

Information in Place: Integrating Sustainability into Information Literacy Instruction

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Introduction

The discussion of sustainability has become widespread in higher education. As awareness and interest have increased across campus, academic libraries have begun making contributions to this conversation. The greening of the library profession is now pervasive, as evidenced by the many books that have been published on the subjects of greening library buildings, library schools, and changes in services, collections and technology. Library organizations, from local to international associations, are addressing sustainability and finding ways to incorporate and translate green thinking into action. The term 'sustainability' is defined variously across different contexts, but there is general agreement that it includes themes of balance between humans and their environments, understanding the complex relationships in diverse ecosystems, securing the well-being of future generations and valuing equity in economic and social environments (World Commission on Environment and Development, 1987; Barlett and Chase, 2004).

Libraries are not uneasy with this vocabulary and, in some ways, do not find the role altogether new; most librarians recognize and defend their role as stewards of a valuable public resource. As stewards, librarians have always been collectively tasked with building, preserving and providing access to shared resources according to a strong code of ethics built upon equal access, intellectual freedom and protecting patron privacy. Careful to balance each of these factors, librarians are skilled at managing shared, common and public collections within the scope of limited funding and resources. Librarians, however, have not fully approached the role they could play in embedding sustainability into information literacy: the process of critically accessing, evaluating and using information. This area is a rich opportunity for libraries to help train individuals to shift their thinking toward more sustainable models. Academic librarians are well positioned to engage this role given their capacity to cross all disciplines and reach all students on campus.

Green Libraries: The Current Situation

Jankowska and Marcum's (2010) recent study of the growing trend toward green libraries thoroughly examined sustainability within the context of academic libraries. In addition to "developing a framework for sustainable strategies" (p. 160) for the future of these libraries they identified four major categories of "library literature on sustainability and environmental concerns" including "sustainability of scholarship and collections; green library operations and practices; green library buildings; and measuring and improving sustainability" (p. 161). An assessment of each of these categories results in a strong recommendation for libraries to act:

Sustainable strategies need to be integrated into a platform for guiding future decisions about collections, library buildings, and the scale of preservation, digitalization, equipment, products and library networking service efforts. Such decisions need to take into account not only the cost of collection, equipment, and labor but also the cost of generated waste measured by the size of the “ecological footprint” resulting from library operations and services (p. 167).

Each of the four categories identified is significant and together form a strong conceptual framework for academic libraries to engage sustainability with specific and measured approaches. But it is also the responsibility of academic libraries to fully engage sustainability in the teaching mission that characterizes their roles and responsibilities as members of higher education institutions. It is the role of academic libraries to foster information literacy across the curriculum in a way that promotes and instills life-long critical thinking. As a cornerstone of academic librarianship, information literacy should be included in discussions about sustainability and academic libraries. Jankowska and Marcum’s detailed review of the literature provides a current snapshot, and strong base of sustainability in libraries. It appears, however, that little has been written on the connections between library instruction and sustainability.

Environmental Education

While the exploration between sustainability and information literacy has been limited, there is a rapidly growing body of literature on the responsibility of all levels of education to include environmental literacy in their core competencies. Environmental literacy has been variously defined, but Roth’s (1992) definition serves as a useful baseline for understanding the term as “the degree of our capacity to perceive and interpret the relative health of environmental systems and to take appropriate action to maintain, restore, or improve the health of those systems” (p. 5).

There is no doubt that students understand that “going green” is an emerging trend in education. But Weilbacher (2009) (writing about K-12 curriculum) insists that the predominant approach is still too piecemeal to graduate students with well-reasoned, holistic understandings of environmental issues:

They pick a field trip from column A and a lesson from column B; toss in an occasional Earth Day assembly, litter pick-up, and letter to the president; and assume that their charges are now environmentally literate (p. 41).

Orr (1994) helped to frame the movement toward environmental literacy over twenty years ago by posing the question “What is education for?” (p. 7). His description of an “ecologically literate person” includes “a basic comprehension of ecology, human ecology, and the concepts of sustainability, as well as the wherewithal to solve problems” (Orr, 2005, p. xi). This definition continues to inform the practice of educators committed to embedding these concepts into the general liberal arts curriculum.

Environmental literacy has been designated a core competency by many agencies, curriculum groups and educators. Reynolds, Brondizio and Robinson (2009) suggest this is necessary to counter the disquieting trend in American education to produce “environmental illiterates;” students lacking the skills and training to “understanding emerging information about the environmental, social and economic dimensions of human-environment interactions” (p. xiv).

Sustainability on Campus

The focus on environmental education is a clear indicator that sustainability is finding its place in educational settings, including colleges and universities. Roth (1992) suggests that this role is unique and promising in higher education because of a “willingness to set this as a goal for virtually all its students in all its fields” (p. 32).

Institutions of higher education are engaging sustainability in varying ways, including establishing degree programs and requirements, “greening” campus building and facilities practices, and embedding the concept into the curriculum through integrated instruction (Rowe, 2002). Integrating “sustainability concepts such as environmental literacy” into the curriculum has the potential for tremendous impact because of the increased exposure it provides students to the topic (ibid) and the strategies for engaging the topic through interdisciplinary lenses.

This model has made sustainability an increasingly popular topic in many disciplines. Once relegated to the fields of environmental studies, ecology and conservation, it has gained traction in the forms of eco-criticism in literature and the humanities, eco-composition in composition and rhetoric, etc. Barlett and Chase (2004) insist that “sustainability cannot be cordoned off into one area of the curriculum such as environmental sciences because it encompasses a range of disciplines, including the arts, humanities, economics, political science, history, other natural sciences, anthropology, as well as work in professional programs such as business, engineering, law, and health professions” (p. 10-11). Students in these areas of study are beginning to be trained to inquire into sustainability and its corollaries as a primary subject in their research. Researching sustainability is a worthy scholarly pursuit, no doubt, and its product is often actionable, interesting and forward-thinking scholarship.

Thinking about sustainability should not be confused with thinking sustainably. Thinking sustainably requires expanding the traditional understanding of good scholarship to include, along with the fundamental tenets of the kind of skilled and thoughtful research described above, the ability to seek out and understand the impact of information. Research performed by sustainable thinkers is “messy” and “complex” and “require[es] new professional skills and new criteria of evaluation” (Barlett and Chase, 2004, p. 11). Where sustainability becomes an integral way of thinking and working in the research process rather than remaining the content, or subject, of a search, students are shown how sustainability is inherently connected to critical and applied thinking.

Teaching students this new process of research is clearly one of the key roles academic librarians can play on campuses, as librarians are specifically tasked with information literacy instruction. The definition and goals of information literacy are closely linked with those of environmental literacy. Exploring ways to better bring environmental literacy into the information literacy standards is an important step in moving academic libraries forward into a fuller consideration of sustainability.

Information Literacy and Sustainability

While highly laudable, encouraging and important, the current thrust in libraries toward achieving sustainability largely conforms to Sherman's (2008) claim that "the dominant association attached to the term is a list of prescribed practices for individuals and administration and facility staff to adopt" (p. 189). By embedding sustainability into the core measures of information literacy, library and research instruction may alleviate Sherman's concern that sustainability is "a list of things one should do" rather than "a way of critically thinking about our individual and collective role in the world, as a way of making visible our impact on ecological, economic, and social systems, or as a way of informing our individual and collective decisions" (p. 189). Information literacy instruction enhanced with a focus on sustainability can help students accomplish each of these elements of critical thinking and prepares them to critically and sustainably engage with information in the real world.

The Association for College and Research Libraries (ACRL) has defined *information literacy* as "a set of abilities requiring individuals to recognize when information is needed and have the ability to locate, evaluate, and use effectively the needed information" (2000, p. 2). The *Information Literacy Competency Standards for Higher Education* indicate that "academic librarians coordinate the evaluation and selection of intellectual resources for programs and services; organize, and maintain collections and many points of access to information; and provide instruction to students and faculty who seek information" (p. 4). There are five strong, distinct standards for information literacy with well-established performance indicators and outcomes:

1. The information literate student determines the nature and extent of the information needed.
2. The information literate student accesses needed information effectively and efficiently
3. The information literate student evaluates information and its sources critically and incorporates selected information into his or her knowledge base and value system
4. The information literate student, individually or as a member of a group, uses information effectively to accomplish a specific purpose
5. The information literate student understands many of the economic, legal, and social issues surrounding the use of information and accesses and uses information ethically and legally

These standards are nationally recognized and utilized by academic librarians in guiding, shaping and delivering their instruction, services and interactions with students. In order

to maintain consistency and objectivity across multiple situations they are, like all national standards, abstracted from any particular setting. While seemingly useful to establishing consistent assessment and benchmarks, the abstract standards may contribute to a loss in student awareness of local place and knowledge. And with this loss goes the ability to interact competently in unique, local environments.

Restoring Local Knowledge to National Standards

Orr (1996) questions the utility of national standards “shaped largely by the contrary belief that knowledge could be standardized and mass-produced regardless of differences in regional ecology and culture” and argues that an outcome of replacing local curriculum “was to destroy the self-confidence of rural people and make young people ashamed of their circumstances, family, and places. Such education demeaned the knowledge of place and region that once enabled people to live largely within their ecological means” (p. 231). It is important to recognize that local or regional knowledge is not limited to rural places. Promoting regional knowledge with a limited view of the past and ignorant of the contributions of newcomers is reductive and further compounds the issues. Seeking local knowledge, rather, is the recognition of the interplay of all landscapes, whether urban or rural, with the goals of higher learning. This practice is in peril in places of higher education, which are particularly susceptible to abstract and theoretical thinking. Zencey (1996) identifies this ethic as strong among “rootless professors:” intellectual members of “the mythical ‘world city’” who “belong to the boundless world of books and ideas and eternal truths, not the infinitely particular world of watersheds, growing seasons, and ecological niches” (p. 15).

Criticizing the homogeneity and ubiquity of national standards is not, for Zencey (1996), a signal for a return to an insular, myopic curriculum. It is a call to educators “in all disciplines [ought] to work to acquire a kind of dual citizenship—in the world of ideas and scholarship, yes, but also in the very real world” (p. 19). Thinking critically and applying research are not enough; engaging sustainability as a core tenet of information literacy is the next step. As cultivators of “learners [who may] master content and extend their investigations, become more self-directed, and assume greater control over their own learning,” (ACRL, 2000, p. 3) academic librarians are key participants in training information literate citizens to engage with the real world.

Finding value in globalizing student skills and competencies is easy; finding similar value in localizing student skills and competencies requires a conscious recognition that local knowledge is necessary and enriches students’ ability to interact deeply and adeptly in their local environments (Heldke, 2006, p. 152). Donehower, et al. (2007) suggest that global competency is fundamental, but highlights the complementary need to teach students “way(s) to understand and, where appropriate, resist, critique, and imagine alternatives to the official logic of...globalization” (p. 10). Promoting the value of local knowledge is one method of meeting this need.

In his vision of “life-place curriculum” Thayer (2003) suggests that institutions of higher education could “teach a wide, connected set of theories, philosophies, and skills by immersing students in the locality while encouraging them to inquire into the sources of local knowledge. Students would explore how local realities are influenced by global phenomenon and how worldly academic theories are modified and utilized in local practice” (p. 247-248). He goes on to recommend specific “curricular topics” that “would connect global principles and local manifestations” (p. 248). Encouraging students to pursue the value of local knowledge is a fundamental step in fusing sustainability into information literacy practices.

Adapting the Standards at the University of Montana

Many libraries have translated the ACRL standards to rubrics, which allow for easier delivery, measurement and assessment of instruction. At the University of Montana Mansfield Library an information literacy framework (Table 1) and rubric (Table 2) have been crafted in order to articulate learning outcomes at each of the 100, 200, 300, 400 and graduate levels (Mansfield Library Instruction Curriculum Task Force, 2009). Specific skills are identified within each level, which together build a steady and constant progression across the entire undergraduate curriculum. At each level, the connection to the national standards is clear. What is missing is a clear connection between critical thinking and applying these skills in a sustainable world.

The University of Montana-Missoula is the largest public university in the state. It serves nearly 14,000 undergraduate students. The university is a campus that values sustainability. In 2007 the president of the university signed the American College and University Presidents Climate Commitment and there is currently a campus-wide Climate Action Plan, which outlines strategies for climate neutrality and, further, provides tactics for implementing “sustainability in education, research, and community outreach” (Peacock and Bloom, 2010, p. 1).

Like many academic libraries, the Maureen and Mike Mansfield Library is proactive in auditing energy use, evaluating environmental impact and taking corrective action to align its building and service operations with greener practices. Information literacy instruction provides another ground for exploring and embedding sustainability that deserves fuller consideration under its green strategies. The process of integrating sustainability into the course instruction may provide a model for other libraries looking to deepen the connections between sustainability and information literacy.

Table 1. Mansfield Library Information Literacy Curriculum Framework.

The following information literacy concepts and skills provide a framework for library instructors and teaching faculty to address during each of the indicated class levels.

| 100-level | 200-level | 300-level | 400-level | Graduate |
|---|---|--|--|--|
| <p>The role of students as scholars; discourse communities inside and outside the university</p> <p>Developing research questions and relevant keywords</p> <p>Critical evaluation of information; value and distinctness of information resources (e.g., data sets, finding aids, Internet, library catalog, librarians, subscription databases, etc.)</p> <p>Citing research sources of all types formats; academic honesty and plagiarism</p> <p>Information production and organization; copyright and fair use</p> <p>Ethical, legal, and social issues surrounding the use of information</p> | <p>Choosing and stating a research topic; using research to refine topic</p> <p>Keyword and subject searching; broadening and narrowing search terms</p> <p>Value and distinctness of general and subject-specific information resources</p> <p>Value and distinctness of information sources (e.g., popular, trade, and scholarly; primary and secondary; current and historical, etc.)</p> <p>Tracing citation data back to original source</p> <p>Interdisciplinary research</p> <p><u>Repeated content:</u> Critical evaluation of information</p> <p>Citing research</p> | <p>Choosing the appropriate resources, sources, or investigative methods based on research need</p> <p>Research ethics</p> <p>Incorporating new information into knowledge base and value system</p> <p>Combining new and prior knowledge to create original scholarship</p> <p>The ways in which sources are utilized by different disciplines</p> <p>Identifying gaps in research; comparing and contrasting research arguments, data, studies, and methodologies</p> <p>Discipline-specific citation styles</p> <p>Information management</p> <p><u>Repeated content:</u></p> | <p>Identifying important associations, publications, and scholars in the discipline</p> <p>Scholarly publication processes</p> <p>Economic, legal, political, and socio-economic impacts on information access and use</p> <p>Knowledge of discipline-specific information resources and their organization and use</p> <p>Advanced search strategies (e.g., use of controlled vocabularies, Boolean operators, cited references)</p> <p><u>Repeated content:</u> Research ethics</p> <p>Incorporating new information into knowledge base and value system</p> <p>Combining new and prior</p> | <p>Information production and organization; scholarly publication processes, inclusive of publication models and authors' rights; copyright and fair use</p> <p>Ethical, legal, and social issues surrounding the use of information</p> <p>Critical evaluation of information</p> <p>Research ethics</p> <p>Economic, legal, political, and socio-economic impacts on information access and use</p> <p>Literature review process</p> <p>Incorporating new information into knowledge base and value system</p> <p>Combining new and prior knowledge to create original scholarship</p> |

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| | <p>sources of all types formats; academic honesty and plagiarism</p> <p>Information production and organization; copyright and fair use;</p> <p>Ethical, legal, and social issues surrounding the use of information</p> | <p>Ethical, legal, and social issues surrounding the use of information</p> <p>Critical evaluation of information</p> <p>Citing research sources; academic honesty and plagiarism</p> | <p>knowledge to create original scholarship</p> <p>Identifying gaps in research; comparing and contrasting research arguments, data, studies, and methodologies</p> <p>Choosing the appropriate resources, sources, or investigative methods based on research need</p> <p>Information management</p> | <p>Identifying important information associations, publications, and scholars in the discipline</p> <p>Knowledge of discipline-specific information resources and their organization and use</p> <p>Advanced search strategies (e.g., use of controlled vocabularies, Boolean operators, cited references)</p> <p>Discipline- and journal-specific citation styles</p> <p>Citing research sources of all types formats; academic honesty and plagiarism</p> <p>Information management</p> |
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Table 2. Mansfield Library Information Literacy Curriculum Rubric.

The following Information Literacy Curriculum rubric identifies information literacy learning outcomes for students to complete at the end of each of the indicated class levels.

| 100-level | 200-level | 300-level | 400-level | Graduate |
|--|---|---|--|--|
| <p>Identify and explain discourse communities</p> <p>Identify research questions; translate questions into keywords for searching</p> <p>Recognize different information resources and explain the value and differences between them (e.g., finding aids, library catalog, subscription databases)</p> <p>Construct in-text citations and a bibliography, inclusive of all source types and formats (e.g., articles, images, music; print, electronic)</p> <p>Explain the importance of citing research sources and academic honesty</p> <p>Describe how information is produced and organized, as well</p> | <p>Identify and describe a research topic</p> <p>Recognize that, based on research, an initial topic may need to be refined</p> <p>Confer with instructors and librarians about appropriate research topics, information resources and search strategies</p> <p>Execute both keyword and subject searches; execute revised searches to refine results</p> <p>Explain why there is usually not “one” source that will meet all research needs</p> <p>Recognize and explain the value and differences between general and subject-specific information resources</p> <p>Recognize different information</p> | <p>Implement a research strategy appropriate to research need</p> <p>Explain the role of ethics in research</p> <p>Combine, relate, and reconcile new information with prior knowledge and beliefs</p> <p>Compare and contrast research from various sources to create an holistic analysis of a topic</p> <p>Recognize the value of original scholarship; construct an original argument or position based on research findings</p> <p>Compare the use of information sources by discipline</p> <p>Identify gaps in research findings and modify research strategies accordingly</p> | <p>Identify important associations, publications, and scholars in the discipline; explain the role of these resources in the discipline; explain the contributions of individual scholars to the discipline</p> <p>Describe the scholarly publication process</p> <p>Explain the economic, legal, political, and socio-economic impacts on information access and use (e.g., censorship, constraints, costs, funded research, policies, scholarship)</p> <p>Describe key discipline-specific information resources and how they are organized and used</p> <p>Construct advanced searches using controlled vocabularies and Boolean operators;</p> | <p>Describe how information is produced and organized, as well as the role of copyright and fair use</p> <p>Describe the scholarly publication process, inclusive of publication models and authors’ rights</p> <p>Assess the reliability, validity, accuracy, authority, timeliness, and point or view or bias of information sources</p> <p>Explain the role of ethics in research, including the role of Institutional Review Boards</p> <p>Recognize ethical, legal and social issues surrounding the use of information (e.g., academic freedom, right to privacy, free and fee-based information, intellectual property)</p> |

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| <p>as the role of copyright and fair use</p> <p>Recognize ethical, legal and social issues surrounding the use of information (e.g., academic freedom, right to privacy, free and fee-based information, intellectual property)</p> <p>Assess the reliability, validity, accuracy, authority, timeliness, and point or view or bias of information sources</p> | <p>sources and explain the value and differences between them, including their scope, audience and intent (e.g., archival collections; government information; popular, trade, and scholarly publications)</p> <p>Trace source citation to original material, regardless of citation style and source format</p> <p>Categorize research topics by discipline; explain what constitutes an interdisciplinary topic</p> | <p>Recognize that different disciplines have different citation styles and style guidelines</p> <p>Apply discipline-specific style guide to research productions</p> <p>Document and organize personal research process and information sources</p> | <p>execute cited reference searches</p> <p>Recognize and explain the value of tracking citations forward and backward</p> | <p>Explain the economic, legal, political, and socio-economic impacts on information access and use (e.g., censorship, constraints, costs, funded research, policies, scholarship)</p> <p>Distinguish between and explain the steps of a literature review</p> <p>Combine, relate, and reconcile new information with prior knowledge and beliefs</p> <p>Compare and contrast research from various sources to create an holistic analysis of a topic</p> <p>Recognize the value of original scholarship; construct an original argument or position based on research findings</p> <p>Identify important associations, publications, and</p> |
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| | | | | <p>scholars in the discipline; explain the role of these resources in the discipline; explain the contributions of individual scholars to the discipline</p> <p>Describe key discipline-specific information resources and how they are organized and used</p> <p>Construct advanced searches using controlled vocabularies and Boolean operators; execute cited reference searches</p> <p>Recognize and explain the value of tracking citations forward and backward</p> <p>Apply discipline-specific style guide to research productions</p> <p>Explain the importance of citing research sources and academic honesty</p> <p>Document and</p> |
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| | | | | organize personal research process and information sources |
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The rubric’s granular approach provides an opportunity to embed and measure sustainability-driven information literacy skills and outcomes that are wholly integrated into the larger model of information literacy. Because libraries are central to students’ academic investigations, the work of librarians in embedding information literacy across the curriculum is an obvious place to transform the practices of knowledge inquiry. By adapting the national ACRL standards to the cultural, historical, ecological, economic and local environment at the University of Montana, students are led to recognize the importance of the sustainable applications of the information they seek.

New Criteria for Assessing Information

Beginning at the 100 (first-year) level, students at the University of Montana are expected to achieve a number of learning outcomes according to the information literacy rubric.

This rubric demonstrates the ways librarians frame, teach and measure students’ interaction with information and the research process. Librarians teach students that they should, within the first year, achieve the following capabilities:

- Identify and explain discourse communities
- Identify research questions; translate questions into keywords for searching
- Recognize different information resources and explain the value and differences between them (e.g., finding aids, library catalog, subscription databases)
- Construct in-text citations and a bibliography, inclusive of all source types and formats (e.g., articles, images, music; print, electronic)
- Explain the importance of citing research sources and academic honesty
- Describe how information is produced and organized, as well as the role of copyright and fair use
- Recognize ethical, legal and social issues surrounding the use of information (e.g., academic freedom, right to privacy, free and fee-based information, intellectual property)
- Assess the reliability, validity, accuracy, authority, timeliness, and point or view or bias of information sources

This is a strong framework that has been explicitly articulated according to the national ACRL standards. Students who demonstrate these abilities are well on their way to becoming sophisticated navigators and interpreters of the information environment. But by excluding sustainability from the rubric, librarians have also encouraged students to believe that it has no connection to information literacy and the research process. Librarians have failed to help students develop as sustainable thinkers and dual citizens capable of investigating information and applying their research in ways that inherently link sustainability to their scholarly practices.

What would it look like to infuse sustainability into the rubric? Many of the outcomes are obvious places to embed issues of sustainability in ways that are neither tacked-on nor irrelevant. In fact, they have the potential to make information literacy instruction a much more robust and rich analysis of how information is created, distributed, used and preserved.

Knowledge and Perspective

The information literacy rubric at the University of Montana did not encourage students to reflect on their research in a way that helped them situate their topic according to their own knowledge, feelings and perceptions. By incorporating a set of “pre-search” questions students are prompted to explore what knowledge they already bring to their topic as well as their assumptions and expectations about what kind of information they expect to find in their research and how they will incorporate it into their existent knowledge:

- What do you already know about your topic?
- What perspectives do you bring to your topic?
- What does this topic mean to you?
- What about your topic do you find most interesting?
- What about your topic do you find most challenging?
- What are additional terms you associate with the topic?

Discussions about discourse communities, the quality and differences that mark discrete information sources, ethical and legal use of information, and information production and organization provide opportunities to analyze whose knowledge counts and the ways that different academic/disciplinary and regional/local cultures create, share and value information. Traditional measures of credibility and authority like peer-reviewed articles published by academic journals may be discussed alongside oral histories, local wisdom and everyday practices. Encouraging students to seek out alternate perspectives that have, occasionally, been poorly considered (and nearly impossible to cite) within academic culture reinforces a new framework for determining whether information is valid.

Of the skills students are expected to master upon graduation, perhaps the most important is the ability to apply a set of criteria in order to critically evaluate reliability, validity, accuracy, authority, timeliness, and point or view or bias of information sources. These criteria are typical of the kinds of standards undergraduate students at the University of Montana (Lunsford, 2009) are expected to consistently apply to their research results:

- **Bias:** What is the author's stance or opinion about the topic?
- **Authorship (Sponsorship):** What are the credentials of the author? Who may have sponsored, or paid for, the information?
- **Credibility (Accuracy):** Is the information substantiated by facts? Is it confirmed by other sources?
- **Coverage (Scope):** Who is the intended audience? Does the information cover the topic in a meaningful, thorough way?
- **Purpose:** Is the information useful for the topic? Is it directly speaking to an issue you have identified?
- **Timeliness:** Is the information timely to the topic?
- **Reliability (Verifiability):** Is the information valid? Is it supported by other credible sources?

While these are rigorous criteria that provide students multiple points of comparison and guidance in selecting the most relevant information sources, they do not encourage sustainable thinking. In order to promote sustainability as a mode of assessing information, *impact* is added to the list of core criteria:

- **Impact:** How can the information be integrated with local knowledge, traditions and culture? How has local knowledge of this issue changed, and why? What is the local consequence/application/manifestation of this information? What is the significance of this information for future generations?

As an environment rich in local history, and diverse in its cultures, economies and ecologies, the setting of the University of Montana provides ample opportunities for students to examine their information sources in a place-based framework. For instance, the university is located at the base of Mount Sentinel, a palouse prairie, and sits alongside the Clark Fork River. It is a historical ground for the Salish tribes. The sense of place is strong. The same is true for every academic setting. Framing sustainability within the information literacy rubric fosters thinking about, and researching, information in-place. By posing clear questions to students within the context of the information literacy, students are encouraged to understand the inherent association between sustainable thinking and critical thinking.

Conclusion

Changing the information literacy rubric to reflect these values is an important next-step in the development of librarians who truly wish to engage sustainability. Of course, changing the rubric requires changing its assessment, which will pose new and creative ways of evaluating student scholarship. Adjusting academic achievement measures to reflect this kind of learning will not be easy, but may help instructors better articulate their expectations of student engagement with sustainability.

There is also an opportunity for academic libraries to promote and grow their local archives, as researching a topic locally can be difficult without rich oral histories, local and regional publications, etc. By actively adding this primary source to the library's holdings, these narratives gain prominence as integral pieces necessary to complement and complete all scholarly collections.

If the peril of rootless professors is the engendering of rootless students, it is our responsibility, as educators, to work carefully to germinate our students. By adjusting information literacy standards to encourage students to reflect on sustainability, librarians help to graduate information literate citizens with a finely tuned and deeply embedded sense of place that belong to the abstract world of ideas but understand that all their learning, research and scholarship impact the world, and its future, in significant and palpable ways.

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