For CQI at a university, faculty have responsibilities in addition to those expected from other employees. All usual activities related to identifying operations/systems in need of improvement apply, plus faculty are responsible for improving and maintaining the quality of academic programs.

CQI has come to universities through the accreditation process. Six regional accreditors have authority over colleges and universities throughout the U.S.A. and, through this certification process, the ability of a school to offer federal financial aid. 79% of all DSU students receive some form of financial aid.

In addition to ensuring access to student financial aid, accreditation is generally the ally of faculty, because it requires proper credentialing, which sustains respect for terminal degrees appropriate to the academic programs offered by a university. In addition, accrediting bodies exercise some control over teaching loads and faculty staffing levels, preventing faculty from being spread too “thin”.

To sustain accreditation, universities must do two basic things: (1) remain financially solvent (typically a non-issue for a state-supported institution), and (2) demonstrate that academic programs meet the quality expectations of the accrediting body. If one studies the written requirements for accreditation, scores of other activities and requirements can be found, but if one looks holistically at the history of accrediting body actions, one sees that institutions which remain financially solvent and meet academic quality requirements are rarely in danger of losing accreditation.
The Higher Learning Commission of the North Central Association of Colleges and Schools accredits DSU. The NCACS also accredits secondary schools through its Commission on Accreditation and School Improvement. Retrospective review of university operations is still available in many regions of the country but, starting about 20 years ago, regional accreditors began embracing forward-looking academic quality improvement processes (i.e., CQI for universities) and many institutions, including Dakota State, have wisely chosen to embrace this change.

Accreditation

Why should we care about accreditation?
• Required for financial aid
• Ensures proper staffing
• Ensures financial stability
• Ensures equal treatment

Who Accredits DSU?
• North Central Association of Colleges and Schools
  • Higher Learning Commission
  • Commission on Accreditation and School Improvement

Accreditation

What does it demand?
• Historically – a periodic review of university operations, called Program to Evaluate and Advance Quality (PEAQ)
• Now... there is an option, called Academic Quality Improvement Program (AQIP)
• “Show me the money”
• Bottom line: The commission that grants permission for DSU to offer financial aid to students requires the University to engage in Continuous Quality Improvement
Accrediting bodies ensure that universities maintain academic quality using two types of experts. The first group is employed staff with expertise in university operations. The second are faculty members and administrators from accredited universities, who work part-time on accreditation activities of other institutions. These people visit universities to observe operations and interview faculty and staff. In the comprehensive program evaluation methods used in the past, these visits were very large, time- and resource-consuming activities. More important, they were “make or break” events, the results of which could enhance or threaten the reputations of institutions and of those responsible for their overall operation. Most important, they were retrospective in nature, offering only (sometimes very delayed) feedback on university operations. These methods sometimes allowed fairly severe problems to grow over a period of years before attempting to address them.

Accrediting bodies were well aware of these weaknesses and found a strong ally in increasingly popular continuous quality improvement processes. By merging the two, accrediting bodies were able to shift the accreditation process from a focus on past performance (mistakes) to a focus on quality improvement (avoidance of future mistakes).
Most faculty are familiar with pre- and post-testing, which establishes a benchmark in advance of training, then administers a similar/identical test after training in hopes of detecting a treatment effect that can be reasonably argued to have resulted from the training.

In general, when used properly, this approach has more advantages than disadvantages. Advantages include faculty control, ability to assess specific training and intended outcomes, and the potential for clear connection to the training offered.

The disadvantages of pre and post mostly stem from the time required to design and administer the tests and to inadequate attention to validity issues. As a positive example, consider the training of a skill such as computer programming. Despite the fact that some students have stronger innate ability than others, the linguistic nature of the training ensures that few students will acquire knowledge of programming from “normal” life experience. If a pre-test indicates very low knowledge and a post-instruction test indicates increased knowledge, it is reasonable to associate increased knowledge with the provided training.

On the other hand, consider training in college life experience. A pre-test of incoming freshmen will likely show many students to have very low levels of knowledge about appropriate/effective behaviors for personal and academic success. A college-experience course can provide training in, for example, how to get along with roommates and other dorm residents. In establishing the validity of pre- and post-testing, however, it may be difficult to separate the effect of administered training and the knowledge freshmen acquire from simply living in a dorm during the first semester of
college. Special care must be exercised to isolate the effect of training from knowledge acquired from other sources.

It is strongly recommended that pre- and post-testing not be conducted at the beginning and end of entire academic programs. Student retention of concepts typically does not conform to these testing techniques and results can range from disappointing to shocking.

### Valid and Reliable

**Standardized Testing**
- May be done at the program level
  - Pros
    - Externally valid
    - Someone else makes up and administers the test
    - Reinforced by University/BOR rules
  - Cons
    - Someone else makes up and administers the test
    - Expensive
    - Can be quite a bit of work at the program level

The biggest advantage of standardized testing is external validation. Whether we agree with all topics covered, we generally agree that the contents of these tests represent broad agreement about a collection of topics, perhaps at the national or even international level.

As one might expect, creation and maintenance of these tests’ validity is an expensive process. In addition, most standardized tests are provided by for-profit entities in an industry in which competitive rivalry is low and entry of new competitors is difficult. This adds up to very high prices for standardized test administration. Some state entities, including the South Dakota Board of Regents, require students to take certain standardized tests during their enrollment in college. Faculty can make linkages to those tests, if the content is appropriate, but it is likely not possible to require standardized tests other than those required by the SDBOR. They are either too expensive for students to pay for in addition to those required by the SDBOR, or they are too expensive for a university or program to pay for out of operating funds.
Even if the issue of affordability is manageable, the question remains of linking a test created for a separate purpose to activities on campus. At the program level, it will likely be best to develop broad faculty agreement about the appropriateness of a standardized test to program needs, and substantial additional effort will be required to establish which questions/topics of the test will best link to the needs of the local program. If a program relies on multiple disciplines, it may be necessary to ask faculty representatives of those disciplines to assess test content as it relates to each discipline. Though this process is cumbersome, it is doable and has been done successfully at DSU. The benefit of this effort is a test that is widely administered to students in the program, externally valid, and graded/interpreted by the test administrator.

### Valid and Reliable

**In-Course Analyses of Performance**

- Can be conducted at the course and, if done with proper planning, program level
  - Pros
    - Instructor-controlled
    - Very specific
    - Is possible to do with moderate effort
    - Workload can be shared among instructors
    - Highly sophisticated analyses possible
  - Cons
    - Not externally validated
    - May require more “maintenance”
    - A more blunt assessment of performance

Perhaps the most accurate measure of student performance, as it relates to what is taught, is an in-course assessment of performance. This accuracy comes at the cost of significant effort, however, and from a couple of other compromises as well.

The process is straightforward:
- At the course level –
  - An instructor (or group of instructors teaching the same course) selects key topics that s/he considers “takeaways” from the course. These topics are almost always included on tests or other assignments.
  - The key is to assess these items “latitudinally” rather than “longitudinally”. Cross-sectional grades indicate average performance on items. A collection of such grades can be argued to demonstrate average comprehension/retention of key material in a course. Longitudinal grades
represent individual student performance. Performing cross-sectional analyses of course grades has little validity in this context because course grades are comprised of many components and the process hides, rather than reveals, performance on key course topics.

An instructor may choose as many items as s/he wishes, but more items increases the amount of effort expended, including for revisions or updates. Typically, a group of five to ten topics can be effectively argued to represent key concepts from a course. For validity reasons, this number of topics may require a larger number of items.

- At the program level –
  - This is a similar process to in-course analysis, but coordinated among faculty to assess program (multiple-course) content.
  - It is recommended that assessment of key program topics NOT be conducted at the end of a program (e.g., in a capstone course). Retention of program material has been shown in published studies to be astoundingly low. Potential reasons for this problem have been suggested, but such a result would undermine the purpose and intent of program assessment in the context discussed here.

The cons for this approach are:
- Lack of external validity
- Effort required to create assessments
- Effort required to analyze and interpret results
- Effort required to revise assessments in response to information gained
For reasons discussed in the pre and post section and reiterated in the in-course analyses section, the final method for assessing student performance in a program – a test of subject mastery – should be approached with great caution.

The idea of a faculty-designed and –administered test is appealing. It covers exactly the topics that faculty believe to be important and serves as a repeated measure of student performance over time. The idea that a student should be able to demonstrate subject mastery is also appealing to many faculty members, perhaps because many terminal degrees require the passing of a comprehensive exam.

Alas, the sounds-good, feels-good aspect of subject mastery tests do not live up to the positive images that they form in faculty minds.

- They are subject to the long-term recall problems identified earlier
- They create an “all-or-nothing” event that is both pedagogically and psychometrically inappropriate for assessment of undergraduate performance

If a program can be designed so that the existence of a test of mastery is an integral and salient part of the program at all times, and if reinforcing course content can be offered throughout the program, it can be made to work. However, these fixes do not address the increasingly complex issues of students entering and leaving majors and programs, or progressing at different rates through them.