

Report on the Embedded Assessment Pilot Project

Prepared by Paul Raymond, Director of Core Curriculum Assessment

September 26, 2005

The Proposal

I am proposing that selected faculty teaching core curriculum courses be asked to employ embedded assessment in spring, 2006.

A Definition of Embedded Assessment

Embedded assessment is a process whereby a faculty member consciously, explicitly and systematically monitors whether or not students are meeting the core curriculum goals in a specific core curriculum course. Assessment items are incorporated into existing evaluative instruments (e.g., exams, quizzes, short papers) already being administered in a course.

The Purpose of Embedded Assessment

Embedded assessment allows a faculty member teaching a core curriculum course to determine whether or not students are fulfilling the core curriculum goals relevant that faculty member's course. In many cases, this knowledge will enable a faculty member to confirm that his or her pedagogical approach is effective in giving students the opportunity to meet core curriculum goals. When data indicate that students are not meeting core curriculum goals, a faculty member may want to reflect on how he or she might alter pedagogical approaches to provide more opportunity for students to master core goals.

Justification

During the spring semester, 2005 seven faculty members teaching core curriculum courses participated in a pilot project to determine the educational value of implementing embedded assessment in core curriculum courses. Participants were selected by chairpersons.

Each participant was asked to complete the following tasks:

- Embed test questions (or other evaluative measures) that specifically measure whether or not students have met core curriculum goals into three or more evaluative instruments that would ordinarily be used to evaluate students' performance in the course
- Conduct a separate analysis of students' performance on the embedded test questions/evaluative measures and share the analysis with students
- Complete a short questionnaire immediately after grades are submitted.
- Administer a short questionnaire (four, closed-ended questions) to students during the final exam period

Results of the Questionnaire Completed by Faculty

Six of the seven faculty members participating in the pilot project completed a four question survey (see attachment titled, “Core – Embedded Assessment: Faculty Questionnaire...”). The results of an analysis of responses to the questionnaire appear in Table 1.

These data in Table 1 suggest that most faculty participants believe that their students performed well on exam questions measuring students’ mastery of core curriculum goals. Five of the six respondents indicated that the questions measured mastery “very well” or “well.”

Knowledge of how students performed on exam questions related to core curriculum goals caused one third of the study’s participants to increase their emphasize on material related to core curriculum goals. Two thirds of the faculty members did not choose to devote more attention to core goals, however.

Faculty members are equally divided regarding whether or not it was a burden to develop, administer, and evaluate/correct embedded test questions. Fifty percent of the respondents believe this activity is a “great burden” while the other half of the participants regard the burden as minimal.

Faculty members participating in this pilot project also differ in their perceptions of the educational value of embedded assessment. Three of five respondents believe embedded assessment has “some” value, but two faculty members express the view that it has almost no value at all.

Faculty Participants’ Comments about Embedded Assessment

Three of the faculty members participating in the pilot study made substantive comments about embedded assessment. One instructor noted that he/she was remiss in not emphasizing core goals in class, but expressed a desire to do so in the future.

Another faculty member stated that he/he already emphasizes core goals and that embedded assessment did not teach him/her anything new. This instructor also noted that when he/she discussed students’ performance on core curriculum exam questions, students did not pay attention.

The third faculty person indicated that he/she did not perceive the value of embedded assessment. He argued that if a core course has been approved by the Core Curriculum Council it presumably contains extensive material related to the core and that the goals of Category C2 are so generally worked that it would be difficult to identify course material or exam questions that did not pertain to core goals. This faculty member also noted that before embedded assessment becomes a common practice it is important to have a dialogue about the central purpose of core courses. Is it, he asks, to teach some general objectives related to the core? Or is it to teach a course that happens to have subject

matter related to the core? If it is the former, he/she writes, it will require spending a great deal of classroom time addressing how the content of the course fits the language generated by a “committee and relevant department chairs some 12-13 years ago.”

Results of Questionnaire Completed by Students

Students enrolled in the seven core curriculum classes included in the pilot study were asked to complete a four question survey (see attachment titled, “Core – Embedded Assessment: Student Questionnaire...”). The number of student respondents in each of the courses included in the pilot study is recorded in Table 2. Table 3 summarizes students’ responses to the questions on the survey.

These data in Table 3 suggest that almost all students recalled that core goals were listed on course syllabi and that most students believed they were familiar with these goals. The majority of students report that they paid conscious attention to core goals when preparing for exams, although almost one third of the respondents devoted little or no attention to core goals. The vast majority of students recalled receiving some feedback from instructors about how they had performed on core-related exam questions. Among those students who received feedback, seventy-four percent found this feedback to be “very useful” or “useful” in helping them prepare for core curriculum questions on subsequent exams.

Recommendation

It is recommended that approximately 50 faculty members from across all Schools be asked to employ embedded assessment during spring, 2006. This recommendation is the primarily the result of data from the student survey indicating that 74 percent of the students believe that feedback on their performance on core curriculum related questions was useful in helping them prepare for subsequent exams.

Implementation Plan

Faculty members willing to employ embedded assessment in the core curriculum classes they will teach in the spring, 2006 will be asked to engage in the activities that follow:

- Embed test questions (or other evaluative measures) that specifically measure whether or not students have met core curriculum goals into three or more evaluative instruments that would ordinarily be used to evaluate students’ performance in the course
- Conduct a separate analysis of students’ performance on the embedded test questions/evaluative measures and share the analysis with students
- Complete a short questionnaire immediately after grades are submitted.
- Administer a short questionnaire (four, closed-ended questions) to students during the final exam period

The questionnaire completed by the faculty member will include questions related to the following:

- Students' performance on measures related to core curriculum goals
- The extent that knowledge of students' performance resulted in changes in pedagogical approaches
- The amount of time and effort it took to develop, administer, and evaluate/correct embedded test questions (or other evaluative measures)
- The instructor's beliefs about the value of utilizing embedded test questions (or other embedded measures) that focus on core curriculum goals

The questionnaire administered to the students during the final exam period will include questions related to the following:

- The student's knowledge of the core goals associated with the course
- Whether the student focused on core goals in preparing for exams and other evaluative instruments
- Whether feedback on the student's performance on the embedded test items/evaluative measures influenced how the student prepared for subsequent exams or assignments
- The student's beliefs about the value of utilizing embedded test questions (or other embedded measures) that focus on core curriculum goals

Implementation Schedule

October 17: Results of pilot study will be emailed to faculty members participating in the pilot study as well as to deans and chairs.

October 18-27: After obtaining approval from the Office of Academic Affairs, the Director of Core Curriculum Assessment will send an email to deans that explain the embedded assessment plan approved by the Council and invite questions. A follow-up phone call will be made to deans. Once support from deans is obtained, the Director of Core Curriculum Assessment will email chairs information about the embedded assessment initiative and invite questions.

October 28 – November 11: Members of the Core Council will work with chairs to identify faculty members in their Colleges who are willing to employ embedded assessment in one or more core curriculum classes scheduled to be offered in spring, 2006. Core Council members will share copies of embedded assessment documents (description of embedded assessment, student questionnaire, and faculty questionnaire) to participating faculty members.

November 12 - December 9: Director of Core Curriculum Assessment will contact all participating faculty members to (1) further explain the purpose and value of embedded assessment and (2) discuss how evaluative instruments can be altered to include measures of whether students are meeting core curriculum goals.

January 2-6: Acting Director of Core Curriculum Assessment will e-mail participating faculty to remind them of their participation in the embedded assessment initiative.

January 7-31: Acting Director of Core Curriculum Assessment will meet face-to-face with participating faculty to discuss questions and concerns. It is anticipated that most questions will focus on the development of test questions.

February 1- March 31: Acting Director of Core Curriculum Assessment will periodically contact participating faculty to discuss their efforts to implement embedded assessment.

April 1 – May 5: Acting Director of Core Curriculum Assessment will distribute and collect faculty and student questionnaires.

Report to Core Council

The Director of Core Curriculum Assessment will analyze the data from the faculty and the student questionnaires and provide a report to the Core Council during the Council's October meeting, 2006.

Table 1

Faculty Members' Beliefs about Embedded Assessment

Questions	Percentage	Frequency
Overall, how well did students perform on exam questions measuring students' mastery of core curriculum goals?		
Very well	50	3
Well	33	2
Fair	17	1
Poor	0	0
As the semester progressed, did your knowledge of how students performed on exam questions related to core curriculum goals cause you to increase your emphasize on material related to core curriculum goals?		
Yes	33	2
No	67	4
How much of a burden was it to develop, administer, and evaluate/correct embedded test questions?		
A great burden	50	3
Some burden	0	0
Very little burden	33	2
Almost no burden at all	17	1
Overall, how much educational value is there in embedding questions that focus on core curriculum goals in exams?¹		
Great deal of value	0	0
Some value	60	3
Very little value	0	0
Almost no value at all	40	2

¹ One of the six respondents did not answer this question.

Table 2

Number of Students in Courses Included in the Pilot Study

Department Offering Course	Percentage	Frequency
Sociology	7	26
Economics	17	67
Biology	25	95
English	12	48
Chemistry	11	43
History	12	47
Education	16	60

Table 3

Students' Beliefs about Embedded Assessment

Questions	Percentage	Frequency
Did the syllabus list the core curriculum goals relevant to this course?		
Yes	89	343
No	2	6
Don't know	9	36
How familiar are you with the core curriculum goals associated with this course?		
Very familiar	19	70
Familiar	60	224
Not familiar	19	72
Not familiar at all	2	7
When you prepared for exams in this course, how much conscious attention did you pay to course material related to this course's core curriculum goals?		
Great deal	27	101
Some	43	159
Very little	22	81
None	9	32
When exams are graded, some instructors give feedback about whether students are meeting core curriculum goals. Other instructors do not give feedback. How often did you receive feedback in this course?		
After every exam	40	139
After most exams	29	97
After some exams	15	49
After very few exams	5	18
Never	12	39
If you received feedback about whether you were meeting core curriculum goals, how useful was this feedback in helping you prepare for core curriculum related questions on subsequent exams?		
Very useful	20	63
Useful	54	173
Not very useful	21	67
Not useful at all	5	16