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Refining an Approach to Assessment for Learning Improvement

Assessment of student learning is typically undertaken with at least two goals in mind, accountability and improvement. This dichotomy of purpose has dogged assessment from the outset (Ewell, 2009) and contributed to conflicted or incomplete ends. As Banta and Palomba (2015) concluded, assessment undertaken primarily to comply with accountability demands does not usually result in campus improvements. Although the accountability aim of assessment is self-evident, the improvement goal is more elusive. What sort of improvement does assessment facilitate? Does any action on assessment results qualify as achieving the improvement goal? More to the point, do we have good evidence of learning improvements from assessment? It is well established that the greatest challenge in the assessment cycle is in “closing the loop,” or taking action on assessment results and then measuring the difference on the intended outcome (Banta & Blaich, 2011; Kuh, et al., 2015). Moreover, opinion pieces have questioned whether assessment activities make any difference to student learning at all (e.g., Gilbert, 2018).

Although we concede that there is limited evidence of improved student learning as a result of assessment, evidence exists that assessment has informed changes in colleges and universities. In a nationwide survey of assessment practice about two thirds of provosts (64%) provided examples of changes made in policies, programs, or practice informed by assessment results (Jankowski, Timmer, Kinzie, & Kuh, 2018). In addition, most accreditation self-studies, annual assessment reports, and volumes of case studies on assessment practice document that assessment results inform course, program, and institutional changes. Yet, these documented changes do not necessarily equate to evidence of improvement in student learning.

In this article we take up a particular aspect of assessment for improvement by asserting the need for greater attention to the strategies for realizing and documenting learning improvement. By *learning improvement*, we mean evidence from indirect and

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direct measures and reassessment that supports substantive student learning improvement due to program modifications (Fulcher, Good, Coleman, & Smith, 2014). Student learning improvement can be declared only after reassessment demonstrates a positive effect on student learning. The closing-the-loop change—the action taken by faculty or other stakeholders—can be considered an improvement only if it had a positive effect on student learning. We address these points by suggesting a structure for discussing change and student learning improvement.

The Need to Distinguish Assessment for Learning Improvement

Although the accountability aim of assessment is self-evident, the improvement goal is more elusive. What sort of improvement does assessment facilitate?

How do we find ourselves needing this distinction about assessment for learning improvement? First, the typical assessment model foregrounds methodological process above almost all other aspects of the assessment cycle. Attention to data collection methods and obtaining sufficient response can overshadow using findings for improvement. To be clear, we all support methodological soundness. Nevertheless, practitioners can fail to see the action and improvement forest from the methodological trees. Second, many assessment models indicate that any changes made by faculty and other stakeholders qualify as closing the loop. There are several, overlapping reasons that likely led us here. The typical assessment report and cycle are structured so that change and improvement are positioned last.

- Extensive scholarship and training in testing and measurement have privileged a focus on methodological design.
- Assessment practitioners may believe that their responsibility ends with disseminating assessment findings.
- Faith that once armed with evidence, faculty or other stakeholders will automatically use assessment findings for improvement—or for any change at all.
- Assessment continues to be solely equated with an evaluation of student performance instead of viewing that evaluation as one part of an assessment-for-improvement process.

Elements of Assessment for Learning Improvement

In this article we take up a particular aspect of assessment for improvement by asserting the need for greater attention to the strategies for realizing and documenting learning improvement.

With these realities as a backdrop, we propose a scheme that foregrounds the student learning improvement dimension of learning outcomes assessment. We intentionally describe this as a “scheme” to build on the idea that it outlines a systematic plan or arrangement for putting a particular idea into effect. Akin to theories of backward design in curriculum development and evaluation theory that asserts the importance of beginning with the end in mind (Patton, 2014), assessment should begin with a focus on shedding light on a vexing issue and a commitment to using evidence to address student and institutional needs and questions (Kuh, et al., 2015). Assessment for learning improvement sets an intention for improvement in student learning from the outset. With the intention of assessment for improvement established, the faculty or the group responsible for making changes aimed at learning improvement, ideally in collaboration with an assessment practitioner, must address the following:

1. Aspect of student learning targeted for improvement
2. Scope of the learning improvement initiative (e.g., course, program, university)
3. Changes in curriculum and/or pedagogy, or experience meant to cause learning improvement
4. Measures and multiple forms of evidence from at least two points in time to evaluate improvement
5. Evaluation and interpretation of improvement evidence

Next, we briefly describe these five elements and provide illustrative examples.

Student learning targeted for improvement

This element is common in a traditional assessment process. In essence, the target should be one well-articulated intended student learning outcome (e.g., an outcome in the area of critical thinking, information literacy, ethical reasoning, or discipline-specific skill, knowledge, or attitude).

Assessment for learning improvement sets an intention for improvement in student learning from the outset.

Scope of the learning improvement initiative

Scope is the level at which student learning improvement is intended. Here are common examples of scope, from smallest to largest:

- Individual Student
- Individual Course Section (i.e., findings are aggregated for the students in a section)
- Course (i.e., findings are aggregated for the students in a course's sections)
- Program (i.e., findings are aggregated for the students or a sample of students in a program)
- College or unit
- Institution, or campus

In all cases the intent is to improve all students' learning within a particular scope. For example, if someone claims an "institution-level" learning improvement effort then the intent is to improve knowledge/skills/attitudes for all their undergraduate or graduate students.

Changes in curriculum and/or pedagogy

For student learning to change or improve, something must be altered in the learning environment. In this element, practitioners identify the strategy(ies) employed to improve learning and state how the strategy(ies) is different from what had been done before. These strategies may include such things as adding scaffolded activities to assignment guidelines, increasing timely feedback to students, incorporating high impact practices, expanding formal faculty-student interactions, and so on.

Measures and multiple forms of evidence

To conclude that student learning improvement occurred, those involved must know learning evaluation results from two points in time, before and after a change designed for learning improvement. Multiple measures, including direct and indirect, and multiple forms of evidence, including quantitative and qualitative, are strongly recommended. Given the focus on improvement, it is important to consider baseline measures, pre-post approaches, and descriptions of initial and modified practices that will lend insight into evaluating the change in student learning or educational processes.

Evaluation and interpretation of evidence

This element refers to the practitioner and faculty (or other stakeholder group) collaboratively evaluating the assessment evidence and reaching a conclusion on whether the strategy(ies) applied led to or contributed to student learning change/improvement. This involves examining the counterfactual and creating a well-reasoned explanation of the relationship between the intended improvement, the changes made, and the evidence collected.

Telling an Improvement Story

The following short examples condense multi-year, multi-phased projects and illustrate the five elements in learning improvement projects.

Example #1 Program-Level Scope for Improvement

The first example highlights improvement of learning regarding a particular learning outcome in Computer Information Systems (CIS). The CIS outcome of *requirements elicitation* is a process of interviewing CIS clients to accurately understand clients' needs with respect to a desired computer system (e.g., a database). In 2014, upon receiving feedback from employers, the CIS faculty began expressing doubt about their students' skills in this important area. The following year they worked with their institution's assessment and faculty development experts. The first step was to carefully define requirements elicitation, which was done in coordination with the creation of a rubric. The rubric included criteria such as the interview opening, visualization, and teamwork. The next step was to collect baseline data; how good were CIS graduating students with respect to requirements elicitation? At the end of the spring 2015 semester the majority of graduating seniors were video recorded in a mock requirements elicitation. On the rubric's five point scale where 1 is beginning; 2, developing; 3, competent; 4, excellent; and 5, experienced professional; the typical elicitation interview was rated as a 2, or developing overall. The beauty of capturing this data via video was that the majority of faculty could see exactly how students (under)performed.

From the start CIS faculty intended to improve students' requirements elicitation skills. However, now they shared a tighter understanding of the construct and students' current skill level. A few months later several faculty members spent a week working with a faculty developer. They looked at the CIS existing curriculum, examined what was currently in place for requirements elicitation, and made massive reforms. In fact, seven courses were modified to have significant requirements elicitation exercises. All students were affected by this new curriculum—each spending tens of hours per semester working on tightly designed assignments with relevant feedback.

In spring 2016 the next cohort was assessed; they had received a year of the new curriculum. The difference between their videos and those of the 2015 cohort were striking. They averaged a 3 on the rubric, or competent, which was statistically significant and the effect size was a Cohen's $d > 3$ (extremely large). The faculty attributed the large gain to the program redesign.

Example #2: Program-Level/Institution Scope for Improvement

An institution's writing program (average three courses, 80 total sections, 1,600 students annually) targeted its student learning outcome, "compose an argument that makes use of source material that is relevant and credible and that is integrated in accordance with an appropriate style guide." A group of course instructors generated a scoring rubric to evaluate papers in which students demonstrated information literacy competency. The assessment practitioner assisted with selecting a sample of students, training the faculty scorers, evaluating the scoring process (including scorer reflections), and summarizing the findings. The baseline finding was 21% of students were "not prepared" for future writing tasks involving information literacy. The department chairpersons and program coordinators of the courses led the meeting at which faculty discussed findings and developed strategies to improve student performance. Subsequent changes included the following: (a) frequent communications by the chairpersons regarding the intended learning outcome and available resources; (b) stronger partnership with librarians and more library workshops offered and attended by students; (c) a recognition by course instructors that students need scaffolded, frequent practice. Reevaluations occurred one year and one and a half years later; findings showed fewer students in the not prepared category: 10% compared to the baseline 21%. The interpretation by involved faculty was that library workshops and more information literacy practice led to the improved findings.

For student learning to change or improve, something must be altered in the learning environment. In this element, practitioners identify the strategy(ies) employed to improve learning and state how the strategy(ies) is different from what had been done before.

Example #3 Institution-Level Scope for Improvement

The first-year seminar, required of all students and a fixture of the general education program, seeks to provide a vital transition experience and help students cultivate the knowledge, skills, and habits of mind necessary for liberal learning through the in-depth study of a topic in a seminar setting. The seminar had been functioning well on these dimensions but new assessment evidence about the quality of student-faculty interaction, levels of academic challenge, and extent to which students felt the seminar provided an opportunity to engage their interests, revealed room for improvement.

With guidance from a first-year seminar task force, the institution outlined a plan to improve the seminar in the following ways: (a) strengthen the connection among students and between students and faculty, (b) amplify the academic intensity of the seminars, and (c) engage students' passions early by enriching the link between assignments and students' interests. To achieve these ends, task force members worked with faculty and peer leaders to create intentional learning experiences to foster interaction, to enhance seminar assignments by adding elements to tap students' passions, and to introduce rigor in writing through the use of a written communication rubric and student reflection exercises. A year following these improvements, the institution's baseline scores for first-year students on the National Survey of Student Engagement (NSSE)—in particular scores for student-faculty interaction and quality of interaction among students and faculty—had increased. In addition, data from an open ended question posed to all students near the end of the seminar, which invited them to describe “What has been most satisfying about your interaction with seminar faculty and classmates, and what has been most disappointing?” revealed specific interaction experiences. To assess the extent to which students engaged their passions in seminar, faculty reviewed student work from an assignment that invited students to express their passion in the context of the seminar topic. Faculty also used a rubric to assess written communication outcomes in this assignment and students were required to reflect on the demands of the assignment and their performance.

The combination of results suggested that the changes made in the seminar were making the intended difference. The strongest indirect evidence was demonstrated in NSSE scores on student-faculty interaction and quality of interactions, which were higher than in past administrations, and the qualitative data, which indicated that students valued the intentional interaction opportunities in- and out-of-the classroom. Faculty members' review of students' performance on the assignment revealed that students were making relatively superficial connections between the course topic and their passion, at low levels of intensity of effort. Yet, rubric evidence demonstrated that students were developing essential habits for first-year student writing. Faculty and administrators interpreted these results to be solid early indicators that the revisions to first-year seminar instructional design and assignments were contributing to the delivery of an enhanced first-year seminar, but that additional work was needed to strengthen the connection to engaging students' passions and academic intensity.

Highlights of the Improvement Story

The five elements and these short illustrations of improvement suggest a structure for strengthening the assessment for improvement goal. The approach begins with a laser focus on what is to be improved; it is followed by greater attention to capturing the actions that are intended to influence the outcome and the assessment evidence that demonstrates whether the changes had the intended effect on the targeted learning outcome. Data collection is important but it is not sufficient in this assessment model. Rather, this structure relies on the assembling of multiple forms of evidence for triangulation—and at its best includes measures from at least two points in time—to evaluate if improvement has occurred. The approaches are also chosen for their alignment with the improvement goal and are designed to detect improvement based on the changes made. Instrument quality matters but it is based on alignment with the intended improvement and suitability for detecting improvement.

Given the focus on improvement, it is important to consider baseline measures, pre-post approaches, and descriptions of initial and modified practices that will lend insight into evaluating the change in student learning or educational processes.

Data alone tell us little; what matters is assessment findings considered among colleagues and in light of the context, and changes believed to lead to improvement. Educators involved with making these changes must consider assessment findings and interpret them based on action taken. Most importantly, the explication of the elements of assessment for improvement provides an approach to addressing the persistent misguided belief that simply providing assessment findings should be sufficient to result in some action for improvement. Improvement goals must be foregrounded in the assessment process and reevaluated.

Advancing Improvement Elements in Assessment Practice

The explication of the five elements of assessment for improvement is meant to advance assessment practice to more fully realize its dual purpose. Animating the improvement elements of assessment is essential to distinguishing if a change is actually associated with an improvement in student learning. Documenting improvement of student learning in colleges and universities is also important to responding to critiques of the value of assessment.

A change is only an improvement through the demonstration of its positive effect on student learning.

Although the five elements of the assessment for improvement model may suggest a linear process, it is more likely to play out as a recursive spiral. Sometimes assessment data might be collected ahead of the identification of the target for improvement, or the changes in curriculum might have been initiated first. What is important to connecting assessment and improvement is to ensure that all five elements are addressed and documented. Telling the full assessment for improvement story requires narrative on all five elements. Toward this end, the elements could be used in two ways: a checklist or an outline for assessment reporting. Using the elements as a checklist could help guide action, pin down facts and eliminate areas of concern, and lead to intentional improvements. Another use of the elements is to consider them as a framework for reporting assessment activities. Imagine an assessment report that demands an account of these five elements. Assessment reports could be framed as stories like the examples shared earlier. Ensuring action on and the accounting of all five elements in assessment helps distinguish between change and improvement. A change is only an improvement through the demonstration of its positive effect on student learning.

Assessment success stories at the national and institutional levels help communicate the value of assessment. We need more focused accounts of assessment that result in real improvements in student learning. To begin building a repository of learning improvement stories, we will be soliciting learning improvement examples. When the call is sent, we encourage you to contribute your learning improvement story and help us elevate the assessment for learning improvement conversation.

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