Uncovering Obstacles to the Assessment Momentum

E. W. Nault, Ph. D., M. S . Leonard, Ph. D., P.E., J. Joseph Hoey, Ed.D.
Clemson University/Georgia Institute of Technology

Abstract
Why is the practice of assessment inconsistently applied across engineering programs within the same university and among engineering disciplines across the country? Engineering Criteria 2000 [1] which mandates programmatic assessment was initially adopted for application in 1996. Yet, six years after the adoption of the new criteria, why do we still experience high levels of faculty resistance to program assessment? This interactive presentation uses a practical approach to identify barriers to on-going assessment practices, to explore issues of trust by rating assessment methods, and to provide suggestions to make assessment strategies more useable. Observations and suggestions from institutional research professionals and engineering faculty are incorporated in the presentation.

Overview
Introduction
Professional, regional and state evaluation mandates require institutions to systematically assess student learning in engineering curricula. This session presents recent findings in assessment obstacle analysis and provides an interactive experience in obstacle identification. Attendees will investigate barriers to sustaining assessment, report perceived weakness in selected commonly used assessment methods, and identify practical strategies to increase faculty trust in the data acquired from these methods.

Leadership is critical to establishing a foundation of trust as exhibited by shared concern and decision-making, reliability, open communication and explanations, and benevolence [2, 3, 4]. Campus leadership must manage trust by maintaining constancy of purpose and reliability of action [5, 6]. Of course, open communications, commitment to common goals, leadership, budget practices, allocation of time, rewards, and other barriers to embracing assessment are critical to the development and maintenance of organizational trust [7, 8]. Unfortunately, the faculty of an academic department has few opportunities to effect institutional change. The importance of this research is to identify approaches that faculty can use to overcome barriers of limited or no trust which deter sustained programmatic assessment. The focus is on activities or strategies that faculty can use to take corrective action. With this in mind, the research examines the assessment questions, methods, and data rather than motives of assessment.

Workshop Process
The University Assessment Committee at a southern research institution was interested in the culture of assessment as the university embarked on its self-study process for regional reaffirmation of accreditation. The Committee engaged in an environment scan resulting in a recommendation to further examine the perception of assessment and enhancing institutional effectiveness. Through the support of a newly appointed president, the Office for Institutional Effectiveness and Assessment developed a workshop that included the deans, department chairs, and faculty selected by the department chairs. The participants identified

characteristics of a culture of assessment infused with a low level of trust. A preliminary inventory of best practices to build trust in assessment emerged as the result of this workshop. A workshop for faculty members in a College of Engineering at a different institution[9] and another workshop held at a conference of institutional research professionals confirmed these findings [10]. Responses from the three workshop participants clearly indicate support of the research of Schilling & Schilling [11] who identified four ways in which trust or lack of trust in assessment may exist in the faculty. First, the motives for collecting assessment data may be mistrusted. Second, the methods or instruments used in assessment may not be effective or efficient. Third, the questions raised through assessment may not be relevant to issues of interest to faculty, and thus not regarded as trustworthy. Finally, fear concerning the misuse or inappropriate interpretation of the data generated through assessment may lead to mistrust of assessment [12].

Barriers to the assessment process must be identified and systematically neutralized if assessment is to succeed as a long-term strategy for ongoing measurement of processes and outcomes, and continuous improvement of student learning systems. Through the three workshops described above, department chairs, faculty, and institutional research professionals have identified the barriers to systematic assessment practices displayed in Table 1. These are classified by three themes: attitude, knowledge, and practice.

Table 1. Examples of barriers to systematic assessment

Barrier	Example
Attitude	Faculty: lack of 'buy in', 'commitment', or 'motivation'; 'administrative nonsense'; Institutional Research professional : 'indifference, resistance, and hostility' toward assessment.
Knowledge	Faculty and Institutional Research: turnover in personnel resulting in loss of institutional memory, not knowing what needed to be evaluated, and responding to compliance rather than the desire for program improvement.
Practice	Faculty and Institutional Research: no evidence of change or improvement; no link between assessment results and budget allocations; and institutional leadership does not support assessment momentum after an accrediting body leaves.

Results
Institutional research professionals and faculty members from a College of Engineering were asked to rate selected assessment tools in terms of how much they trusted the strategy to answer relevant questions and provide useful data [13, 14]. The two groups differ in their ratings of the strategies, but both groups specified three general levels of trustworthiness, see Table 2, where high trust represents a good fit between the tool and the needs for information. Assessment methods that are standardized or structured according to regional or national criteria (licensure exam results or transcripts) were ranked highest by institutional research professionals. But, faculty rated standardized examinations such as the Fundamentals of Engineering Exam (FE) as being in their second level of trust. Engineering faculty recognize that the analysis of FE examination results and transcripts should not be the sole, and perhaps not the best, strategies for assessing student learning.

Faculty rated their highest level of trust in student artifacts, those assessment strategies developed or administered and interpreted by the departmental faculty. Institutional research professionals rated student artifacts in their second tier of trust along with accreditation review

by peers in a discipline and student-reported information (placement data, exit surveys or interviews).

External advisory, student advisory and alumni survey information was ranked by institutional research professionals as being least trustworthy. This is similar to the ranking of the faculty, who held the least amount of trust in self-reported information from students or alumni. Faculty also rated employer evaluations including evaluations of co-op students at their lowest level of trust. Note, however, that employer surveys for program assessment were rated in the highest trust level by institutional research professionals.

Table 2. Summary of trust-rating of assessment strategies

	Faculty	Institutional Research Professionals
Highest	Student artifacts -- those assessment strategies developed or administered and interpreted by the departmental faculty (portfolios or exhibits, papers, projects)	Standardized examinations, Professionally reporting guidelines, and self reported or information from employer evaluations -- (licensure exam results, transcripts according to regional, national, or professional criteria, evaluations of co-op students or alumni)
Middle	Standardized examinations -- such as the Fundamentals of Engineering Exam (FE)	Accreditation review by peers in a discipline, student artifacts, and student-reported information (portfolios or exhibits, placement data, exit surveys or interviews).
Lowest	Self-reported information from students or alumni and that gathered from employer evaluations including evaluations of co-op students or alumni.	Self-reported information from students or alumni (only)

Differences between the responses of the faculty and the institutional research professionals could be attributed to several factors. The role of these two groups within the institution is different; therefore, the perspective that each has regarding collection and use of data will reflect its role. For example, institutional research professionals generally hold a broad, university-wide view while faculty predominately focus on their discipline. Although both groups may be well-trained researchers, their use of the data differs. Examination of desired student outcomes of a specific curriculum requires different information than would be used to examine institutional graduation rates. In addition, the influence of variability and reliability in assessment methods may be a driver of how the faculty or institutional researchers rated their trust of the strategies for decision making. The level of direct contact a supervisor or employer may have to observe performance of a graduate may affect the reliability of the information reported on a survey from the faculty perspective. The preliminary research indicates that that the faculty and institutional research groups do not differ extremely among institutions in the role that they play within their institution but there appears to be a difference between the two groups.

Suggestions
Identifying practical strategies to increase trust in assessment data was a third workshop activity. Some of the suggestions clearly indicated the desirability of program faculty

involvement in the development and/or use of the instruments. For instance, institutional research professionals stated that exit interviews or surveys should be developed by the departments rather than a university's Office of Institutional Research. Feedback from alumni should be obtained on specific program characteristics that are identified by department faculty and included as a separate section in the general university alumni or employer surveys.

Both institutional research professionals and engineering faculty suggested developing a rubric for scoring student artifacts to increase the validity of the ratings. According to both groups, co-op student supervisor or employer evaluations could be improved by developing standardized evaluation measures and providing common definitions of employee skills for all raters.

Employment placement data are generally reported by alumni. Institutional research professionals suggested direct faculty contact by e-mail with the alumni as a way to increase the response rates of alumni surveys thereby increasing the reliability of the data. Faculty offered no suggestion as to how to increase the trustworthiness of placement data, which is consistently viewed as untrustworthy for program decision making.

Audience Response
The ASEE Montreal Conference session where this paper will be presented will provide an opportunity for the audience to share their perceptions as well as learn about the perceptions of their peers. After the conference, all participants will receive a summary of the session activities, recommendations from other faculty, and a review of the relevant literature. Following each brief audience activity, the presenters will describe their current research findings regarding the activity. Montreal participants will describe what they believe is the most important barrier to on-going assessment at their institution. They will rate their trust in some of the assessment strategies most commonly used for program or curriculum enhancement by engineering departments and why they provided the ranking. Finally, they well offer (and learn of) recommendations as to how to improve the effectiveness and/or efficiency of the strategies.

Conclusion
Barriers to ongoing use of assessment activities for continuous programmatic improvement can be overcome. From the active research process described in this paper and used in the ASEE conference session, the audience will consider changes to the implementation of assessment methods so that they can have a direct influence on increasing trust in using assessment methods and data.

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Biographical Information
ELEANOR W. NAULT is the Clemson University Director of Assessment. From Clemson, she received her B.A., M.C.R.P., M.Ed., and Ph.D. Her research activities include assessment of institutional culture and cluster and program evaluation. She actively participates in the Association of Institutional Researchers and the NSF SUCCEED Coalition.

MICHAEL S. LEONARD is a professor and the Chair of the Department of Industrial Engineering at Clemson University. He received the B.I.E, M.E., and Ph.D. degrees in industrial engineering at the University of Florida. He is a Fellow of the Institute of Industrial Engineers, and he currently serves on the ABET Board of Directors.

J. JOSEPH HOEY, Director of Assessment at Georgia Tech, holds a B.A. from the University of California, San Diego; an M.M. from Florida State University; and an Ed.D. from North Carolina State University. He is the president of the Southern Association for

Institutional Research, a professional organization and an active participant in the NSF
SUCCEED Coalition.