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# Assessment as Quality Improvement

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Assessment of Student Learning as Continuous Quality Improvement

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## **Student Learning Assessment as Quality Improvement**

### **Origins of the Higher Education Assessment Movement**

On November 7, 1907, the philosopher William James asked the question “of what use is a college training?” as the start of an address at Radcliff College (James, 1907). Traditionally, universities and faculty within them have a three-fold mission of teaching, research, and service. None of these are unique to higher education, but colleges and universities hold an absolute monopoly on the rewarding of college degrees (Brown and Duguid, 2000). Thus, a significant source of the value of higher education comes from the value of a college degree and the significance it holds. A college degree's value is more than a measure of the time spent in teaching (Adelman, 1986). Brown and Duguid (2000) describe it this way:

By their own actions, the people who put themselves through various type of hell to get a degree would seem to place a high value on credentials. They know, and society knows, that coming away with a degree is much better than wearing a t-shirt that saying “college of the streets” or “university of hard knocks.” It’s also better than coming away with 120 credit hours but no degree, even though the experience maybe much the same. (p. 215)

Traditionally, the collective and individual success of institutions of higher education ultimately was designated by the success of the graduates, which was taken at face value.

However, in light of rapid increases in the cost of a college education, many stakeholders have begin to questions whether the benefits of a college education outweigh the costs. The 1992 Amendments to the Higher Education Act required higher education accreditors to include specific criteria for the assessment of student learning (Malik & Petersen, 1993). This represented a shift from accreditation based on inputs to the education process to a focus on outcomes (Braskamp & Braskamp, 1997). Leskes and Wright (2005) offer one description of this transition:

The underlying assumption has been that if one could only identify the ideal inputs, then the desired student learning would naturally follow. If by chance reality fell short of the ideal, the

fault would lie with the students who were not smart or industrious enough. Yet all instructors know that good teaching does not necessarily equate to good learning. Assessment challenges the academy to abandon such assumptions and instead define educational success in terms of demonstrated outcomes of the learning process. (p. 7)

In order to meet the requirements of accreditation, an institution must assess what students are learning, make the results public and use the results to make decisions about how to improve student learning (Anderson, 2004). In addition to these external mandates, higher education also became interested in the notion of colleges and universities as learning organization that could use assessment to improve performance (Ewell, 2005). Mentkowski and Loacker (2002) warn that when the latter purpose is not present, assessment can become to be seen as an end in of itself rather than a process for institutional improvement.

Effective assessment serves both quality assurance and quality improvement purposes. Quality assurance is a passive use that requires the institution to report on what student learning has occurred, much like in the past institutions reported the number of books in the library. Quality improvement is an active use that requires that results be applied to drive improvement. The quality assurance use of assessment results creates no value for faculty and in practice, few institutions make assessment results available to external stakeholders to be useful for quality assurance. At the same time, the dominant paradigm of quality assurance and reporting does not facilitate quality improvement. Continuous quality improvement, though, provides an alternative paradigm for assessment that addresses this problem.

### **Assessment as Sensemaking**

Higher education faculty and administrators create value from assessment results through a process of sensemaking. Weick (1995) describes sensemaking as "a continuous alteration between particulars and explanations with each cycle giving added form and substance to the other. It is about building confidence as the particulars begin to cohere and as the explanation allows increasingly

accurate deductions" (p. 133). In the context of the assessment of student learning, the particulars are measures of student learning. The results of these measures are analyzed and meaning constructed from the data through a process of collaborative interpretation to identify strengths and opportunities for improvement in the learning program, which provide the explanation. The process of assessment sensemaking begins by understanding what students know and what they do not know in comparison to established learning outcomes. Strengths result from those areas where the students show the best results. Opportunities for improvement follow from those areas where students show the weakest results. Faculty and administrators explain why the strengths exist and how to respond to the opportunities for improvement. By explaining the strengths, best practices can be identified, preserved, and extended to other contexts. By addressing the opportunities for improvement, action plans can be developed to increase student learning and program effectiveness.

One potential model for validity is the use of interpretive arguments. Kane (2001) argues that construct validity draws its strength from contexts where there is solid theory for which to base constructs. Because there are few such areas of sufficient strength in education and the social sciences, construct validity has taken on predominately a weaker form. This weaker form of construct validity presents challenges to developing the validity of an assessment. "Because the weak program invites such an eclectic and possibly unending process, it is not clear that the program does much to discourage an opportunistic strategy based on readily available data rather than more relevant but less accessible evidence" (Kane, 2001, p. 327). Kane proposes (1992; 2001) to base validation on an argument justifying a specific interpretation of the assessment results. In this approach, one begins by stating the proposed interpretive argument, supported by any available evidence. Any assumptions regarding the interpretation also need to be stated. For any assumptions that could be challenged should be evaluated using available data and logic. The argument is a static artifact that can change over time as assumptions are challenged or alternative interpretations become available.

Hermeneutics provides another approach for assessment sensemaking. Hermeneutics evolved in the nineteenth century from a process for interpreting scripture to become a process for interpreting all text including human experience (Koch, 1996). Moss (1996) suggests that hermeneutic assessment:

Would involve holistic, integrative interpretations of collected performances that seek to understand the whole in light of its parts, that privilege readers who are most knowledgeable about the context in which the assessment occurs, and that ground those interpretations not only in the textual and contextual evidence available, but in also a rational debate among the community of interpreters. (p. 7)

The key component of this approach is the hermeneutic circle, where initial interpretations are made from the data, tested against the data, and revised accordingly (Moss, 2003; Balfour & Measros, 1994). Patterson and Higgs (2005) describe the process as a series of spirals, as the participants move from analyzing parts of the data, to merging the resulting interpretations into the whole understanding. Like assessment, the hermeneutic circle is never ending. New data can be used to challenge and revise old explanations and interpretations.

Constructivist evaluation employs the hermeneutics as a core process (Stufflebeam, 2001) and provides a limited model of how this approach could be used in assessment. Guba and Lincoln (1989) describe responsive constructivist evaluation as a fourth generation evaluation. The responsive aspect of this form of evaluation describes the role of stakeholders in determining the focus of the evaluation. The constructivist aspect describes the use of an interpretive or hermeneutic methodology. The traditional model of assessment is not responsive as described by Guba and Lincoln because it focuses on the agents of the program (faculty and administrators) and not the beneficiaries or victims of the program. The constructivist aspect, though, can apply to the assessment of student learning. Using this perspective, faculty and administrators construct meaning from the assessment results. Stufflebeam describes this process as being first divergent then convergent. As individuals make sense of the data, the process is divergent and potentially leads to a diversity of explanations and interpretations. As

individuals share their interpretations, the process becomes convergent and enables the emergence of a shared understanding. Guba and Lincoln describe this as a dialectic process that uses a "juxtaposition of conflicting ideas, forcing reconsideration of previous positions" (p. 90). In the assessment process, as faculty and administrators discuss their interpretations of the assessment results, areas of agreement provide the basis for consensus and shared understanding. Areas of disagreement provide the opportunity for further discussion and resolution.

Essentially assessment of student learning is a process for a program to learn about what students in the program are learning. Using the model of how learning takes place provides another way for looking at assessment to understand better how to learn and improve from the assessment results. John Dewey described learning as a four-stage process: "1) Discovery: the discovery of new insights, 2) Invention: creating new options for action, 3) Produce: producing new actions, and 4) Observe: seeing the consequences of those actions, which leads to new discoveries, continuing the cycle" (Senge, 1999, p. 36). In assessment, discovery is developing new understandings of what students are learning and how best to facilitate that learning. Invention is the planning of strategies and techniques used to facilitate learning, and produce is the actual implementation of those strategies and techniques. Observe entails the carrying out of the assessment process by measuring student learning.

Other educators have labeled these four stages slightly differently. Kolb's model of experiential learning includes theory instead of discovery, planning instead of invention, action in place of produce, and reflection rather than observation (Kolb, 1984). Kolb's use of the concept of reflection excludes the ideas of both theory and observation being separate from the process of reflection. Observations are made by an observer, and reflection is the process of noticing and thinking about what is going on. The discovery of new theories or ideas results from this reflection process. In Figure 1, the stages of observation and discovery are in the top half of the diagram, showing that together these are parts of the reflection process. In a similar fashion, separating the plan and the action is artificial since in a

rational person we expect purpose to precede the production of an action. In Figure 1, plan and produce are located together in the bottom half of the diagram to show that they are the stages of action. Figure 1, then, shows a model of an individual learner using reflection to observe from experience to discover new ideas, which enable new actions through plan and production.

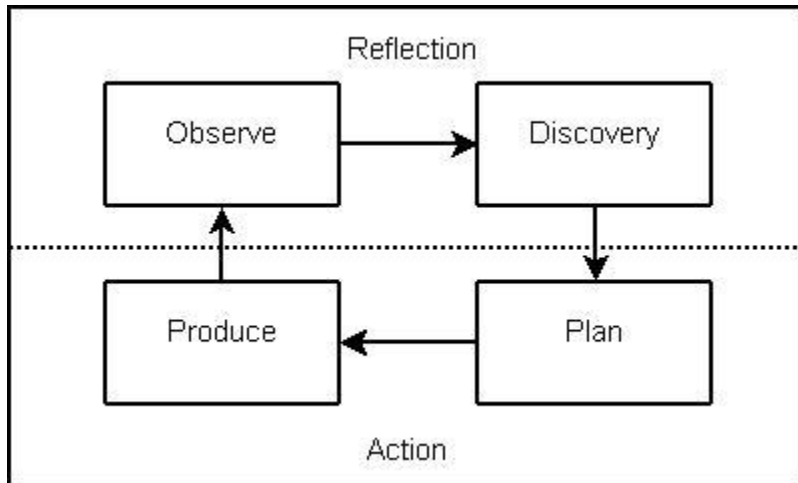


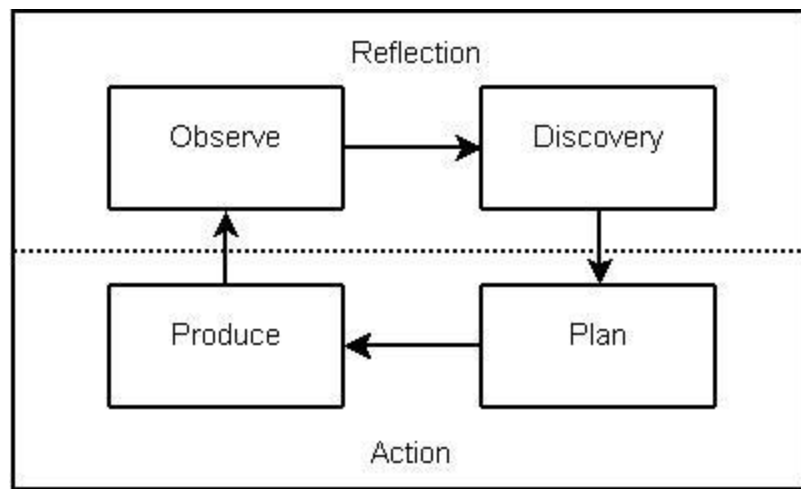
Figure 1. The Learning Cycle showing the basic four-stage process of learning.

The basic learning cycle is a single learning loop. When we add assessment to this process, we add a second loop. The facilitator of the learning takes actions to facilitate and support learning and reflects on the effectiveness of these actions, leading to changes in the facilitative activities. Figure 2 shows this double-looped learning. As the learner cycles through the core learning cycle, the facilitator cycles through a related but separate cycle.

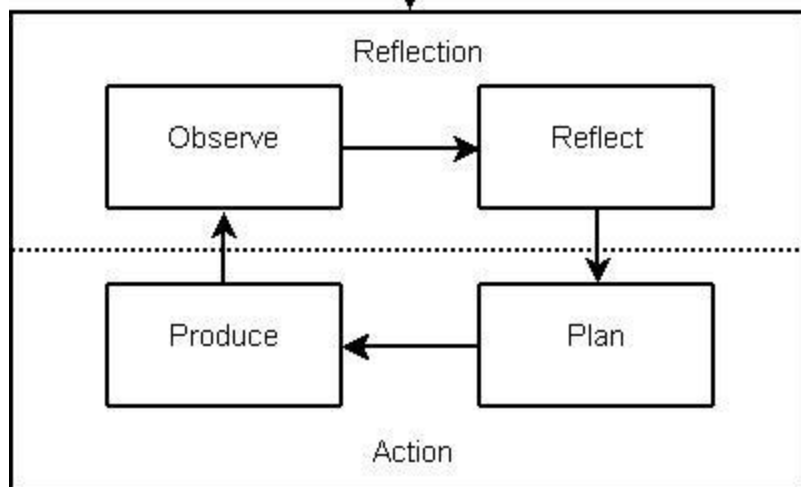


Figure 2. The Learning and Assessment Cycle showing how assessment supports learning.

The double-loop model does not fully describe the process of assessment sensemaking. Assessment must support reflection and action on both the program and the assessment process used to assess the program (Howard & Borland, 2000). Meta-assessment assesses the assessment itself, enabling improvement in the assessment process. For example, an assessment may not be satisfactorily capturing student learning or providing actionable data. Meta-assessment should identify those opportunities for improvement. Figure 3 shows the complete triple-loop cycle of assessment sensemaking. Any project to improve the assessment process should use this model as a guide.



Loop One: Learning



Loop Two: Assessment

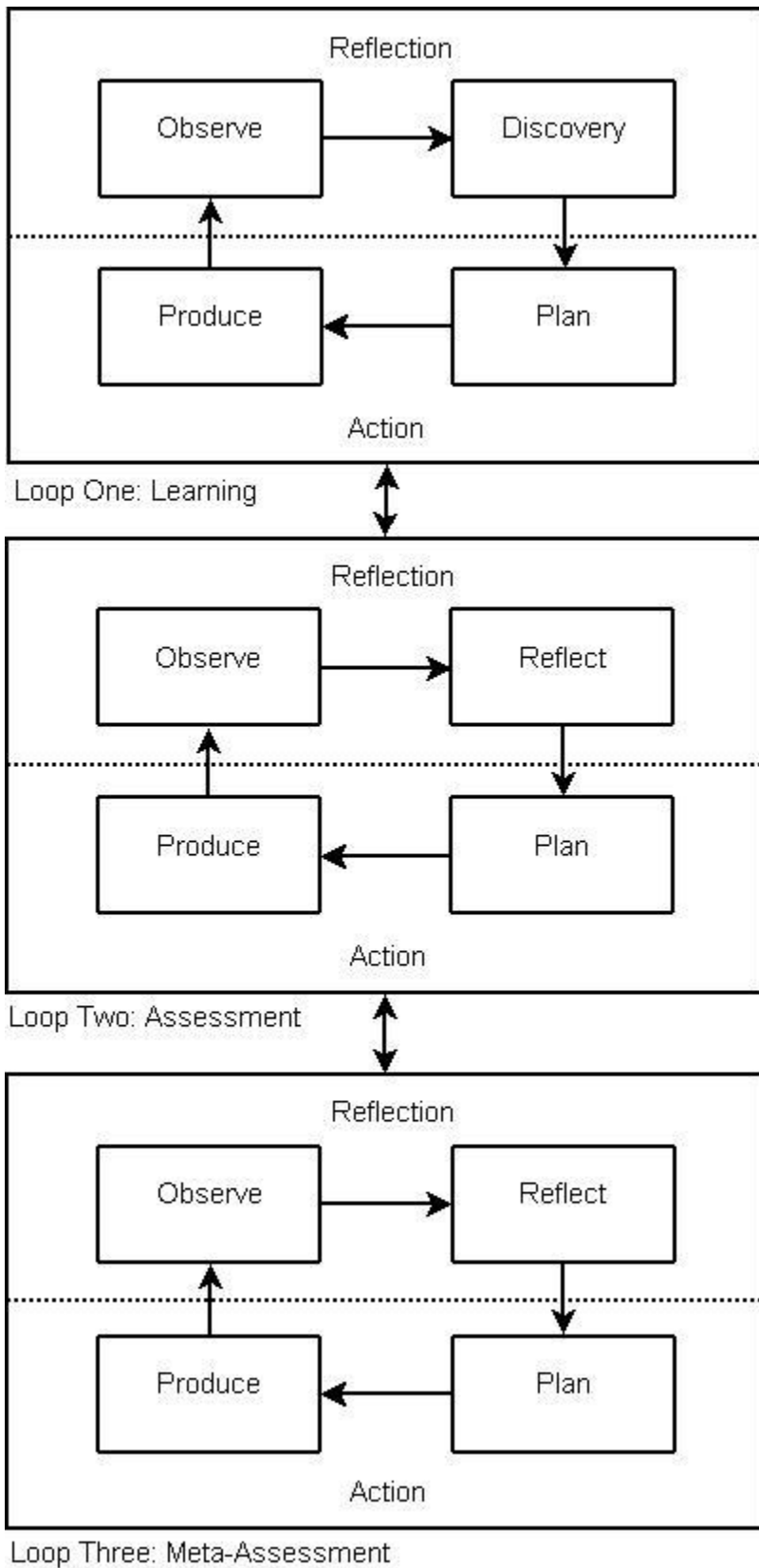


Figure 3. Triple Loop Assessment Sensemaking showing how meta-assessment supports assessment.

The core process of assessment sensemaking is the process of reflecting on the results. Senge, Scharmer, Jaworski, and Flowers (2004) label the reflection stage between sensing through observation and realizing through action "presencing." Weick and Sutcliffe (2001) use the term "mindfulness," which they describe as:

The combination of ongoing scrutiny of existing expectations, continuous refinement and differentiation of expectations based on newer experiences, willingness and capability to invest new expectations that make sense of unprecedented events, a more mutual appreciation of context and ways to deal with it, and identification of new dimensions of context that improve foresight and current functioning (p. 142).

Both terms express the special role of reflection in the sensemaking process. Through reflection, meaning is distilled from the observation of experience and translated into planning for new and improved actions.

The reflection process is critical to evoke change. Wright (2001) explains that "change arises from reflection and lies in explanation. It lies in the stories that are told about the experience" (p. 267). Individual reflection is supported by educators talking together. Kraft (2002) describes this process as "where educators learn about their practice by talking about their experiences, becoming aware of the assumptions and expectations they have, questioning those assumptions and possibly revising their perspectives" (p. 180). In addition to individual change, the group changes as well. Through conversation, group assumptions and expectations can also be challenged and revised (Shaw, 2002). Through the changing of perspective, new actions are enabled both individually and collectively.

To maximize the effectiveness of the reflection process, several practices can be used. Reason (2003) identifies several inquiry skills for use with cooperative inquiry, a form of action research. One key is "authentic collaboration" that involves and engages all in the conversation. However, at the same time, there must be a procedure for a devil's advocate to "challenge consensus collusion" and prevent groupthink. "Divergence and convergence" are both appropriate strategies. In some instances, the best

approach might be to converge on a single issue and explore it in depth, while others it may be more valuable to be divergent and look at different issues during different cycles through the process. Finally, it is important to balance "reflection and action." Reason explains that "it is important to find an appropriate balance so that there is neither too much reflection on too little experience, which is armchair theorizing, nor too little reflection on too much experience, which is mere activism" (p. 226). In an effective assessment reflection process, these skills should be present.

### **Learning and Assessment as Continuous Quality Improvement**

The Shewart Cycle serve as one of the core structures of continuous quality improvement and provides a four-step framework to problem solving that parallels the sensemaking process. The first step, Plan, requires analysis of the problem to be solved, identification of the desired outcomes, and development of a plan of action and parallels the sensemaking step of the same name. In the Do step, the action plan is enacted, akin to the produce step in sensemaking. The goal in the Study phase is to observe what worked and what did not work in the Do step by reviewing the results of the actions, especially in light of the outcomes identified during the Plan step. In the final step, Act, the effective elements of the plan are integrated into ongoing processes and opportunities for further improvement are identified, which leads to another loop through the cycle, serving the same purpose as Reflect in the sensemaking process. The final two steps in the process highlight the difference between a continuous quality improvement process and traditional change processes that consist of just Plan and Do (or Pee-Pee, Doo-Doo). This approach precludes learning since the organization never assesses the effectiveness of the Plans and actions. Some organizations even skip the Plan phase and just employ an endless stream of Doing without planning.

The Shewart Cycle can also be used as model to describe the teaching and learning process. The Plan step involves identifying learning outcomes and design of the learning experience. The plan scope may include an entire degree or program, a specific course, or a single session of a course. The

Do stage, then, is the actual delivery of the program, course, or class session. In learning, the Study step is better known as assessment, where student learning is measured as well as other qualities of the learning experience. The Act stage uses the results from the Study to generate lessons learned to support the next learning experience. Traditionally, the last two steps have been excluded in higher education. Frequently student learning has not been assessed, or where it has, the results have not been used to drive improvements in the learning process.

The Shewart Cycle can also be applied to the assessment process itself. The Study phase contains each of the four phases (see figure 4). The Plan phase involves identifying how learning will be measured, including what tools and instruments will be used, how the data will be collected, and how it will be analyzed. The Do stage involves the actual deployment of assessment instruments and collection of data. The Study phase requires reviewing the effectiveness of the assessment to identify both strengths and opportunities for improvement in the assessment process. The Act stage ensures that these strengths and opportunities are addressed for the future.

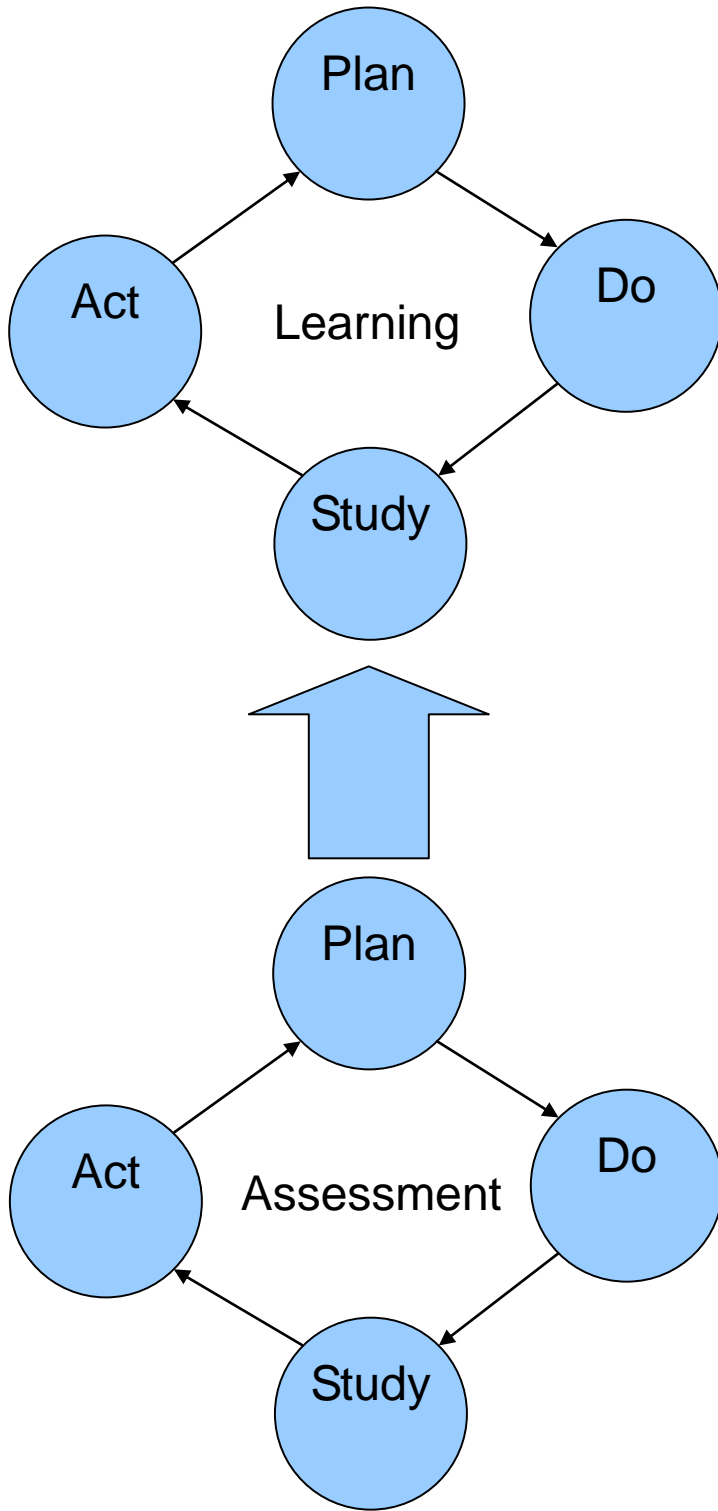


Figure 4. Shewart Cycles for Learning and Assessment

**The Assessment Process: Plan and Do**

The Shewart Cycle provides a framework for what Massy, Graham, and Short (2007) refer to as an academic quality process. “Academic quality processes are organized activities dedicated to improving and assuring education and research quality. They systematize a university’s approach to quality instead of leaving it mainly to unmonitored individual initiative” (Massy, Graham, & Short, 2007, p. 27). According to Massy, Graham, and Short, the optimal focus for assessment work is the program/department level. While institutions should have institutional learning outcomes that apply to graduates from all programs and degree levels, program outcomes provide differentiation of the degrees within and across institutions, and program faculty have substantial influence over teaching and learning at the program level.

The plan for program assessment requires program outcomes, alignment of program outcomes to institutional outcomes, mapping of outcomes to courses (and cocurricular activities), and as assessment that describes the methodology for assessing student learning (See Appendix I). Unlike primary and secondary education, higher education lacks established standards for curriculum and student learning outcomes. The presumption is that curriculum and outcomes should vary dramatically between institutions (Braskamp and Braskamp, 1997) and even across programs within a single institution. As a result, the first step in the assessment process is for the faculty in a program at an institution to develop learning outcomes for graduates of that program. These outcomes must be aligned with both the institutional learning outcomes and the curriculum of the program. An assessment plan is created that describes the instruments that will be used to measure student learning compared to the outcomes. A parallel assessment process takes place in the assessment of general education outcomes that relate to all students across all programs. An assessment plan typically includes both direct and indirect measures of student learning. Direct measures may include standardized tests, locally developed tests, competence interviews, portfolios, and embedded course assignments and

activities (Allen, 2004). Indirect measures include surveys, interviews, focus groups, and reflective essays that do not directly assess student learning (Allen, 2004).

The assessment of student learning provides a process for capturing what students have learned in order to improve the teaching and learning process (see Figure 5). At the primary level, students have certain knowledge. In the case of value added assessment, an attempt is made to determine what knowledge a student has learned over time as a result of teaching and other inputs. Most assessment, though, simply seeks to certify that a student has certain knowledge, independent of whether that knowledge was gained as part of the learning process or preexisting. If a scanner existed that could scan the brain and identify resident knowledge, the assessment process would be much more mechanical and straightforward than it is. To measure student learning, tests and other assessment instruments are used that allow students to demonstrate their knowledge and provide evidence of learning. In most cases, not all knowledge is measured, and as a result, there is a sampling process at work that can lead to questions about the reliability and validity of the measurements. For example, a test has a limited number of questions that sample certain knowledge about the subject being tested. A rubric contains specific components and criteria that are used to identify certain properties in a student paper or other work.

When faculty assign grades to student work, they are making an evaluation about individual student knowledge and learning. Learning is a complex process, and one student's learning or lack thereof does not provide a statistically reliable measure of the effectiveness of the learning process in general. The failure of one student to achieve the learning outcomes can indicate a lack of effort or capacity of that student, problems with the learning process itself, limitations in the assessment measures, or some combination. For assessment to be useful for improving the learning process, aggregation of results must occur. Grouping students by classes or programs is the most obvious aggregation. Statistically, this grouping should reduce the amount of measurement error related to



individual student factors allowing a more accurate picture of what the effectiveness of the learning process is. A second form of aggregation occurs when several measures are used together. For example, a test may have multiple questions on a related topic, or a program outcome might be measured in multiple classes by different measures and instruments. Just as individual students can skew results, relying on an individual measure can also create an inaccurate description of learning. Ideally, assessment processes should use multiple measures to minimize these risks.

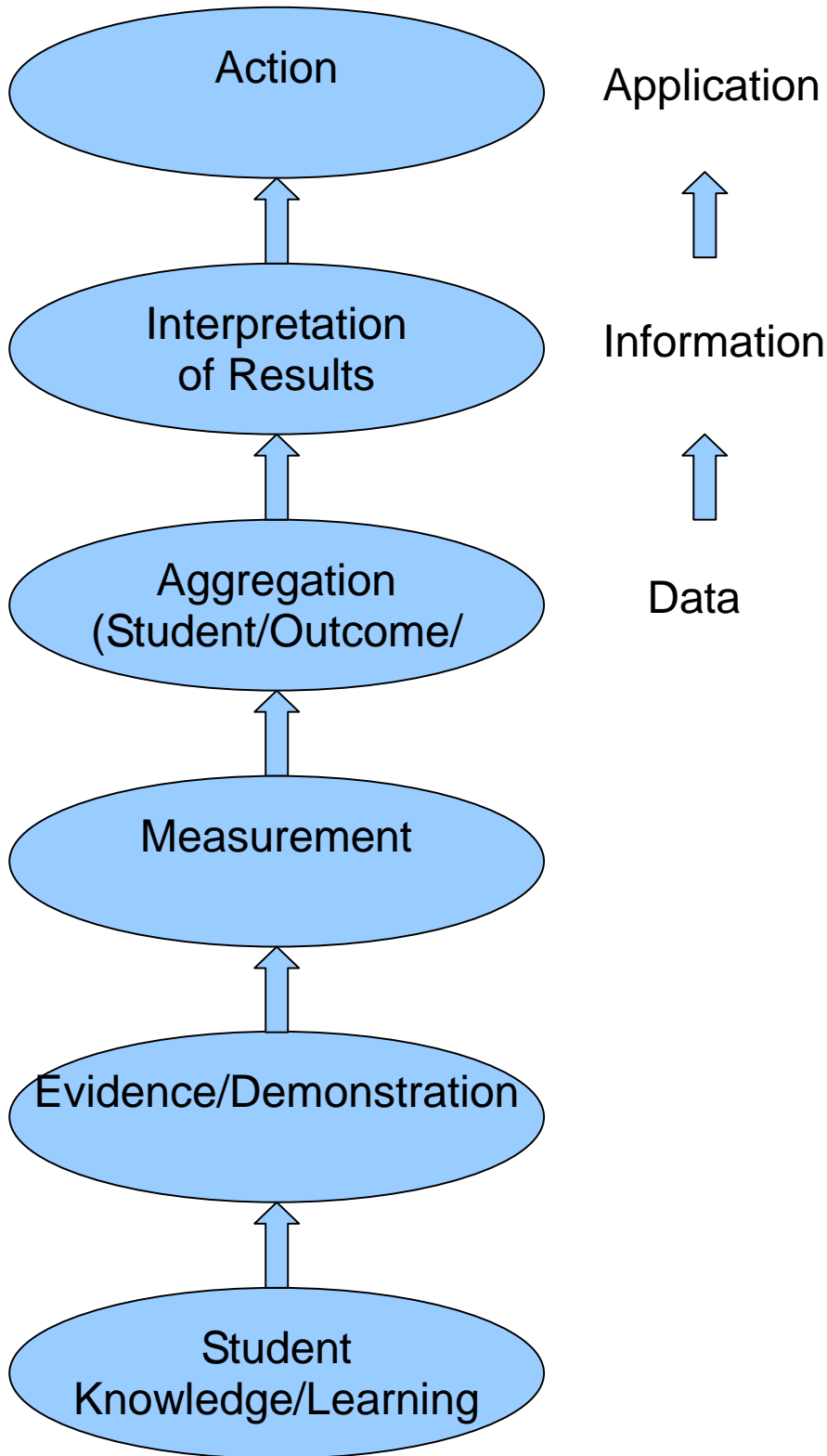


Figure 5. The Assessment Process

Even aggregated, data are like the individual brush strokes in a painting. Meaning comes from interpreting the individual elements to see meaningful patterns. Assessment requires interpretation of the data to derive information that can guide action and improvement. Ideally, the faculty responsible for the program should be engaged in a conversation about what the data tells them about student learning and what actions logically follow from these conclusions. In addition to providing a process for making sense of the results data, a conversation such as this provides an opportunity for faculty to amend their mental models about student learning and thus change their behaviors that are inputs into the learning process.

### **The Assessment Process: Study and Act**

Study and act are the two stages of the Shewart Cycle that fall under the reflection aspect of sensemaking. Massy, Graham, and Short (2007) list five areas for faculty to reflect on: learning objectives, curriculum and cocurriculum, teaching and learning methods, student learning assessment, and quality assurance. Faculty may discover that learning objectives are not appropriate, that curriculum needs to be modified, changes need to be made to teaching methods, the assessment process can be improved, or that curriculum designs and other plans are not being properly implemented (quality assurance). These five areas provide the context for the study of what has taken place and the acts to improve future performance.

The Plus/Delta Assessment Tool (see Appendix II) provides a tool that can be used to guide a conversation about assessment results in the context to the five areas described above. The Plus/Delta Tool is a quality improvement tool used to identify the strengths and opportunities for improvement. In the context of assessment, the tool can be used to identify both strengths and opportunities in student learning and the assessment process. Both topics are important. The philosophy of continuous quality improvement focuses on the idea that every process has room for improvement, and one strategy for

avoiding using assessment results is to focus on the limitations of the assessment measures and related processes. By focusing on low response rates or concerns about the assessment instruments, faculty can avoid accepting responsibility for low levels of student learning. To counter this, a review of the strengths and challenges for the assessment process should be considered but distinct from the student learning review, encompassing the areas of learning objectives, curriculum and cocurriculum, teaching and learning methods, and quality assurance (implementation). This allows analysis and action planning to proceed on both fronts.

The Plus/Delta Tool does not require benchmarks as a prerequisite to analysis of the data. In any set of data, certain attributes will be higher than others, indicating relative strengths and relative opportunities for improvement. In addition to relative strengths and opportunities, benchmarks may be used to further support this type of analysis. Longitudinal data provides one type of benchmark. By looking at trends in the data, certain measures will show improvement and others decrease. Value-added assessment utilizes pre- and post-measurements of student knowledge to identify changes in individual student learning, which can also then be used as a form of benchmarking. In some instances, comparison data may be available to compare results across institutions or programs. Program graduation rates, for example, could be compared to the institutional graduation rate. Finally, specific goals or targets can be established which performance can be measured against. All of these approaches provide a mechanism for converting raw data into information that can be used to inform action.

In order for improvement to take place, something has to change. The Plus/Delta Tool facilitates change by calling for action plans around each opportunity for improvement. An action plan should be one or more defined and measurable activities for follow-up. In the Shewart Cycle this step is the transition from “Study” to “Act.” An action step might be a change to inputs to the learning process or the process itself. For example, an action step might be to add a prerequisite to a course to ensure that students have necessary knowledge. Action steps can also be calls for further study and research.

Existing data may show an opportunity for improvement, but the root cause might be unclear. Further study and research may be called for to identify the root cause and develop appropriate responses. Alternatively, an action step might be delegation of the opportunity to an individual or group for work. In all cases, the action steps should be followed-up to validate that they have been implemented and what the results of the implementation were. In assessment, the application of information to take action is known as “closing the loop,” indicating that the results of the learning process have been used to make improvements in the process.

### **Institutional Assessment: Performance Indicators**

Learning takes place at multiple levels, as does the related assessment. Ultimately, learning takes place at the individual level, and faculty use a variety of measures to assess individual students. However, to assess their own teaching, faculty must examine patterns of learning at the class level. Program effectiveness is assessed by looking at student learning measured against program outcomes. Institutional effectiveness can be measured through institutional outcomes, the combined results of the programs, or a combination of these. Massy, Graham, and Short (2007) observe that the type of performance indicators vary with the level of the assessment, “in contrast to department-level quality work, which begins with reflection, work at higher levels begins with fact-finding. Deans need to learn the facts about quality work in their departments, for example. They need to know whether departments are addressing all five focal areas and whether the principles of good practice are being applied. If not, it is the dean’s responsibility to get departments to improve performance” (p. 68). At the college and institutional level, performance indicators are needed to provide evidence that assessment is occurring and that the results are being used to drive improvements in student learning at the program level.

The effectiveness of a process can be measured through performance indicators. Kaufman (1988) defines performance indicators as “the measurable evidence necessary to prove that a planned

effort has achieved the desired result” (p. 80). The assessment process essential involves identifying and using performance indicators of student learning. Kaufman divides indicators into two categories. Means includes indicators of inputs and processes. Ends include products, outputs, and outcomes. In the context of higher education, examples of input indicators are test scores of incoming students, credentials of faculty, and the number of volumes in the library. Process indicators measure characteristics of the process. These may include efficiency and productivity, such as the number of students in a class, or measures of stakeholder satisfaction, such as how satisfied students are with a class or individual instructor. Product indicators are exemplified by the number of graduates and retention rates. Output indicators include measurements of student learning. Outcome indicators measure the impact of learning on the larger society. Graduate employment rates and other measures of graduate effectiveness exemplify outcome indicators.

No single type of performance indicator will provide sufficient data for process improvement. A family of indicators are required that reflect all five types of indicators (Thor, 1988). Garvin (1993) observes that organizational learning progresses through three stages. In the first (cognitive) stage, learning is reflected in new thinking and new ideas. These ideas, though, do not actually influence behavior until the second (behavioral) stage. Only in the third (performance improvement) will these new behaviors produce measurable results. This development has important ramifications for assessing student learning. Improvements of student learning will not be immediately measurable, and as a result, outcome indicators alone will not indicate if assessment is successful.

In order for performance indicators to be useful in improving performance, targets must be established for the indicators (Hammer, 2007). According to Borden and Bottrill (1994), performance indicators can be compared to four types of reference points: “specific competitors, theoretical ideals or norms, stated goals, and past performance” (p. 12). Within the context of program assessment, cross program comparison would fall into the category of specific competitors, even though the

programs are not technically in competition. A key aspect of performance indicators is the specification of the appropriate targets.

To measure the effectiveness of assessment, performance indicators are needed to provide administrators and faculty with evidence on the assessment process in programs and the results of those processes. The Shewart Cycle provides a structure for identifying and organizing these indicators and providing evidence of where processes can be improved. Within each stage in the cycle, a set of performance indicators are available to measure the effectiveness of the assessment process. The Higher Learning Commission (HLC) has identified six fundamental questions on the assessment of student learning that can also be mapped to these stages (Priddy, 2007). These questions can also be mapped to the stages of the Shewart Cycle to provide additional context for the performance measures.

### Plan

Question:

- How are your stated student learning outcomes appropriate to your mission, programs, students, and degrees?

Performance Indicators:

- Does the program have program outcomes?
- Are the program outcomes mapped to the program curriculum?
- Does the program have at least one direct measure of student learning for each outcome?
- Does a documented methodology exist to determine student achievement of program outcomes at Basic, Proficient, and Distinguished levels of performance?
- Does the program have performance indicators tied to student learning outcomes and other measures of effectiveness?
- Has the program established targets for performance indicators?

### Do

Question:

- What evidence do you have that students achieve your stated learning outcomes?

Performance Indicators:

- What is the reporting rate of assessment measures?
- For each program outcome, what percentage of students have achieved Basic, Proficient, and Distinguished levels of performance?
- Has the program collected results related to performance indicators?

### Study

#### Questions:

- In what ways do you analyze and use evidence of student learning?
- How do you ensure shared responsibility for student learning & assessment of student learning?

#### Performance Indicators:

- Has the program analyzed results from assessment measures and performance indicators to identify strengths and challenges in:
  - Outcomes?
  - Curriculum and Cocurriculum?
  - Teaching and Learning Methods?
  - Student Learning Assessment?
  - Quality Assurance (Implementation)?

### Act

#### Questions:

- How do you evaluate and improve the effectiveness of your efforts to assess and improve student learning?
- In what ways do you inform the public about what students learn and how well?

#### Performance Indicators:

- Do challenges identified in each area have action plans for improvement:
  - Outcomes?
  - Curriculum and Cocurriculum?
  - Teaching and Learning Methods?
  - Student Learning Assessment?
  - Quality Assurance (Implementation)?
- How are the assessment results and performance indicators communicated to stakeholders?

These questions and performance indicators provide the basis for an annual program progress report (Appendix III). The program progress report provides a mechanism for programs to provide evidence of both student and learning and how assessment is being used in the program. The progress



report can be assessed using a rubric (Appendix IV) to generate values for the performance indicators. This provides a snapshot of how each program is doing at implementing an effective assessment program. The aggregated results from all programs can then be used to develop an institutional student learning report card (Appendix V) to communicate institutional effectiveness with assessment. The performance indicators by program and aggregated in the student learning report card provide a tool for faculty and administrators to identify strengths and challenges within the university's assessment efforts.

### **Conclusion**

In order for assessment of student learning to support both quality assurance and improvement, a framework to orient the assessment process towards action is required. Actionable data is a critical ingredient. In addition, processes are needed to facilitate meaningful conversation about results that lead to action plans at the program level. Institutional indicators are required to enable the institution to develop and improve the infrastructure to support program assessment. Continuous quality improvement provides a model for assessment that can meet these needs by offering both a mindset and a set of tools for assessment of student learning.

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## **Appendix I: Program Assessment Requirements**

### **Program and General Education Outcomes**

Each program will develop a set of student learning outcomes to describe the knowledge and skills that a graduate of the program will have at graduation. The appropriate group(s) will develop general education outcomes to describe the outcomes of the general education program.

### **Mapping of Program Outcomes to Institutional Student Learning Outcomes**

Programs will list under each Institutional Student Learning Outcomes which program and general education outcomes map to that Institutional Student Learning Outcomes.

The institutional student learning outcomes align through the program outcomes to course outcomes. For example, a program outcome that meets an institutional student learning outcome in critical thinking should have one or more mapped courses that include critical thinking as an outcome.

### **Mapping of Program Outcomes to Courses**

1. The program mapping should include the program outcomes as well as general education outcomes as the rows in the table.
2. The columns of the table will be all courses in the program including general education threads. Minors should have outcomes or be reflected in program outcomes and be included in assessment plans.
3. In the cells the following codes should be used to indicate how a program is being met by a course:  
I: Introduced –where the outcome is first introduced to the student  
R: Reinforced/developed –where the outcome is expanded on and developed from the introduction and reinforced through practice.  
E: Emphasized: where the student meets the outcome at its highest level  
A: Assessed: this is where the student demonstrates knowledge of the outcome either developmentally or at a mastery level. Each program outcome must be assessed at least once at the mastery level using a direct measure.  
Each cell will have 0-4 codes.

Note:

- 1) Programs may also address general education outcomes using program courses.

**Program Assessment Plan**

The Program Assessment Plan lists and describes the measures used for assessment of the program. These measures include direct measures of student learning and indirect measures that address other dimensions of program performance. The direct and indirect measures chosen should be designed or utilized to provide programs with the data needed to make informed decisions regarding changes to the program. The assessment plan can be constructed as a table with each measure a row in the table and the following information in the columns:

<b>Measure</b>	<b>Source</b>	<b>Frequency</b>	<b>Analysis</b>	<b>Goal</b>
<i>The name of the measure or a brief description.</i>	<i>The instrument, institutional data source, or other location where the data comes from. Object of Assessment: What the measure is intended to assess (specific inputs, processes, products, outputs, and outcome).</i>	<i>When and how frequently the data is collected.</i>	<i>How the data is analyzed, including as appropriate how student performance will be determined at Basic, Proficient, and Distinguished levels of performance.</i>	<i>The targeted performance level for the measure based on benchmarking.</i>

The assessment plan should be reviewed on an annual basis. New measures might be required as questions arise from the program assessment that current measures do not address, and existing measures maybe retired. In addition, goals may change over time based on past performance.

## Appendix II: Using Assessment Results to Drive Improvement: The Plus/Delta Assessment Tool Process

### Overview

The results from direct measures of student learning as well as indirect measures can be used to generate feedback on the program being assessed using a two-cycles of the Plus/Delta process. The first cycle involves looking at the results as indicators of strengths of the current system (pluses), opportunities for improvement (deltas), and action plans to address the opportunities. The second cycle involves the same three categories but now used to examine the assessment process itself. The assessment process includes the instruments or other tools used for the assessment as well as the process for data collection and analysis.

This process can be used with either a single set of assessment data, such as the results of a rubric used on a standardized project, or with a collection of data for an entire program. In both cases, the process will yield a set of strengths, changes to be made for improvement, and plans to address those opportunities. These results can then be used to guide future development of the program. Assessment results can be reviewed by individuals, in small groups, or in large groups. Individuals and small groups can use tables such as the one on the following page to record the findings. A similar table can be created on an overhead, white board, or flipchart for large groups.

In any set of assessment results, there will usually be items that are relatively high (pluses) and items that are relatively low (opportunities for change and improvement). In some instances, benchmarks based on past performance, predetermined targets, or in comparison to other groups maybe available and appropriate for determining strengths and opportunities.

### Process

#### *Cycle 1: Assess the assessment results*

1. Begin by asking participants what the strengths are as identified by the data. Strengths are usually areas where students performed well or where there was a high level of satisfaction. List these under the “Plus” column.
2. Ask participants what could be improved based on the data. List these under the “Delta” column. (The Greek symbol for Delta is a triangle and is used to signify change.) Leave space between each item to list the appropriate action steps.
3. Review each opportunity for improvement and identify an action step to address the opportunity. Action steps can include planned changes for the future, issues for further investigation and research, or assignments to specific individuals or groups for follow-up. List action steps underneath the opportunity.

#### *Cycle 2: Assess the assessment process*

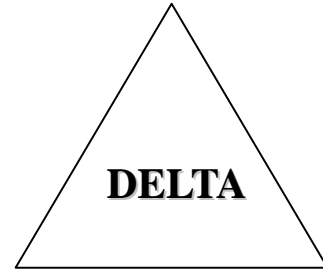
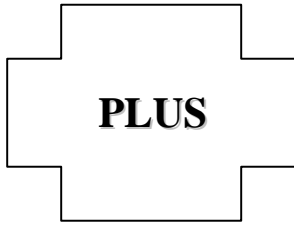
4. Using a new table, ask the participants to identify strengths of the assessment process. This includes the assessment tools themselves and how the data was collected. List these under the “Plus” column.
5. Next ask participants to identify improvements and changes to the assessment process itself based on the data. There may be opportunities to strengthen the assessment tools, to get more useful results, or to reduce the burden of collecting and reporting data. List these under the “Delta” column. Leave space between each item to list the appropriate action steps.
6. Review each opportunity for improvement and identify an action step to address the opportunity. Action steps can include planned changes for the future, issues for further investigation and research, or assignments to specific individuals or groups for follow-up. List action steps underneath the opportunity.

### Source

Langford, D. (2005). *Tool time for education: Choosing and implementing quality improvement tools*. Molt, MT: Langford International.



# Plus/Delta Assessment Tool



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Revised March 4, 2007 by C. Davis, National-Louis University

### Appendix III: Program Progress Report Outline

Each program will submit an annual program progress report each year. The purpose of this progress report is to provide evidence that the program is collecting, analyzing, and using assessment of student learning to improve the program. The program progress report consists of the following:

- 1) Background
  - a. Program name
  - b. Person completing report
  - c. Academic year of the report
  - d. Brief description of the process used to engage faculty and other stakeholders in the assessment process.
- 2) Review of Program Outcomes
  - a. List of program outcomes
  - b. Percentage of students achieving outcome at Basic, Proficient, and Distinguished levels of performance
- 3) Review of Program Measures
  - a. List of program measures as described in program assessment plan
  - b. Response rates of measures
  - c. Results for measures compared to goals
- 4) Assessment of Program (narrative/bulleted list with references to data)
  - a. Outcomes
    - i. Strengths
    - ii. Challenges
    - iii. Actions taken or planned in response to challenges
  - b. Curriculum and Cocurriculum
    - i. Strengths
    - ii. Challenges
    - iii. Actions taken or planned in response to challenges
  - c. Teaching and Learning Methods
    - i. Strengths
    - ii. Challenges
    - iii. Actions taken or planned in response to challenges
  - d. Student Learning Assessment
    - i. Strengths
    - ii. Challenges
    - iii. Actions taken or planned in response to challenges
  - e. Quality Assurance (Implementation)
    - i. Strengths
    - ii. Challenges
    - iii. Actions taken or planned in response to challenges
- 5) Appendices
  - a. Mapping of Program Outcomes to Institutional Student Learning Outcomes (if it has changed during the year)
  - b. Mapping of Program Outcomes to Courses (if it has changed during the year)
  - c. Program Assessment Plan (if it has changed during the year)

**Appendix IV: Program Progress Report Rubric**

1. How are your stated student learning outcomes appropriate to your mission, programs, students, and degrees?

<b>Distinguished</b>	<b>Proficient</b>	<b>Basic</b>
All program outcomes are aligned to institutional student learning outcomes.	More than half of program outcomes are aligned to institutional student learning outcomes but not all.	Some program outcomes are aligned to institutional student learning outcomes but less than half.
All program outcomes are aligned to course curriculum.	More than half of program outcomes are aligned to course curriculum but not all.	Some program outcomes are aligned to course curriculum but less than half.
All program outcomes have one or more direct measures.	More than half of program outcomes have direct measures but not all.	Some program outcomes have direct measures but less than half.
All program outcomes have documented methodology to determine student achievement of program outcomes at Basic, Proficient, and Distinguished levels of performance.	More than half of program outcomes have documented methodology to determine student achievement of program outcomes at Basic, Proficient, and Distinguished levels of performance but not all.	Some program outcomes have documented methodology to determine student achievement of program outcomes at Basic, Proficient, and Distinguished levels of performance but less than half.
All program measures have established goals.	More than half of program measures have established goals but not all.	Some program measures have established goals but less than half.

2. What evidence do you have that students achieve your stated learning outcomes?

<b>Distinguished</b>	<b>Proficient</b>	<b>Basic</b>
All program outcomes have percentage of students at Basic, Proficient, and Distinguished levels of performance.	More than half of program outcomes have percentage of students at Basic, Proficient, and Distinguished levels of performance but not all.	Some program outcomes have percentage of students at Basic, Proficient, and Distinguished levels of performance but less than half.
All measures have results.	More than half of measures have results but not all.	Some measures have results but less than half.

3. In what ways do you analyze and use evidence of student learning?

<b>Distinguished</b>	<b>Proficient</b>	<b>Basic</b>
The program has analyzed results from assessment measures to identify strengths in all five areas of: Outcomes, Curriculum and Cocurriculum, Teaching and Learning Methods, Student Learning Assessment, and Quality Assurance (Implementation).	The program has analyzed results from assessment measures to identify strengths in all three or four areas of: Outcomes, Curriculum and Cocurriculum, Teaching and Learning Methods, Student Learning Assessment, and Quality Assurance (Implementation).	The program has analyzed results from assessment measures to identify strengths in at least one area of: Outcomes, Curriculum and Cocurriculum, Teaching and Learning Methods, Student Learning Assessment, and Quality Assurance (Implementation).
All strengths identified are based on evidence.	More than half of the strengths identified are based on evidence. but not all.	Some of the strengths identified are based on evidence but less than half.
The program has analyzed results from assessment measures to identify challenges in all five areas of: Outcomes, Curriculum and Cocurriculum, Teaching and Learning Methods, Student Learning Assessment, and Quality Assurance (Implementation).	The program has analyzed results from assessment measures to identify challenges in all three or four areas of: Outcomes, Curriculum and Cocurriculum, Teaching and Learning Methods, Student Learning Assessment, and Quality Assurance (Implementation).	The program has analyzed results from assessment measures to identify challenges in at least one area of: Outcomes, Curriculum and Cocurriculum, Teaching and Learning Methods, Student Learning Assessment, and Quality Assurance (Implementation).
All challenges identified are based on evidence.	More than half of the challenges identified are based on evidence. but not all.	Some of the challenges identified are based on evidence but less than half.

4. How do you ensure shared responsibility for student learning & assessment of student learning?

<b>Distinguished</b>	<b>Proficient</b>	<b>Basic</b>
The assessment process ensures that all program faculty participate in the analysis of assessment results.	The assessment process provides an opportunity for all program faculty to participate in the analysis of assessment results.	The assessment process ensures that a limited number of program faculty participate in the analysis of assessment results.
All measures have a response rate greater than 66%.	All measures have a response rate greater than 33%	All measures have some response.

5. How do you evaluate and improve the effectiveness of your efforts to assess and improve student learning?

<b>Distinguished</b>	<b>Proficient</b>	<b>Basic</b>
The program has improvement plans in all five areas of: Outcomes, Curriculum and Cocurriculum, Teaching and Learning Methods, Student Learning Assessment, and Quality Assurance (Implementation).	The program has improvement plans in all three or four areas of: Outcomes, Curriculum and Cocurriculum, Teaching and Learning Methods, Student Learning Assessment, and Quality Assurance (Implementation).	The program has improvement plans in at least one area of: Outcomes, Curriculum and Cocurriculum, Teaching and Learning Methods, Student Learning Assessment, and Quality Assurance (Implementation).
All identified challenges have a corresponding plan for improvement.	More than half of the identified challenges have a corresponding plan for improvement but not all.	Some of the identified challenges have a corresponding plan for improvement but less than half.

6. In what ways do you inform the public about what students learn and how well?

<b>Distinguished</b>	<b>Proficient</b>	<b>Basic</b>
Program makes program outcomes available to stakeholders including the public, students, and faculty and staff.	Program makes program outcomes available to internal stakeholders including students and faculty and staff only.	Program makes program outcomes available to faculty and staff only.
Program makes assessment results available to stakeholders including the public, students, and faculty and staff.	Program makes assessment results available to internal stakeholders including students and faculty and staff only.	Program makes assessment results available to faculty and staff only.

Any area that does not meet the criteria for “Basic” level of performance is considered “Developmental.”

## Appendix V: Institutional Student Learning Report Card Outline

### Process for the Assessment of Student Learning

In order to assess student learning at Brubaker College, a multi-step program assessment process has been created that begins with the development of student learning outcomes, includes mapping of outcomes to curriculum, measurement of how effectively the outcomes are being met by students, and annual updates on each program.

#### *Institutional Student Learning Outcomes*

Brubaker College has established institutional student learning outcomes based on the mission and purposes of the College. All graduates are expected to meet these outcomes prior to graduation.

- insert outcomes here

#### *Program Outcomes*

The faculty in each program develop student learning outcomes for the program that describe what a graduate of the program will be able to do and know. Advisory boards and other external sources of expertise are used in this process, and program outcomes are updated to reflect changes in the program discipline. In addition to program outcomes, general education outcomes have been identified for each degree level.

#### *Mapping of Program Outcomes to Institutional Student Learning Outcomes*

Programs will list under each Institutional Student Learning Outcomes which program and general education outcomes map to that Institutional Student Learning Outcomes. This mapping for each program shows the alignment of the program and general education outcomes to the Institutional Student Learning Outcomes.

The Institutional Student Learning Outcomes align through the program and general education outcomes to course outcomes. For example, a program outcome that meets a critical thinking institutional student learning outcome should have one or more mapped courses that include critical thinking as an outcome.

#### *Mapping of Program Outcomes to Courses and Assessments*

The program mapping includes the program outcomes and general education outcomes as the rows in a table. The columns of the table are the courses in the program and the general education threads. In the cells the following codes should be used to indicate how a program outcome is being met by a course:

I: Introduced –where the outcome is first introduced to the student

R: Reinforced/developed –where the outcome is expanded on and developed from the introduction and reinforced through practice.

E: Emphasized: where the student meets the outcome at its highest level

A: Assessed: this is where the student demonstrates knowledge of the outcome either

developmentally or at a mastery level. Each program outcome must be assessed at least once at the mastery level using a direct measure.

Each cell can have 0-4 codes. The general education outcomes may be addressed by program courses in addition to the general education threads and courses.

The program outcome map provides multi-purpose tool for the faculty. First, it provides a big picture view for the development of the course curriculum. Second, it is an assessment tool to identify gaps and overlapping classes in the curriculum.

*Assessment Plan*

The Program Assessment Plan lists and describes the measures used for assessment of the program. These measures include direct measures of student learning and indirect measures that address other dimensions of program performance. The direct and indirect measures chosen should be designed or utilized to provide programs with the data needed to make informed decisions regarding changes to the program. The assessment plan can be constructed as a table with each measure a row in the table and the following information in the columns:

<b>Measure</b>	<b>Source</b>	<b>Frequency</b>	<b>Analysis</b>	<b>Goal</b>
<i>The name of the measure or a brief description.</i>	<i>The instrument, institutional data source, or other location where the data comes from. Object of Assessment: What the measure is intended to assess (specific inputs, processes, products, outputs, and outcome).</i>	<i>When and how frequently the data is collected.</i>	<i>How the data is analyzed, including as appropriate how student performance will be determined at Basic, Proficient, and Distinguished levels of performance.</i>	<i>The targeted performance level for the measure based on benchmarking.</i>

*Annual Program Progress Report*

Each program submits an annual program progress report before the end of the academic year. The purpose of this progress report is to provide evidence that the program is collecting, analyzing, and using assessment of student learning to improve the program. The program progress report includes a review of evidence that program outcomes are being met, an assessment of the strengths and challenges in the program, and action plans to address challenges.

There were 133 active programs during the academic year. Of those, 15 were new programs and exempt from submitting a program progress report. Of the 118 programs required to submit a program report, 83 did so.



**Student Learning Results**

The Higher Learning Commission has identified six key questions regarding student learning. These questions provide the basis for discussing results of student learning at Brubaker College. For each question, a number of performance indicators have been identified. Based on the annual program progress report, programs have been scored based on their performance using the program progress report rubric. For each performance indicator, programs performance is Distinguished, Proficient, Basic, or Developing. The summary below shows the number and percentage of programs falling into each category.

1. How are your stated student learning outcomes appropriate to your mission, programs, students, and degrees?

Performance Indicator	Distinguished	Proficient	Basic	Developing
Does the program have program outcomes?				
Are the program outcomes mapped to the program curriculum?				
Does the program have at least one direct measure of student learning for each outcome?				
Does a documented methodology exist to determine student achievement of program outcomes at Basic, Proficient, and Distinguished levels of performance?				
Does the program have performance indicators tied to student learning outcomes and other measures of effectiveness?				
Has the program established targets for performance indicators?				

2. What evidence do you have that students achieve your stated learning outcomes?

Performance Indicator	Distinguished	Proficient	Basic	Developing
For each program outcome, what percentage of students have achieved Basic, Proficient, and Distinguished levels of performance?				
Has the program collected results related to performance indicators?				

3. In what ways do you analyze and use evidence of student learning?

Performance Indicator	Distinguished	Proficient	Basic	Developing
Has the program analyzed results from assessment measures and performance indicators to identify strengths in: <ul style="list-style-type: none"> <li>● Outcomes?</li> <li>● Curriculum and Cocurriculum?</li> <li>● Teaching and Learning Methods?</li> <li>● Student Learning Assessment?</li> <li>● Quality Assurance (Implementation)?</li> </ul>				
Are strengths based on evidence?				
Has the program analyzed results from assessment measures and performance indicators to identify challenges in: <ul style="list-style-type: none"> <li>● Outcomes?</li> <li>● Curriculum and Cocurriculum?</li> <li>● Teaching and Learning Methods?</li> <li>● Student Learning Assessment?</li> <li>● Quality Assurance (Implementation)?</li> </ul>				
Are challenges based on evidence?				

4. How do you ensure shared responsibility for student learning & assessment of student learning?

Performance Indicator	Distinguished	Proficient	Basic	Developing
Are all faculty engaged in the analysis of assessment results?				
What is the reporting rate of assessment measures?				

5. How do you evaluate and improve the effectiveness of your efforts to assess and improve student learning?

Performance Indicator	Distinguished	Proficient	Basic	Developing
Are challenges identified in each area: <ul style="list-style-type: none"> <li>● Outcomes?</li> <li>● Curriculum and Cocurriculum?</li> <li>● Teaching and Learning Methods?</li> <li>● Student Learning Assessment?</li> <li>● Quality Assurance (Implementation)?</li> </ul>				
Do all challenges have action plans?				

6. In what ways do you inform the public about what students learn and how well?

Performance Indicator	Distinguished	Proficient	Basic	Developing
Do all stakeholders have access to program outcomes?				
Do all stakeholders have access to assessment results?				

**Assessment of Student Learning Results**

*Strengths*

- A structure for assessing student learning is in place. 88% of programs have established student learning outcomes at the program level, and 73% have mapping and assessment plans in place.
- Program updates generally identify challenges based on evidence (67%) and specify plans for improvement (70%).

*Challenges and Plans for Improvement*

- Only 31% of programs with program updates included results of student learning for all program outcomes. Only 52% of these programs have measures in place to provide results. The lack of these results makes it difficult to have evidence to support analysis of the program's strengths and challenges. The feedback on the program updates should trigger more activity, but the Assessment Department will need to work with program coordinators to continue the development of measures.
- The college lacks processes for making assessment results public beyond faculty and administrators. The Assessment Department and other administrators will need to work on strategies to address this challenge.