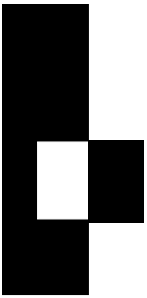

A Flexible Model for Assessing WAC Programs

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Rigorous assessment has traditionally not been a priority for WAC programs. In a 1996 publication, Gail F. Hughes noted that

> [a]lthough many WAC programs have been accompanied by some form of assessment, few program evaluations do as much as they might either to validate the potential of WAC or to improve its effectiveness. Toby Fulwiler's 1988 statement could have been written today: "At this time, no comprehensive evaluations of writing across the curriculum programs have been completed…."(158)

Although Hughes (and Fulwiler) would probably agree that writing programs are currently being assessed more rigorously than they have been in the past (as evidenced in part by some of the chapters in Kathleen Blake Yancey and Brian Huot's recent collection on WAC assessment), many evaluations of WAC programs continue to be anecdotal and/or idiosyncratic. In these days of increasing accountability to stakeholders, such casual forms of assessment are no longer acceptable. Our students, faculty, administrators, alumni, accrediting agencies, funding agencies, and legislatures are increasingly demanding that we demonstrate in valid and sophisticated ways that our programs do what we say they do. At CSM, our writing program mission states that we are incorporating writing into our curriculum to help students demonstrate knowledge, to facilitate learning of course content, and to facilitate learning of discipline-specific conventions of discourse. Part of our job is to evaluate how well we are meeting these goals.

Of course, in engineering programs, the Accreditation Board for Engineering and Technology (ABET) *Engineering Criteria 2000* are driving an increased interest in assessment, especially of the student outcomes listed in Criterion 3. Criterion 3g states that graduates of accredited engineering programs must demonstrate "an ability to communicate effec-

tively," though ABET leaves it to individual programs and institutions to define what "communicate effectively" means in their contexts (Engineering Criteria). Although CSM is addressing a broad range of communication skills (oral, graphical, interpersonal) in its assessment plan, in this brief overview we focus only on written communication. At CSM we are addressing the ABET requirements by revisiting our assessment plan for the entire school, a plan that has been in place since 1988. As a result, we have developed an assessment matrix that provides both structure and flexibility while assuring that all essential steps of the assessment process are included (Olds and Miller). Our matrix shares some features with those developed by others (Rogers and Sando; Stevens, Lawrenz, and Sharp). We have found that including the elements listed below is essential for the assessment process:

- Goals
- Program Objectives
- Performance Criteria
- Implementation Strategies
- Evaluation Methods
- Logistics
- Feedback

We see *Goals* as the broad aims of the program. For example, ABET Criterion 3g, which states that students should graduate with "an ability to communicate effectively," is a program-level goal. *Objectives* provide more specific and measurable answers to the question, "What should our students know and be able to do?" A draft of CSM's complete list of WAC goals and objectives is included as Appendix A; these goals and objectives are being developed and refined with input from a variety of stakeholders. Table 1 on the following page provides an example of our matrix; we have chosen to illustrate a portion of our WAC assessment process (Goal #1, Objective #4) in this example, but the matrix is highly adaptable and is also being used to plan assessment of technical programs at CSM.

Once goals and objectives are in place, *Performance Criteria,* which are even more specific, are developed. These encourage us to ask how stakeholders will know when a specific objective has been met. The *Implementation Strategy* requires an institution or program to demonstrate that students have opportunities to both learn and hone the skills and abilities listed as objectives. For example, if the "ability to use discipline-specific conventions" is a program objective, the implementation section of the matrix will state explicitly: 1) those courses in which students receive instruction in discipline-specific conventions, and 2) those courses or other experiences, e.g. internships for credit, in which they have opportu-

nities to practice the conventions. The *Methods* section asks evaluators to think carefully about the most appropriate ways to measure the stated objectives, selecting the most germane factors and measuring them well. Most research argues for triangulation (use of multiple measures) and a variety of guides to various methods are available (Prus and Johnson). Generally speaking, evaluators should consider using both quantitative (surveys, standardized exams) and qualitative (portfolios, focus groups) measures; in addition, both formative (in progress) and summative (at the end) assessments should be used as appropriate. Of course, due consideration must be given to questions of validity and reliability and therefore adequate preparation of evaluators. In addition, human and monetary resources are always a factor and programs will probably have to make trade-offs between what they would like to accomplish with assessment and what is practical for them to do on an ongoing basis. *Logistics* are also important. Although ABET—and good practice—tell us that assessment should be a continuous process, it is not necessary to assess every student in every class for every objective every year. Perhaps a large-scale portfolio review is only necessary every three years, for example. In the meantime, objectives could be measured with less expensive and less time-consuming means such as focus groups or surveys of graduating students, alumni, employers, and faculty. Finally, perhaps the most important component of the process is the *Feedback* loop. Since the purpose of assessment is ultimately to improve student learning, it makes no sense to compile volumes of data if no one is going to use them. Therefore, not only is collecting and evaluating the data important, but effectively packaging and disseminating the results becomes essential. Stakeholders should have easy access to the information collected through the assessment process, and their responses should constitute an important part of the "continuous improvement" feedback loop.

As WAC programs continue to flourish, we need to assess them systematically and rigorously. As Hughes concludes:

> We must find ways to assess the merit of WAC programs as programs; to identify the factors that contribute to the achieving or inhibiting of good results in different types of programs; and to look at a variety of results in combination to see whether the preponderance of evidence presents a convincing argument—an argument of reasonable "probablies" rather than scientific "probabilities"—that writing-across-the-curriculum programs can make a difference. (173)

The assessment matrix we have described can provide a flexible yet structured means for achieving these and other goals. Creating such a matrix also fosters a vital collaboration between writing and engineering faculty; having such a matrix in place can increase the writing program's credibility, and feedback from assessment can help us earn or maintain funding as well as give us the information needed to be sure our programs continually improve and provide students with the highest quality education we can offer. Finally, it is worth reiterating that the matrix is flexible and responsive to the recursive nature of the assessment process with its sundry and necessary visions and revisions.

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APPENDIX A

Draft Statement of Goals and Objectives
Colorado School of Mines Writing Across the Curriculum Program

1. Students should be able to communicate information, concepts, and ideas effectively in writing.

This will include an ability to:

1.1 Carry out effective process strategies—to organize, draft, and revise written documents effectively.
1.2 Write to a variety of audiences and for a variety of purposes
- organize for any audience
- communicate with audience-appropriate terminology and language
- cite sources appropriate for the intended audience and purpose
- use discipline-specific conventions

1.3 Make a logical written presentation
- effectively convey convincing evidence to support claims and rebut counter arguments
- construct persuasive, tactful arguments

1.4 Write clearly, concisely, and precisely in a variety of formats including memos, reports, and proposals
- write grammatically correct prose
- seamlessly incorporate tables and figures into written documents

2. Students should be able to acquire and use technical information from various sources, including electronic retrieval systems.

This will include an ability to:

2.1 Concisely and precisely summarize and synthesize large amounts of complex information
2.2 Communicate engineering and scientific principles by showing the applications of those principles to problems in engineering and/or applied science.
2.3 Read critically by evaluating the credibility of information sources including the effectiveness of claims and supporting evidence

3. Students should value written communication as an integral component of their academic and professional careers.

This will include demonstrated:

3.1 Appreciation of writing as a learning and thinking tool
3.2 Appreciation of the role writing plays in one's career
3.3 Confidence in using writing as a communication tool

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