

A Roadmap for Assessing Student Learning Using the New Framework for Information Literacy for Higher Education

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The New Framework

In the next several months, ACRL will likely approve a new and important document: the Framework for Information Literacy in Higher Education. This document is intended to replace the Standards for Information Literacy Competency Standards for Higher Education, a seminal publication that has guided information literacy instruction for well over a decade. Since 2012, the ACRL Information Literacy for Competency Standards for Higher Education Task Force has drafted and revised the new Framework document. This process has been very open, and as a result, has inspired academic librarians to engage in renewed reflection and conversation about the nature of information literacy and its instruction. At this writing, the Framework is still a work in progress. Multiple drafts have been circulated among librarians, feedback has been elicited, and the final revisions and submission to ACRL are expected to be completed in a few months.

Although the Framework is still a draft document, most librarians are beginning to consider how the new Framework and the anticipated “sunset” of the Standards will impact both their information literacy instruction and assessment efforts. The Task Force has acknowledged that the Framework is a significant change from the previous Standards. The Standards outline competencies, skills, and outcomes that students need to achieve in order to become information literate. In contrast, the Task Force has organized the new Framework around six frames, each centered on a “threshold concept” they determined to be an integral component of information literacy. For many librarians, threshold concepts are unfamiliar constructs, represent a different way of thinking about instruction and assessment, and require a concerted effort to integrate into practice.

It's All About Threshold Concepts

Threshold concepts are core tenets in a particular discipline that are transformative, irreversible, integrative, bounded, and potentially troublesome (Meyer and Land, 2006, 7-8). Threshold concepts are often given context by a profession; they are frequently explained as the concepts required to “think like” an economist, doctor, or mathematician (Meyer and Land, 2006, 23). They were originally posited by Meyer and Land during a coffee break conversation (Rhem, 2013). In this conversation, the two exchanged ideas about concepts that, when fully understood, change the way students see their discipline and perhaps themselves. Often these concepts are grasped over time and students have to pass through a “liminal” space, or “threshold,” before arriving at an “aha” moment (Rhem 2013). This notion caught on, and other educators have attempted to discern the threshold concepts central to their own areas of study. While some educators have suggested threshold concepts for a particular subject area, no disciplines have yet codified an agreed-upon list. Rather, most educators use the idea of threshold concepts as stimulus for conversing with colleagues or a way of reflecting on their own pedagogy. In information literacy circles, Townsend, Hofer, and Brunetti (2011) introduced the idea of threshold concepts, which the Framework Task Force has subsequently embraced. The Task Force’s

selection of threshold concepts as the central driver of the Standards revision process has been both lauded and questioned, at least in part because the term “threshold concept” is so new to many librarians.

Where Did the Outcomes Go?

In the Framework, each of the six frames includes a threshold concept as well as “knowledge practices/abilities” and “dispositions” associated with that threshold concept. The Task Force clearly states that neither the knowledge practices/abilities nor the dispositions are intended to be used as learning outcomes. The omission of learning outcomes in the Framework may be due to three factors. First, the Task Force made a conscious decision to shift away from the format of the previous Standards document which included over a hundred statements formatted as learning outcomes. Second, the Task Force hoped to make outcomes the purview of librarians working in a local, campus context rather than provide them at a national, profession-wide level.

Third, Meyer and Land, originators of the threshold concept, have provided little guidance on ways to transform threshold concepts into outcomes. At first glance, Meyer and Land do not appear to support pedagogy or assessment based on learning outcomes. Land and Meyer (2010, 66) state, “A one-size-fits-all statement of intended learning outcomes will simply not work” because, they say, it’s impossible to adequately describe a learning goal to students who haven’t yet achieved that goal. In an earlier work, Land et al (2006) state that there are too many different end-points in learning to describe them using outcomes. They assert:

The need for the learned to grasp threshold concepts in recursive movements means they cannot be tackled in an over-simplistically linear ‘learning outcomes’ model where sentences like ‘by the end of the course the learner will be able to’ undermine, and perhaps do not even explicitly recognise, the complexities of the transformation a learner undergoes. It is likely that any course requiring student engagement with threshold concepts and troublesome knowledge will entail considerable...post-liminal variation. Consideration of threshold concepts to some extent ‘rattles the cage’ of a linear approach to curriculum design that assumes standard and homogenised outcomes...We would argue...for the notion of learning as excursive, as a journey or excursion which will have intended direction and outcome but will also acknowledge (and indeed desire) that there will be deviation and unexpected outcome within the excursion; there will be digression and revising (recursion) and possible further points of departure and revised direction. (202)

Whether Meyer and Land believe that outcomes can’t be communicated to students who haven’t already achieved them or that it’s too difficult to write outcomes that capture wide variation at the end point of student learning, they appear to discount a learning outcomes approach to threshold concept assessment. At the same time, Meyer and Land recognize a need for assessment. They write:

If we were to promote a manifesto...to gain evidence of student understanding of threshold concepts as well as helping to promote that understanding, our desiderata would include...new modes of mapping, representing and forming estimations of students’ conceptual formation...a

rich feedback environment offered at the point of conceptual difficulty ('stuckness, the liminal state) as well as in the pre-, post- and subliminal states...a more nuanced discourse to clarify variation and experience and achievement through the various stages of the liminal journey...the possibility of an ontological (as well as conceptual) dimension of assessment...a more meaningful correspondence of students coming to terms with troublesome knowledge and transformation to patterns of grading...[a] simplif[ication] and optimis[ation of] assessment by focusing on threshold concepts as the jewels in the curriculum at programme level, where what are assessed are the key transformative dimensions of a learning programme...[and] a corresponding emphasis on helping students become aware of their learning in relations to threshold concepts. (2010, 76-77)

Based on their writings, one may conclude that the problems Meyer and Land have with learning outcomes are not insurmountable. In fact, threshold concepts are very well suited to learning outcomes assessment, as long as the assessments permit the use of authentic assessment approaches, provide useful feedback to students to help them over the "stuck places", emphasize individual variation in the journey that students travel to achieve them, recognize that learners may redefine their sense of self, link learning and grading in meaningful ways, organize programmatic assessment around transformational ideas, and support metacognition. Indeed, Meyer and Land provide a few examples of assessment approaches they believe align well with threshold concept assessment.

What Would Meyer and Land Do?

Meyer and Land offer both broad and specific recommendations for the assessment of threshold concepts. In general, Meyer and Land emphasize the importance of developing a "third ear" (a term borrowed from Ellsworth (1997) or "learning to understand what the students do not understand" (200). They also provide several examples that are more complete, such as pre- and post-test items (Taylor, 2006, 96) and responses to open-ended pre- and post-question prompts (Shanahan and Meyer, 2006, 106). Although these examples take a "snapshot" approach, a strategy they caution against (2010, 62), both techniques are suggested as ways to gain "insight into the possible source of any associated learning difficulties that students may have in acquiring the concept" (Shanahan and Meyer, 2006, 112) and locate "students' articulation of a threshold concepts within a troublesome framework...[and] track progression of their understanding of the concept over time" (Shanahan and Meyer, 2006, 113). Meyer and Land also raise concerns about assessments in which students engage in mimicry (2010, 73) or "produce the 'right' answer while retaining fundamental misconceptions" (2010, 62). In order to address these concerns, they recommend assessments that take a declarative approach, where students represent their knowledge. An example of this approach is concept mapping, which enables educators to "(a) discover what each student knows (rather than trying to anticipate it); (b) show what knowledge a student possesses, and illustrate how that knowledge is arranged in the student's mind; (c) move from traditional 'snapshot' testing which often focuses on isolated ideas rather than developmental thought or affective processes, and (d) recognise that some ideas may be resistant to change, but interrelationships with other ideas may be more fluid" (2010, 64). Land et al also support "think aloud" assessments that help externalize learning processes (2010, 65) and encourage metacognition (2016, 201). Examples include "diarised forms of assessment, portfolios, logs, patchwork

texts, sequential conceptual mappings...and blogs” (2010, 70). They hope that these assessment approaches will not only help identify the “stuck places” students encounter on the liminal journey to grasp a threshold concept but also help students begin to shift their sense of self from being students of a discipline to becoming practitioners of that discipline. While Meyer and Land’s limited literature on the assessment of threshold concepts does not provide substantial, detailed guidance, it does demonstrate their belief that threshold concepts are assessable using approaches familiar to librarians.

Ok, So Now What?

Because the new Framework differs substantially from the Standards—in conceptual underpinnings, areas of emphasis, document structure, and level of detail—librarians intending to use the Framework to teach and assess information literacy frames may benefit from a roadmap to launch their efforts.

Step 1 – Get Inspired

While the proposed Framework is organized around six frames, each focusing on one threshold concept, the Task Force has stated that the list should not be considered exhaustive and that additional threshold concepts may be added in the future. ACRL reviews this type of document every five years, but librarians need not wait for a formal Framework review to adapt the threshold concepts for their campus environment. Indeed, librarians should feel comfortable adjusting and amending the Framework to suit their needs. For example, librarians could—through collaboration and conversation with colleagues, students, and other stakeholders—identify additional threshold concepts or merge existing ones. They may choose to expand beyond a strict threshold concept definition and add additional “big ideas” or “enduring understandings” (Wiggins and McTighe, 2005, 342) that are worth teaching and may better fit student needs. Librarians could also work with disciplinary faculty to identify threshold concepts in the disciplines, then seek opportunities to work together to teach those disciplinary threshold concepts, especially when they merge with information literacy, research, and critical thinking concepts. Essentially, librarians can use the Framework as inspiration to focus on concepts, rather than exclusively on tools and techniques, and those concepts can be added or subtracted as student and faculty needs change.

Step 2 – Bite the Bullet

After identifying and prioritizing the threshold concepts or additional “big ideas” they wish to teach, librarians need to transform those concepts into learning outcomes. Learning outcomes are essential for good teaching; they establish the content of instruction, provide a framework for designing pedagogy, and drive meaningful assessments. Because the Framework does not include learning outcomes, librarians face the challenge of developing their own. This level of freedom comes hand in hand with a level of ambiguity...and where there is ambiguity, there can also be a fair amount of difficulty. Learning outcomes can be challenging to construct, but once librarians master outcomes language, they can be composed quickly and easily. After all, outcomes describe what librarians hope students will know or be able to do as a result of instruction. Most librarians have an intuitive, if not articulated, sense of what that is!

There are several formulas for writing outcomes. At the simplest level, outcomes follow the structure: “The student will be able to +ACTIVE VERB...” For example:

- **The student will be able to map** linked citations representing scholarly conversation on a topic. (Scholarship is a Conversation)
- **The student will be able to list** areas of consensus and disagreement among publications on a topic. (Research as Inquiry)
- **The student will be able to brainstorm** characteristics of authors deemed as trustworthy on a topic. (Authority is Constructed and Contextual)

Librarians searching the outcomes literature will find more complex formulas as well. Some educators prefer to use the ABCD structure, which includes the audience (student), behavior (task or ability expressed as a verb), condition (under what circumstances), and degree (to what extent). Others use the IOT structure, which adds an “in order to” phrase to the end of an outcome statement. None of these patterns are better or worse than the others. The key to an effective outcome is the verb. Verbs should identify behaviors that will demonstrate a student’s level of learning in an observable, i.e., measurable or “judge-able,” way. Verbs that do not call for an observable behavior (e.g., understand, recognize, know) result in outcomes that are not assessable.

Step 3 – Agree or Agree to Disagree

Once librarians translate threshold concepts or other teachable “big ideas” into a list of outcomes, the next step is to determine who has to agree on the list. Outcomes used by just one librarian to guide an instructional session or collaboration with disciplinary faculty may require only the agreement of the few who are actively teaching or assessing those outcomes. However, librarians who wish to build a program-level picture of what and how well students are learning will need to seek and secure agreement of all those who are teaching in the program. If librarians wish to link their outcomes to those taught by other educators on campus, such as disciplinary faculty or co-curricular professionals, then a greater degree of agreement on outcomes, or at least a mapping of linkages between library and other outcomes, is necessary. Librarians who hope to connect their learning outcomes to institutional outcomes, accreditation standards, or professional association documents (e.g., AAC&U VALUE rubrics), will need to seek and even greater level of agreement. In short, the greater the reach of an outcome, the more important it is that the stakeholders impacted by that outcome support it.

Step 4 – Teach Backwards

Once librarians write and agree upon outcomes, they can commence instructional design activities. Following the precepts of the Understanding by Design model (Wiggins and McTighe, 2005), outcomes drive the design of both pedagogy and assessment. Beginning with the end (outcome) in mind, librarians should ask themselves two questions: How will I know students have achieved the outcome? What could students do to show me they’ve achieved it? The answer to those questions guides both the teaching methods and the assessment approach. Using the example outcomes offered in Step 2, students might demonstrate their learning by:

- Sketching a map of citation links among articles, highlighting articles that are frequently cited or never cited, then writing a brief explanation of the relationships among articles and how those relationships inform their choice of articles to use in their own academic work. (Pedagogy = sketching and explanation; Assessment = collection and analysis of sketches and explanations.)
- Drafting a list of areas of consensus or disagreement among websites provided on a topic, highlighting relevant website content, then discussing their lists with peers in small groups and reporting out to the large group. (Pedagogy = listing, discussing, and reporting; Assessment = observation and analysis of lists and report outs.)
- Brainstorming author characteristics that indicate trustworthiness on a particular topic as a large group, collaborating to generate characteristics posted and shared with all students, then applying characteristics to the output of students' independent search results. At the close of instruction, reflecting on how one characteristic was used to improve their search. (Pedagogy = group brainstorm, list creation, application to individual tasks; Assessment = analysis of group-generated characteristics and individual reflections.)

What do all these examples have in common? They all employ active learning strategies...which are simultaneously active assessment strategies.

Step 5 – Draw the Map

Librarians who design instruction realize quickly that each teaching and assessment event needs to be analyzed in the context of other teaching and assessment activities. Instruction should build upon concepts and skills students already know and minimize needless repetition of mastered content. In order to scaffold instruction properly, librarians can analyze both student needs and academic requirements. Librarians may ask themselves: What do students already know? What do they need to know to complete their assignments? To prepare for goals beyond their current program of study? To answer these questions, librarians can identify information literacy and discipline-based threshold concepts, conduct needs assessments, analyze academic requirements, sketch the curricular structure of their institutions, and learn about typical trajectories of graduating students. Armed with this information, librarians can begin to develop curriculum maps merging student learning opportunities and library instruction activities; such maps will facilitate strategic decision-making.

Step 6 – Get Real

Armed with overarching threshold concepts, measurable outcomes, and a curriculum map, librarians can begin to consider their options for deploying instruction. Instructional options include assignment-focused “one shots” (single or serialized), orientations, online tutorials, reference desk interactions, research consultations, collaborative course or assignment design, course-integrated or embedded instruction, and for-credit classes. Certainly, some options are more flexible, scalable, or manageable than others. But all approaches can be utilized to teach threshold concepts and other “big ideas” via outcomes and active learning/assessment strategies.

Step 7 – Hunt and Gather

In order to teach well, librarians need to actively engage students in learning. In order to assess well, librarians need to identify and collect evidence of those active engagements. Librarians who want to know whether or not students have achieved learning outcomes—and ultimately grasp threshold concepts—need to find ways to observe and analyze students’ learning process or products that result from that process. In other words, librarians need to capture artifacts of student learning, either in real time (dynamic) or in document (static) form.

In the past, librarians have used a variety of approaches to collect evidence of learning (Oakleaf, 2008). With the advent of the Framework and its emphasis on concepts rather than skills, librarians will be less served by employing survey and fixed-choice test questions and best served by eliciting performance assessments. Performance assessments may include research logs, reflective writing, “think alouds,” self or peer evaluations, research drafts or papers, open-ended question responses, bibliographies, presentations, posters, performances, portfolios, worksheets, and concept maps. These assessments may be analyzed qualitatively or quantitatively, and they may be used formatively (to give feedback to learners and help librarians revise teaching strategies quickly) or summatively (to establish what students have learned at some end point, such as the termination of a course or degree program).

Step 8 – Know It When You See It

To assess artifacts of student learning, librarians need to answer a series of questions:

- How will I know when students have achieved an outcome?
- What will their artifacts look like?
- What elements am I looking for in their artifacts?
- How well do students need to perform these elements?

Once librarians know what they are looking for in student artifacts, they can develop rubrics to describe the elements, or “criteria,” that demonstrate learning as well as the various performance levels students might reasonably be expected to achieve. Typically, librarians composing rubrics will begin by envisioning a student artifact that demonstrates attainment of an outcome, then work backward to describe typical developmental stages that students pass through on the way to achieving that outcome. When working with threshold concepts, librarians might begin with a description of a student who has achieved the post-liminal stage (in which the student now “thinks like” a member of the community (Meyer and Land, 2006, 23)), then work backward to describe pre-liminal, liminal, and subliminal stages (Meyer, Land and Baillie, 2010, xi), as well as typical “stuck places” (Ellsworth 1997). For example, a rubric assessment may capture students along a continuum of understanding, as they demonstrate “troubled misunderstanding,” “limited understanding,” or “mimicry” of understanding (Meyer and Land, 2006, 24) and as they struggle with forming an identify as a member of a particular learning or professional community. By articulating exactly what librarians are looking for in student achievement of outcomes at each stage in the student journey, rubrics ensure a more valid approach to assessment. When rubrics are “normed” or calibrated for use by multiple raters, they also lead to reliable assessment results (Holmes and Oakleaf, 2014).

Step 9 – Roll It Up & Report It Out

Many librarians need to generate and report the results of their instruction at the programmatic level. Because programmatic assessment reporting requires librarians to aggregate information from multiple librarians, diverse student populations, and a variety of instruction offerings and approaches, it can present a challenge. However, when librarians agree upon a set of outcomes, then code their instructional efforts and assessment data by outcome, they can “roll up” their evidence in a reportable structure. In this way, outcomes can serve as an organizational scheme under which all instruction and assessment that aligns with a particular threshold concept can be grouped together. Logistically, outcomes and threshold concepts can be linked to instruction and assessment using paper methods, a spreadsheet, or full-fledged assessment management system (Oakleaf, Belanger, and Graham, 2013). Over time, librarians can share the results of instruction for each outcome, thus providing an encompassing picture of what threshold concepts have been taught and the degree to which they have been learned. This information can be communicated to librarians and stakeholders, including students, faculty, administrators, and accreditors.

Step 10 – Close the Loop

Ultimately, the goal of all instruction and assessment efforts is to engage in reflective practice (Oakleaf, 2009). Whether assessments demonstrate successful learning or fall short of that goal, the options for using the results are threefold. If the assessment has produced useable results, librarians may choose to 1) celebrate a success, 2) make a decision, or 3) take an action. (Of course, if the assessment itself is flawed and has resulted in spurious data, then librarians should use the experience to improve the next assessment effort.) In most cases, librarians will find themselves making decisions and taking actions to continuously improve their instruction and assessment activities.

The Road Ahead

The new Framework for Information Literacy in Higher Education represents a departure from the old Standards for Information Literacy Competency Standards for Higher Education. The underlying constructs, areas of emphasis, structure, and degree of detail are all dissimilar. The new document is based on broad frames; focused on concepts rather than skills; comprised of threshold concepts, knowledge practices, and dispositions; and abbreviated in length. All these changes will undoubtedly impact librarians attempting to update their instruction and assessment approaches, and therefore, a map for the journey may be necessary. Still, most librarians will recognize the route and many of the stops along the way. The inspiration may have changed, but the road—as circuitous as it is—is well traveled and there are plenty of guides to follow.

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