

Department of Chemical and Biological Engineering
University of Wisconsin
1415 Engineering Drive
Madison, WI 53706

telephone: (608) 262-8999
fax: (608) 262-5434
email:thatcher@engr.wisc.edu

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Memorandum

To: CBE Faculty
From: Assessment Subcommittee (DJK, TWR, RES)
Re: 2003 EBI Survey Results Summary

Results from the EBI exit survey of graduating seniors for the last academic year have been compiled and evaluated. The current analysis provides conclusions in several areas: overall trends, updates on areas of earlier concern, and new areas to monitor.

Survey Administration and Analysis

This year the survey contains results from most of the December graduates and a sampling of the May and August graduates. Results are compared with the entire EBI participation group, with the Carnegie Class 1 (Research) university cohort, and with two different Select 6 peer groups (Group 1: USC, UT-Austin, Northwestern, Stanford, CMU, MIT, and Group 2: Columbia, Delaware, Duke, Rice, U of Rochester, U of Virginia). The college increased the peer group selection to increase comparisons available for some of the smaller and less common degree programs.

Coverage of graduating ChE seniors was less thorough than in earlier survey years. In the initial years of the survey, careful attention by Kathy Myhre (Undergraduate Student Records Examiner) typically resulted in 95% returns of all graduating seniors, which was the highest return in the college. In the 2002 administration, our numbers were down because no forms were available in December for that third of our graduating seniors, and May coverage was also lower than usual. A total of 30 surveys were recorded for our approximately 80 graduates that year. In the 2003 academic year, we recorded 45 surveys for the graduating class, with high coverage of the December cohort. However, the return for the May and August graduates in the last weeks of the spring semester was unusually low (17 of 51) due to the departure of Kathy Myhre. Instead of logging forms in as before, we distributed them through senior classes as usual but relied on the students to return their completed forms to the department office. This may have resulted in inputs from a less completely representative subset of finishing students.

Overall Trends

On average, the senior ratings are down across the entire range of questions. The average score has decreased by 0.3 since the 2002 results. Individual scores fluctuate more widely, with specific changes as high as +0.56 and as low as -1.19. Typical standard deviations are 1-1.5, so individual score changes are within measurement error but the aggregate performance is significantly lower. As a result, our performance relative to each Select 6 peer group, the Carnegie 1 research universities, and the total pool has fallen substantially. In the Select 6

comparisons in previous years we were usually above average, and often ranked 1 or 2. Now we are usually below average and often ranked 6 or 7.

This decrease is a concern and bears attention. It may be caused by growing student dissatisfaction. It may also be a consequence of the departure of Kathy Myhre, since we had a much lower return of evaluation forms in May without her monitoring of the collection, and this may also be less representative of the entire class. The faculty will consider these and other factors in a discussion.

Follow-up on Areas of Previous Concern

Four areas are currently being monitored: 1) physics courses, 2) multidisciplinary teams, 3) oral reports, and 4) “understanding the impact of engineering solutions in a societal/global context.” The physics score has jumped 0.55, from 3.5 last year to 4.05 this year. However, we still rank 7th in our Select 6 group (average 4.51). This remains a college-wide problem, and will be a continuing concern for the APCRC working group.

Team-related feedback has improved slightly, but components are still rated low. A range of questions relate to different aspects of this:

Question	2003 score	2002 score	Δ	Select 6 average	Select 6 ranking
15 – Satisfaction with value derived from team experiences	5.41	5.30	0.11	5.48	5
16 – Satisfaction with value of engineering program student organization activities	4.92	5.21	-0.29	4.75	2
17 – Satisfaction with leadership opportunities in Engineering program’s extracurricular activities	4.85	5.43	-0.58	4.76	3
29 – Satisfaction with fellow students’ ability to work in teams	5.93	6.00	-0.07	5.43	2
40 – Skill Development – Degree that engineering education enhanced ability to function on multidisciplinary teams	5.05	5.17	-0.12	5.36	6
Overall rating (16, 17, 18)	5.03	5.29	-0.26	4.99	3

Clearly, the feedback on their peers (Q29) is favorable, but the students are not confident or satisfied with their own abilities and improvement in team-related work (Q 15 and 40). Additional attention to team opportunities in our courses could be planned to improve this.

Oral communication skills have similar ratings, with students most uncertain and critical of their own abilities. The key score in this area dropped this year. This continuing decline confirms that the students feel strongly that oral presentation practice and skills need further attention. This decline is not yet supported by any outside data. We will consider what steps can be taken to increase students experience, skill, and self-perception of oral presentation skills.

Question	2003 score	2002 score	Δ	Select 6 average	Select 6 ranking
45 – Skill Development - Degree that engineering education enhanced ability to communicate using oral progress reports	4.44	5.03	-0.59	5.23	7

Many of the ratings of broader impacts beyond the technical field are of concern, in addition to the earlier “global/societal impact” topic. Several scores in this area dropped this year.

Question	2003 score	2002 score	Δ	Select 6 average	Select 6 ranking
43 – Skill Development - Degree that engineering education enhanced ability to understand the impact of engineering solutions in a global/societal context	3.93	3.87	0.06	4.64	7
42 – Skill Development - Degree that engineering education enhanced ability to understand ethical responsibilities	3.98	4.47	-0.58	4.76	7
55 – Skill Development – degree that engineering education enhanced ability to understand contemporary issues	4.39	4.67	-0.28	4.87	7

Generally, many of the “design experience” issues (Q 59-66) have scores 0.5 – 1.5 below the peer group mean, and rank 6th or 7th in the comparison. It is clear that our students do not understand the connection between the technical material covered in courses and the larger context within which they will be employing their skills in the outside world. We need to identify several ways to correct this problem.

New Areas to Watch

We will discuss the items highlighted in the “top-15” and “bottom-15” lists, looking at both the longitudinal 2002-2003 comparison and the Select-6 comparison. In light of the overall decrease in student ratings, we should be selective in identifying groups of related topics that may be addressed now, or added to our list of areas to watch for confirming data of new trends.

Action Items

- get a higher yield on EBI exit surveys, by resuming monitoring returns
- consider increased opportunities for team project training and practice
- identify increased opportunities for oral presentation training and practice
- improve awareness of applications, connections, and impact on outside world