Assessment – The Series

Part I – Course Assessment

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The Series

First, a little information about the entire series

- Part I – Course Assessment, 2/15 @ 1 pm
- Part II – Program Assessment, 3/15 @ 1 pm
- Part III – Assessing Group Work, 4/12 @ noon

Topics

- Background
  - Mine
  - Department
- What is assessment
- Define FCARs
  - Elements
  - Advantages
  - Disadvantages
- Personal Reflection
- Future Work
- Resources

My Background

- Lead of CS accreditation self-study for 2 years
- Lots of research into assessment (especially related to accreditation)
- Before SPSU I worked at IBM and helped to document processes and assessment of processes for Malcolm Baldridge application and ISO 9000 application

Background Info

- The Computer Science and Software Engineering Departments are seeking ABET accreditation
- Visits to be in Fall 2005
- New format using Outcomes and Assessment

Assessment Definition

Assessment –

- the ongoing process of establishing
  - clear,
  - measurable

  expected outcomes of student learning;
- systematically
  - gathering,
  - analyzing, and
  - interpreting

  evidence to determine how well performance matches those expectations; and
- using the resulting information to
  - understand and
  - improve

  student learning. [1]

How did we get here?

- In order to assess the program, we needed assessment of individual courses.
- Needed a way to determine if courses were meeting the needs of the program.
- Were the students learning what we wanted them to learn? How do we know?
- Need both qualitative and quantitative data.
- Wanted to “spread the workload”.
- Desired the ability to convert data into information as soon as possible.

Enter the FCAR

- Venu Dasigi attended the Rose-Hulman Best Assessment Processed VI Symposium in March of 2004
- Attended session on Faculty Course Assessment Reports by John Estell of Ohio Northern University [2]
- After tweaking the format, it has been adopted by both CS and SWE depts.

What is an FCAR

The Faculty Course Assessment Report (FCAR):

- Provides a format that allows course assessment reports to be easily used as part of program outcomes assessment
- Requires a *small* amount of additional work by the instructor
- Allows those closest to the data to process it into useful information for later evaluation

FCAR Elements

- Catalog Description*
- Course Modifications*
- Grade Distribution
- Course Outcomes Assessment**
- Program Outcomes Assessment**
- Student Feedback
- Reflection
- Proposed Improvements

* Defined at the beginning of the term

** Outcomes defined at beginning of the term

Examples

- Two from Computer Science
- One from Software Engineering

- Not identical formats due to nature of accreditation requirements

Course Description

- Describes the current offering of the course
- Allows for continuous review (each term) of the course description by all those who teach it for improvement.
- Over time, it documents the major changes made to the course
- Can be entered at the beginning of the term

Course & Program Outcomes

- You MUST define both the course and program outcomes before the beginning of the term. (How can you measure what you haven't defined?)
- Outcomes must be measurable.
- Be careful not to define too many, try to capture the most important objectives for the course (what can they do after the course, what is needed for follow-on courses).

Course Modifications

- Provides contemporaneous documentation of the actual “closing the loop” activity (establishes paper trail as well)
- You must cite the source for each modification
  - Previous FCAR
  - Curriculum group recommendations
  - Student feedback
- Can be entered at beginning of the term if known, or during the term
- Excellent source for annual review data on teaching effectiveness

Grade Distribution

- Documents course results as an aggregate of the grades assigned to students
- No identities of individual students or their grades for the course are revealed
- Benefits:
  - You have ready access to grade information
  - Forces distribution analysis by instructor
  - Reviewers can more easily become aware of trends

Course Outcomes Assessment

- A methodology for the reporting of outcomes that facilitates the assessment process
- Defines out each specific course outcome was assessed (measured) in the class. Can be granular or large.
- Each program can develop their own course and program outcomes assessment processes that can be incorporated into their FCARs.

Program Outcomes Assessment

- Allows for longitudinal assessment of program outcomes.
- Must map where in the program you want to assess (measure) your program outcomes
- Those courses must assess those outcomes within the course.
- Advised to establish one rubric for each outcome if possible.

FCAR Assessment Reporting

- The FCAR uses tuples to report on the performance of the outcomes
- Each tuple reports a statement of fact
- Provides quantitative results
- Use of spreadsheet helps immensely!

Course Outcome Reporting

- Uses 4-tuple performance vector (EEMU) to categorize class performance of those who passed the course:
  - Excellent
  - Effective
  - Minimal
  - Unsatisfactory
- Represents a proficiency analysis

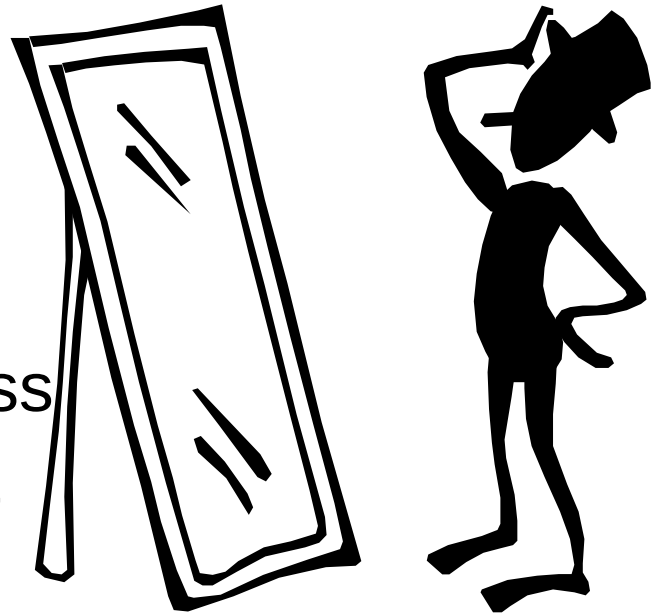
Program Outcome Reporting

- Uses 4-tuple performance vector (EPAN) to categorize class performance of those who passed the course:
  - Exemplary
  - Proficient
  - Apprentice
  - Novice
- Represents a longitudinal analysis
- Allows you to answer the question “How much did our students improve their skills in X from freshman level to graduation?”

Student Feedback

- Results of student course evaluations are usually private
- This section promotes the sharing of constructive comments regarding the course
- Allows for multiple types of student feedback (not just SIRs)

Reflection



- Promotes instructor self-awareness
- Provides opportunity to document impressions regarding
  - Effectiveness of instruction
  - Extenuating circumstances
- Allows instructor to document any positives / negatives of the course
- Good source for teaching assessment data
- Setup for soliciting ideas for course improvements

Proposed Improvements

- Begins the “closing the loop” process:
  - At the course level it is a helpful reminder for the next time taught by this or another instructor
  - At the program level FCARs should be reviewed by dept. chair and/or curriculum committee for possible actions
  - For the instructor it’s a place to document those “brilliant” ideas for a future offering or course

Advantages

- Provides documentation of the modifications made to the program at the course level
- Contains recommendations for course improvements
- Minor increase in workload for instructor to add to existing course assessment information
- Major reduction in assessment workload … dealing with processed information instead of raw data

Disadvantages

- It’s hard the first time
- Challenge to find good measures for outcomes sometimes (not too small, not too large)
- Requires preparation at beginning and during the term
- Can be lots of data to capture if you’re not selective

Is it worth it?

- I know of no other technique that yields as much information (qualitative and quantitative) by spreading the workload among those directly responsible for the data
- Much easier the *n*th time
- Don’t have to be perfect each time…the important piece is the process
- Allows for individual assessment as well (promotion, tenure, annual review)

Future Endeavors

- CS senior capstone students are working on creating an on-line system for submission, storage, and retrieval of FCARs
- Last semester interface for creating FCARs online was created
- This semester database should be created
- Future work will allow for search capabilities within the database

Resources

- CS accreditation website (cs.spsu.edu/accreditation)
- SWE accreditation website (swe.spsu.edu/ABET)
- FCAR capstone project
- Myself (bmorriso@spsu.edu) or Venu Dasigi (vdasigi@spsu.edu)

Summary

I have presented a methodology demonstrating that the course outcomes assessment report is structured such that it:

- documents how assessment results are used to effect change at the course level,
- shows both qualitative and quantitative assessment data from the stated course outcomes, student feedback, and instructor reflection,
- summarizes data for program outcomes assessment by the faculty member closest to the source of the information, and
- provides suggestions for further improvements to both course and curriculum.

Bibliography

[1] http://pages.towson.edu/assesment/how_to_assess_well.htm

[2] J. Estell, The Faculty Course Assessment Report, Proceedings of the Best Assessment Processes (VI) Symposium, Rose-Hulman Institute of Technology, (March 2004).

[3] R. L. Miller and B. M. Olds, “Performance Assessment of EC-2000 Student Outcomes in the Unit Operations Laboratory”, 1999 ASEE Annual Conference Proceedings.