

Program Assessment: Getting to a Practical How-To Model

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The Association to Advance Collegiate Schools of Business (AACSB) International's assurance of learning (AoL) standards require that schools develop a sophisticated continuous-improvement process. The authors review various assessment models and develop a practical, 6-step AoL model based on the literature and the authors' AoL-implementation experiences. The model creates a sound foundation for compliance with AACSB standards as well as regional accreditation and likely future assessment requirements. The authors present suggestions for successful implementation of each AoL step as well as cautions on possible pitfalls.

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Establishing and supporting a culture of evidence and demonstrating improvement of learning were identified by the EDUCAUSE Advisory Committee for Teaching and Learning as the top two issues facing academic technology professionals in 2007 (Campbell, Olinger, & Colleagues, 2007). In fact, the top four issues all relate to assessment and defining institutional best practices, thus providing evidence that educators are focused more than ever on demonstrating what students are learning in higher education degree programs.

The reasons for the increasing emphasis on assurance of learning (AoL) rather than quality teaching are the following: accountability, competitiveness, and a "held value that this is the right thing to do" (Boyle & Bowden, 1997, p. 111). As the cost of higher education increases, the call for accountability comes from private and public sectors, including the U.S. Department of Education (2006), state governments, regional accrediting agencies, and specific program accreditation groups. In every case the emphasis is now on direct output-based measures (e.g., demonstrating what students learn in different programs), rather than input-based models, such as the number of books in the library or the number of teaching faculty. Competitiveness is also a driver as schools continue to find ways to differentiate themselves in an increasingly global and openly accessible market. Finally, there is an ever present attitude in healthy learning organizations that it is good to know

how well things are going and what can be done to make them better (Boyle & Bowden). What better way to demonstrate that a university is doing well than to show that students are learning what they should be learning in its degree programs?

Although there is a mounting focus on assessing learning, where is the literature that tells us how to do it? A brief literature review shows four main types of articles related to assessment or AoL activity: articles grounded in (a) value-added learning or social change literature related to education; (b) traditional Quality Assurance or Quality Management; (c) accreditation-specific requirements, such as the Association to Advance Collegiate Schools of Business (AACSB) International; and d) individual case studies or surveys that focus on the basic trial-and-error approach to assessment (e.g., Calhoun, 2007; Drinka, Voge, & Yen, 2005; Martell & Calderon, 2005; Miller & Ewell, 2005). The purpose of this article is to summarize briefly what is known from each of the first three broad categories of articles and use the common elements to develop a framework to define an ongoing, sustainable process for AoL activity within a program or college. In other words, the overarching purpose of this article is to present a practical, how-to model to plan and implement an AoL process, built on AACSB standards and interpretations.

Many articles and books talk about education, especially higher education, as a value-added process. At the heart of these articles is a theory or model of social change based on the work of Astin (1970a), who proposed a college impact model consisting of variables surrounding student inputs, college environments, and student outputs. Consistent with this

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model, an assessment system must provide an understanding of the kinds of students that enter, track what they do while in college, and determine the quality of the outcomes at the end (Schroeder, 2005). There are various other models that are spin-offs of the Astin model (e.g., Pascarella, 1985; Tinto, 1975). In these models, the common factors are centered not only on the roles of all the educational players, especially the student, but also on institutional factors such as housing and student services (Pascarella & Terenzini, 2005). Assessment is viewed as continuous, multifaceted, and part of evaluating what is going right and what needs to change.

Another set of articles focuses mostly on the process of education and quality that can be measured, emphasizing either Total Quality Management (TQM) or Continuous Quality Improvement (CQI) approaches based on Deming's wheel (Downey, 2000). In a review of the CQI models that can be applied to education, Boyle and Bowden (1997) identified the following common elements. Any model of quality in higher education needs to produce evidence-based improvement in learning, clearly identify needed quality improvements in either the processes or the outcomes, and involve faculty in the evaluation of learning and the implementation of the improvements. Moreover, the system to collect and evaluate the evidence used to improve quality must be sustainable over time.

A review of articles related to requirements for AoL or learning assessment by specific accrediting agencies, including AACSB's (2007) release of an interpretation of AoL standards, reveals some common features for an assessment framework. For one thing, outcome-based evaluation meets the standards more readily than do process or goal-based assessments. This means that the mission and goals of the program need to link directly to learning outcomes, what the students do, know, or value, and that feedback on the learning outcomes needs to improve the program. Thus, there is a need for a "systematic, ongoing process of gathering and analyzing data from appropriate sources" (White, 2007, p. 188).

There has been a decided shift from indirect to direct, course-embedded measures (Martell, 2007). Direct measures are those student learning outcomes that demonstrate what the students can do, know, or value through examination of artifacts produced as a result of the educational process. "The outcomes must then be broken down into specific characteristics or traits that can be measured" (Pringle & Michel, 2007, p. 203) by appropriate faculty or stakeholders other than the person teaching the course where the assessment is conducted.

Consistent with the CQI literature as well as that specific to the assessment of higher educational programs, the model depicted in Figure 1 represents a systematic process for conducting direct, course-embedded assessment that meets accreditation requirements and helps organize process management. Further, the process can become genuine CQI for learning if the right people are involved and the activities are

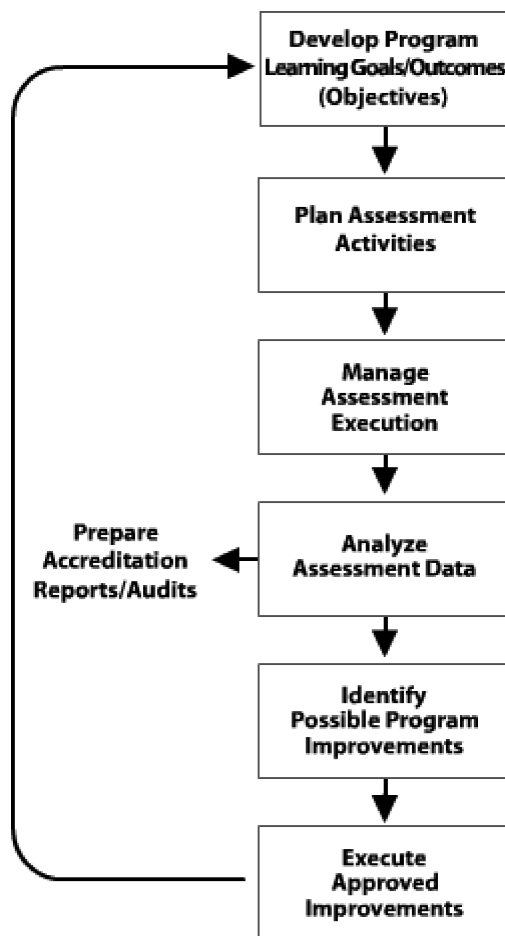


FIGURE 1 Program assessment model.

taken seriously. The approach is, by necessity, data driven so it meets the need for an evidenced-based culture for AoL.

PROGRAM ASSESSMENT MODEL

An effective assessment process is relatively complex and consists of multiple, time-sequenced steps. The sequential assessment management model shown in Figure 1 is detailed in subsequent sections. The model description includes alignment with five AACSB outcomes-assessment process steps (AACSB, 2007) and references them as AACSB Step 1, AACSB Step 2, and so forth.

Develop Learning Goals and Outcomes (Objectives) for Each Program

Although many programs share some goals, specific program learning goals must be established for each program (AACSB Step 1). Six to eight goals are often recommended, although limiting goals to this number may be difficult. Program learning goals are broad and global and generally describe what the graduates of the program need to know, do, or value. The program goals should be developed with input from faculty

and other constituencies (e.g., industry partners), and need to be faculty owned (AACSB, 2007). The goals also must be linked directly to the overall school or program mission. If the mission is too general to link with goals, the mission probably needs to be revised. The real benefits of program learning goals are to let constituents know where the school intends to focus its improvement efforts as well as provide prospective students with school-selection information.

Once the goals are established, student learning outcomes or objectives (SLOs) can be derived from these goals. The specific definitions of goals versus outcomes often blur, but generally SLOs are the goals that can be measured. For example, if the overall goal is to communicate effectively, the resulting student learning outcomes might be to effectively express ideas professionally in writing and to give effective technology-supported oral presentations.

Learning goals and outcomes are dynamic and should be improved continuously over time. In an ongoing AoL process, a school's experience in previous years provides critical input in reassessing learning goals and outcomes. For example, experience in trying to measure and take action based on previously developed learning outcomes may highlight the need to measure other aspects of a goal. For accreditation purposes, documentation reflecting committee, faculty, constituent and other meetings and votes should be retained so a history of the development and revision of goals and outcomes is readily available.

Plan Assessment Activities

In this key step, a plan is developed specifying the what, when, where, how, and who of assessment (including AACSB Steps 2 and 3). *What* to assess is determined by the learning goals and outcomes developed in the initial step. *When* to assess is determined by how many goals can be assessed at once and how quickly interventions can be completed. Most schools only attempt to assess a couple of goals each academic year. Normally there is no reason to reassess a goal until improvements identified as a result of assessment have been implemented and given time to produce measurable changes. *Where* to assess begins with the development of a course alignment matrix that maps SLOs with required classes in each program. Based on this matrix, a decision is made to assess each outcome either in specific classes, as students exit the program, at some point during the program, or after graduation.

How to assess involves selection of the measurement instruments to be used and the sample to be assessed. Note that different methods can be used to assess different goals. Multiple measures also can be used to assess a single goal, but available time and resources discourage such actions. The following is a list of three examples of measurement options. In addition to other assessment methods, course syllabi, exams, and projects should be systematically and regularly monitored to see how class coverage aligns with SLOs.

1. **Exit exams:** Direct assessments administered at the end of the program (e.g., the Educational Testing Service Major Field tests). The advantages of exams are that third-party, off-the-shelf instruments are available and can provide peer-school comparisons. The disadvantages include high cost, asking students to do additional work, ensuring that students give their best efforts (if the test is not graded or part of a graded course), lack of actionable results, and lack of tests matching a school's unique mission and learning goals.
2. **Survey:** An indirect method of assessing student progress on learning goals through the use of attitudinal surveys, such as the Educational Benchmarking, Inc., Management Education Exit Assessment survey. The advantages of surveys are that third-party, off-the-shelf instruments are available and results can be compared with peer schools. The disadvantages include cost, getting students to take the survey, and, most importantly, the lack of direct measures of student learning.
3. **Course-embedded or performance-based assessments:** Direct program assessments based on assignments or exams students do as part of their normal coursework. Advantages of course-embedded assessments include no additional assignments or work for students or faculty, a direct measure of progress on school-specific, mission-linked learning goals actually covered in the curriculum, increased involvement of faculty and students in assessment, and ability to address deficiencies in individual student learning before graduation. The primary disadvantage is the time necessary to develop the assessment support system, including administrative time, to collect and analyze the data.

In addition, the assessment sample must be determined. For some outcomes, all students are sampled, whether it is one course or all graduating seniors. For other measures, particularly rubric-based, course-embedded ones, feasibility often dictates a sampling approach. Sampling can be random or by selected sections. Finally, for some measures, rubrics must be created or borrowed. Each trait or characteristic can be expressed along a continuum that has any number of anchors, although it is typically somewhere between 3 and 7. For example, one trait for the written communication goal might be structure, and it might use a 5-point scale from 1 (*needs improvement*) to 5 (*professional*). Fortunately, there are many good rubrics available on the Web for most common learning goals.

Who does the assessing depends on the type of measures selected and degree to which external and outside input is desired. For external standardized exams, the entities creating the test are the evaluators. If only the section faculty do the assessment, they are evaluators. Most schools and accreditation bodies prefer to have some independent (other than the section instructor) evaluations. Independent evaluators

can be other faculty from the school or campus or they may be external to the campus (e.g., practicing professionals or faculty from other campuses).

Manage Assessment Execution

Once the plan for the coming year is complete, the school is ready to execute the plan (AACSB Step 4, partial). If the assessment is course embedded, the assignment(s) being used for assessment purposes must be developed or identified from existing instruments. The assignments should be reviewed by an assessment committee or coordinator, and each instructor in identified classes must agree to use the assignment. If independent evaluations are utilized, a method of selecting student work to assess must be adopted (a sample is usually used) and specific work must be assigned to individual evaluators. Many schools use paired independent assessments, so tracking which evaluators receive which work is critical. Finally, the correct student work must be distributed to the proper evaluators, along with the correct rubric to use in the evaluation and a detailed description of the assignment.

If an in-house, college-wide exam is administered, the test must be developed and validated. If a national standardized exam is given, the forms must be obtained and the vendor paid. With either type of exam, when and where it is administered must be decided. It can be given in classes during scheduled meeting times or administered en masse at one time. The former requires faculty to relinquish class time and, at many schools, limits the exam to 50 minutes. The later requires additional in-class time for students and may cause a special trip to campus.

Evaluations for a multiple-choice, college-wide exam are simple to collect. Rubric-based, course-embedded, and written college-wide assignments require significant supervision and analysis to collect accurate evaluations. The assessment coordinator needs to monitor evaluators to ensure they are completing assessments properly and on time. In addition, when using multiple reviewers, some time should be spent having evaluators calibrate answers to practice assessments and comparisons of their assessments with some standard assessment of the same work. After evaluations have been collected, interrater reliability should be examined. With a significant number of evaluators and multiple assessment instruments being evaluated, oversight can be daunting.

Another management issue involves handling all the student work samples and evaluations collected. A system based on hard copies will soon create mountains of paper. Some method of electronically capturing and storing student work and evaluations is essential.

Analyze Assessment Data

Once all evaluations have been collected for an assessment cycle, the coordinator must analyze data and report the results to administrators, faculty, and other school constituents

(AACSB Step 4, partial). A first step is to get all evaluation data in electronic form for analysis. Basic descriptive statistics are normally computed for each trait measured for each learning outcome. However, a deeper analysis of assessment data is critical for results to convince all stakeholders, particularly faculty, that actions are required. The key to achieving actionable results is to produce reports with sufficient granularity that specific actions might be expected to improve specific measures.

It is essential that evaluations for each trait on every goal be saved and reported. Holistic measures, including grades, are seldom actionable. For example, a holistic evaluation of “unsatisfactory” for 60% of a school’s students indicates a significant problem but illuminates no specific actions. Is the problem mostly with the lower division students? Is it primarily grammar, sentence structure, or ability to present arguments clearly? Is the problem for all majors and options or just for some? Is the problem with transfer or native students? Constituents, particularly faculty, are sure to ask these questions and expect responses before taking action.

Authorities increasingly are calling for assessment systems with the capability of tracking learning outcomes for individual students and student cohorts. Analyses of tracking data produce a compelling measure of program value added because improvements in student learning noted are for the same group of students. In addition, tracking the progress of at-risk and other groups of students is now a high priority at most institutions.

Identify Possible Program Improvements

For many schools, this step is the most difficult and is typically where the assessment effort gets derailed (AACSB Step 5, partial). If the analysis is not compelling and sufficiently granular, constituents frequently are unable to reach consensus on which actions might be indicated by the data. Unable to agree even on a set of possible actions, no action is taken and the program fails to close the loop. To be successful at this step, programs should present data to constituents in graphical or some other easily interpreted format broken down by relevant student characteristics. Once a set of possible actions is completed, each action can be screened based on criticality, cost, time, and other dimensions to create an agreed-on subset to implement.

Actions can be anything from concluding that student performance with respect to a learning goal meets expectations to major curriculum change. Other actions may include increasing admission requirements, remediation, adding prerequisites, increasing or changing specific assignments in existing courses, and providing support structures, such as tutoring or help sessions. Another action could be to reevaluate whether the learning goal or expectations for performance on that goal are appropriate.

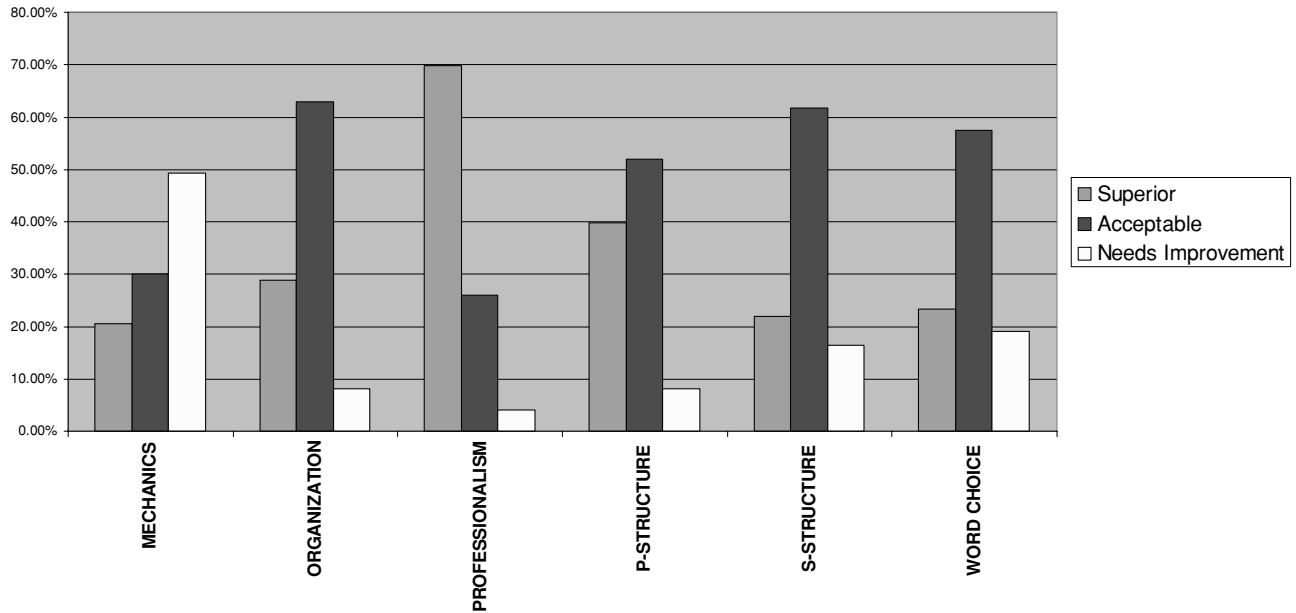


FIGURE 2 Writing assessment results for a sample of all students.

Analysis and Improvements Example

The business program at State University is assessing written communication using a rubric with the following six traits:

1. Mechanics,
2. Organization,
3. Professionalism,
4. Paragraph structure,
5. Sentence structure, and
6. Word choice.

Evaluators are members of the business-writing committee and industry advisory board volunteers. An overall holistic assessment is that graduates need improved writing abilities. A problem has been verified, but the actions to take are not clear. Overly general analyses often prevent constituents from arriving at a consensus on what action to take.

Representative data from a business program by trait are presented in Figure 2. It is clear from the graphical presentation that the mechanics trait is the most serious issue. The professionalism trait is where students are performing the best. The data led to a rather quick consensus on possible improvements including creation of a writing lab to address writing mechanics and inclusion of a list of common mechanical mistakes in all courses with a writing component.

Although useful, this level of analysis can still obscure important possible actions. Even more targeted actions may be indicated if the data are analyzed by major, transfer versus native students, or at-risk students. At State University, writing assessments for accounting and MIS students were compared. Weaker writing skills demonstrated by the ac-

counting students motivated the accounting faculty to design additional writing assignments in the accounting major classes.

Execute Approved Improvements

The final phase involves implementing actions to improve student learning, which is the whole purpose of assessment (AACSB Step 5, partial). Although largely a management function, execution requires additional assessments while providing critical input to future assessment cycles. An assessment plan should be developed to measure the impact of intervention as well as evaluate the quality of the execution. To use the previous writing example and focusing on the mechanics trait, student writing mechanics should be reassessed after the actions have been implemented. Although a holistic mechanics measure may capture improvements, a better approach is to administer assessments with detailed mechanics measures (e.g., comma use, verb tense). In addition, collection of data measuring how well the actions are implemented is important. How many students visited the writing tutor and for what purposes? How many faculty provided feedback to students on their writing mechanics?

Completion of the execution phase should cause the program to reflect on the adequacy of SLOs and rubrics and make modifications, as appropriate, for the next assessment cycle. A question of consistency inevitably arises when deficiencies in an SLO or rubric are discovered. By far the best solution is to have a system that retains the students' original work so past work can be reassessed using the revised SLO or rubric. This avoids the dreaded syndrome: the measure is bad, but we must keep using it to be consistent.

Prepare Accreditation Reports and Audits

Although not an ongoing part of the program assessment process, the system should be able to generate standard reports on progress made on each SLO for accreditation, campus, system, and state officials. This means auditors must be able to drill down with ease into the underlying evaluations, rubrics, student work samples, plans, analyses, and actions, if desired.

CONCLUSION

AoL is a systematic process of quality improvement based on an underlying culture of evidence. Careful planning must take place to ensure collection of data capable of motivating improvements. Comprehensive AoL software which supports process monitoring and documentation, as well as data collection, analysis, and reporting, can greatly assist administrators in building a sustainable and effective AoL process. Creating and managing such a process will, of course, meet accreditation requirements but is also the right thing to do to improve students' educational outcomes.

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