Welcome

Thank you for taking the time to read and respond to the first part of the draft *Framework for Information Literacy for Higher Education*. The *Information Literacy Competency Standards for Higher Education* (ILCSHE), adopted by the Association of College and Research Libraries (ACRL) in 2000, have become an essential document related to the emergence of information literacy as a recognized learning outcome at many institutions of higher education. They have defined information literacy for librarians, educators, and assessment agencies for more than a decade. These, like all ACRL standards, are reviewed cyclically. In June 2012, the ACRL Board approved a unanimous recommendation that they be a significantly revised.

We co-chair a task force charged with creating the *Framework* and have been working since March 2013. The group reflects some of the best minds in the library profession currently working in the area of information literacy. It also includes experts from other parts of higher education and an accrediting agency. Find out more about the task force members, our charge, our process, and interim reports to the ACRL Board at http://acrl.ala.org/ilstandards/.

In the attached document we are releasing the first part of the draft *Framework*, which includes:
- Introduction
- Three Threshold Concepts
- Glossary
- Bibliography

We expect to release the next part of the draft in April. It will include:
- Additional Threshold Concepts
- Sample Scenarios

We are pleased now to share the first part of the draft *Framework* with the academic library community. While you are welcome to provide feedback at this point, you may wish to wait until the second part of the draft is released in April. The additional threshold concepts and the scenarios will provide a more robust understanding of the *Framework*. Feedback on the first two parts will be **accepted through 5pm Central on Tuesday, April 15, 2014**, via the form at https://www.surveymonkey.com/s/JCVY3GW.

We encourage you to gather a group in your library to discuss these first portions of the draft *Framework* and report back to us about your group's impressions. To help guide your thinking, we ask that you provide feedback to these questions:

1. In what ways will the focus on threshold concepts help you to generate conversations with other campus stakeholders (such as disciplinary faculty partners, members of the general education curriculum committee, and academic support services staff)?
2. How do the sections for knowledge practices and assignments/assessments provide helpful guidance when considering implementing the new *Framework*? What else would you want to see in these sections?
3. We plan to include additional materials in a subsequent phase (described below). What other elements would you find helpful that aren't mentioned in our plans?

Based on everything we hear from you, we will make revisions and release a second draft in early June. We will promote this more fulsome, complete draft to the broader community of higher education stakeholders to solicit their reactions (and yours again, too). The June version will contain the components listed above along with these additional elements:

- Mapping the *Framework* and the 2000 ILCSHE.
- Mapping the *Framework* and the American Association of School Librarians Standards for 21st Century Learners.
- Concept maps of the threshold concepts and their intersections.
- An online sandbox where the community can share approaches to using the *Framework*.

We will hold a hearing at the American Library Association's Annual Conference in Las Vegas as well as online hearings in June. We will continue the iterative process, modifying the *Framework* based on feedback we receive then. We expect to submit a final document to the ACRL Board in August 2014 for their consideration and approval in September. Of course, this timeline may change, based on the feedback we receive, but this is our current intention.

Again, please provide your feedback **by 5pm Central on Tuesday, April 15, 2014**, via the form at https://www.surveymonkey.com/s/JCVY3GW. We ask that you send us your reactions via that form so it is easier to compile all the comments we expect to receive on and ensure we don't overlook any comments in an email gone astray. We are also happy to connect with you on a personal level, and you should feel free to be in touch with either of us by email to discuss your reactions to the draft.

Stay tuned for the next part of the draft *Framework* in April. We will include details then on how you can sign-up to participate in a live online forum and share your reactions in real time.

Thank you again for your interest in this draft *Framework for Information Literacy for Higher Education*. We are eager to receive your feedback.

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1 # Framework for Information Literacy for Higher Education

2

3 ## Introduction

4 The changes in higher education, coupled with a more complex information ecosystem than
5 existed at the end of the last century, demand new engagement with the concept of information
6 literacy. This Introduction explores the reasons for the dramatic shift from standards to a
7 framework; discusses the key elements upon which the new *Framework* rests, threshold concepts
8 and metaliteracy; and includes the components of the *Framework* that help to move it from a
9 conceptual rendering to a full-fledged, living entity upon which to develop collaborative
10 programs suitable for unique situations. The concluding section acknowledges the stakeholders
11 and community who are engaged in this conversation.

12

13 ### Shifts in Higher Education Landscape Since 2000

14 It is difficult to characterize changes in higher education as a whole in recent years. There are
15 variations, in particular, among types of higher education institutions and sub-groups of the
16 student population. The most popular major in the United States is business, and the proportion
17 of students who are the first in their family to attend college and/or are above traditional college
18 age (18-22) is increasing.

19

20 As institutions begin conversations around this *Framework for Information Literacy for Higher*
21 *Education*, they need to take into account the demographics of their institution and its academic
22 culture. Given the highly diverse landscape of higher education in the United States, this section
23 focuses on a selective set of trends that may inform conversations about this *Framework* on
24 campuses.

25

26 Some particular trends that are important to understand in the context of this *Framework* are the
27 rise of collaborative student work and the increase in students as creators and participants in
28 research and scholarship. Many programs, for example in business or communications, believe
29 that a key aspect of preparing students for professional work is to develop students' ability to
30 work in teams. Information literacy programs can take advantage of this trend in encouraging
31 new types of multimedia assignments since such projects are most frequently developed by
32 teams of students.

33

34 A number of colleges and universities are developing programs for undergraduate research,
35 which frequently pair undergraduates with faculty members in science labs and can result in
36 students co-authoring papers or presenting at national conferences. Students in the humanities
37 and social sciences are also engaging in new types of digital projects along with their faculty
38 members, such as creating interactive maps of cities where authors worked or annotating and
39 linking classic texts. These students need to navigate information systems, use data sources, and
40 integrate various technology applications to learn ways of thinking and practicing within
41 disciplines.

NOTE: This version differs from the one released 02/20/14 only in the addition of line numbers. No text has been changed. We
hope it is now easier for you to refer to particular portions of the draft in your discussions and in providing feedback.

42 Some colleges and universities are placing a greater focus on integrative learning; in some cases,
43 this is developed as a learning communities program where a cohort of students takes a set of
44 courses together in the early years of their college program. Such programs often emphasize
45 cross-disciplinary critical thinking and communication skills. A related trend, interdisciplinarity,
46 seeks to leverage the methods and perspectives from more than one discipline in order to
47 approach problems in new ways.
48
49 An area that has not received much attention in the context of information literacy is the rise in
50 professional masters degrees at many institutions. Students in these programs, who may have
51 full-time employment while completing their programs, have particular needs for efficient
52 mechanisms for accessing and producing information.
53
54 The role of information technology in pedagogy in higher education has also received much
55 attention in the period since the development of the Standards. Blended learning, which
56 combines in-person teaching along with online components, has become a popular mode of
57 pedagogy, especially in large public institutions. MOOCs (massive open online courses) have
58 been much in the news in recent years; librarians have been working to understand how to
59 integrate information literacy into these classes as well as provide information resources to
60 support the courses. The concept of the "flipped classroom," in which students in effect get the
61 traditional lecture component of a course outside of class (via videos and readings) and then use
62 class time for collaborative, active learning assignments, facilitated by faculty, has documented
63 success in improving student outcomes in many courses and institutions. This focus on active,
64 collaborative learning is a key development in recent US higher education pedagogy.
65
66 Greater need for sense-making and metacognition in a fragmented, complex information
67 environment requires the ability to understand and navigate this environment holistically,
68 focusing upon intersections. These intersections may be between disciplines, between academic
69 major and employment, between sets of projects, or between academic pursuits and community
70 engagement, to name just a few. All of these intersections are underpinned by the need to engage
71 with information and the communication of information. To do so effectively, students must
72 understand the intricate connections between knowledge, abilities, and critical dispositions that
73 will allow them to thrive.
74

75 **Refocusing the Current Standards: Creating a Framework**
76 The *Information Literacy Standards for Higher Education*, developed by an ACRL task force in
77 1999-2000 and first published in 2000, have advanced discussion about information literacy as
78 an educational reform agenda during the past 14 years. They have enabled some colleges and
79 universities to position information literacy as an essential learning outcome in general education
80 programs, and in some cases have promoted linkages with service learning, problem-based
81 learning, evidence-based learning, and other pedagogies focused on deeper learning within the
82 classroom, or beyond it. Regional accrediting bodies and the American Association of Colleges
83 and Universities (AAC&U) have employed the Standards to create benchmarks, guidelines, or
84 rubrics in order to integrate information literacy into the curriculum as an essential learning
85 outcome. In addition, various discipline-specific associations and organizations have adapted or

86 rewritten the Standards to best fit disciplinary concepts and methods (in such fields as music and
87 political science).
88
89 The new *Framework* addresses some limitations of the current Standards in a number of areas
90 that have become more important in higher education in recent years. The *Framework* moves
91 beyond the Standards' conception of information literacy, which provides a limited, almost
92 formulaic approach to understanding a complex information ecosystem. The organization of the
93 Standards document in a hierarchy of standards, performance indicators, and learning outcomes
94 conveys a fixed conception of how information literacy can be realized in varied curricula. The
95 Standards also focus attention on the objects of scholarship as mostly textual ones, reflecting the
96 time in which they were written. Although the Standards pay some regard to other modes of
97 scholarship and learning (visual, data, multimedia), the explosion of these modes and the
98 increasingly hybridized, multi-modal nature of learning and scholarship require an expanded
99 conception of information literacy learning and pedagogy beyond the mostly text-based focus of
100 the Standards. In the proposed *Framework*, we hope to provide spaces for creative, integrative,
101 flexible thinking about the dynamic information ecosystem in which all students live, study, and
102 work.
103
104 The Standards also valorize the "information literate student" as a construct of imagined
105 accomplishment, at the endpoint of a set of learning experiences, without the involvement of
106 peers, tutors, coaches, faculty advisors, or other collaborators. While individual student learning
107 and initiative are always important, learning and scholarship also involve others, whether
108 through face-to-face discussions, virtual communities, debates and dialogues in blogs,
109 conference presentations, community or citizen meetings, or through solitary but active reading
110 of and grappling with the ideas in challenging texts. The *Framework* focuses more attention on
111 the vital role of collaboration and its potential for increasing student understanding of the
112 processes of knowledge creation and scholarship. The *Framework* also emphasizes student
113 creativity and participation, highlighting the importance of their contributions. Students'
114 intelligent, engaged use of the information environment for learning occurs within a wider circle
115 of participation and enlarged understanding made possible through many formal academic
116 experiences as well as many daily non-academic experiences.
117
118 The need for "sense-making" within the evolving information ecosystem means that the whole
119 learner must be engaged, transcending purely cognitive skills. Educational researchers are paying
120 increasing attention to affect as a driver for critical thinking, to which all conceptions of
121 information literacy pay homage. Critical thinking is an ongoing educational mission for all
122 levels of education; it has ancient roots and has been carried forward into the discussions of
123 information literacy for the past two decades as an educational goal, despite the many challenges
124 of defining it in a way that satisfies various disciplinary specialists. However, critical thinking, as
125 identified in the Standards, focuses almost exclusively on cognition, ignoring the vital aspect of
126 attitudes, emotion, and dispositions (tendencies or preferences to learn in certain ways) in
127 creating the willingness to learn difficult new concepts, and to develop self-efficacy. The lessons
128 that we have learned from Carol Kuhlthau's research on the role of affect in the search process
129 are crucially applicable now,[1] as students must "make meaning" of an extremely mutable set of
130 information resources and processes, and must tolerate ambiguity within a learning environment
131 in which fixed reference points are becoming less "fixed." The engagement of all of students'

132   capacities, whether cognitive, affective, volitional, or value-based, in learning communities
133   broadly defined, offers the greatest potential for institutional change in information literacy
134   programming, rather than focusing only on cognitive learning outcomes in scattered academic
135   courses. The proposed *Framework* seeks to address the great potential for information literacy
136   as a deeper, more integrated learning agenda, focused on academic courses, undergraduate
137   research, service learning, digital projects showcasing student research, and through other
138   initiatives at local institutions that span the formal academic and co-curricular and field learning
139   experiences of novices (first-year students), students in undergraduate majors, as well as
140   graduate and professional students.
141

142   **Information Literacy: A New Definition**
143   ACRL's previous definition of information literacy describes it as a set of skills or competencies
144   that are uniform among all learners. This conception is based on an inventory of competencies
145   assumed to operate one-dimensionally across all disciplines and contexts. Other conceptions
146   growing out of the research of Bruce, Lupton, Lloyd, and Limburg identify the limitations of this
147   skill- and- individual-attribute-based conception.[2,3,4,5] The commonalities of these researchers'
148   findings emphasize the highly relational, context-specific nature of information literacy, and the
149   varied circumstances in which individuals and groups activate these competencies and describe
150   them to researchers. Clearly, the experience of studying, working, and living in a complex
151   information environment produces a variety of potential models for information literacy learning
152   across a variety of disciplines, domains, contexts, and work environments.
153

154   The creation of this new *Framework* suggests an expanded definition of information literacy, one
155   that goes to the heart of learning itself, while allowing for varied manifestations of what
156   information literacy means for students, faculty, administrators, and a range of academic
157   specialists in a variety of academic institutions. The following definition underpins the
158   *Framework*:
159   *Information literacy combines a **repertoire** of abilities, practices, and dispositions*
160   *focused on expanding one's understanding of the information ecosystem, with the*
161   ***proficiencies** of finding, using and analyzing information, scholarship, and data to*
162   *answer questions, develop new ones, and create new knowledge, through **ethical***
163   ***participation** in communities of learning and scholarship.*
164

165   The *Framework* is based on concepts about the information ecosystem; practices for increasing
166   expertise within it; particular ways of thinking about it and behaving within it; and general
167   strategies for learning from it. The *Framework* consists of the following interconnected elements
168   that produce a coherent whole:
169   1.   *core understandings* about the evolving information system (threshold concepts)
170   2.   a *set of practices* that demonstrate increased credibility within that ecosystem, as both
171   consumer of information and creator of knowledge (knowledge practices,
172   metaliteracy)
173   3.   a *way of thinking* that develops more expert "moves" within that dynamic information
174   ecosystem (dispositions, self-assessments)
175   4.   *metacognitive strategies and critical reflection* (metaliteracy, self-assessments)
176

177
178

A New Framework for Information Literacy: Using Threshold Concepts

An expanded conception of information literacy calls for the creation of a more open framework to allow for wider and deeper integration of it within the formal academic curriculum and beyond it, in co-curricular contexts, where students themselves increasingly assume leadership roles in campus projects involving astute information use and the creation of scholarship.

This new *Framework* addresses foundational or core concepts in information literacy that coalesce some of the subordinate or more granular concepts and skills usually taught in library instruction; such concepts should position information literacy on a higher plane, as an integral part of the learning process within disciplines, and across them. Such core concepts should address the "bottlenecks of understanding" or challenges that students face in learning to maneuver expertly within the information landscape. These gaps or "bottlenecks" are best addressed through threshold concepts. Threshold concepts grow out of pedagogical research in the United Kingdom, originating with the work of Meyer and Land,[6] in the field of economics; the theory behind these concepts has since been adopted by faculty in disciplines as varied as biology, geology, management, accounting, history, philosophy, engineering, design, and nanoscience. Growing interest in the library field in threshold concepts as a different way of framing information literacy is evident in the research and writing of Hofer, Brunetti, and Townsend, and in an ongoing Delphi study to identify threshold concepts, which has informed this *Framework*.[7]

Threshold concepts are those challenging "gateway" or portal concepts through which students must pass in order to develop genuine expertise within a discipline, profession, or knowledge domain. Meyer and Land identified several characteristics of threshold concepts, among them: *transformative; integrative; irreversible; bounded; and troublesome*.[8] While some faculty and pedagogical experts have discussed these characteristics within their disciplines for a decade, the library community is just now examining threshold concepts and their potential for teaching information literacy for the first time. This *Framework for Information Literacy for Higher Education* will focus on these characteristics of threshold concepts, though with less attention given to "boundedness" since that aspect belongs most specifically to well-defined disciplines. The characteristics with special resonance for information literacy in this *Framework* are: transformative, integrative, irreversible, and troublesome. That is, the *Framework* includes core concepts that offer the potential to *transform understanding* of the information environment so that more granular ideas and skills make greater sense (answering the "Why"? question for students who might otherwise see information literacy skills as pointless); to *integrate various concepts* relating to the information ecosystem into a network of concepts and understandings, so that more coherence is possible in developing curricula for information literacy; to *make irreversible the learning* of deeper features of the information ecosystem, precluding a return to more simplistic notions about information sources and processes; and to *address troublesome, difficult, or counterintuitive aspects* of the information ecosystem so that diagnostic work can occur in identifying "bottlenecks in understanding" of various features of the ecosystem, through formative assessment and redesign of learning experiences and information literacy programs and curricula.[9]

222
223 A vital benefit in using threshold concepts as one of the underpinnings for the new *Framework* is
224 the potential for collaboration among disciplinary faculty, librarians, teaching and learning center
225 staff, and others. Creating a community of conversations about this enlarged understanding
226 should create conditions for more collaboration, more innovative course designs, more action
227 research focused on information literacy, and a more inclusive consideration of learning within
228 and beyond the classroom. Threshold concepts originated as faculty pedagogical research within
229 disciplines; because information literacy is both a disciplinary and a transdisciplinary learning
230 agenda, using a threshold concepts framework for information literacy program planning,
231 librarian-faculty collaboration, and student co-curricular projects, should offer great potential for
232 curricular transformation.
233

234 **Metaliteracy**
235 Another important anchoring element in the new *Framework* is Metaliteracy. Metaliteracy builds
236 upon information literacy's traditional core components by emphasizing new roles and
237 responsibilities brought about by emerging technologies and collaborative communities.
238 "Metaliteracy empowers learners to participate in interactive information environments,
239 equipped with the ability to continuously reflect, change, and contribute as critical thinkers."[10] It
240 is important for individuals to view themselves as information producers, both individually and
241 collaboratively, and to recognize that they join many others in this role. As both producers and
242 consumers of information content in an ever-changing variety of formats and modes, learners
243 must recognize that in adapting to these changes, they must interact with, evaluate, and share
244 information effectively and flexibly.
245
246 Metacognition, or consciously reflecting about one's thinking, is critical to metaliteracy. The
247 learning objectives that have been developed for metaliteracy recognize that individuals call
248 upon multiple domains when participating fully in the evolving information environment. These
249 domains include the cognitive, metacognitive, affective, and behavioral.
250

251 **Other Elements of the Framework**

252 *Knowledge Practices (Abilities)*
253 Each threshold concept includes a section entitled Knowledge Practices (Abilities). This
254 terminology is used in order to emphasize that the focus is not on learners simply acquiring
255 skills. Rather, their mastery of these transformative threshold concepts leads to new knowledge,
256 which brings with it the ability to engage in the described practices. A selection of expected
257 knowledge practices is provided for each threshold concept. These provide a foundation for a
258 more extensive set determined by the unique situation of each learner.
259

260 *Metaliteracy Learning Objectives*
261 The *Framework* also includes learning opportunities and outcomes based on the idea of
262 Metaliteracy. These learning opportunities emphasize the learner's roles as information
263 consumer, producer, distributor, and collaborator, the impact of the dynamic modes of
264 scholarship, and the need to engage learners beyond the cognitive/evaluative emphasis.

265

Dispositions

This *Framework* includes a set of dispositions for each of the threshold concepts. Students and others learn best when they use more than their cognitive faculties. It is important that they be open to the experience and substance of what they are learning. This is particularly true with threshold concepts, which, by definition, are troublesome. The Dispositions section provides a guide that will assist instructors and learners alike. While it is provided for instructors to design learning experiences that will encourage students to consider their attitudes and feelings about the new concepts, it might also, in appropriate situations, be shared directly with students to promote self-reflection.

"Dispositions in Action" is a section in each of the four areas in The American Association of School Librarians' (AASL) Standards for the 21st-Century Learner. The presence of this component in both documents provides continuity in learning experiences from K-12 to higher education.

Self-Assessments

The AASL also included a section on Self-Assessment Strategies in their Standards for the 21st-Century Learner. This *Framework* does the same, recognizing that learners must engage in metacognition to be successful. The self-assessment activities suggested for each of the threshold concepts provide a starting point for students to examine their learning progress.
One of the components of this *Framework* is the idea of learners having a repertoire of information literacy-related knowledge practices that will serve them well in varying situations. Learners will need to be adept in determining the strengths, the weaknesses, and the gaps in their knowledge and abilities. Promoting self-assessment is a critical element in accomplishing this important goal.

Assignments/Assessments

Each threshold concept includes a selection of activities that can be used as, or inspire, assignments or assessments. These items differ in nature from those in the section labeled self-assessments, which are meant for students to use to monitor their own understandings and proclivities.

This category contains ideas for diverse teaching situations that can be used by librarians and disciplinary faculty members either individually or jointly, depending on the situation. Librarians who teach information literacy credit courses or are integrated in other courses will find ideas that will work best when there are multiple points of contact with students. Those who teach single-session course-related instruction will find ideas that they can integrate into their own session, while other ideas rely upon collaboration with the disciplinary faculty member teaching the course in collaborative assignment design.

The lists of examples are not exhaustive, but are meant to spark ideas for the creation of others. Each teaching situation has its own possibilities and constraints that require attention. The goal is to encourage reflection and creativity on the part of the librarian and course instructor.

309 Classroom assessment techniques and methods that work with the flipped classroom model are
310 just two types to of exercises to be found in these sections. An online sandbox will be developed
311 to support this new *Framework*. It will be a rich resource for ideas, examples, and answers to
312 questions, and will include other possible assessment and assignment ideas.
313

314 *Mapping*
315 The section of this Introduction titled "Refocusing the Current Standards: Creating a
316 Framework" explains critical differences between the 2000 Standards and the new *Framework*.
317 The earlier document was broken down into standards, performance indicators, and learning
318 outcomes. This granular, outcomes-based approach does not translate easily to the more
319 integrative, collaborative, and metacognitive model based upon threshold concepts. There are
320 elements in the 2000 Standards that do not appear in the in the *Framework*. However, some
321 overlap exists, and a planned mapping between the earlier document and the new *Framework*
322 presented here will indicate where these exist. (This mapping will be included at a future stage
323 when all of the threshold concepts to be included in the *Framework* are identified). To try to
324 make one-to-one comparisons would be reductive, but this map will allow connections that will
325 assist in the transition from the Standards to the more flexible *Framework*.
326

327 **Stakeholders**
328 A strong community has developed around the *Information Literacy Standards for Higher*
329 *Education*, published in 2000. Librarians around the country, and in fact around the world, have
330 worked to include the Standards in overall educational requirements for their institutions. Some
331 accrediting bodies for U.S. higher education regions have promoted the use of the Standards in
332 institutional reviews. However, in many institutions, the Standards have been implemented in a
333 librarian-driven process, often without explicit buy-in from academic departments. The intent of
334 this *Framework* is to encourage conversations among a broad group of stakeholders who will
335 craft an information literacy program that meets the needs of their institution. Disciplinary
336 faculty members have a primary role in this conversation because of the need for students to
337 develop specialized information skills in their majors. While some information skills are generic
338 and transferable, students should develop more sophisticated skills in areas of particular
339 relevance to their major area of study. For example, history majors should work closely with
340 primary sources (in special collections or born digital collections) and science majors should
341 develop some expertise with accessing and managing large data sets. Conversations between
342 librarians and disciplinary faculty are essential for developing a robust information literacy
343 program that is integrated into the academic work of students.
344

345 While it is likely that librarians will convene campus conversations about information literacy,
346 they should seek institutional partners who have a particular interest in pedagogy, information
347 technology, and assessment. Individuals from a campus center for teaching and learning, an
348 undergraduate education office, or a student success office can inform discussions about
349 innovations in curricula within the institution, can assist with understanding local teaching and
350 learning trends (for example, are more departments experimenting with blended learning or the
351 "flipped classroom"), and can help librarians focus on pedagogical objectives that are important
352 to the broader institution. They may also provide liaison with specific programs that could
353 benefit from an infusion of information literacy content.

354
355 The role that academic computing professionals play in teaching and learning varies greatly from
356 institution to institution. Understanding where there are opportunities for collaboration with these
357 professionals, whether in a central information technology unit or embedded in colleges or
358 departments, is important for developing a holistic information literacy program. For example, in
359 some institutions, computing professionals have taken the lead in assisting faculty with
360 developing new kinds of multimedia assignments for courses and for implementing workshops
361 and other services for students involved in multimedia production. This *Framework* views the
362 integration of accessing information and developing new types of information products as a
363 holistic process and realizing this concept may involve developing new partnerships between and
364 among information technology professionals, librarians, and faculty.
365
366 As institutional teams rethink their implementation of an information literacy program in the
367 context of this *Framework*, they should be developing an assessment plan that will provide
368 evidence of the impact and outcomes of a new program. Working with assessment professionals
369 on campus, whether in an assessment office, undergraduate education office, student success
370 program, or planning office, can provide the expertise needed to develop robust assessment
371 instruments. In addition, the information literacy program may be able to embed some of its data
372 collection into existing campus instruments or correlate some of its data with other sources of
373 data being collected by others.
374
375 Librarians have the opportunity to play the leading role in bringing together partners and
376 stakeholders to shape information literacy initiatives on campus. Even within libraries, at times
377 the silos of departments and roles isolate librarians who could be working together to develop
378 new focuses for information literacy. For example, librarians whose specialty is "big data" can
379 partner with information literacy librarians along with disciplinary faculty to shape new
380 initiatives to develop students' skills in this area. Librarians on many campuses have reached out
381 to faculty to encourage their interest in information literacy. With this *Framework*, the intent is
382 for librarians to launch conversations that focus on curricular needs and the information access,
383 management, and production needs of students within that context.
384

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412 **Threshold Concept**

413 **Scholarship is a Conversation**

414 **Scholarship is a conversation refers to the idea of sustained discourse within a community**
415 **of scholars or thinkers, with new insights and discoveries occurring over time as a result of**
416 **competing perspectives and interpretations.**

417

418 While many questions can be answered by appeal to a single, authoritative source--the capital of
419 a country or the atomic number of an element, for example--scholarly research resists simple
420 answers. Rather, scholarship is discursive practice in which ideas are formulated, debated, and
421 weighed against one another over extended periods of time. Instead of seeking discrete answers
422 to complex problems, scholars understand that a given issue may be characterized by several
423 competing perspectives. Far from a unified body of uncontested knowledge, the scholarly record
424 is better understood in terms of a conversation in which information users and creators come
425 together to negotiate meaning, with the experienced researcher adding his or her voice to the
426 conversation. The experienced researcher also understands that there may not be a single
427 uncontested answer to a query and, hence, the experienced researcher is inclined to seek out the
428 many perspectives in a scholarly conversation, not merely the one with which the researcher
429 already agrees.

430

431 **Knowledge Practices (Abilities)**
432 Learners who are developing their information literate abilities
433 • Identify the contribution that particular articles, books, and other scholarly pieces make to
434 disciplinary knowledge.
435 • Summarize the changes in scholarly perspective over time on a particular topic within a
436 specific discipline.
437 • Contribute to scholarly conversation at an appropriate level (local online community,
438 guided discussion, undergraduate research journal, conference presentation/poster
439 session).
440 • Predict that a given scholarly work may not represent the only--or even the majority--
441 perspective on the issue at hand.
442 • Recognize that they are entering the middle of the scholarly conversation, not the end.

443

444 **Related Metaliteracy Learning Objectives**
445 Learners who are developing their information literate abilities
446 • Identify social media outlets that present new contributions to scholarship and
447 supplement traditional scholarly communication channels.
448 • Value user-generated content and critically evaluate contributions made by others: see
449 self as a producer as well as consumer, of information

450   **Dispositions**

451   Learners who are developing their information literate abilities

452   • Suspend judgment on the value of a particular piece of scholarship until the larger context
453   for the scholarly conversation is better understood.

454   • See themselves as contributors to scholarship rather than only consumers of it.

455

456   **Self-Assessments**

457   In order to determine their level of understanding of this threshold concept, learners may

458   • Select a seminal work on a topic, and then identify two sources that reference that work
459   from different perspectives.

460   • Develop a list of current events that shape the discourse surrounding a topic of interest.

461   • Create a timeline to track the evolving threads of a continuing scholarly conversation.

462   • Select a topic on which they have some knowledge or experience. Identify a venue (blog,
463   discussion forum, other social media site) in which a scholarly conversation is taking
464   place. Identify key players and their perspectives.

465   • Determine, in the scenario above, how to involve themselves in the conversation.

466   • Use a concept map to express how a topic is treated within the larger historiography of a
467   given discipline (advanced)

468

469   **Possible Assignments/Assessments**

470   • Give students a two-part assignment: one having them trace the development of
471   scholarship on a particular topic using the traditional "information cycle" model with the
472   "invisible college" and print publication outlets; then have them expand/refine that model
473   by tracing changes based on social media forums, or online communities.

474   • Assign an entire class to conduct an investigation of a particular topic from its treatment
475   in the popular media, and then trace its origin in conversations among scholars and
476   researchers.

477   • Create an online community for a class where students post their findings from a research
478   project in order for them to understand how research and scholarship work among
479   practicing researchers.

480   **Threshold Concept**

481   **Research as Inquiry**

482   **Research as Inquiry refers to an understanding that research is iterative and depends upon**
483   **asking increasingly complex questions whose answers develop new questions or lines of**
484   **inquiry in any field.**
485
486   Experienced researchers see inquiry as a process that focuses on problems or questions in a
487   discipline or between disciplines that are open or unresolved. Experts recognize the collaborative
488   effort within a discipline to extend the knowledge in that field by developing a knowledge base
489   of lines of inquiry, research methodologies, and best practices for conducting research. Many
490   times, this process includes points of disagreement where debate and dialog work to deepen the
491   conversations around knowledge. This process of inquiry extends beyond the academic world to
492   include instances such as evidence and data collected by groups and individuals in communities
493   and the public at large, and the process of inquiry may also focus upon personal, professional, or
494   societal needs. The spectrum of inquiry thus encompasses processes of basic recapitulation of
495   knowledge and data, by the novice, through increasing stages of greater understanding of a
496   discipline or exchanges between disciplines, among more experienced researchers. The novice
497   works to understand foundational ideas, methods, and over time develops the corresponding
498   ability to formulate more advanced research questions and employ a greater repertoire of
499   investigative methods.
500

501   **Knowledge Practices (Abilities)**
502   Learners who are developing their information literate abilities
503   • Conduct research through the lens of inquiry in order to enhance the impact of their work.
504   • Provide evidence of understanding that methods of research leading to new knowledge
505   creation vary by need, circumstance, and type of inquiry.
506   • Formulate questions for research based on gaps in information or data available.
507   • Shape questions for research based on currency of the topic, its geographical scope, and
508   its disciplinary or interdisciplinary focus.
509

510   **Related Metaliteracy Learning Objectives**
511   Learners who are developing their information literate abilities
512   • Demonstrate the ability to think critically in context.
513   • Communicate effectively with collaborators in shared spaces and learn from multiple
514   points of view.
515   • Recognize that learning is a process and that reflecting on errors or mistakes leads to new
516   insights and discoveries.
517   • Reevaluate needs and next steps throughout the process.

518 **Dispositions**
519 Learners who are developing their information literate abilities
520   • Value persistence, adaptability, and flexibility, and recognize that ambiguity can be
521   beneficial.
522   • Seek opportunities to transform current research-related practices in order to conduct
523   more authentic research.
524   • Practice thinking critically when confronting new learning, where lack of familiarity with
525   new methods and approaches requires additional effort.
526   • Value intellectual curiosity in developing questions and learning new investigative
527   methods.
528

529 **Self-Assessments**
530 In order to determine their level of understanding of this threshold concept, learners may
531   • Compare a recent research question that they developed with related questions asked by a
532   more experienced researcher and analyze some of the differences. Determine what
533   elements they might be able to learn from to enhance their next research question.
534   • Keep research logs in which they note changes in particular research directions as they
535   identify resources, read, and incorporate new learning.
536   • Review their research logs to identify strengths and/or problems that appear more than
537   once, and use this knowledge to change future research directions.
538

539 **Possible Assignments/Assessments**
540   • Students in a first year course reflect upon the steps they went through when researching
541   a major purchase or event in their lives (buying a car, selecting a college, etc.). They
542   identify the steps involved in the research behind such a decision, and confront the
543   importance of such a employing a similar strategy in the academic setting.
544   • In an upper level course, students trace the development of a scholar's research agenda
545   following a sequence of presentations, publications (perhaps starting with a dissertation
546   topic), social media presence, etc. The students reflect upon the inquiry underlying these
547   information packages in an e-portfolio assignment.
548   • A researcher/guest speaker attends the class and describes a research project from
549   conception to conclusion. Students attempt to diagram the steps reflected in the
550   description, and then work with the speaker to develop a robust conception of the process
551   (recognizing that the process varies from project to project and researcher to researcher).
552   Students then journal about how their research process relates to that of the researcher,
553   and what changes they might make in order to attempt more authentic, knowledge-
554   generating research experiences.

555   ## Threshold Concept

556   ## Format as Process

557   **Format as Process refers to understanding that the processes of developing information**
558   **resources originate from different needs, motivations, values, conventions, and practices,**
559   **and result in different formats, but the underlying questions about value of the information**
560   **and its potential use are more significant than the physical packaging of the information**
561   **source.**
562
563   The experienced researcher understands that the quality and usefulness of a given piece of
564   information are partly determined by the processes that went into making it. Researching,
565   writing, editing, and publishing a document--whether physical or digital--can be highly
566   divergent, and information quality reflects these differences. From tweets to magazines to
567   scholarly articles, the unique capabilities and constraints of each format determine how
568   information can and should be used. Whatever form information takes, the experienced
569   researcher looks to the underlying processes of creation in order to ask critical questions about
570   how and why it was produced. The experienced researcher is also aware of the influence of long-
571   established formats on information production and dissemination, while understanding the
572   enormous changes these cycles are undergoing.
573

574   ## Knowledge Practices (Abilities)
575   Learners who are developing their information literate abilities
576   • Understand that format and method of access are separate entities.
577   • Recognize that different creation processes result in the presence of distinct attributes of
578   formats
579   • Articulate the purpose and distinguishing characteristics of various formats.
580   • Identify which formats best meet particular information needs.
581   • Decide which format and mode of transmission to use when disseminating their own
582   information creations.
583

584   ## Related Metaliteracy Learning Objectives
585   Learners who are developing their information literate abilities
586   • Compare the unique attributes of different information formats (e.g., scholarly article,
587   blog, wiki, online community), and have the ability to use effectively and to cite
588   information for the development of original content.
589   • Determine the value of formal and informal information from various networked sources
590   (scholarly, user-generated, OERs, etc.)
591   • Produce original content appropriate to specific needs in multiple media formats; transfer
592   knowledge gained to new formats in unpredictable and evolving environments.

593 **Dispositions**
594 Learners who are developing their information literate abilities are
595 • Inclined to seek out markers for information sources that indicate the underlying creation
596 process.
597 • Inclined to seek out the most effective information formats for a particular need.
598 • Aware that various formats of information dissemination with different impacts are
599 available for their use.
600

601 **Self-Assessments**
602 In order to determine their level of understanding of this threshold concept, learners may
603 • Reflect on their preferred method of finding information, both for academic and daily
604 information needs. For each category, be able to assess whether the information is
605 produced in an appropriate manner for a particular need.
606 • Review recent work requiring the use of outside sources. Determine how diverse the
607 formats that were used are, and if other formats might have added to the work.
608 • Compile a list with as many ways to evaluate the appropriateness of a format for a given
609 need as they are able to. Determine if the list is robust.
610 • Fill out this chart:

Type/format of Information	How is it created?	Who is able to create it?	Is there a review process involved? If not, should there be?	Can I produce information in this format?	How can I locate info in this format?

611

612 **Possible Assignments/Assessments**
613 • Assign students to identify several different applicable information sources that arise
614 from different creation processes, and to communicate the unique values of each. (in
615 collaboration with instructor and course assignment)
616 • Provide students with records for items created in different ways. Ask them to identify
617 how the sources were created and instances when each might be appropriate.
618 • Assign students to identify the format of the sources they find for a given research project
619 and articulate why the chosen formats are appropriate for the information need.
620 • Ask students to find sources about the same topic in two divergent formats, e.g.
621 newspaper movie review and literary journal movie review. Students will compare and
622 contrast the type of information found in each format, as well as articulate the processes
623 underlying the creation of each format.
624 • Ask students to transform a primary document into another format, such as a script/skit,
625 poem, song, including a primary type format (e.g., diary, oral interview "script,"
626 newspaper article, etc.)

627   ## Glossary
628
629   Dispositions—Generally: A tendency to act or think in a particular way (Merriam-Webster
630   dictionary). More specifically: A disposition is a cluster of preferences, attitudes, and intentions,
631   as well as a set of capabilities that allow the preferences to become realized in a particular way.
632   (Salomon, 1994)
633
634   Knowledge practices—The proficiencies or abilities learners develop as a result of their
635   comprehending a threshold concept.
636
637   Metacognition—Awareness and understanding of one's own thought processes (OED). It
638   focuses on how people learn and process information. It also takes into consideration an
639   individual's awareness of how they learn. (Livingston, 1997)
640
641   Metaliteracy—Metaliteracy expands the scope of traditional information skills (determine,
642   access, locate, understand, produce, and use information) to include the collaborative production
643   and sharing of information in participatory digital environments (collaborate, produce, and
644   share). This approach requires an ongoing adaptation to emerging technologies and an
645   understanding of the critical thinking and reflection required to engage in these spaces as
646   producers, collaborators, and distributors. (Mackey & Jacobson, 2014)
647
648   Self assessments—Activities that enable learners to determine their facility with elements of
649   each threshold concept and that encourage reflection upon their engagement with its elements.
650
651   Threshold concepts—core or foundational concepts that, once grasped by the learner, create new
652   perspectives and ways of understanding a discipline or challenging knowledge domain.
653   Threshold concepts produce transformation within the learner; without them, the learner does not
654   acquire expertise in that field of knowledge. Threshold concepts can be thought of as portals
655   through which the learner must pass in order to develop new perspectives and wider
656   understanding. (Land, Meyer, & Baillie, 2010)
657
658   Transformative Learning—Transforming the frames of reference that are the basis of a learner's
659   interpretations, beliefs, or points of view. A learner's frame of reference is transformed through a
660   critical reflection on his or her assumptions. Educators can facilitate the transformation by
661   helping learners to become aware of and reflective about their assumptions, beliefs, or points of
662   view. (Mezirow, 1997)

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