Methods for Evaluation

There should be a thorough evaluation plan for the new initiative to create interdisciplinary, team-taught courses or programs. The evaluation plan should focus on four elements: students' learning outcomes, the success of specific courses, and the benefits of the program as a whole in both the short and long run. Funding for the new initiative should include incentives for faculty to document the results of their teaching. Such documentation could induce other faculty to co-teach interdisciplinary courses as well as to demonstrate returns on the University investment. For assistance and expertise in conceptualizing evaluations of educational innovations, please contact the Center for Research on Teaching and Learning (CRLT) at 764-0505. For more information about evaluation services provided by CRLT, please contact Mary Piontek, Evaluation Researcher, at mpiontek@umich.edu or 615-4617.

General guidelines

Having affirmed the need for faculty to identify their own goals for student learning, it is vital here to identify some of the challenges that inhere in undergraduate teaching, that make interdisciplinary teaching so valuable, and that make interdisciplinary courses much more difficult to design for undergraduate students than for graduate students. Undergraduates' intellectual development involves many leaps and shifts, as their analytical skills are built through practice. Their engagement with subject material enhances their potential success (Leamnson 2000: 38-39; cf. Bransford, et al., eds. 2000), but most undergraduates learn, in the course of their years at the university, to distinguish personal and analytical perspectives, change their ideas of what an "argument" is, become able to understand and distinguish others' frames of reasoning, and to develop and defend their own reasoning (King and Kitchener 1994). Shifts from binary thinking (that often characterizes students just out of high school) to critical appraisal do not occur within the span of one semester. And in any given classroom of undergraduates, the range of intellectual development is daunting.

While specific course requirements remain always the purview of faculty members, and while having clear goals for student learning is always best for students, those faculty team teaching interdisciplinary courses must make special efforts to clearly identify the learning goals in these courses. In course design, faculty can benefit from Benjamin Bloom's taxonomy of thinking to help students reach higher levels of thinking when working with new information: acquisition of basic information, developing comprehension and using information in new contexts, application of concepts and theories as in problem solving or case studies, analysis of the patterns and components of ideas, synthesizing new ideas, and evaluating ideas (Bloom 1984). But interdisciplinary study may require something more or something else, something that Julie Thompson Klein describes as "triangulation" among the breadth, depth, and synthesis of perspectives. Klein suggests that course design shift from more hierarchical sequencing to ordering that allows students to shuttle among different kinds of mental strategies (Klein 1996: 213-214). Especially where interdisciplinary courses expect students to "bring things together at the end," rather than building skills gradually, faculty may ask

students to self-evaluate as they progress through the course, to help the faculty monitor the student learning processes.

Classroom interaction provides a crucial opportunity for student skills to develop, especially in a collaborative interdisciplinary course. Gurin, Dey, Hurtado, and Gurin documented that student interaction is essential to multicultural education (cf. Gurin et al 2002); many studies have documented the pedagogical success of undergraduates' interaction for any field (e.g., Meyers and Jones 1993, Miller and Groccia 1997, Qin et al. 1995). Interdisciplinary courses may thus be evaluated (in part) on the opportunities provided for student interaction in class, and on the documentation that can be offered on development of students' interactive skills. Faculty interaction that models dialogue, debate, negotiation, and other healthy interdisciplinary exchange should be acknowledged and documented (as best it can) for the great value such modeling gives to students.

Student Learning Outcomes

- Evidence of student learning tracks success of students with different kinds of background. (This may include different levels of analytical skills when starting the course, different social or experiential backgrounds, different academic preparation or intended majors.)
- Evidence of student learning documents students' success at one or more of the following, or comparable successes:
    - Identification of multiple disciplinary approaches, and their applications.
    - Articulation of how different approaches intersect in the field of inquiry.
    - Synthesis of approaches from multiple fields.
    - Production of problem-solving, creative, social organizational, or design work requiring negotiation of multiple approaches.
    - Development of collaboration and negotiation skills.
    - Challenges to theories and methods across disciplinary boundaries.

Success of Courses and Collaborations

- Course has been approved as a regular offering in one or more departments or programs.
- Faculty time for the course has been allocated on a regular basis.
- Course is taught again by the original or another pair/ group of faculty.
- Teaching strategies should be documented as a resource for others, demonstrating successful collaboration strategies.

Course-level evaluations (Davis, 1995; CRLT, 2005)

1. ***Tests of general knowledge***: College outcomes
2. ***Tests of disciplinary knowledge***: Content-specific
3. ***Tests of specific intellectual abilities***: Critical thinking, communication, integration, etc.
4. ***Portfolios***: Collections of students work
5. ***Logs and diaries***: Student reflections on experiences with different viewpoints

6. ***Case studies***: Written or oral responses from students to cases that test ability to apply diverse perspectives
7. ***Visual representations***: Challenges students to display concepts and connections between ideas
8. ***Essays***: Defending a point of view using evidence synthesized from multiple sources
9. ***Critiques***: Evaluations of articles, etc. using multiple perspectives
10. ***Proposals***: Requests for funding for projects employing interdisciplinary methods of inquiry
11. ***Team projects***: Reports that require use of varied data and synthesis of disciplinary traditions
12. ***Panel discussions***: Participation in discussion where complex issues are debated
13. ***Reflection on Experiential Learning***: Oral or written accounts of learning from field trips, service learning, internships, or travel.
14. ***Creative works***: Artistic representations of issues, themes, ideas, or cultural patterns.
15. ***Role plays and simulations***: Planning, acting out, and then discussing issues raised in the exercise

Program-level evaluations
The following is a list of criteria for measuring the success of the program on multiple levels.

Success of the University Program – Short Run

- Significant increase in the number of undergraduate students taking interdisciplinary courses.
- Increase in the diversity of students taking interdisciplinary courses.
- Increase in the level of higher-level skills engaged in by students in interdisciplinary courses.
- Identification by undergraduate students of the value of multidisciplinarity to their learning in course-end Evaluation forms.
- Increase in the number of interdisciplinary courses offered
  - as introductory or gateway courses,
  - as capstone courses or senior seminars,
  - that meet other distribution requirements,
    and/or the number of departments and programs offering these.
- Increase in the number of faculty co-teaching interdisciplinary courses.
- Diversification of the faculty co-teaching interdisciplinary courses.
- Increase in the number of faculty teaching undergraduates who are from professional schools.

Success of the University Program – Longer Run

- Identification among graduates of the value of interdisciplinary learning experiences to their future work or study.
- Identification of interdisciplinary learning opportunity as reasons for incoming students' selection of U-M.

- Identification by faculty of the value of interdisciplinary co-teaching to their professional development, including research, teaching, mentoring and/or service.
- Increased co-teaching and mentoring by faculty in courses in addition to those funded by the Provost's or CRLT initiatives.