

CHANGE

a follow-up report to the
Vision for Change





“It is change, continuing change, inevitable change, that is the dominant factor in society today. No sensible decision can be made any longer without taking into account not only the world as it is, but the world as it will be....”

- G I ▼

1994

Then

Over a decade ago, the U.S. engineering community – including industry, academe, and government – collectively concluded that it was time to make a change in engineering education. They came to this conclusion for several reasons. First and foremost, industry leaders had for years been voicing concerns to the community that engineering graduates were not adequately prepared to function within modern American industry. They lacked the ability to team effectively, said industry leaders. They had little grasp of concepts such as customer service, environmental sensitivity, social responsibility, and continuous quality improvement. At the same time and just as strongly, these same concerns were expressed by

ABET Town Meeting

November 2002

At the 2002 ABET Annual Meeting, a special session was held in order to gather feedback from ABET-accredited programs on three important topics in the Accreditation Reform Movement:

- The sustainability of continuous improvement processes.
- The challenges of creating clear reports and self-studies on those processes.
- The appropriate time to reexamine ABET criteria and to refine it based on lessons learned.

The following is feedback received from the session participants:

Sustainability of Continuous Improvement Process

(changes in criteria, process, and documentation)

Criteria

- + Process of ongoing participation is very meaningful.
- Potential for inconsistent evaluation among program evaluators.

Process

- + Promotes meaningful curriculum discussions.
- Enormous volume of work... How much needs to be included in assessment?

Documentation

- + Opportunity for institution to document what they are doing.
- Want less.... Higher quality.

Documentation in Reports and Self-Studies

(format, data, and record keeping)

"The world hates change, yet it is the only thing that has brought progress."
- Charles F. Kettering

Accreditation Reform Workshop Leaders – 10 Years Later

September 2002

All six leaders of the Criteria, Participation, and Process Workshops reconvened after nearly a decade in order to gauge the progress of the accreditation reform they helped bring about in the early 1990s. After a full day of targeted discussions and brainstorming, the leaders formulated a set of observations, progress points, concerns, and recommendations:

The Leaders

M. Dayne Aldridge

Mercer University

Ira D. Jacobson

Embry-Riddle Aeronautical University

Elinor S. Pape

University of Texas, Arlington

Edward A. Parrish

Worcester Polytechnic Institute

George D. Peterson

ABET, Inc.

John W. Prados

University of Tennessee, Knoxville

with additional input from

Gloria M. Rogers

Rose-Hulman Institute of Technology

Observations

ABET is viewed as a leader by other higher education accrediting organizations.

ABET is sought by the international community for leadership in quality assurance of engineering education.

A blurring of disciplinary boundaries is occurring that is incongruent with existing accreditation structures.

Industry involvement in ABET has not changed significantly.

Progress Points

There is growing acceptance of the value of the systematic engagement of external constituencies in improving program quality.

There is a growing awareness of the value of outcomes-based assessment processes for improving program quality.

There is increased faculty attention to student learning as a part of improving program quality.

There is growing involvement of industry at the program level.

Progress Points

ABET is evolving into an international force in setting the standards for evaluating and encouraging excellence in engineering education.

ABET has endorsed the longitudinal, multi-year study of the impact of ABET's accreditation reform on engineering education, with particular focus on measurable changes in engineering school culture toward continuous quality improvement and employer satisfaction with engineering graduates.

“If we don't change direction soon, we'll end up where we're going.”
– Professor Irwin Corey

Concerns

The apparent focus of programs on the quantity of data collected rather than the assessment of quality, which can create heavy workloads and the perception of accreditation as an onerous task.

The sustainability of efforts at the campus level.

The continuity and sustained commitment of leadership in ABET, institutions, and societies (climate v. culture).

The role of professional societies in assuring the consistency and quality of the selection, training, and evaluation of program evaluators.

Concerns

The ability to maintain the momentum and

“It is evident that skepticism, while it makes no actual change in man, always makes him feel better.”
–H.L. Mencken

Sustainability Retreat

September 2003

During this retreat, deans and faculty from a widely representative slice of programs – small, large, public, private, liberal, technical – many of which had been evaluated more than once under ABET's outcomes-based criteria, met with members of ABET's Board of Directors, commissions, and Industry Advisory Council. The participants were asked to share with ABET their experiences with the new criteria and accreditation process, and to issue recommendations needed for ABET to sustain the change. All facets of the Accreditation Reform Movement were discussed, including criteria, training, assessment, consistency, accountability, communication, faculty involvement, industry participation, institutional support, global considerations, and new disciplinary challenges. Many recommendations were made, including the following:

Assessment Tools

Better consistency with training for team chairs, program evaluators, and faculty.

Create candidacy phase for new programs.

ABET should benchmark with other professional accrediting agencies to look at minimum standards; will these standards increase over time if ABET is a continuous improvement agency?

Faculty Involvement

In order to improve faculty attitudes toward students, ABET should highlight the importance of faculty attitudes toward students in the self-study report.

ABET should develop a list of attributes of student involvement with faculty, professional organizations, and industry.

During the site visit, the visiting team should discuss the effectiveness of advising with a cross-section of students.

Accreditation Process

Self-study, assessment documentation, etc...limit the length of the reports.

Greater role for faculty in exit interview.

Consistency, professionalism, openness of visiting team members, including more trained faculty participating as program evaluators.

Relatively less emphasis on program educational objectives, and more emphasis on remaining criteria.

National forum on best practices.

Curriculum Content,

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Environmental Factors

ABET, in conjunction with (i.e., National Science Foundation (NSF), National Academy of Engineering (NAE), American Association of Engineering Societies (AAES), American Society for Engineering Education (ASEE)) should lead the organization of a public review of the future of U.S. engineering education in the global environment of the 21st century, addressing issues of competitiveness, national security, the public perception of engineering, and the emergence of new scientific and engineering disciplines.

ABET should re-examine Engineering Criterion 3, Program Outcomes and Assessment, with the goal of re-defining engineering for the public in a global context.

Environmental Factors

ABET, in conjunction with (i.e., NSF, NAE, AAES, ASEE) should lead an effort to increase recruiting of fully representative students by changing the public perception of engineering and by supporting the preparation of K-12 students for engineering study.

In its annual review of engineering programs, ABET should identify and promote the public recognition of innovative and exemplary practices.

ABET should examine its commission structure with the goal of encouraging and facilitating the review of emerging disciplinary programs.

Industry Involvement

ABET should gather information about local industry advisory committee activity, and inventory and disseminate best practices of industry/academe collaboration to the entire ABET educational and industrial community.

ABET should inform college/university administrators about the educational value of industrial experience for faculty members in furtherance of their research and classroom objectives.

Industry Involvement

In support of the above, ABET should hold regional workshops for college/university provosts to promote the importance and value of industrial experience for engineering faculty members.

ABET should inform industry of the specific value of collaboration with engineering faculty in furtherance of industry's short and long term objectives.

"Change is the law of life. And those who look only to the past or the present are certain to miss the future."
– John F. Kennedy

Sustaining the Change

While there are a number of concerns, observations, and recommendations emerging from these input-gathering events, there are several common themes running throughout:

Communication and Leadership

Our constituents have told us time and time again that as the superintendent of applied science, computing, engineering, and technology education, ABET must take a more visible leadership role in these areas. Communication, the constituents say, must be the conduit of that leadership. There are strong recommendations for facilitating the sharing of best practices, holding more workshops, recognizing outstanding programs and faculty, and promoting accreditation and study in the ABET disciplines. Some desire more communication between ABET and industry. Some are suggesting a closer collaboration between ABET and other technical and scientific organizations. Whatever the specific recommendations are, they all center around increased leadership through communication.

ABET takes its role as a leader in quality assurance in technical education very seriously. From its presence overseas to its many initiatives here in the U.S. – technology education outreach, distance education, information technology – the organization is very active in the community it serves. However, it is clear from the input of our constituents that more emphasis must be placed at the program level; we must focus more closely on the institutions and programs we serve. There is already a communications plan in the works for ABET. This additional input will be used to ensure that it best fits the needs of all our constituents.

Accreditation Process

When any new process is instituted, there are bound to be wrinkles that need to be ironed. We have been hearing a lot about these from our constituents over the last decade, and have been doing our best to respond to them in an appropriate and timely manner. One of the most important initiatives to this end was begun in 2001 when the Accreditation Council was established. Made up of the Chairs and Vice Chairs of the commissions, the Adjunct Accreditation Directors, and the Accreditation Director, the council strives to standardize the accreditation process across commissions and to facilitate the process by sharing the best practices of each commission. The Accreditation Council has positively impacted the accreditation process in a number of ways and has affected virtually every part of that process from the self-study components to the visit agenda to the format and content of the criteria. Now that the council has become a permanent facet of ABET, we expect to see many more process improvements in the future.

Workload, documentation, and assessment tools continue to provide frustration for constituents. Sustaining the change relies on sustaining the level of commitment and enthusiasm – the level of momentum – both on campus and at ABET. We understand this and are working to continually improve it.

“I cannot say whether things will get better if we change; what I can say is they must change if they are to get better.”
– Georg Christoph Lichtenberg

American Academy of Environmental Engineers (AAEE)
American Congress on Surveying and Mapping (ACSM)
American Council of Engineering Companies (ACEC)
American Industrial Hygiene Association (AIHA)
American Institute of Aeronautics and Astronautics, Inc. (AIAA)
American Institute of Chemical Engineers (AIChE)
American Institute of Mining, Metallurgical, and Petroleum Engineers (AIME)
American Nuclear Society (ANS)
American Society for Engineering Education (ASEE)