

From Two to Three Dimensions:

Leading Institutional Curricular Change by Thinking beyond the Assessment “Loop”

*Brandy Whitlock**

Learning outcomes assessment is often described as a cycle, represented by a two-dimensional “loop” that practitioners work to “close,” but such models insufficiently address how indeterminate and adaptive the process actually is. To lead institutional curricular change, learn to re-conceptualize the assessment process, acknowledging how the contexts in which assessment efforts take place influence their trajectories, and more accurately illustrating how learning outcomes, learning experiences, assessment tools, and assessment data impact each other over time.

Introduction

Learning outcomes assessment is often described as a cycle, represented by a circle, where practitioners move through a set of discrete, sequenced phases: first articulating measurable learning outcomes, then designing and deploying learning experiences and learning assessments, and finally using resulting data to support changes to pedagogy and curricula. While the assessment process is often depicted as this two-dimensional “loop” that gets “closed” when assessment data are used to enact changes to curricula and pedagogy, such models insufficiently address how indeterminate and adaptive the learning outcomes assessment process actually is. Leading efforts for curricular change, especially at the institutional level, compels librarians to re-conceptualize the assessment process, acknowledging that the contexts in which assessment efforts take place influence their trajectories, and more accurately illustrating how learning outcomes, learning experiences, assessment tools, and assessment data impact each other over time.

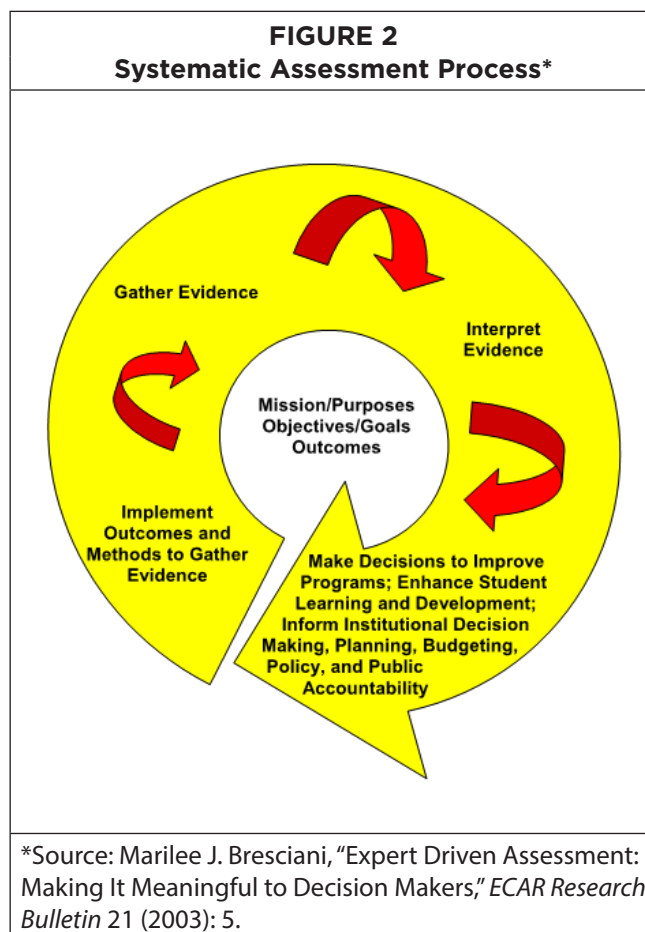
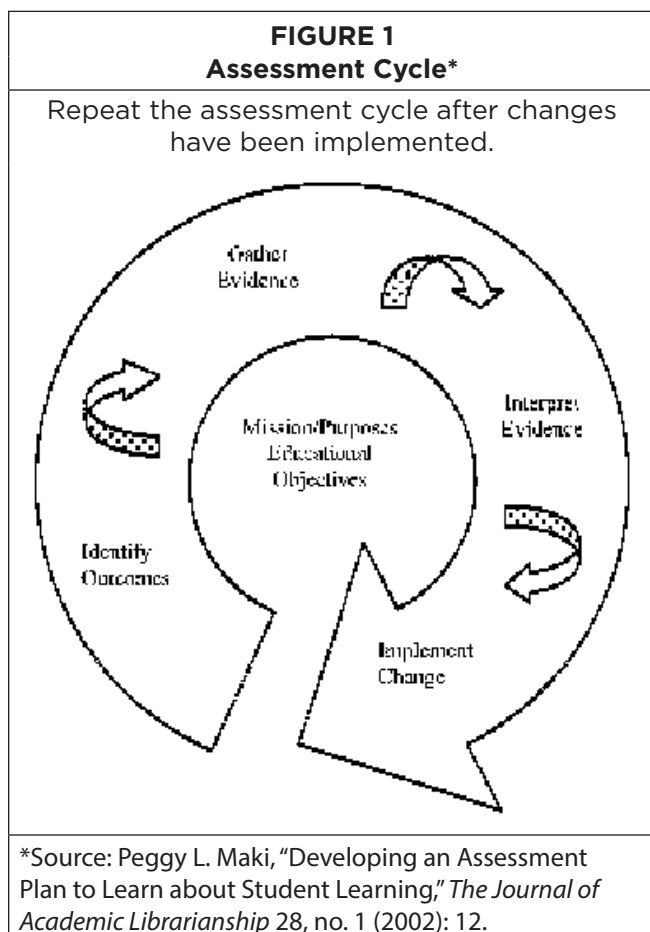
Meant to simplify the assessment process, “loop” models seem most useful for designing and starting an assessment project, but they prove much less functional in supporting a culture of continuous assessment, in large part because the contexts in which assessments take place are always in flux and because “loop” models impose an artificial sequence on the process. The loop suggests, for instance, that instructors would wait until all assessment data were gathered and analyzed before making curricular or pedagogical changes that could positively affect student learning. In reality, even preliminary data can inspire changes in how learning outcomes are articulated, how learning experiences and assessments are designed and deployed, and how data are gathered and used to make decisions. Even the notion that the assessment “loop” gets “closed” suggests the end of one discrete run through a cycle, belying the way continuous institutional assessment can actually function.

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If librarians and other educators continue to use models that inadequately represent the learning outcomes assessment process, we are less likely to be as effective in leading curricular change, especially at levels of assessment that span an institution or multiple institutions. Assessment “loop” models can set up unrealistic expectations by implying that complex processes are much simpler than they are. To engage in the learning outcomes assessment process successfully, librarians must prepare their institutions for the real work ahead of them and must be able to plan and advocate for the resources their work will require. In this paper, the evolution of a new model of learning outcomes assessment will take shape, a model that much more accurately represents the process, a model that should help librarians lead their institutions more effectively in using assessment to optimize information literacy instruction and development. Inspired by an assessment of information literacy across the credit-bearing programs of a community college, the emerging model is designed to speak to all librarians who are advocating for a culture of continuous, meaningful assessment at their institutions.

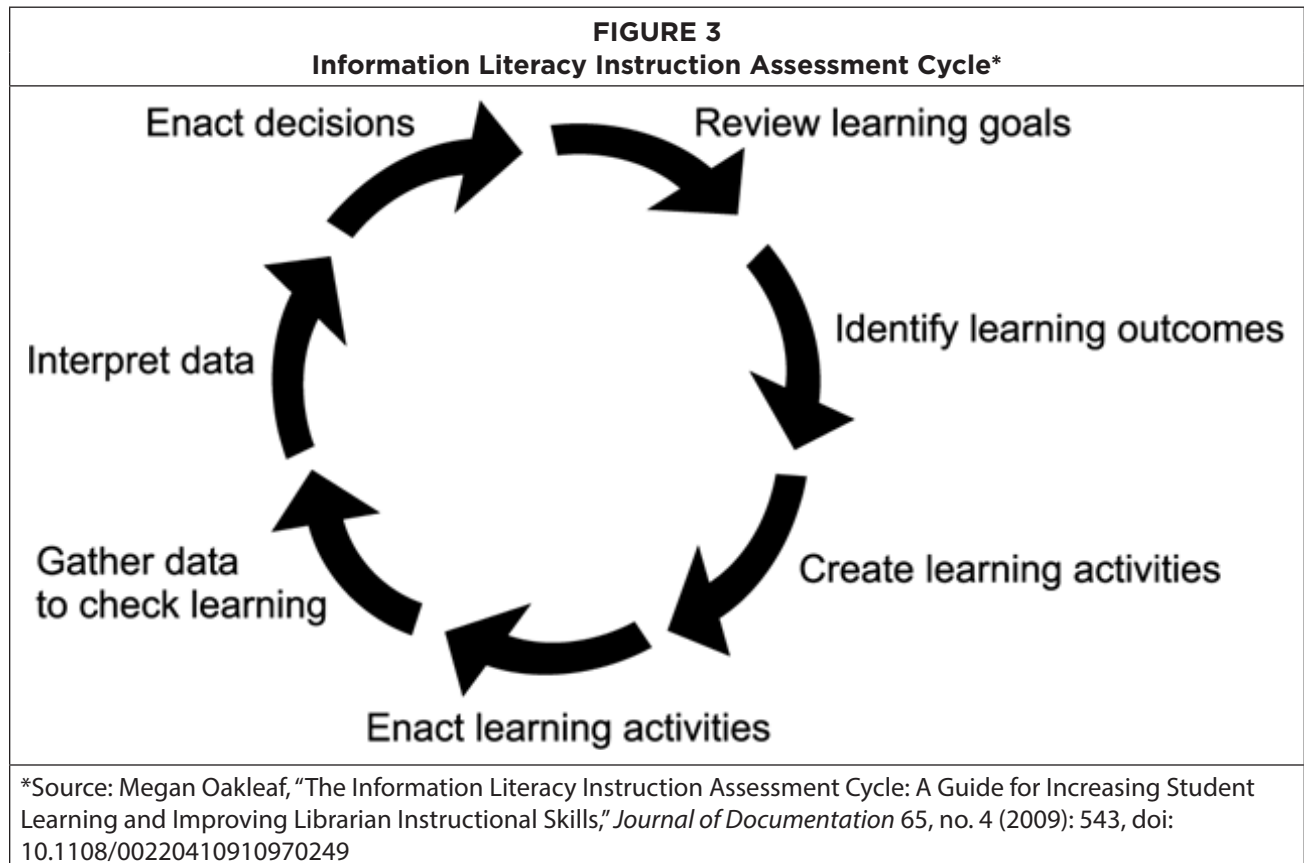
The Assessment Cycle in Librarianship

Depictions of the assessment cycle as a “loop” are now common in the literature of education and librarianship, though explications of the steps that comprise the assessment cycle continue to evolve. In 2002, Peggy L. Maki proposed a four-step assessment cycle that consisted of identifying objectives, gathering evidence, interpreting it, then implementing changes, and Maki showed this assessment cycle revolving around educational missions, purposes, and objectives.¹ See figure 1. In 2003, Marilee J. Bresciani expanded Maki’s some of Maki’s labels, describing the first step of the assessment process as a time to “implement outcomes and methods to gather



evidence,” and providing much more detailed language for the fourth, final step, when practitioners “make decisions to improve programs; enhance student learning and development; [and] inform institutional decision making, planning, budgeting, policy, and public accountability.”² See figure 2.

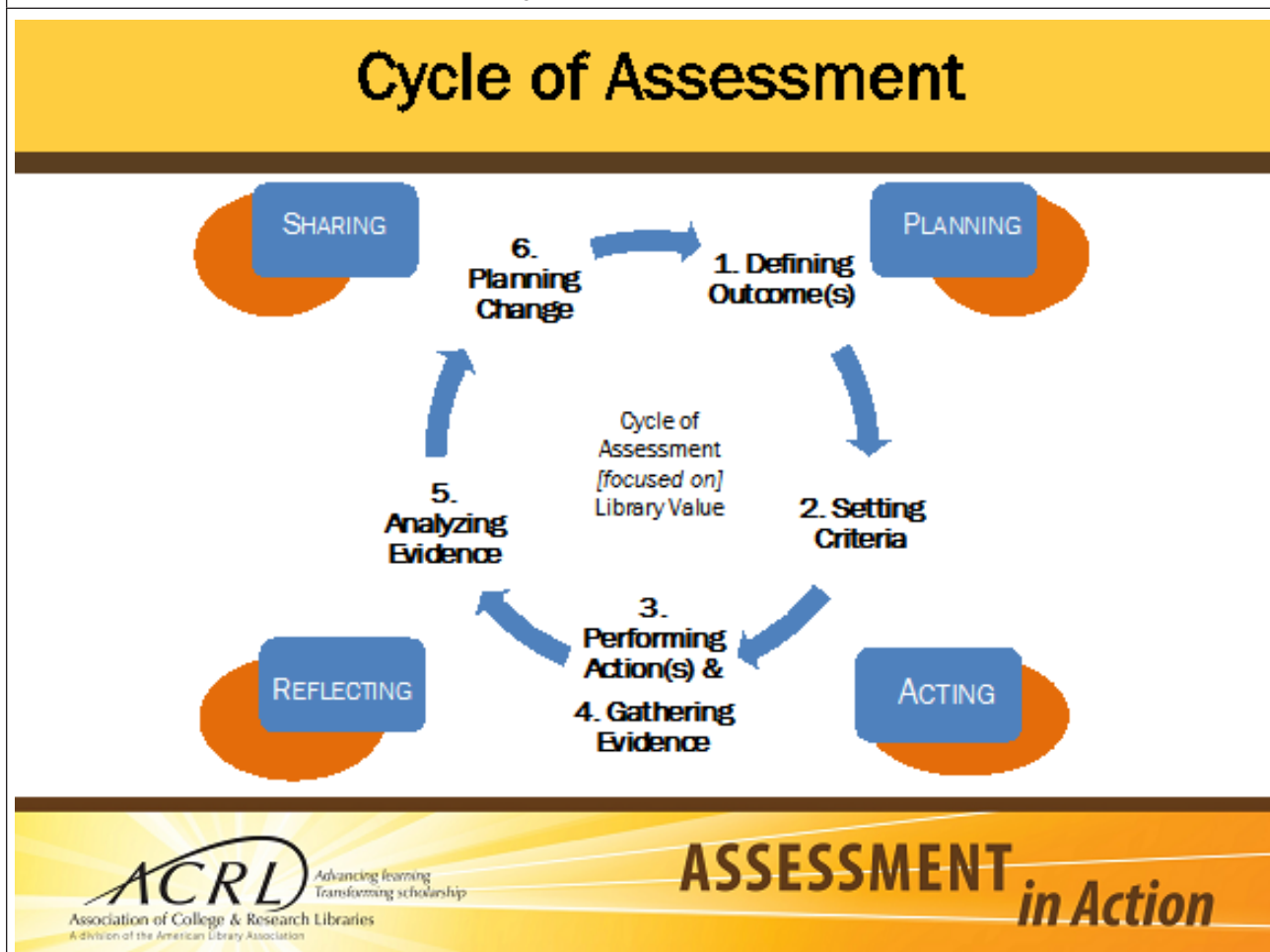
Building on the work of Maki and Bresciani, in 2009, Megan Oakleaf published her influential Information Literacy Instruction Assessment Cycle (ILIAC), a model “tailored to the needs of academic librarians.”³ See figure 3. In Oakleaf’s ILIAC, the assessment process has seven stages: reviewing learning goals, identifying



learning outcomes, creating learning activities, gathering data to assess learning, interpreting data, and enacting decisions.⁴ In 2013, Julie Nanavati and I, with learning outcomes at the center of the cycle, presented five steps for the learning outcomes assessment process: “articulating learning outcomes,” “designing learning activities and assessments,” “establishing evaluation criteria,” “deploying activities and implementing assessments,” and “reflecting and revising.”⁵ More recently, the facilitators of ACRL’s Assessment in Action program have presented the assessment cycle to the program’s participants as six sequential steps, situated into four stages: in the planning stage, outcomes are defined and criteria set; moving into the acting stage, activities are performed and evidence gathered; shifting into the reflecting stage, data are analyzed; leading to the sharing stage, when changes are planned.⁶ See figure 4.

In each of these representations, the graphic used to depict the outcomes assessment process presents each step as discrete and consecutive, although most practitioners are well aware that the process “is much more complicated.”⁷ Oakleaf, for instance, augmented her basic graphic for the assessment cycle with additional “layers” to demonstrate that the process is not, in practice, a strictly linear cycle. In her depiction of a “reporting layer,” Oakleaf recommends that, during the steps when data are interpreted and decisions are enacted, librarians should

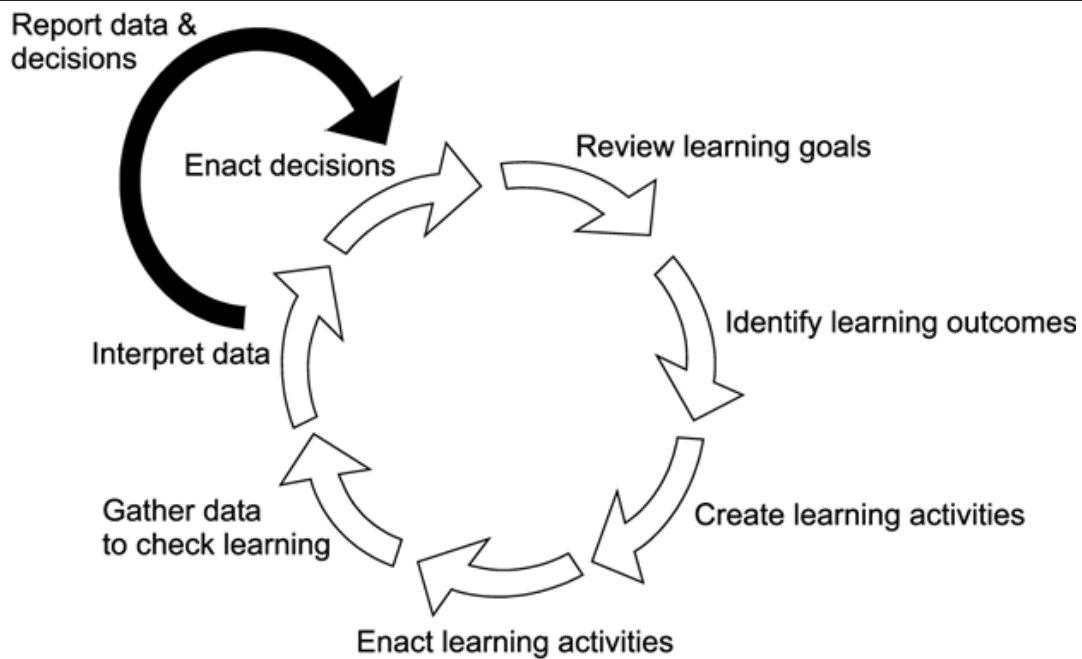
FIGURE 4
Cycle of Assessment*



*Source: Lisa Janicke Hinchliffe, "Assessment in Action: Academic Libraries and Student Success," Association of College & Research Libraries Online Open Forum, February 10, 2015, <http://connect.ala.org/files/ACRL%20open%20forum%20Feb%202015%20web.pdf>.

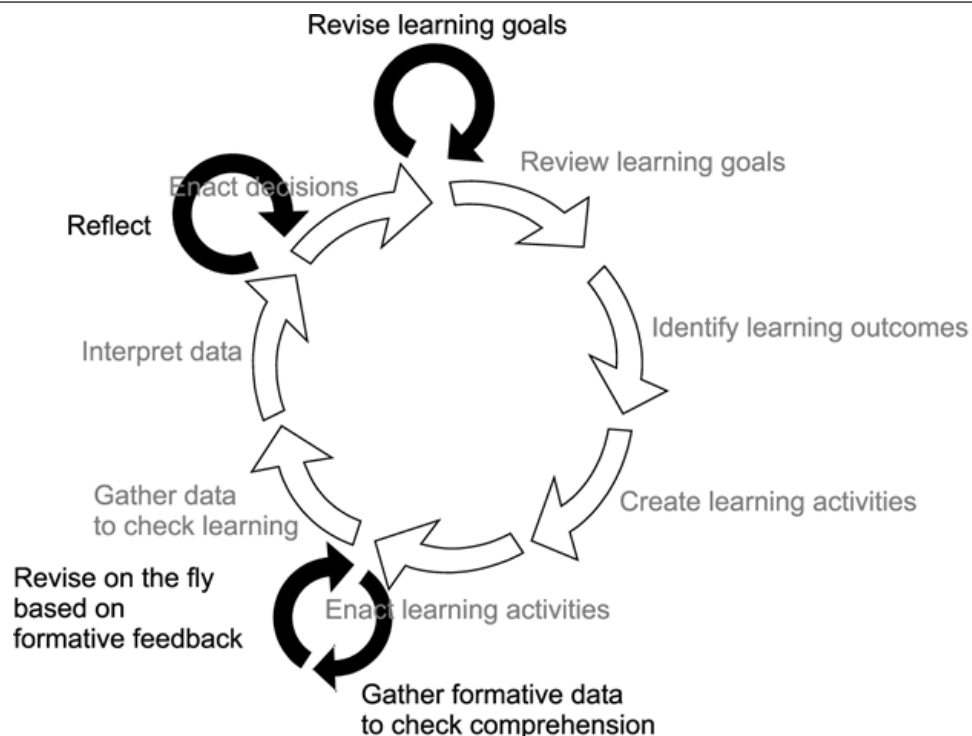
take advantage of opportunities to share those data and those decisions with other stakeholders.⁸ See figure 5. The "reflective revision layer" identifies a few places in the assessment cycle for reflecting and enacting changes between steps. For example, between the step when learning activities are created and the step when data are gathered to check that learning, Oakleaf sees an opportunity to "gather formative data to check comprehension" and to then "revise on the fly based on formative feedback."⁹ See figure 6. When possible, assessment data should inform teaching practice right away: after all, "[e]ven if the assessment process had an end, which of course it doesn't, no one would wait until then to begin reflecting and revising."¹⁰ Facilitators for the Assessment in Action program acknowledge that the goal of the assessment process is to drive decisions—that is, "to inform practice"—and they see the assessment process as "action research" in part because it is an "emergent" process, one that is "iterative rather than linear," which "can feel messy and unpredictable," where "initial data analysis may change the research question itself."¹¹ Each step in the assessment process presents an opportunity to reflect on all previous steps and to make changes if they're seen as beneficial to student learning, which two-dimensional cycle or "loop" illustrations are unable to adequately represent.

FIGURE 5
ILIAC with Reporting Layer*



*Source: Megan Oakleaf, "The Information Literacy Instruction Assessment Cycle: A Guide for Increasing Student Learning and Improving Librarian Instructional Skills," *Journal of Documentation* 65, no. 4 (2009): 545, doi: 10.1108/00220410910970249.

FIGURE 6
ILIAC with Reflective Revision Layer*



*Source: Megan Oakleaf, "The Information Literacy Instruction Assessment Cycle: A Guide for Increasing Student Learning and Improving Librarian Instructional Skills," *Journal of Documentation* 65, no. 4 (2009): 544, doi: 10.1108/00220410910970249.

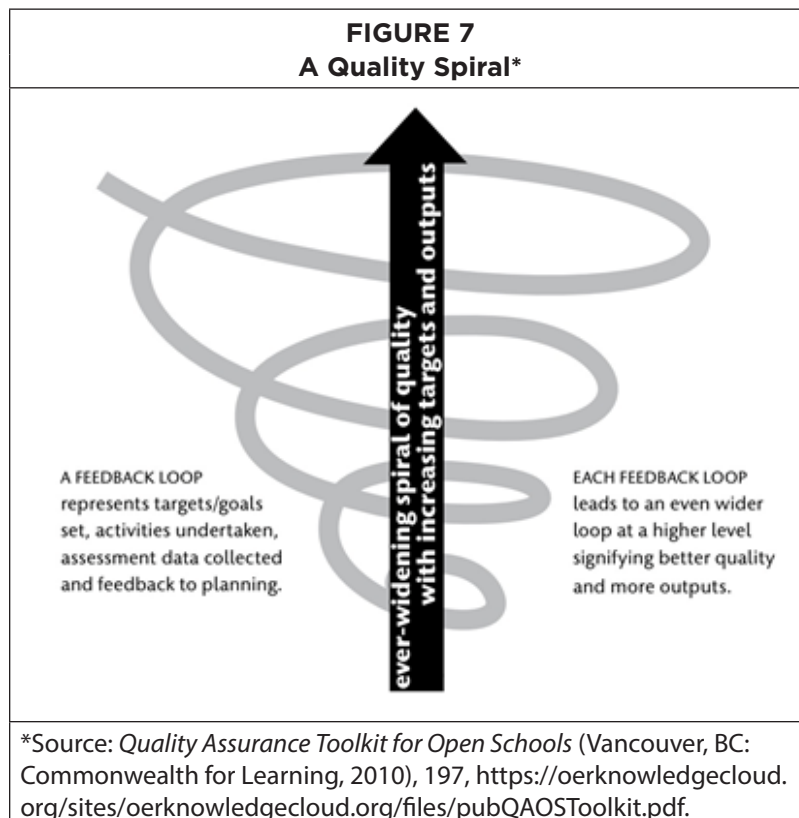
In each of these graphical depictions of the learning outcomes assessment process, the assessment cycle begins with practitioners describing learning outcomes, ends with them making informed changes to pedagogy and practice, and begins again with describing learning outcomes. Maki argues that once changes are made “to improve the quality of education, the assessment cycle begins anew to discover if proposed changes or innovations do improve student achievement.”¹² This part of the process has come to be known as “closing the loop” on the assessment cycle. According to Oakleaf: “To close the loop, librarians move from enacting decisions to a new review of learning goals. This process ensures improvement by continuing the assessment cycle.”¹³ Academic articles discussing how imperative it is to close the assessment loop are proliferating, from assignment-level assessments to institutional initiatives, providing tips and examples for success, as well as warnings and examples of pitfalls, and many of the titles of these articles speak to the anxieties educators experience around assessment efforts. “Collecting Dust or Creating Change: A Multicampus Utility Study of Student Survey Results,”¹⁴ for instance, and “Closing the Loop or Jumping through Hoops: The Impact of Assessment on the Legal Studies Curricula”¹⁵ both speak to concerns that assessment efforts can create little more than busy work, especially for faculty, and may not do much to drive decisions that can create positive changes in student learning. The cycle graphic suggests that if you’re unable to close the assessment loop, you’ve gotten off track somehow, and it gives the impression that the assessment process may amount to little more than running in circles.

Other Representations of the Assessment Process

While it’s understandable that depictions of the learning outcomes assessment process that present it as a simplified, two-dimensional cycle could be helpful when starting an assessment project or program, what looks like a circle in two dimensions, when seen in three dimensions, can turn out to be the cross-section of a column or a coil. Catherine M. Wehlburg conceives of an “assessment spiral” that moves always upward and toward improvement,

where each rotation around and up the spiral presents another tier achieved toward “the quality of student learning.”¹⁶ Stephen “Mike” Kiel, Natalie Burclaff, and Catherine Johnson describe this model “as an alternative to the assessment cycle,” one that demonstrates “that assessments should be ongoing but also need to be progressive and improve the quality of student learning instead of circling in a stagnant loop.”¹⁷ A graphic depiction of Wehlburg’s assessment spiral is presented in *The Commonwealth of Learning’s Quality Assurance Toolkit for Open Schools*, recast as “A Quality Spiral.”¹⁸ See figure 7.

As an aspirational model, Wehlburg’s “assessment spiral” works well enough, but the implication that the assessment process should always achieve improved student learning sets up unre-

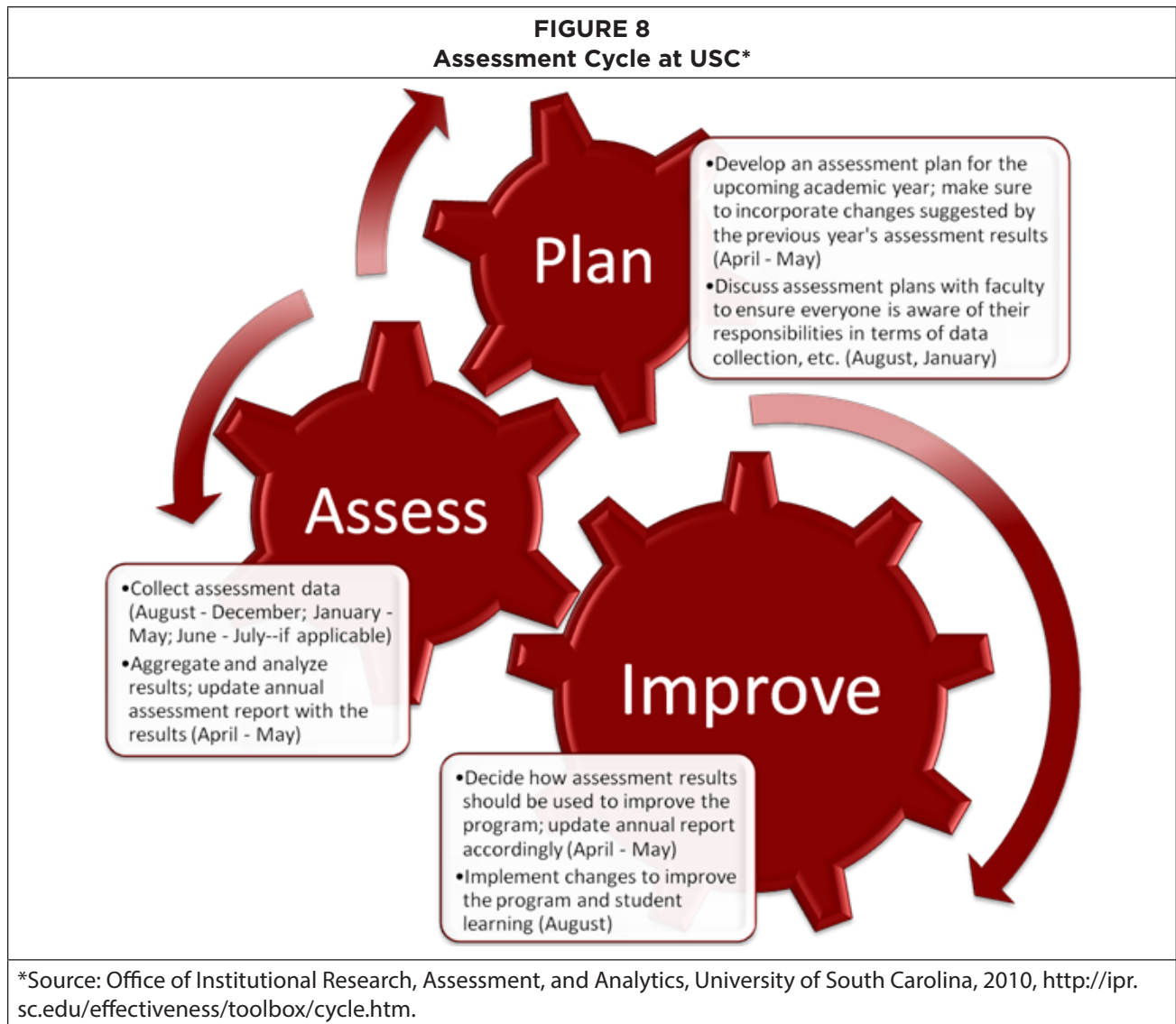


alistic expectations that, when not met, can frustrate efforts to foster a culture of assessment. For a number of reasons, even compelling assessment data might not be used to drive changes in pedagogy or curricula, or it could be that the changes enacted based on assessment findings might not actually improve student learning, at least not right away. When the assessment process works well, it can pinpoint where improvements might be needed, but it can't guarantee that efforts toward improvement will work. It may be that no possible interventions *can* improve a specific outcome, given the specific learning environment in which those interventions are deployed. While the goal of assessment is always improved learning, we don't always achieve it right away, and, sometimes, for some things, we are simply unable to move the needle much, if at all. What if the learning experiences we plan and deploy consistently produce desired learning outcomes in all of the students we measure for a number of assessment cycles? The "assessment spiral" model would imply that continuing the assessment cycle in this case would lead nowhere because there's no measurable improvement in student learning. Participants in a culture of assessment, though, understand the need for continuing assessment efforts even if they don't lead right away to measurable improvements in student learning. The process of assessment works to more fully align desired learning outcomes with learning experiences and assessment tools, improving how we articulate what we do and how we measure what we do, even if the process doesn't lead to improving a particular learning outcome demonstrably.

Even though perfect scores can't get better, the processes that produce those scores should be monitored and improved, especially when, with every iteration of the assessment process, aspects of the learning environment can change profoundly. Institutional priorities, strategic plans, licensing and accreditation standards, and the kinds of learning outcomes, learning experiences, and assessment tools in vogue in disciplines, departments, and higher education institutions can all significantly affect the learning environment in which learning outcomes assessment takes place, affecting, in turn, the results of assessment efforts. Especially for institutional and programmatic outcomes, but often, too, for library instruction session outcomes, the very students whose learning we attempt to measure change with every iteration of the assessment process, and those different student cohorts may come with substantially different prior learning experiences that can affect our assessment results. The same learning activities may not produce the same outcomes from subsequent generations of students or from students in different programs. Just by taking place at a different time, later learning experiences and assessments, especially at the institutional and programmatic levels, are deployed in a different learning environment. Wehlburg's "assessment spiral" model, however, does not account for the effects of a constantly changing learning environment on the process of learning outcomes assessment.

An interesting feature of Wehlburg's "assessment spiral" is that it can represent a widening or narrowing focus of assessment efforts, depending on the scope of those efforts at a particular institution, where the diameter of top of the spiral fluctuates in much the same the way that the mouth of a funnel cloud can expand and contract: "the spiral has the potential to increase its width as it moves upward, indicating that we can pull in additional outcomes, measures, and units within the institution, providing the potential for integration."¹⁹ Specific assessment efforts, even within the same institution, aren't always integrated with each other, though, or even known to each other, so putting these efforts under the same umbrella is also more aspirational than descriptive. Equally aspirational, Wehlburg's spiral model keeps intact the linearity of the "assessment loop," continuing to imply discrete, successive steps, belying what is instead a highly recursive and open-ended process.

The University of South Carolina's Office of Institutional Research, Assessment, and Analytics presents a compelling image of the assessment process as a set of interlocking gears, where planning and assessing activities drive each other and where assessing and improving drive each other.²⁰ See figure 8. There's no direct connection between improving and planning, though, whether assessment in the image powers both planning and

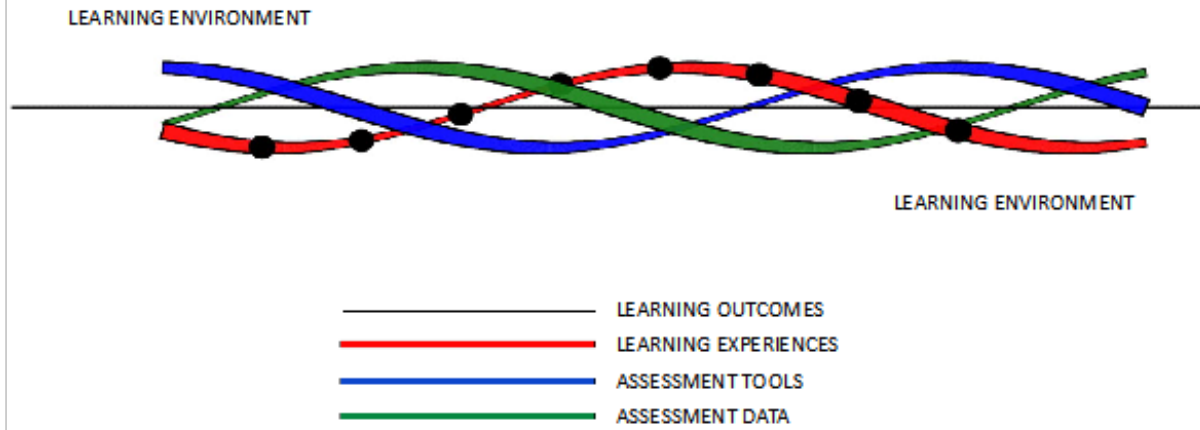


improvement, or whether planning powers assessment, which then powers improvement. Though the graphic is two-dimensional, and though it doesn't account for the effects that a changing learning environment might produce on the assessment process, what's valuable about this illustration is that, unlike cycle or "loop" models, it does not present the process as a consecutive series of distinct steps. Instead, and more accurately, it presents the activities that comprise the assessment process—in this model, planning, assessing, and improving—as working interdependently and all at once.

Toward a New Conceptualization of the Assessment Process

A more accurate representation of learning outcomes assessment would not imply that the process has a beginning and an end, nor would it represent the process as having sequential steps; it would instead emphasize the recursive and indeterminate nature of each move in the learning outcomes assessment process, where each move is understood not only to be an opportunity for reflection and reaction, but also an opportunity to affect the very direction of the assessment process. A more accurate representation would also account for changes in the learning environment, which can shape assessment efforts over time in myriad ways. A more accurate

FIGURE 9
Learning Outcomes Assessment Helix*

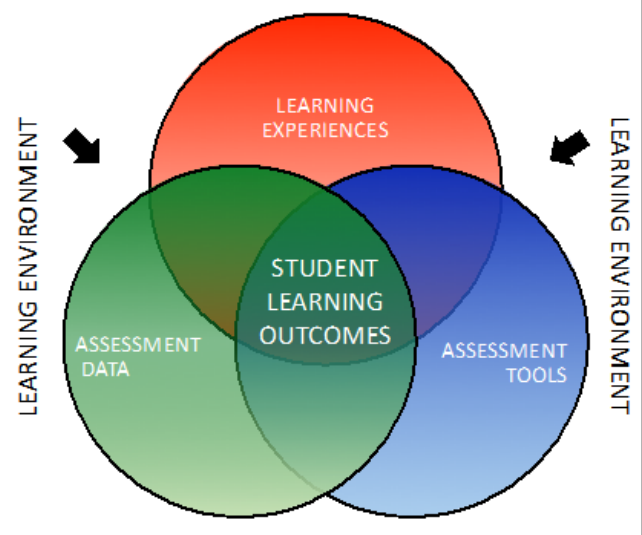


*Source: adapted from Ye Xiang and Michael G. Rossmann, "Model of a Trimeric Super Helix-Turn-Helix Coiled Coil," in "Structure of Bacteriophage Φ 29 Head Fibers Has a Supercoiled Triple Repeating Helix-Turn-Helix Motif," *PNAS* 108, no. 12 (2011): 4808, doi: 10.1073/pnas.1018097108.

model would locate learning at the center of the assessment process, and would allow for the fact that deploying learning experiences, implementing assessment tools, and utilizing assessment data can be both synergistic and simultaneous.

A simple graphic cannot easily represent a complex process like learning outcomes assessment, but it may be that providing both a three-dimensional view and a two-dimensional cross-sectional view of the process would prove to better approximate what learning outcomes assessment looks like in practice. In three dimensions, the learning outcomes assessment process resembles a triple helix, where lines representing learning experiences, assessment tools, and assessment data coil around the axis of learning outcomes. See figure 9. In a helix model, these perpetually interlocking strands act on the trajectory of the assessment process as it moves through time, making apparent the interaction and interdependence of learning experiences, assessment tools, and assessment data toward achieving learning outcomes. The space around the helix symbolizes the learning environment, which can place pressure on any aspect of the assessment process and can also influence the direction in which the helix grows. Any point along the helix signifies a unique place and time in assessment process and the learning environment. In two dimensions, the cross section of a triple helix is often displayed as a Venn Diagram, which can help illustrate that, to realize student learning outcomes, learning experiences, assessment tools, and assessment data can work together in any given moment. See figure 10.

FIGURE 10
Learning Outcomes Assessment Helix Cross Section



Not only is it able to represent more comprehensively and accurately the activities and influences involved in the learning outcomes assessment process, the helix also has more constructive associations than other models put forward. The connotation of a spiral is that it takes a descending motion or negative direction. Phrases like “downward spiral,” “spiraling out of control,” and “death spiral” don’t have positive overtones. Unlike “loop” models, a helix allows for the representation of increasingly progressive elements, but it does not imply directionality the way a spiral might: a helix can grow in any direction, even back on itself. The visualization of completing a loop or cycle is reminiscent of watching a tire spin, not necessarily moving anything forward, and images of gears and cogs can signal drudgery and banality. A helix, though, is the shape of DNA, the foundational information for life as we know it. The helix embodies an evolutionary, open-ended process, that, by its nature, is perpetuated and shaped by the environment in which it operates.

Why Is This Important?

Now more than ever, we need to know if our students are learning what we intend to teach them: if they can find relevant data, if they can distinguish between reliable information and propaganda, if they can think critically about information and use information to think critically. Living in what seems like the age of the internet meme—memes that are frequently, to be generous, misleading—in what Alessandro Bessi and Walter Quattrociocchi call “The Age of Misinformation,” it’s evident that people often do very little to verify the information they share with others and that they don’t much care if the information they share is factual or reliable so long as it expresses their opinion or worldview,²¹ until misinformation works like a virus, not just infecting aspects of political culture, but also influencing trends in economics, education, and public health, and ultimately calling into question the efficacy and the very existence of facts. What happens when facts do not have the effect of swaying the opinions of large swaths of people? How can we ever come to consensus or compromise in order to act in the best interests of our citizenry, of humanity, and of our world at large if we can’t even agree on what the facts are? The World Economic Forum identifies the “post-truth debate,” as one of three main trends undermining democracy in 2017,²² pointing out that “post-truth”—defined by the Oxford English Dictionary as “relating to or denoting circumstances in which objective facts are less influential in shaping public opinion than appeals to emotion and personal belief”—was chosen as its 2016 word of the year.²³ At this historical moment, it is crucial that librarians and other educators intensify efforts to make sure students are learning to find, value, and use the most reliable information available.

If librarians want to lead curricular change so that educators can more effectively address this pressing need for students to develop and display ever more sophisticated levels of information literacy, we must be ready to help steer information literacy assessment efforts across campus. Through participation in Assessment in Action projects and other assessment initiatives, many librarians have become active contributors, if not leaders, in a culture of assessment at their institutions and will now have more influence on the curricula and pedagogies meant to develop students’ information literacy. As librarians become more embedded in the learning outcomes assessment efforts of our institutions and of our profession, we can advocate more urgently for information literacy curricula and assessment in courses, in programs, and across our colleges and universities. To help build and sustain a culture of assessment that survives even when institutional and departmental priorities and strategies change, and even when student learning outcomes assessment efforts appear, at times, to show few or no measurable gains in learning, librarians must be equipped with the best models for representing the assessment process. In a culture of assessment, we are always already assessing, and models truly representative of the practice of assessment have to account for its recursiveness and open-endedness, as well as a constantly changing learning environment, all of which can be made much more apparent when we move our view of the learning outcomes assessment process from two to three dimensions.

Notes

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