDiv or DMin program, where field research on congregations or clergy is conducted. These programs have different research goals than non-professional theological research programs, and information literacy instruction will need to reflect these different goals. A key indicator for the particular needs of these researchers will be the information ecosystem that can be identified as grounding their theological knowledge production.

Practical Considerations

Although there are basic principles of information literacy that cross disciplines, it is also important to keep in mind that literacy is always facility within a particular context and the wide world of "information" in and of itself is rarely the actual discourse context for which researchers are gaining literacy. With the exception of data scientists themselves, most researchers are a part of a subject-specific ecosystem, or an interdisciplinary range of partially overlapping systems, that remains ordered by the research concerns of a home discipline. In order to use the ACRL *Framework* or other tools for information literacy instruction effectively, instructional and subject librarians need to make their information ecosystem explicit, first for themselves, and also in an ongoing way as they engage with researchers.

The information ecosystem relevant to theological librarianship is multifaceted and requires flexibility and attunement to the research community on the part of the librarian. Before instructing in a classroom setting, it can be helpful to consult with the instructor and/or syllabus to learn what assignments the students will be researching and during instruction to ask them what topics they have chosen for these assignments. In graduate student instruction and especially in a workshop context where attendees are not necessarily following a

particular syllabus, reserving time at the beginning of instruction to have students share about their research projects provides a similar opportunity to teach according to the information context of the researchers. During instruction, using examples from the literature related to their topics will help to model a more information-literate understanding of the ecosystem that researchers are entering into. The challenge of this off-the-cuff reference to research literature is that it requires significant familiarity with various theological and religious studies fields in the first place.²⁰ Not all instructors will be in a position to improvise in relation to these knowledge contexts to the same degree, but even a basic familiarity with the research process of the subfields most relevant to one's institution is important and should be an ongoing priority for theological librarians.

My argument for a more explicit and circumscribed understanding of the information ecosystems relevant for theology and religious studies librarianship should not be taken as the full or final word about the purposes of information literacy as they relate to particular fields of study. It remains true that information literacy is "learning about learning" and that its relevance for lifelong learning and even school learning in liberal arts settings means that information literacy aims at something broader than simply disciplinary content competence. At the same time, theological librarians have a specific task relevant to academic religious studies discourses that is ill-served by fuzzy concept use and a capacious definition of the information ecosystem in the thrall of big data. Information literacy is literacy that is context-specific.

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7. Crepin-Leblond et al.

8. Immanuel Kant, *Critique of Pure Reason*, ed. and trans. Paul Guyer and Allen W. Wood (Cambridge: Cambridge University Press, 1998), A77–78/B102–103. What I have described here in Kantian terms is similar to Vesa Suominen’s concept of the *Scriptum Est*, or “what literature has produced,” which is the basis for the rationality of the library. Indeed Suominen even describes the theoretical question that animates his study as a quasi-Kantian one. Vesa Suominen, *About and on Behalf of Scriptum Est: The Literary, Bibliographic, and Educational Rationality Sui Generis of the Library and Librarianship on the Top of What Literature Has Produced* (Oulu, Finland: University of Oulu, 2016).
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10. See Sheila Anderson, “What Are Research Infrastructures?” *International Journal of Humanities and Arts Computing* 7, no. 1 (2013): 4–23.
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