Report on College of Sciences Assessment Training

12 March 2010

On 12 March 2010, forty two faculty members of the College of Sciences attended a luncheon to update assessment of student learning objectives. Also in attendance were Grady Price Blount (Dean, College of Sciences) and Dr. James Limbaugh (Provost/VPAA). Kelly McCoy (Dept. Head, Biology) made a presentation regarding assessment. Faculty were asked to participate in several activities including describing what every COS graduate should know, what every COS graduate should be able to do, and to write down one course-level student learning objective. The success of the luncheon/workshop was assessed using a very simple survey. There was substantial (and lively) discussion of several topics indicating good faculty engagement. Following is a summary of the results of the faculty participation activities and the overall assessment of the luncheon.

There was substantial agreement among faculty when asked to write down "one thing every COS graduate should know." Most faculty indicated that all graduates should know the nature of science (10/42), problem solving (9/42), or basic quantitative reasoning/mathematical skills (7/42). Several faculty also indicated that communication skills (3/42) and critical thinking skills (2/42) are things that COS graduates should know. There were 11 responses offered by a single faculty member. Most refer to knowledge specific to a single major.

Table 1. Faculty responses to "Write down one thing every COS graduate should know."

Number of responses	Response
10	Scientific method, nature of science, scientific theory, science process skills
9	Problem solving
7	Quantitative reasoning, basic arithmetic, computational skills
3	Communication skills, reading, writing
2	Critical thinking
1	Value of an education
1	Cell structure and function
1	Basic knowledge of the industry
1	Difference between an atom and a molecule
1	Animal production
1	Laws of thermodynamics
1	How to read an MSDS
1	How to demonstrate proficiency in area of expertise
1	How to use reference books
1	Ability to apply major in life
1	Where the restrooms are

Faculty responses when asked to write down "one thing that every COS graduate should be able to do" were very similar. As a skill, critical thinking was somewhat more popular (6/42), although

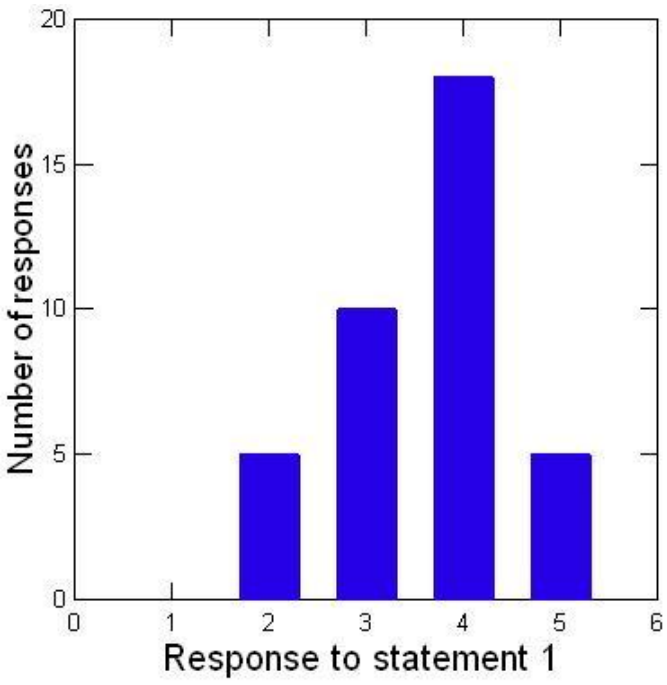
problem solving (8/42) and science process skills (8/42) remained the most popular answers. Quantitative skills represented 3/42 answers and 3 faculty members indicated that some sort of research skills were important. Several responses also referred to employability of graduates. Most responses were simply a rephrasing of the previous response. Faculty clearly made little distinction between knowledge (what students should know) and skills (what students should be able to do). Although in many instances this distinction may have little impact, future training should recognize that faculty find substantial overlap between skills and knowledge.

Faculty were also asked to write down one student learning objective (SLO) for a course they teach. Owing to the very different teaching assignments it was not expected that there would be any similarity among these learning objectives. It is interesting that the vast majority of these responses referred to specific skills or knowledge and very few of the learning objectives directly supported the skills or knowledge indicated as most important for all graduates (problem solving, nature of science, critical thinking). However, several learning objectives did address in some manner quantitative reasoning or problem solving.

It is particularly noteworthy that very few of the SLO's were phrased in a manner that would result in a clearly assessable outcome. Many faculty used the phrase "will understand" rather than clearly definable outcomes.

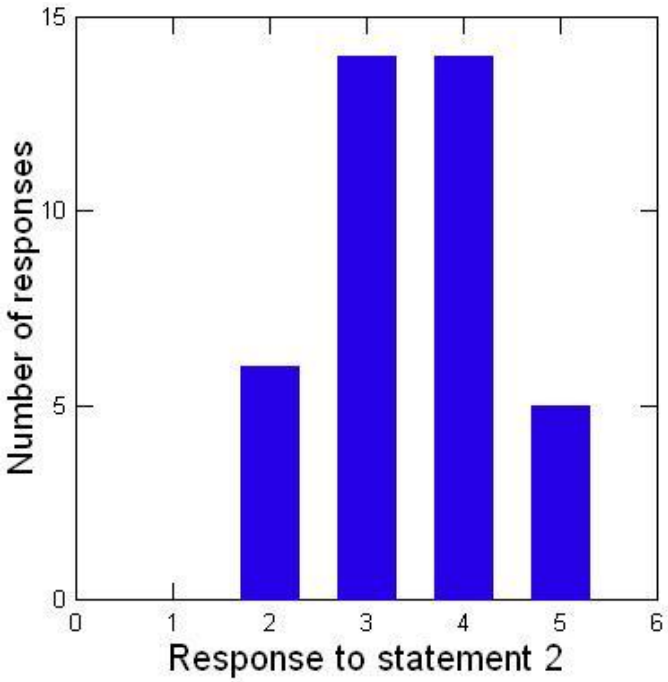
To evaluate overall effectiveness of the assessment luncheon, faculty were asked to respond using a five-point Leikert scale (from strongly disagree to strongly agree) to three statements. Forty faculty completed this survey although one person just wrote a comment (favorable) and did not mark individual questions. Some responses could not be interpreted.

1 – This workshop helped me understand the importance of assessing progress on student learning objectives.



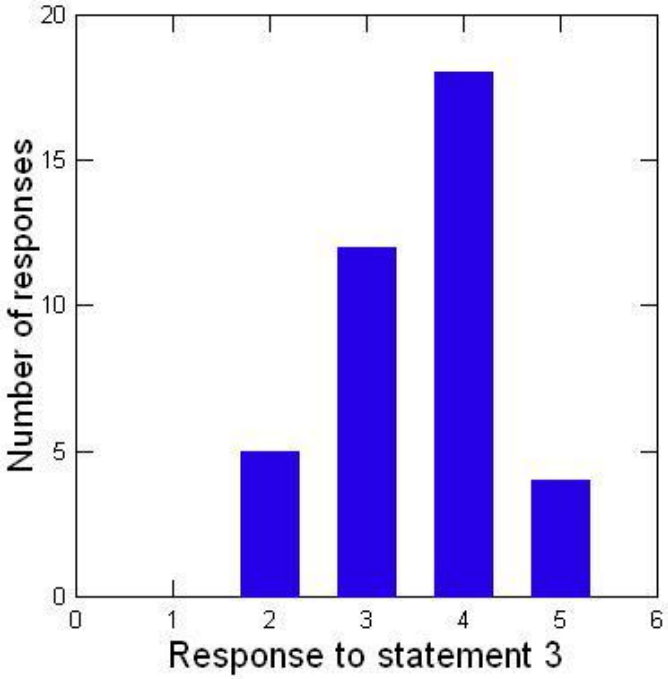
Fifty nine percent of faculty responding either agreed or strongly agreed with this statement. Just under 13% disagreed and no-one strongly disagreed. This indicates that the workshop was fairly successful in regards to educating faculty about the importance of assessment. (A response of 1 indicates "strongly disagree." A response of 5 indicates "strongly agree.")

2 – After attending this workshop I am more comfortable conducting assessment of student learning in my classes.



Just fewer than 50% (48.7) of respondents agreed or strongly agreed with this statement. Thirty six percent of respondents were neutral and almost 16% disagreed. No respondent strongly disagreed. This workshop did not seem to be especially effective at improving faculty comfort with assessment in their classes. (A response of 1 indicates “strongly disagree.” A response of 5 indicates “strongly agree.”)

3 – This workshop helped me understand how assessment of student learning objectives may improve my classes.



Over 56% of respondents agreed or strongly agreed with this statement and only 13% of respondents disagreed. No respondents strongly disagreed. These results indicate that this workshop was fairly effective in educating faculty about how assessment may be used to improve classes. (A response of 1 indicates “strongly disagree.” A response of 5 indicates “strongly agree.”)

Overall, the results of this survey indicated that this workshop was fairly effective at increasing understanding of the importance of assessment and how assessment may be used to improve courses. The workshop was less effective at improving faculty comfort with the assessment process. Subsequent workshops should strive to maintain the understanding of overall importance but should probably focus on the development of student learning objectives and assessment within individual courses. Additional training in these areas may improve faculty comfort and this faculty participation. It should be noted however, that low levels of “comfort” with assessment may be in part owing to the additional time commitment.