

Green Mountain College

Assessing the Environmental Liberal Arts Program

Year Two Interim Report

1. The original goals for this project and the extent to which the goals were achieved.

During this second year of the grant we have built on the successes of year one and slightly modified our timeline in order to effectively respond to the feedback from the results of year one.

The grant has the following goals:

- Reframe the Environmental Liberal Arts (ELA) general education learning goals as learning outcomes that can be effectively assessed.
- Revise the program content to reflect desired outcomes and assessment mechanisms.
- Create an ongoing system of assessment-driven revision of Green Mountain College's general education program based on student learning outcomes data.

We focused our activities this year in three primary areas.

- (1) Creating new curricula content and aligning it with the developing assessment system.
- (2) Further developing the assessment system.
- (3) Revising existing courses as a result of assessment and evaluation results.

Creating new curricula content and aligning it with the developing assessment system.

We have created, approved, and taught 15 new ELA distribution courses and revised another 13 since March of 2009 (6 and 5 of those, respectively, were mentioned in last year's report as having been approved, even if they had not yet been taught). Each of these courses lists the ELA student learning outcomes in its syllabus and has a matrix aligning each learning outcome to specific assignments and means of assessing.

These 28 courses provide us with a sufficient range of courses across the seven distribution areas to meet our needs. While we anticipate creating or revising additional courses, this phase of the project – creating new and/or revising distribution courses -- is substantially complete. In order to ensure that upper level students can take challenging general education classes, we created a mix of 2000 and 3000 level courses in addition to the 1000 level introductory ones. While the seven required distribution courses can be completed in the first three semesters, not all students do so, and transfer students do not have to opportunity to do so. Because our ELA courses are generally distinct from courses taken by majors, we also needed to create opportunities for students who have advanced knowledge in cognate fields to be able to find academic challenge in meeting their distribution requirements.

In keeping with our student learning outcomes, we have taken an unusual approach to meeting what is traditionally a mathematics requirement. Five faculty worked together to create a single course: Quantitative Environmental Analysis. We are phasing out the courses that met our old mathematics requirement and replacing them with this single course. Faculty teaching the course choose instructional modules from an array developed by faculty in mathematics, business, geology, natural resource management, and environmental design. Each module is aligned with

the learning outcomes for the course and represents a robust examination of a complex system utilizing quantitative methodologies. We've taught four sections this year and are excited by the potential of this class. Initial assessment data reveal the need to fine-tune the integration of the modules into seamless courses and to provide more appropriate resource support. So, for example, effective fall 2010 we have changed our two remedial mathematics classes from two, semester-long classes emphasizing algebra (whether you take none, one, or both is based on SAT or ACT scores or our own diagnostic examination) to a single class utilizing self-paced, digitally accessed tutorials in conjunction with direct instructor support to target and address specific learner weaknesses in mathematical understanding, including computational, statistical, and algebraic. Likewise, we are shifting the staffing of our Learning Center mathematics tutors to students proficient with applying mathematics to analyzing complex real-world problems. This is quite different than just students who do well in statistics or calculus.

The extended discussion of the Quantitative Environmental Analysis course gives you a sense of the breadth and depth of the curricula changes your award is sponsoring. The key, of course, is tying these curricula changes to an assessment system that allows us to track student learning and make adjustments to curricula and pedagogy in an iterative cycle of constant improvement and increasing instructional excellence. And making that work over time requires that we do it not merely mechanically but that it becomes part of the institutional culture with recognizable benefits for faculty and students in terms of increased instructional success.

Further developing the assessment system.

In order to make assessment-driven program evaluation stable and effective, we have to make the technology that supports it ubiquitous across the curriculum. Last year, year one of the grant, we contracted with Epsilen for our e-portfolio system, which we formally implemented in our two first-year core courses: Images of Nature and Voices of Community. We also used Epsilen's course management functions in those core courses and opened access to it for a small number of other courses for faculty to pilot and experiment. Effective fall 2009, Epsilen course management shells were provided for every course and every faculty member college-wide. We have succeeded beyond our expectations. Epsilen is now being used by all faculty and all students and most courses.

The E-portfolio system was implemented in our third core course this year, Dimensions of Nature. The faculty in all 10 sections worked together to develop a single major assignment that could be used to assess student learning across a range of the new course objectives. They then developed an assessment rubric for that assignment. This summer a faculty member will collect a random sample of student assignments along with rubric-based assessments and produce an analysis of student results.

We also created an assessment rubric framework for each learning outcome for each of the ELA distribution categories. This framework interprets the more general ELA learning outcomes in terms of the specific instructional obligations of each distribution category and suggests the sorts of student work products that can demonstrate student competence with regard to the ELA learning outcomes.

One of the more exciting results from this year is our decision to try an innovative strategy for portfolio assessment. As a result of several faculty workshops on campus as well as attendance at the fall New England Education Assessment Network's assessment conference, we decided to

try an approach to assessing student demonstrated competence in the distribution that relies on instructor evaluation rather than a third-party portfolio review of work products.

The Achilles heel of portfolio assessment is the amount of faculty time it takes to review individual student work products. Where portfolios are not a grading or graduation requirement for students (i.e. portfolios are used for institutional or program rather than student accountability) some institutions use random sampling techniques to reduce the amount of time faculty have to spend evaluating numerous work products for each student against a number of diverse rubrics. We used this approach during the summer of 2009 when a team of four faculty evaluated first-year student essays from three distinct assignments in two different courses. That summer assessment taught us a great deal about our students' ability to do college-level writing, to utilize sources, and to construct arguments. However, it would not be sustainable to repeat this process annually with the 18 student learning outcomes stipulated by our general education program, particularly as many of them are multi-dimensional and thus would not be satisfactorily demonstrated by a single work product.

Keene State University's approach of randomly sampling 10% of students' work is a good model. However, it costs them \$15,000 per year to secure the 500 faculty hours needed to do this on an annual basis. We tried something similar in the past using paper portfolios. It worked well for two years and okay for a third before petering out – and we were only assessing a small percentage of our learning outcomes. We simply have too few faculty to be able to reliably secure the necessary volunteers with the appropriate expertise. So, we are trying a different approach.

This spring we created a draft learning outcomes matrix that covers all of the outcomes for the ELA distribution. One will be placed in each student's e-portfolio. Each faculty member teaching an ELA distribution course will use student work products aligned with specific ELA outcomes to evaluate the extent to which the student has demonstrated the necessary proficiency (this alignment had to be done for the course to be approved; see above). Using a system of coded flags (green = demonstrated proficiency; yellow = approaching proficiency; red = has not demonstrated proficiency) the instructor will indicate in the student's matrix the extent to which he/she has met the stipulated learning outcomes. As we have built redundancy into the system, with multiple courses and categories addressing the same outcomes, a student can demonstrate proficiency in one course if not another.

This decentralized assessment system creates a situation where instructors are assessing specific components of a student's portfolio in each class. For purposes of institutional or program assessment, we only have to survey student matrices to see which outcomes are being achieved and which not. We can also audit the process, calibrating and checking the reliability of instructor ratings, by pulling work products from particular courses or faculty or distribution categories and conducting a third-party assessment on a rotational basis.

We will begin implementing this decentralized assessment system in the distribution in the fall of 2010. While there is some loss of detailed data versus having an assessment team evaluating student work products from a range of portfolios, and evaluator consistency requires development and monitoring, the decentralized system will provide the institutional level data we seek and should prove far more sustainable in the long run. An assessment system that collapses under its own expense and work requirements is ultimately not useful. We will

continue an annual sampling of student rubric evaluations for specified work products from each of the four core courses as well as checking distribution matrix results. However, the time and expense of these latter endeavors is much less than that of annual portfolio reviews by teams of independent reviewers.

Our fourth, and final, core course, A Delicate Balance, piloted a portfolio item this year. The one substantial divergence from our proposal timeline is that we were supposed to pilot a test for sustainability problem-solving skills in this course this spring. We need to defer that to next year.

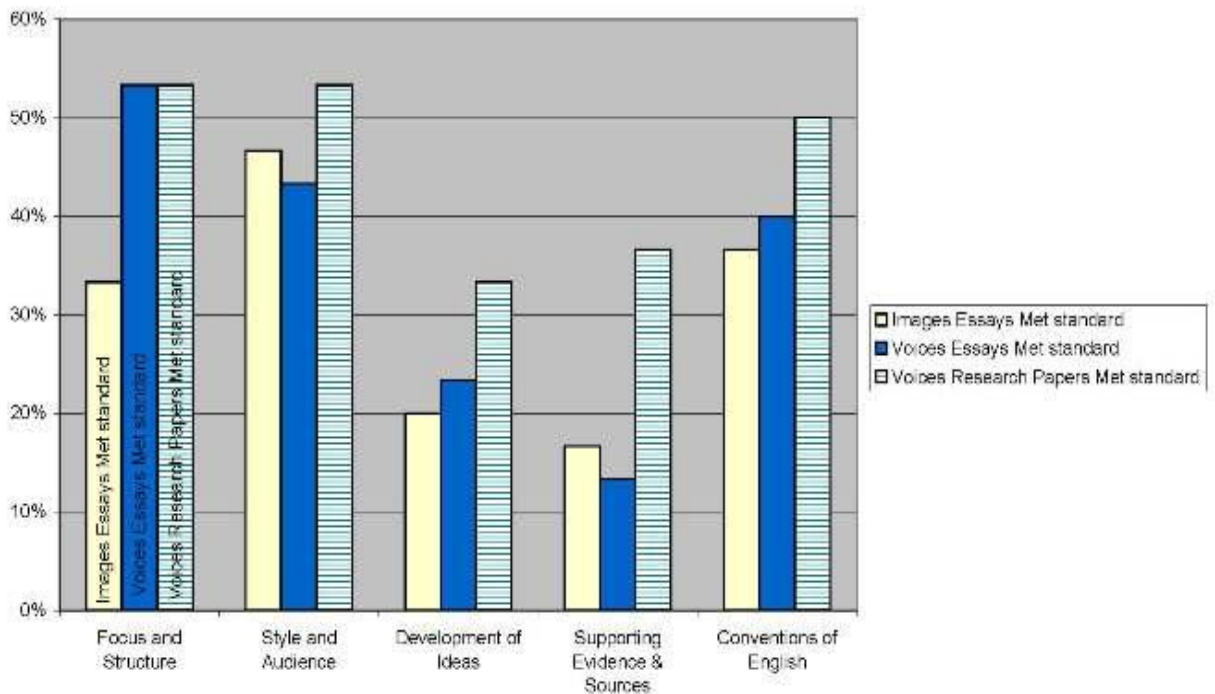
To summarize, this year we got the entire campus using Epsilon's course management functions; added an item from our third core course to the student e-portfolio; created an assessment framework for each learning outcome for each of the distribution categories; and created an assessment matrix for the distribution courses and a decentralized portfolio assessment system. These components of the assessment system are integrated with the structure of each of the 28 new or revised ELA courses. This summer, a faculty member is analyzing the results of student performance on the four core-course portfolio items we have now collected from all first and second-year students. It was, in part, the results from this analysis conducted last summer that drove significant changes in one of our core courses this past year.

Create an ongoing system of assessment-driven revision of Green Mountain College's general education program based on student learning outcomes data.

Much of the above section addresses this goal. However, it is worth detailing a specific use of this system to drive curricula revision.

In the summer of 2009, a faculty team independently evaluated three essays per student written by students in the first two general education core courses: Images of Nature (fall) and Voices of Community (spring). This team calibrated their responses using the same writing rubric used by these two courses and then applied their evaluation to a random sampling of student essays. They also checked their assessment of the student work against that done by instructors and outside readers during the course of the semesters to check reliability. The assessment indicated that student writing skills improved significantly over the course of the first year of instruction. It also revealed the need to improve writing competence across the board for just under 50% of our students and also to more effectively target our instruction of those skills involved in creating an effective written argument.

**First Year Writing Assessment Fall '08 - Spring '09
30 Random Images Essays, 30 Random Voices Essays
and 30 Voices Research Papers Graded by Assessment Teams**



As a result of that assessment, we targeted argument development in the fall 2009 offering of Images and the spring 2010 offering of Voices. As a result of this and general course evaluation data, general education course evaluations (more elaborate and targeted), and a series of focus groups, we held a series of faculty workshops throughout the year to more substantively revise the Images and Voices courses in terms of their writing instruction, and to significantly revise the content and structure of Images. A faculty team charged in the spring of 2010 to revise Images has produced a new structure and syllabus for the course that more fully integrates the new ELA learning outcomes into all aspects of the course, targets the writing skill development last year's assessment suggests we need, and increases the academic challenge of the course.

We have already used the data from our first year of e-portfolio assessment to drive curricula change.

2. To what extent did the project advance the foundation's objectives of strengthening teaching and learning practices and controlling costs? Specifically,

- a. What methods were used to assess the project's impact on student learning? What were the results of that assessment?
- b. How did the project impact costs? Please include quantitative data, if collected.

Assessment of impacts on student learning

See the example immediately above. We documented student demonstrated competence in writing, creating baseline data. We analyzed that data and responded to the results by making curricula revisions. We will check student achievement in the same set of courses again this summer to see what results our interventions may have produced. As full implementation of our changes will not occur until next year, this requires multi-year evaluation.

Impact on costs

In addition to the comparative costs enumerated in last year's report, the decentralized assessment of student portfolio work products in the general education distribution we are developing should make the assessment system itself not only less expensive (by drastically reducing the human hours devoted to third-party portfolio assessment) but also more effective by virtue of making it sustainable.

3. What did you learn in the course of the project that might be beneficial to another college contemplating similar work? Please include challenges encountered and unanticipated outcomes.

The fit between the e-portfolio software structure and institutional assessment requirements remains an issue. However, the Epsilen software engineers continue to be highly responsive to our requirements and have made a number of improvements that allow us greater facility to identify and collect e-portfolio work products and instructor assessments. I believe our work with Epsilen is producing a superior e-portfolio assessment product that will benefit all future institutions that use this vendor.

The biggest challenge has been to create a portfolio-based assessment system that does not become too unwieldy to sustain. While there are reliability challenges to our approach of decentralizing assessment to the instructor level, I think the advantages are tremendous. Aside from making the expense and workload of portfolio assessment sustainable, this approach is a powerful lever in moving faculty from an orientation to assessment focused on grading assignments to one focused on student's demonstrating competence on specific, identified learning outcomes. The two are not the same, and it is a critical step in producing an effective assessment system to have faculty make that conceptual leap.

4. How do you intend to sustain and build upon, if appropriate, the outcomes of this project?

We will sustain the outcomes of this project through the curricula changes that needed funding in the creation stage but do not need continued funding beyond what is available through the institution's budget to sustain. We have already moved the portfolio management and some of the assessment oversight into the College's budget. We will need to absorb the Epsilen costs after the completion of

the project, but we have successfully integrated the software throughout the curriculum and thus have secured the faculty buy-in and institutional commitment to do so.

The main outcomes we will sustain and build upon is the development of a culture of iterative assessment across the academic programs. We are already seeing faculty transfer and adapt lessons and processes from this general education project to their majors. Junior and senior year portfolios have been or are being developed in multiple majors. This initiatives are reinforced by a regular cycle of program reviews that is emphasizing iterative assessment-improvement cycles and which draws on the lessons from this project, which all faculty in the College have been engaged in. In addition to targeted workshops or professional development undertaken by small groups of faculty, your generous award is funding at least two workshops per year that include all faculty as well as initiatives that are brought forth to the entire faculty by committees charged with developing a specific aspect of the curriculum or assessment process.

Finally, the work on this project informs and supports are requests for funds from other sources to build on what we are accomplishing and learning.

5. How were the Davis Educational Foundation’s grant funds spent? Please attach an itemized expense summary comparing actual expenses with your original budget. Please briefly explain variances.

See below.

6. In an effort to improve our grantmaking, we welcome your comments regarding our grant application, site visit, award notification and post-grant reporting process.

It is a pleasure working with you. All components of the process reflect a clear, no-nonsense focus on the core values of your foundation delivered cordially and with strong office support.

Budget Report 2009-2010

| | <u>Budgeted Year 2</u> | <u>Actual Expenses Year 2</u> |
|---|------------------------|-------------------------------|
| <u>Davis Educational Foundation:</u> | | |
| Faculty development & curriculum design | 30,000 | 25,062.12 |
| Project Director | 25,000 | 25,000 |
| Two Assistant Project Directors | 7,826 | 7,826 |
| Assessment Consultants/Workshop leaders | 5,000 | 5,000 |
| Portfolio assessment team | 5,000 | 4,000 |
| e-portfolio software hosting | 10,000 | 10,000 |
| ===== | | |
| Total | \$82,826 | 76,888.12 |

The \$6,000 variance between budgeted and expended is due in large part to our not having created the case analysis assessments for the fourth core course as planned. We will initiate creation of these later this summer.

Green Mountain College Match:

| | | |
|---|---------------|---------------|
| ½ time portfolio manager | 25,000 | 22,000 |
| Administrative assistance support | 6,000 | 6,000 |
| <u>Faculty professional development</u> | <u>15,000</u> | <u>12,000</u> |
| Total | \$46,000 | \$40,000 |

Budget Detail (grant + match)

| | |
|---|------------------|
| Project Director, Tom Mauhs-Pugh | 25,000.00 |
| Assistant Project Director, Meriel Brooks | 3,913.00 |
| Assistant Project Director, Ron Steffens | 3,913.00 |
| Faculty workshop August 25, 2009, 50 faculty | 6,400.00 |
| Faculty workshop January 16, 2010, 50 faculty | 500.00 |
| Epsilen e-portfolio contract for 2008-2009 | 10,000.00 |
| Portfolio assessment team | 4,000.00 |
| administrative assistant: Deb Mackey | 6,000.00 |
| e-portfolio manager: Ken Coe | 22,000.00 |
| Curriculum design | 16,000.00 |
| Faculty professional development (conferences, working groups on campus, Stella software training, Epsilen training here and Indiana) | <u>19,000.00</u> |
| Total | \$116,726.00 |

Some of the expenses are estimated due to our not having reached the end of our fiscal year (June 30).