

Chapter XIII: PORTFOLIO ASSESSMENT

Portfolio Assessment

Who takes it?

Right now, only seniors in classes that require creation of a Liberal Arts and Sciences Portfolio (most often capstone courses or senior seminars) submit portfolios. In May of 1999, eight hundred and ninety seniors, almost 80% of the graduating class turned in portfolios. The LAS portfolio is a graduation requirement for all seniors beginning with the class matriculating in the fall of 1999.

When is it administered?

Typically, the instructor of the course requiring participation in the portfolio assessment distributes the guidelines and collects portfolios during the course. This could occur in any semester during the student's senior year.

How long does it take for the student to compile the portfolio?

The average is about five hours.

What office administers it?

The class that requires it.

Who originates the submission requirements for portfolios?

Faculty readers and evaluators, the Assessment Committee and the director of the portfolio assessment design, evaluate and publish the requests for specific portfolio items.

When are results typically available?

The portfolios are read and evaluated in May and generally the results are available in late summer or early fall.

What type of information is sought?

Faculty evaluators and the Assessment Committee designate the types of works requested from students. In the past, many of the requested items have remained constant. In fiscal year 1999, a portfolio included a pair of works showing *growth as a thinker*, a work demonstrating *interdisciplinary thinking*, a work applying *quantitative/mathematical reasoning*, a work showing *scientific reasoning*, an item demonstrating *aesthetic analysis and evaluation*, a work or experience the student considered *most personally satisfying*, and a *cover letter* in which the student reflects on ways he or she has changed while at Truman and offers any other thoughts he or she cares to express about his or her experiences here. Other items may be included, and some disciplines may require additional items relating specifically to their major. The implementation of the new Liberal Studies Program (LSP) has prompted recent discussions about augmenting the portfolio to include items representative of LSP modes of inquiry that are not currently assessed. These include the Historical, Philosophical/Religious, and Social Scientific modes. Samples of student learning in these modes of inquiry will be included in portfolio assessment in the future, however the details of implementation are still being developed.

From whom are the results available?

The director of portfolio assessment.

Are the results available by division or discipline?

By assessment tradition at Truman, results by discipline are not made available to the general public. However, each Division Head receives the results from students majoring in disciplines within his or her division, and each discipline is provided with results from students in its major. In this way portfolio data can be used by disciplines in making informed decisions regarding their curricula and methods.

To whom are results regularly distributed?

The results of portfolio assessment are made available to all members of the Truman community through this Assessment Almanac. Division Heads receive results for students majoring in disciplines within their divisions, and individual disciplines receive results for their major students. More detailed data are accessible in consultation with the Portfolio Director. Specific findings are shared with faculty and administrators through planning workshops, faculty development luncheons, and other forums. In the past, data and specific findings have been useful to the university in preparing a self-study report for reaccreditation by the North Central Association and in guiding the core reform that led to the development of the Liberal Studies Program. The Faculty and Student Senates have used the reports in developing planning documents. In discipline committees, some faculty use the information to reform their curriculum, improve their major, and engage in self-study for reaccreditation of their programs. Portfolio findings have also affected the assignments and syllabi of faculty who have read and evaluated them.

Are the results comparable to data of other universities?

No. Few universities are using portfolios for assessment of general education or liberal studies; however, many institutions have inquired about the development and results of the portfolio assessment at Truman.

1999 Liberal Arts and Sciences Portfolio

In 1988, President Charles McClain charged a faculty committee to design a local assessment of the liberal arts and sciences curriculum at then Northeast Missouri State University. The Liberal Arts and Sciences Assessment Committee recommended the use of senior portfolios for sampling and assessing materials that demonstrated student achievement and learning. This volume reports and analyzes the 1999 assessment findings, concluding with a series of recommendations about the assessment processes and about the use of the data for improving teaching and learning.

In May 1999, portfolios from eight hundred ninety seniors, or 79% of those graduating in fiscal year 1999, were read and evaluated by faculty readers. This percentage is a large increase from the 61% reported for the 1997-1998 portfolio despite the fact that the number of disciplines participating held constant at twenty-three. Seventeen portfolios were submitted on CD-ROM as compared with three in 1998.

Fifty-eight faculty members read and evaluated the portfolios, representing all ranks and twenty-six academic disciplines from every division save Military Science. In addition, four library staff members participated for two days each. Twenty-two of the faculty participants and all four of the library staff participants were new readers. The portfolio director, a faculty member, organized the readings sessions, trained readers in holistic evaluation, facilitated discussions, and served as a second or third reader of materials that were difficult to assess. Two student employees helped considerably with data entry and sorting. "Table leaders", used in past years, were not employed this year. Instead, newer readers were encouraged to seek the advice of those with more experience when confronted with difficulties.

Reading sessions were scheduled over the three weeks from May 10 to May 28, 1999. Approximately one third, or about twenty, of the readers participated during each week, gathering daily at 8:00 AM and ending at 4:30 PM with a long hour for lunch and a morning and afternoon break of about fifteen minutes each. Having tried other arrangements, it seems that twenty readers per week form an optimum cohort, allowing reasonable time for satisfactory discussions without compromising efficiency.

The types of student works sought with the 1999 portfolio were the same as in 1998. Portfolio submissions were elicited by prompts for demonstrating "growth as a thinker", "interdisciplinary thinking", "quantitative/mathematical reasoning", "scientific reasoning", and "aesthetic analysis and evaluation", focussing on students' critical thinking across the liberal arts and sciences curriculum. A sixth prompt asks students to demonstrate or describe their "most personally satisfying work or experiences" during their Truman tenure. Finally, seniors were asked to draft reflective cover letters for their portfolios. Several small changes were made in the portfolio prompts to increase clarity. With only small changes over the last several years in the format of the portfolio, the data collected in these years constitute a good baseline against which the success of the recently implemented LSP can be measured in the future.

1999 Portfolio Findings

The findings of the 1999 Portfolio Task Force are presented for the entire group of participating seniors. The findings are also sorted and reported according to three large groupings based on students' majors: "Arts" (including Humanities), "Sciences" (including Math, Health Science, and several Social Sciences), and "Professional Studies" (including Accounting, Business Management, and Nursing).

Because this assessment relies on students to first keep and then select materials for inclusion in their Portfolios, the resulting data are inherently "fuzzier" than data from a standardized, systematically controlled instrument. Students occasionally indicate that they are submitting work that is not their strongest demonstration because they did not keep or did not receive back the artifacts which best demonstrate their competence in the specified area. Other students report that they were never challenged to use the thinking skills or the mode of inquiry requested by individual prompts and, therefore, cannot submit material. Lack of motivation may inhibit the thoughtfulness of the selection process or engagement in self-assessment encouraged by the cover sheets for each portfolio category. In their reflective cover letters, students report a wide range of motivation levels and frequently are frank in stating that they compiled their portfolio quickly and with little thought because other concerns and responsibilities were considered higher priorities. The administration of the portfolio and the degree of self-reflection it fosters in students are uneven campus wide.

Because some students elect not to submit materials in certain categories and others offer multiple submissions, the number of submissions varies from category to category in the report.

Traditionally, we have kept track of the sources of items selected by seniors for their portfolios. This year, for the first time, we will attempt to characterize that data by indicating several of the most common sources (disciplines and classes) for each category.

For several years, we have been tallying the occurrences of submissions dealing with issues of race, class, gender or international perspectives. Those findings are reported this year for the first time.

Growth as a Thinker

Seniors submit early and later works to demonstrate growth over time as critical thinkers. In 1999, items were elicited with the following prompt:

Please include two items (one early and one more recent), which best reflect your growth as a thinker. Many students find it easier to compare similar assignments from earlier and later times for this self-assessment. Please reflect on and choose whatever materials best demonstrate your growth as a thinker.

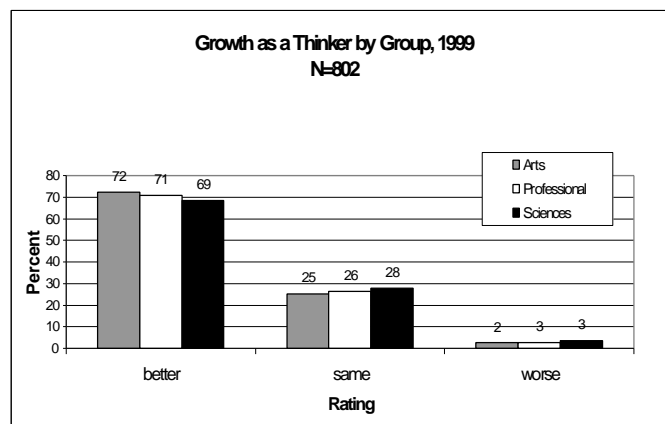
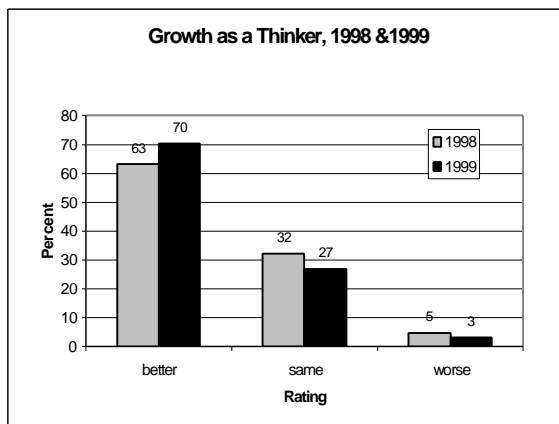
Students are further provided with a description of Bloom's¹ taxonomy of critical thinking, and are encouraged to use it when reflecting on their growth. The cover sheet encourages metacognition when it specifies that seniors describe how and why their choices demonstrate their growth as thinkers.

Materials come from every sector of the curriculum; some students pair a problem-solving essay from Composition I with a researched assignment from Composition II to show the change in their response over time to similar assignments. Others might pair an exam from Logic with an internship paper.

Faculty read both submissions, comparing and evaluating the thinking in each as they make three judgements: 1) whether the thinking in the later work is about the same as, better than or worse than the thinking in the earlier paper; 2) whether the quality of the thinking in the later work is strong, competent, weak or nonexistent; and 3) whether the quality of insight evident in the senior's description and self-assessment of growth as a thinker is strong, competent, weak or nonexistent. Each pair of items was read and evaluated by one faculty reader.

Out of the 890 portfolios collected, 802 (90%) contained paired submissions to demonstrate growth as a thinker. Forty-eight seniors submitted only a single work, confounding any attempt to evaluate growth in thinking. In these cases, the item was evaluated only for quality of thinking as evidenced in the submitted work. Of the 850 seniors who submitted anything in this category, three percent did not write any self-assessment.

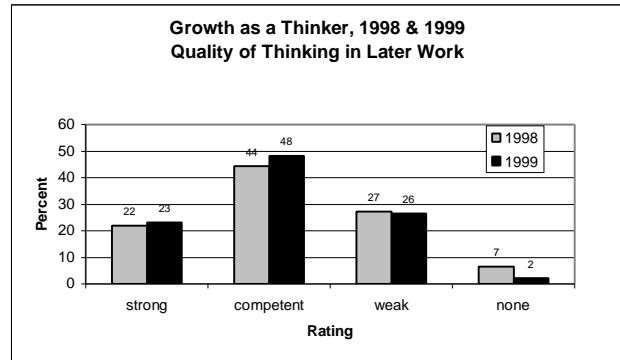
In 1999, some growth in thinking was found in 70% of the paired submissions. This represents a 7% increase over the 1998 findings. Twenty-seven percent of the submissions were found to demonstrate about the same quality of critical thought over time, and 3% were found to demonstrate worse thinking in the later work. This pattern is demonstrated similarly amongst all



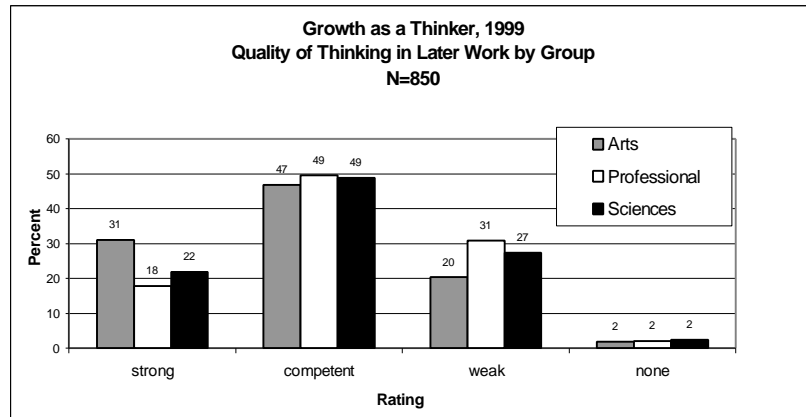
¹ Bloom, B.S. (Ed). Taxonomy of Educational Objectives Handbook 1: Cognitive Domain. New York: Longman, Green & Co. (1956).

three major groups: Arts (and Humanities), Professional Studies and Sciences.

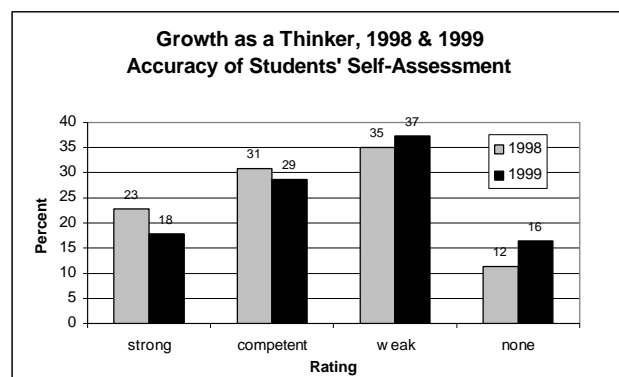
Faculty readers evaluated 802 “later” works and 48 single submissions for the quality of critical thinking evidenced, and rated the thinking as “strong”, “competent”, “weak”, or “none”. In 1999, 23% of seniors submitted material judged as demonstrating “strong” thinking; 48% submitted material with thinking judged as “competent”; 26% submitted material judged as showing “weak” thinking; and 2% submitted material judged as demonstrating no critical thinking. Typically, entries evaluated as “none” were reflective papers, creative writing, or researched reports evidencing neither analysis nor evaluation. The percentage of seniors with submissions judged as “competent” or “strong” is 5% greater in the 1999 portfolios than was found in 1998.



When the data is sorted according to major groups, it becomes evident that seniors with Arts and Humanities majors are judged as significantly stronger critical thinkers than those with Professional or Science/Math majors. Thirty one percent of Arts students were found to be “strong” critical thinkers, while only 22% of Science students and 18% of Professional Studies students were considered “strong” in their thinking.

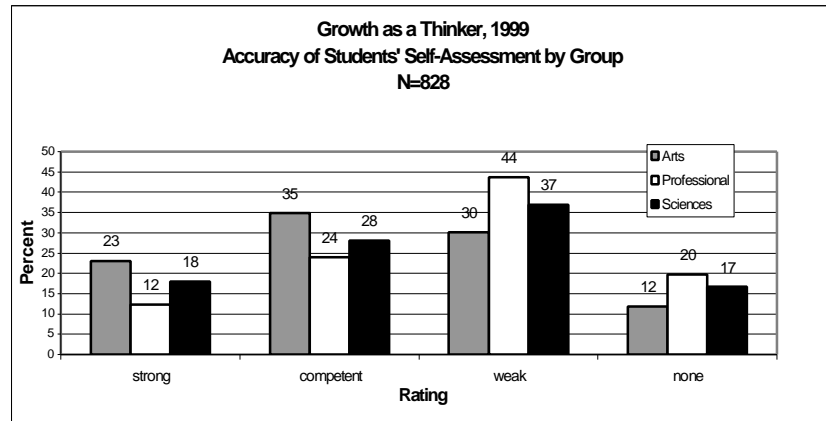


Eight hundred twenty-eight seniors (93%) engaged in self-assessment, describing their growth as a thinker as evidenced by the two items they selected for submission. This participation percentage is greater than the 88% offering self-assessments in 1998 and greater than the 91% participating in 1997. In previous years we evaluated the “accuracy” of the self-assessment. Some faculty readers had difficulty assessing “accuracy”, pointing out that a senior’s statement may be literally accurate, yet with little relevance to growth as a thinker. It is common, for example, for seniors to describe their growth as a *writer* without discussing any changes in their cognitive abilities. To allay the readers’ confusion, we expanded



the judgement criterion to be “accurate insight relevant to growth as a thinker”. Eighteen percent of seniors presented “strong” self-assessments, 29% were judged “competent”, 37% “weak”, and 16% were found to contain no relevant self-assessment of growth as a thinker. Comparing the 1999 findings to those of 1998, “competent” and “strong” self-assessments decreased by 7%.

When sorted according to major groups, we find that seniors with Arts and Humanities majors were most insightful in their self-assessments of growth as a thinker and those with Professional majors were least insightful.



The “early works” chosen by seniors for this category were generated mostly in the first two years of study. Fifty nine percent of the submissions were examples of work done as a freshman, 28% were from the sophomore year, 11% came from the junior year and seniors produced the remaining 2%. Fifty eight percent of the “early works” fulfilled assignments for classes in the LAS core, 32% were generated in classes fulfilling major requirements, and the rest were product of elective courses, minor requirements or other sources.

The “later works” submitted by seniors demonstrating growth as a thinker were 59% from the senior year, 35% from the Junior year, 5% from the sophomore year, and 1% from freshman. Thirty six percent of the “later works” fulfilled assignments for classes in the LAS core, 52% were generated in classes fulfilling major requirements. It is interesting to note that more students choose work from their major coursework to demonstrate their best thinking.

English classes were the most common sources of both “early” and “later” works. Three hundred ten of the early works were produced in English classes, followed by History courses with 64 submissions, Biology courses with 53, Political Science with 37, and Communications with 33. Most other disciplines were represented as sources of “early” works with less than 30 submissions from each. Two hundred ninety three of the later works were produced in English courses, followed by Business with 60 submissions, History with 53, Biology with 46, Communication with 38, Philosophy/Religion with 37, and the rest with 35 or less. The most common pairing of submissions were works from Composition I (ENG 100) paired with papers from Composition II (ENG 314). Composition I was the source of 205 “early” works (and 7 “later” works). Twenty-eight seniors submitted their admissions application essay as an “early” work, and 21 “early” works were from classes taken elsewhere by students before transferring to Truman. No other course accounted for more than 20 submissions of “early” work. Composition II was the source of 189 “later” works. Principles of Marketing (BSAD 325) was the next most common source of “later” works with 16 items. HIST 298, NU 485, and PHRE 186 each accounted for 11 “later” works, and no other course accounted for more than ten “later” works.

Of all the 1652 items submitted as both “early” and “later” works, 3% dealt with issues of race, 1% with issues of class, 3% with issues of gender, and 2% with international perspectives. Three percent of the total were collaborative projects.

Interdisciplinary Thinking

Examples of student work demonstrating an ability to engage in interdisciplinary thinking were elicited with the following prompt:

Please include a work which demonstrates that you have engaged in interdisciplinary thinking. “Interdisciplinary” means using the values, perspectives and/or methodologies or modes of inquiry of one discipline to explore content, perspectives and ideas in another discipline as you make meaning or gain understanding. You work in an interdisciplinary way when you synthesize ideas, materials, or processes from at least two distinct academic disciplines. You should not assume that you are generating interdisciplinary work if you merely use essential skills like writing, speaking, a second language, computation, percentages, or averages to explore content, perspective and ideas in one discipline.

*For example, a Chemistry major was assigned as part of her internship to study a pollution problem caused by the company’s product. She used ethical inquiry and applied economic theory to balance the criteria of cost to the quality of life and cost to the economy in her recommendations about reducing the pollutant. You might have analyzed a film like **Them or The Beast from 20,000 Leagues** to illustrate Cold War mentality in a class presentation of your research into and application of a paradigm from Political Science during a 300-level course in History. Truman students who receive scholarships for study at Reynolda House Museum of American Art must write an “American Arts Discovery Correlation” paper. They correlate perspectives from art, literature, music, and history when they respond to a question like, “in what ways do Thomas Hart Benton with **The Bootlegger**, F. Scott Fitzgerald with **The Great Gatsby**, and George Gershwin with **Rhapsody in Blue** express the insouciance of the 1920’s to me?”*

In 1999 as in 1998, 8% of participating seniors did not submit an entry demonstrating “interdisciplinary thinking”. Five percent provided “self-reports” of interdisciplinary work they remembered but no longer possessed. Because faculty readers did not have texts or other direct evidence of interdisciplinary thinking, self-reports were not evaluated. Several portfolios contained multiple submissions that were evaluated and scored independently. Altogether 778 submissions were each evaluated by two faculty readers who read the works “holistically” while keeping in mind the following descriptors:

Some Descriptors of Competence as an Interdisciplinary Thinker

The items submitted may have some, many, or all of these features which influence your holistic response to the material you review.

4 Strong Competence

- ❖ A number of disciplines
- ❖ Significant disparity of disciplines
- ❖ Uses methodology from other disciplines for inquiry
- ❖ Analyzes using multiple disciplines
- ❖ Integrates or synthesizes content, perspectives, discourse, or methodologies from a number of disciplines

3 Competence

- ❖ A number of disciplines
- ❖ Less disparity of disciplines
- ❖ Moderate analysis using multiple disciplines
- ❖ Moderate integration or synthesis

2 Minimal Competence

- ❖ A number of disciplines
- ❖ Minimal disparity of disciplines
- ❖ Minimal analysis using multiple disciplines
- ❖ Minimal evidence of comprehension of interdisciplinarity

1 Weak Competence

- ❖ A number of disciplines
- ❖ Mentions disciplines without making meaningful connections among them
- ❖ No analysis using multiple disciplines
- ❖ No evidence of comprehension of interdisciplinarity

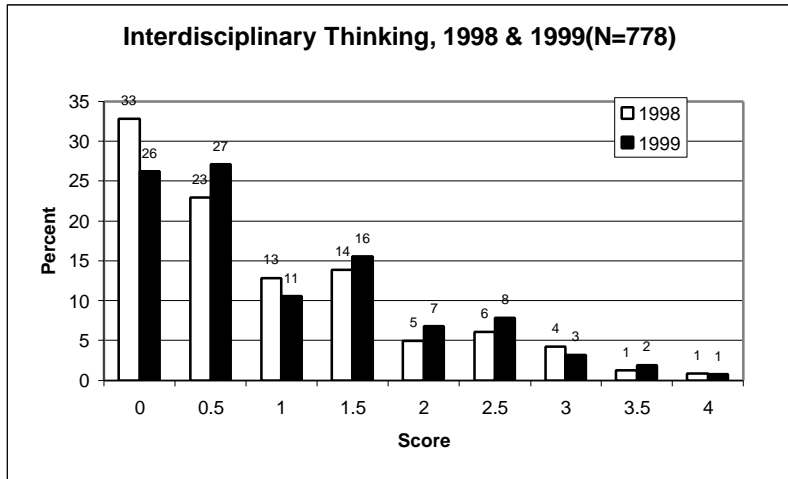
0 No demonstration of competence as an interdisciplinary thinker

- ❖ Only one discipline represented
- ❖ No evidence of multiple disciplines, of making connections among disciplines, or of some comprehension of interdisciplinarity

With each item read by two different evaluators, the overall score on a 0 to 4-point scale is the average of the two individual scores as long as these differ by no more than one point. Differences of two or more points are “splits”, and items receiving split scores are evaluated a third time by an experienced reader to determine the final score. The percentage of splits is a measure of the reliability of the evaluation process. In 1999, 16% of the submissions received split scores. This percentage is significantly lower than the 20% split rate achieved in 1998. (For comparison, random scoring with the five level scale used here would result in a 48% split rate.)

The histogram below shows the results for “interdisciplinary thinking” in 1999 with the results for 1998.

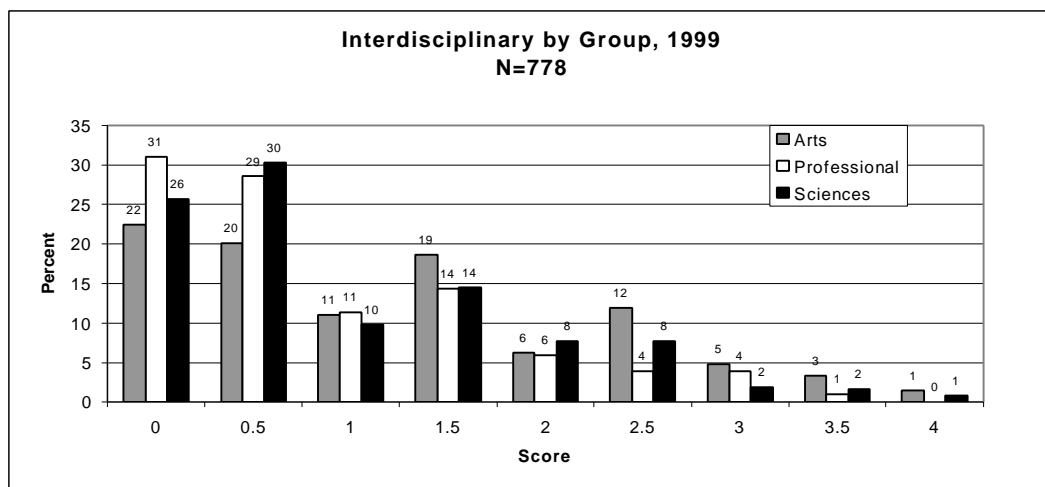
Year after year, faculty readers express disappointment at the dearth of good interdisciplinary thinking found in the portfolios. It is worth noting that the seniors submitting portfolios in 1999 have all completed their degrees under the old Liberal Arts and Sciences core curriculum, which contains no explicitly programmed interdisciplinary experience. The students often express frustration in their cover sheets for this category reporting that they have never been assigned any interdisciplinary work, and that the item they have chosen for submission is a poor example but the best they could provide. The new Liberal Studies Program requires all students to take a junior-year interdisciplinary course. Readers anticipate finding more good examples of interdisciplinary thinking as students begin taking and submitting work from the junior interdisciplinary seminar.



In comparing the data from 1998 and 1999, there is a 7% drop in the number of zero scores. This might reflect a greater awareness on the part of faculty and students of the value of interdisciplinarity in a liberal arts culture, resulting from the ongoing discussions and the implementation of the Liberal Studies Program. However, scores reflecting minimal competence, competence, and strong competence, i.e., scores of two and higher, are virtually unchanged from 1998 to 1999.

The data sorted by major group is summarized below. Students from “Arts” disciplines submitted significantly fewer items with little or no interdisciplinary thinking than did students with “Professional” or “Science” majors. Fully 60% of “Professional” students’ and 56% of

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Science students' submissions were scored a zero by at least one reader. Only 42% of "Arts" students' submissions were scored 0 or 0.5.

The interdisciplinary items were selected by seniors from 34 academic disciplines. Major courses were the source of 44% of submissions, much less than the 63% found in 1998. Core courses accounted for 38% of the submissions (34% in 1998) and elective courses accounted for 16%. Sources for the remaining 2% of items included minor requirements, study abroad experiences, journalistic articles from *The Index*, *Detours*, and *The Echo Yearbook*. One hundred sixty two entries (21%) were generated in 36 English classes with 68 items (9%) coming from English Composition II (ENG 314). Philosophy/Religion, Business, and History classes were the next most likely sources of interdisciplinary submissions with 53, 52, and 51 items respectively. English Composition I (ENG 100) and Ethics (PHRE 188) were the second and third most common courses yielding interdisciplinary submissions, each generating 19 items.

Most of the work reflected in the interdisciplinary submissions was accomplished by students in their senior and junior years (37% and 36%, respectively). Nineteen percent came from the sophomore year and 8% from freshman year. Seven percent of the items were the result of collaborative work.

Portfolio readers keep a tally in each category of items dealing with race, class, gender, and international issues. In the interdisciplinary category 13% of submissions dealt in some way with international issues, 11% with race, 8% with gender, and 6% dealt with issues of class.

Quantitative Reasoning

Examples of student work demonstrating an ability to reason quantitatively/mathematically were elicited with the following prompt:

Please include a work in which you applied mathematical skills and techniques at the highest level you have attained in discovering new knowledge through quantitative/mathematical reasoning. Be sure that your entry goes beyond a mere display of math skills (as might be reflected in a lower level math exam or homework assignment). In contrast, submit a work in which you apply mathematical tools in order to reach a more general and relevant conclusion about some broader question.

In 1999, 9% of participating seniors did not submit an item demonstrating "quantitative/mathematical reasoning". For comparison, 12% did not submit an item in 1996, but only 6% lacked submissions in 1997. Self-reports were offered by 7% of the seniors, exactly the same percentage as last year. Readers did not attempt to evaluate self-reports.

Altogether 746 submissions were each evaluated by two faculty readers who read the works "holistically" while keeping in mind the following descriptors:

Some Descriptors of Competence in Quantitative/Mathematical Reasoning

3 Strong Competence

Strong demonstration of quantitative reasoning includes some, but not necessarily all of these features. The submission may:

- ❖ Show strong inferential or deductive skills
- ❖ Show a strong ability to explain concepts
- ❖ Show an appreciation of concepts
- ❖ Show an ability to ascertain a pattern and relationships
- ❖ Show an ability to use data or calculations to explore further or expand the scope of the problem or issue
- ❖ Interpret the meaning of quantitative results
- ❖ Explain why quantitative techniques are applied

2 Competence

Competent demonstration of quantitative reasoning submissions:

- ❖ Have a level of inferential or deductive skills
- ❖ Show an appreciation of concepts
- ❖ Interpret the meaning of the quantitative results
- ❖ Explain why quantitative techniques are applied

1 Minimal Competence

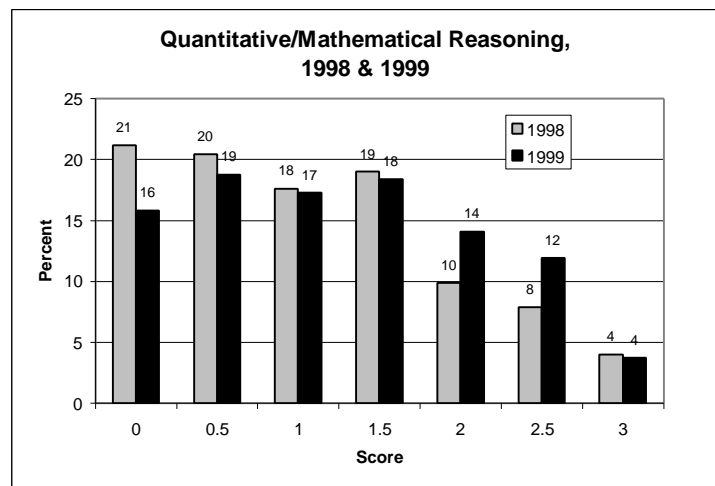
Minimally competent demonstration of quantitative reasoning offers a minimal explanation of the meaning of data or calculations used.

0 No Competence

The submission has calculations without explanations or vice versa; it manipulates numbers without conclusions or discussion, or discusses with no basis in mathematics.

With each item read by two different evaluators, the overall score on a 0 to 3-point scale is the average of the two individual scores as long as these differ by no more than one point. Differences of two or more points are “splits”, and items receiving split scores are evaluated a third time by an experienced reader to determine the final score. The percentage of splits is a measure of the reliability of the evaluation process. In 1999, about 11% of the submissions received split scores. This value is comparable to the split rate of 1998. (For comparison, random scoring with the four-level scale used here would result in a 38% split rate.)

There is a clear shift in the results towards higher scores. Scores of zero fell by 5% between 1998 and 1999. Competent and strong

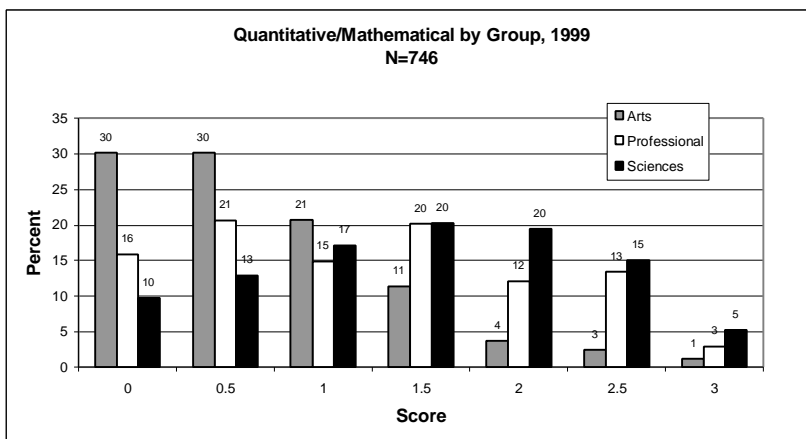


quantitative/mathematical reasoning (i.e., scores of two or greater) increased by 8% although the percentage “strong” scores remained constant at only 4% of the submissions.

When the data are sorted according to the major groupings, C. P. Snow’s “two cultures”² are clearly evident. While 60% of math and science majors are judged “competent” or strong by at least one reader (i.e., scores 1.5 or greater), only 19% of the arts and humanities majors received scores at or above 1.5. Furthermore, 30% from the “Arts” group submitted items with no evidence of quantitative/mathematical reasoning while only 10% of the “Science” group were scored zeroes. Students in professional disciplines, which may be largely quantitative (such as Accounting) or less so, fall somewhere in between.

In 1999, for the first time, we attempted to characterize the kind of math used in each submission. Readers found basic statistics (averages, percentages,

standard deviations, stem and leaf plots, etc.) as the most common mathematics evident in student submissions. Thirty-three percent of the submissions used basic statistics. Twenty percent of submissions used advanced statistics (correlations, t-tests, ANOVA’s, etc.), and another 20% used precalculus (basic algebra and trigonometry). Seven percent used basic arithmetic skills. The use of calculus was found in only 11% of submissions.



Not surprisingly, the disciplines from which students chose work for this category most frequently were Statistics and Math. One hundred fourteen items were produced in Statistics courses and 91 came from Math courses. Psychology classes yielded 64 of the submissions, and Chemistry, Exercise Science, and Physics classes were each the source of 55 items. Basic Statistics (STAT 190) was the most common individual class from which items were submitted to demonstrate quantitative/mathematical reasoning, followed by PSYC 360, ES 343, and PHYS 100 with 38, 20, and 19 submissions respectively. The physics sequence, PHYS 185 and 186, together were responsible for 23 items.

Thirty six percent of the submissions were produced in the junior year, 34% in the senior year, 22% in the sophomore year and 7% in the freshman year. Sixty percent were the result of work in major courses, 30% were assignments in courses used to fulfill LAS core requirements and 8% were from elective courses.

Of the 746 portfolios read for quantitative/mathematical reasoning, 4% dealt with issues of gender, 2% with issues of race, 2% with international perspectives and 1% with class issues.

² Snow, C. P. *The Two Cultures*. Cambridge: Cambridge University Press, reissue edition (1993). [Snow’s controversial Rede lecture of 1959 identifies a cultural split between the humanities and the sciences.]

One issue that continues to frustrate readers in this category is the difficulty in evaluating the “meaning” reflected in the works submitted. Many students submit exams or solved homework problems displaying considerable mathematical skill applied to some problem, but with “meaning” only inferable from the statement of the problem. On the one hand, readers feel compelled to reward the display of mathematical skills yet are reluctant to reward a submission in which the application of math tools “in order to reach a more general and relevant conclusion about some broader question”, as the prompt requires, is not accompanied by explicit interpretations and conclusions composed by the student. Other students submit work from advanced math classes that are highly abstract and largely inaccessible to most faculty readers. One might presume that such work makes mathematical “meaning” and reflects the highest mathematical reasoning amongst our students, but beyond such presumption it is impossible to evaluate a work if the reader cannot understand it. Faculty readers strongly recommend that seniors describe the “meaning” of the quantitative or mathematical work they submit in writing on the cover sheet for this category, and that those descriptions will be considered in the evaluation of the item.

Scientific Reasoning

Examples of student work demonstrating an ability to reason scientifically were elicited with the following prompt:

Please include a work that shows your ability to reason scientifically. You might include a laboratory or research report in which you tested a scientific theory or reached new conclusions about the behavior of humans or other aspects of the natural world. Alternatively, you might have derived testable predictions about the behavior of Nature or of persons developing some theory to a logical and relevant consequence.

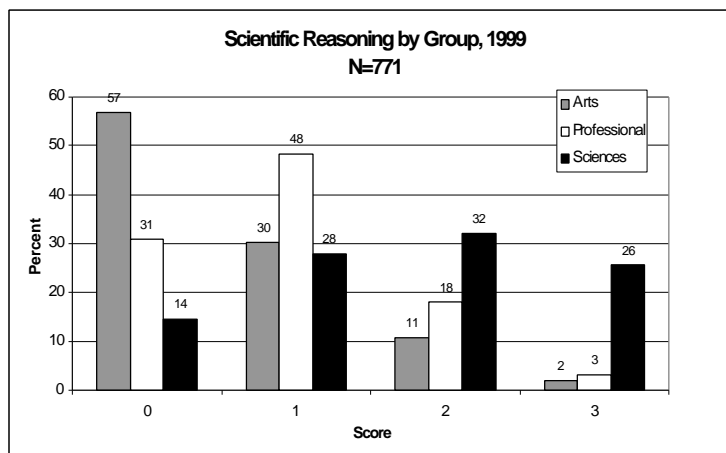
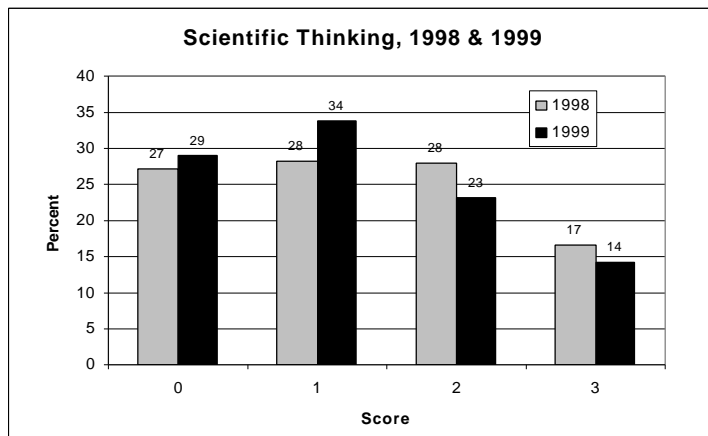
In 1999, 8% of seniors did not submit materials to demonstrate “an ability to reason scientifically”. This percentage is less than the non-submission rate of 10% found in 1998 and much less than the 1997 rate of 15%. Most seniors who did not submit an item showing scientific reasoning explained on their cover sheets that they had not saved work from their core science classes. Six percent of seniors submitted self-reports of work they recalled doing. Self-reported work was not evaluated by faculty readers.

Readers evaluated 771 submissions one time, assessing the competence of scientific reasoning as evidenced in the submission. Each item was assigned a score from zero to three with zero representing “no competence”, one representing “minimal competence”, two representing “competence” and three representing “strong competence”. When readers had questions about the quality of the submission, they consulted with colleagues from the sciences and social sciences.

Results from 1999 are similar to those from 1998 in that both show most items were evaluated as “minimally competent”, while “strong competence” was found least often. There is, however, a small but troubling difference between the data from the two most recent years. Eight percent fewer high scores (“competence” and “strong competence”) occurred in the more recent

data. This is the second consecutive year that scientific reasoning scores have shifted downwards.

The major group data are similar to the 1998 findings in that they show that seniors in math and science majors account for most of the higher scores, while most of the items showing no evidence of scientific reasoning came from seniors majoring in arts and humanities disciplines. These findings parallel the results from quantitative/mathematical reasoning reflecting Snow's "two cultures". Students in professional disciplines, which may be closely related to science (such as Nursing) or more remote (such as Business), fall somewhere in between. Notably, seniors with "professional" majors showed the largest downward shift in scores with a 16% drop in scores of 2 or 3, and a 15% increase in scores of 1.



Not surprisingly, the four disciplines in the division of science were the sources of many of the submissions. Courses in the Biology discipline accounted for 254 of the submissions, followed by Chemistry (106), Psychology (77), Physics (69), Agricultural Science (63) and Exercise Science (42). The top individual classes were BIOL 100, accounting for 97 submissions, AGSC 100 with 63 items, CHEM 100 with 45, PSYC 360 with 35, BIOL 107 with 29, and PHYS 100 with 27.

Thirty two percent of the submissions were produced by students in their junior year, 29% in the senior year, 22% in the sophomore year, and 16% were generated by freshman students. Fifty percent of the submissions were generated by students satisfying requirements of their majors, 43% were from LAS core courses and 5% were produced by students in an elective course.

Two percent of the submissions for scientific reasoning dealt with issues of gender. One percent dealt with issues of race. Less than one percent dealt with issues of class or international perspectives.

Fully 23% of submissions were the results of collaborative work. This is largely because group work in the science lab is a common practice.

Aesthetic Analysis and Evaluation

Examples of student work demonstrating aesthetic analysis and/or evaluation were elicited with the following prompt:

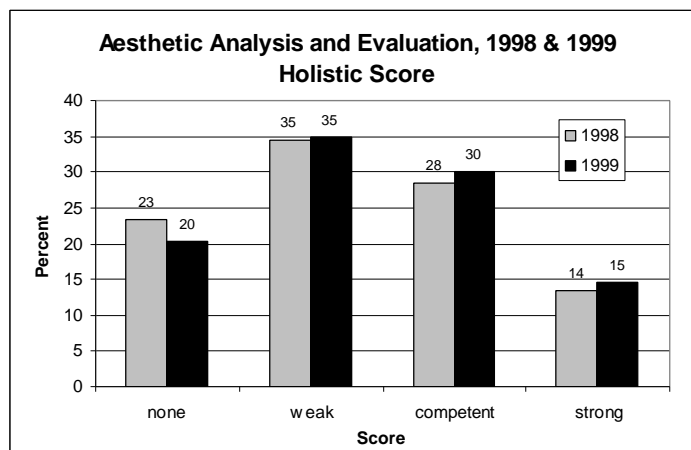
Please include something that demonstrates you making an aesthetic analysis and/or evaluation of some artwork or creative work. (Examples might be critiques, research or reviews of painting, sculpture, film, theatre, music and other performances.) If you include work you have created or a description of a personal aesthetic experience, you can write your analysis and evaluation on this sheet if you have not yet formalized that analysis and evaluation.

The Art faculty requested the prompt for “aesthetic analysis and evaluation” after the 1993 Portfolio Assessment. The data have been used to review and redesign courses offered under the Humanities section of the old core and now under the Fine Arts mode of inquiry in the new LSP. Five percent of seniors did not submit an item to demonstrate “aesthetic analysis and evaluation”, down from 7% in 1998. Another 5% (6% in 1998) submitted self-reports in which they described occasions when they participated in some aesthetic analysis or evaluation. Without artifacts or texts to evaluate with these self-reports, faculty readers could not assess the quality of the aesthetic reasoning.

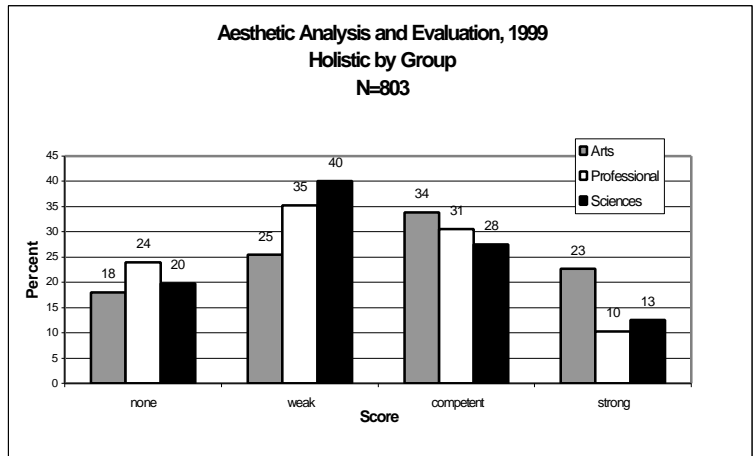
The majority of the 803 submissions evaluated were written texts, but some seniors submitted slides of artwork they created, audio-tapes of musical performances, and video-tapes of theater performances. When students submit their own creative work, the prompt directs them to analyze and evaluate that work and include it with the submission. This is the only instance in which faculty readers consider student commentary written expressly for the Portfolio in their evaluative capacities.

Readers made three judgements about the quality of thinking demonstrated. They holistically assess the overall quality of all aesthetic reasoning in the submission. They assess the quality of the aesthetic analysis and make a separate assessment of aesthetic evaluation. Readers use the scoring categories of “no evidence”, “weak”, “competent” and “strong” for each assessment.

Eighty percent of the submissions were judged holistically as demonstrating some skill in aesthetic reasoning, but only 45% were deemed to be “competent” or “strong”. The data for 1999 are very similar to those for 1998 with only a marginal shift towards higher scores.

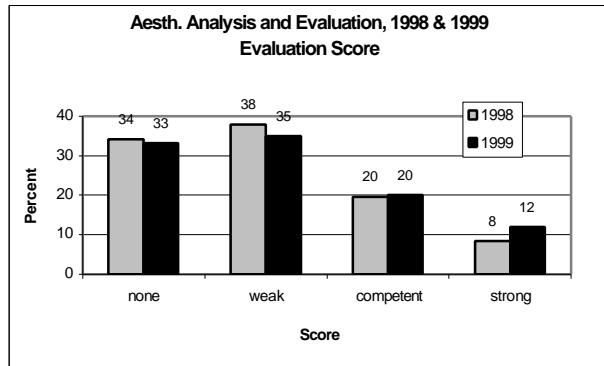
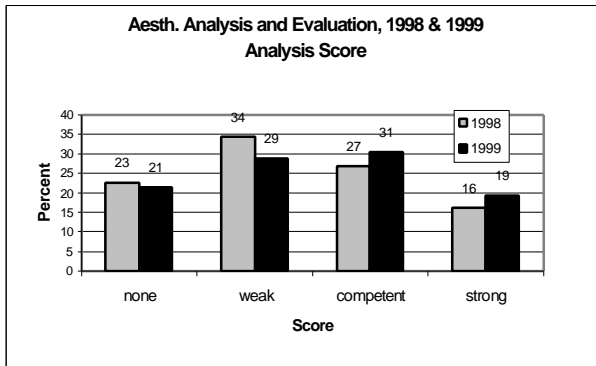


When the data are sorted by major group we see again evidence of the “two cultures”. Fifty-seven percent of seniors with arts or humanities majors submitted items judged “competent” or “strong”, whereas only 41% of seniors with professional majors and 41% of seniors with science/math majors were so judged. As occurred last year, students in the Sciences demonstrate more competence in aesthetic reasoning than students in the Arts demonstrate competence in quantitative and scientific reasoning.



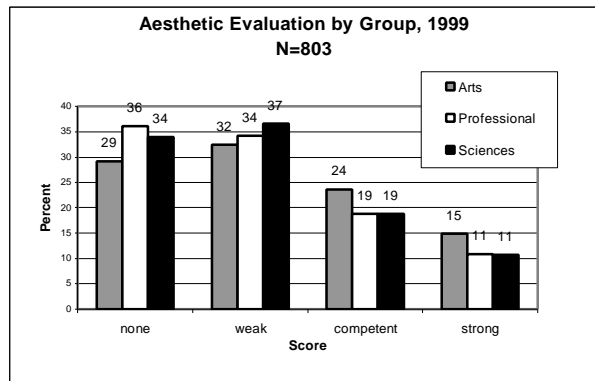
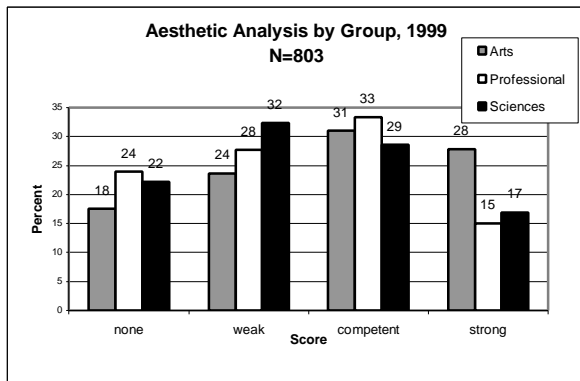
Faculty readers were especially disappointed in finding so many (18%) of students in arts and humanities disciplines submitting items with no aesthetic reasoning. This percentage is greater than last year’s 15%.

Historically, the portfolio entries demonstrate more aesthetic analysis than aesthetic evaluation. Each year, the assignment sheets that seniors append to entries and the students’



descriptions of their assignments focus more on analytical thinking and less on evaluative thinking.

This historical pattern recurred in 1999. Fifty percent of submissions were judged as “competent” or “strong” examples of aesthetic analysis while only 32% were judged as “competent” or “strong” example of aesthetic evaluation. Conversely 33% had no evidence of aesthetic evaluation while only 21% were found lacking analysis. Comparing the 1999 findings with last year’s, there is a slight shift towards higher scores for both aesthetic analysis and evaluation.



When the group data is reviewed both trends are evident. More analysis than evaluation was found for all groups, and students in the arts and humanities groups are stronger in general than students majoring in professional studies and the sciences.

Surprisingly, 201 of the submissions were generated in English classes, followed by Art with 154, Music with 101, Aesthetics (courses with the AEST prefix) with 94, and Theater with 68. The most common courses from which submissions for aesthetic reasoning were drawn were Introduction to the Visual Arts (ART 203) accounting for 100 submissions, Music Appreciation (MUSI 204) accounting for 94 items, Basic Approach to the Arts (AEST 200) accounting for 64 items, and Theater Appreciation (THEA 275) with 59 submissions. English Composition I (ENG 100) and II (ENG 314) together accounted for 77 submissions for aesthetic reasoning.

The greatest percentage of items submitted for aesthetic analysis and evaluation, 31%, were produced by students in their sophomore year. Freshman work accounted for 26% of the submissions. Twenty-five percent of the submissions were produced in the junior year, and the remaining 18% were produced by seniors.

Sixty-nine percent of the submissions were created by students for classes used to fulfill core requirements, 17% were from major courses, and 12% were from courses used to fulfill minor requirements.

Three percent of the submission dealt with issues of race, and another 3% with international perspectives. Two percent dealt with gender issues and 1% with class issues.

Only one percent of submissions were the result of collaborative work.

Faculty readers expressed difficulty in making three judgements: one holistic, one on analysis, and one on evaluation. They felt that with careful assessments of a student's ability to analyze and to evaluate aesthetically, that a holistic judgement seemed superfluous. Faculty from the fine arts disciplines further argued that a student's *engagement* in an aesthetic experience is an important component of a liberal arts education, which we do not assess with the Portfolio. In the last two years the participation in portfolio assessment by fine arts faculty has risen dramatically. It may well be time to have a discussion with them about how we should proceed in our assessment of the aesthetic component of students' experiences at Truman.

Most Satisfying Work or Experience

Students are asked to submit an item or a description of a most personally satisfying experience with the following prompt:

Please include something (a work from a class, a work from an extracurricular activity, an account of an experience, objects which are symbolic to you, etc.) that you consider representative of the most personally satisfying results of your experience at Truman. If you don't have an "artifact" which

would represent or demonstrate the experience, write about it on the form. This is space for something you feel represents an important aspect, experience or event of your college experience.

This portfolio category was recommended to the University Portfolio committee in 1992 by students in capstone classes seeking a site where they could share experiences or work at Truman which made them proud or most satisfied them.

Faculty readers do not evaluate the quality of the materials submitted in any way. Rather they review and describe what it is that a student found to be “most personally satisfying”. Over time repeated motifs have been identified. Readers use a checklist to record the context of the experience and the reason it was especially satisfying to the student.

Only 3% of the portfolios did not contain an item or a description representing a “most satisfying experience”, and several students submitted multiple items writing that they had so many satisfying experiences they could not identify a single one to submit. In all, the faculty readers read 870 submissions.

Twenty-two percent explained that their satisfaction was the result of having achieved a “personal best”, 20% cited having achieved personal goals through the experience, and another 20% said the experience was satisfying because it was especially challenging. A variety of other reasons accounts for the remaining 38% of submissions, such as “it was emotionally satisfying”, “it opened new horizons”, “I applied what I was learning”, “it provided an opportunity for personal reflection”, “it allowed me to be creative”, and “it will impact my future career”.

The table below lists the sources or contexts of the experiences. These results are similar to those from the 1998 Portfolio.

Context	Number	%
Major	347	40.4%
LAS	152	17.7%
elective	63	7.3%
other organization	42	4.9%
study abroad	38	4.4%
internship	26	3.0%
research	23	2.7%
social fraternity	17	2.0%
varsity athletics	17	2.0%
college experience	17	2.0%
campus employment	13	1.5%
residential life	12	1.4%
personal growth	10	1.2%
minor	9	1.0%
service organization	9	1.0%
social sorority	9	1.0%

capstone class	8	0.9%
volunteer work	8	0.9%
graduation	6	0.7%
other athletics	5	0.6%
honor society	3	0.3%
McNair program	3	0.3%
resume	3	0.3%
other travel	2	0.2%
portfolio	2	0.2%
beer drinking	1	0.1%
Freshman week	1	0.1%
getting a tattoo	1	0.1%
SWE	1	0.1%

Experienced faculty readers were surprised to see so many “most satisfying experiences” coming from the academic side of the Truman experience. The majority of submitted artifacts were papers, essays, projects, and lab reports generated in classes. Several cited their first paper at Truman as especially satisfying. Others described group projects. Many seniors talked about specific classes and satisfying performances on difficult exams. Research experiences including presentations of research results were cited by a number of seniors. Writing was another common theme. Some were proud of articles they wrote for the *Index*, the *Monitor*, and *Detours*. Several others cited poetry writing as especially satisfying. Study abroad experiences and internships were mentioned by a number of seniors.

Practically every aspect of campus culture was cited as a satisfying experience by at least one student. Participation in sports, involvement with fraternities and sororities, working on SAB projects, involvement with the campus radio and TV stations, participation in theater performances, ROTC, CCF, volunteer work, web page design, work with Special Olympics, chairing a blood drive, singing in a choir, and making the Dean’s List are but a few examples.

Forty four percent of the “most satisfying experiences” occurred in the senior year, 31% in the junior year, 12% in the sophomore year, and 7% in the freshman year. The remaining 6% occurred over times spanning more than a year.

Four percent of most personally satisfying experiences dealt with international perspectives. Many of these were study abroad experiences. Three percent dealt with issues of race, 3% with gender issues, and 1% dealt with issues of class.

Reflective Cover Letters

Because of an expressed concern that portfolio assessment could be too intrusive in student and faculty lives, the initial prompt for the cover letters to accompany portfolios asked seniors to report the time involved in compiling and submitting their portfolio. Seniors were also asked to describe the process they used to generate their portfolios and were invited to describe anything they learned during the process of reviewing and selecting materials for the portfolio.

Finally, seniors were encouraged to use their cover letters to express anything they wanted to share with the University Community.

The first LAS Portfolio Assessment Report concluded with a paragraph stating the consensus of the University Portfolio Committee members that, however useful might be the information acquired about the delivery and efficacy of the University's curriculum, the senior portfolio would be valuable even if only for the student self-assessment which occurred. Students that first year reported that the portfolio process provided them with perspective and "closure", a sentiment echoed by many students in the ensuing nine years.

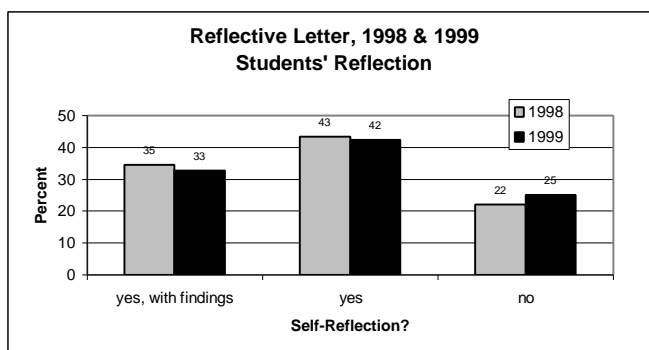
The value of reflection and metacognition to all learners is a constant motif of campus conversations about student learning. Portfolios, whether they are placement portfolios, developmental portfolios for classes or majors, professional portfolios, or the Liberal Arts and Sciences portfolios, encourage individuals to reflect, to self-assess, to acquire new perspectives, and to set goals for future growth. The 1999 reflective cover letters continue to demonstrate and increasing awareness by seniors of the value of self-assessment and reflection.

In 1999, 12% of seniors did not include cover letters in their portfolios. This percentage is down from an 18% non-submission rate found in 1998. Seven percent of Arts students (down from 15% in 1998), 12% of students in the Sciences (down from 16%), and 17% of students from Professional Studies (down from 28%) omitted reflective cover letters. It is encouraging that more students are seizing the opportunity to engage in reflective thought and self-assessment, which may reflect progressive change in the campus culture.

When faculty read cover letters on the last day of the week of readings, they capture a fuller sense of individual students, their achievements and aspirations, even as they are collecting information that leads to a larger picture of student attitudes. Readers record data about the time involved in compiling the portfolio and the use of computer technology in storing academic work product. Readers report whether and how seniors engaged in reflection and self-assessment in their letters. They transcribe the seniors' attitudes towards the Portfolio Assessment and towards their education at Truman. They highlight statements in letters which they feel should be shared with some or all constituents of the university community. At the end of the day, readers share selected letters with the group, giving a voice to the concerns, criticisms, recommendations, and/or kudos that seniors feel compelled to express.

Reflection in Cover Letters

Cover letters often provide personal and thick description as seniors "sum up" their experiences at Truman. Some writers are specific and laconic. Others expand on their attitudes toward their education at Truman, their personal growth and academic achievement, and their opinions and recommendations about the curriculum, the Liberal Arts culture,

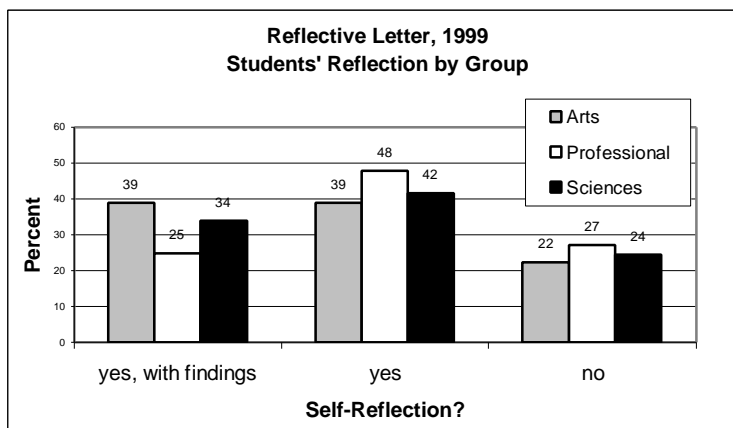


and the assessment culture. Many refer to experiences and learning outcomes that best represent them but were not elicited by the other portfolio prompts.

Faculty readers report whether cover letters contain reflection. They check “yes” for reflection presented only as generalizations and “yes, with findings” when the writer presents specific and well-developed insight. The 1999 data closely resemble last year’s findings. Seventy five percent of cover letters contained reflection, 33% “with findings”. The 25% without reflection were mostly letters explaining the contents of their portfolio and the process they used in assembling it.

The data by group show Arts and Sciences students to be more likely to include findings in their self-assessment than are the students in Professional studies.

Seniors engage in a broad range of reflections in the portfolio cover letters. Some focus on the challenges they faced and the achievements they accomplished in the major. Others wrote about the value of the liberal arts to them. Still others attempt an holistic assessment of personal development over their Truman tenure. Each cover letter excerpted in this almanac was recommended by faculty readers for sharing with the university community.



Each cover letter excerpted in this almanac was recommended by faculty readers for sharing with the university community.

An Accountancy major refers to her experiences in her major and in the core as she shares her “findings”:

... While gathering the portfolio together I had the opportunity to review my earlier works and the progress I have made in my writing, analysis, and thinking skills. Concepts I found that I struggled with my first year are now principles of my everyday thinking, especially those of accounting. Classes such as Composition forced me to think vertically and question the world around me in a more analytical way. I am amazed at the range of knowledge I have accumulated through the last four years and the level of conversation I am able to carry on with people of a number of different interests and backgrounds. My self-confidence has emerged, my speaking skills have developed, and my marketability as a competent, well-rounded businesswoman was created as a result of the four years of education and guidance at Truman State University. Many of these accomplishments were recognized as a result of organizing this portfolio.

In assembling her portfolio, an Exercise Science major recalled a variety of memories of meaningful events in her life:

April 14, 1999

Dear Liberal Arts and Sciences Portfolio Task Force:

This portfolio was a wonderful look at the five years that I spent at Truman. I spent roughly a day compiling all of the old papers and notes that I had from each and

every class over the years and relived a lot of old memories. It was like opening a time capsule and peering into my college life. I then proceeded to choose the sample works to contribute to the different areas of the portfolio.

The choices I made were difficult ones, as there were many projects and assignments to choose from. The most difficult to choose was the interdisciplinary work, as I had a hard time rationalizing what exactly I should pick. I did not have many papers or projects that reflected different disciplines in as easy a manner as was described in the cover sheet. However, the choice was made, and I think it was the right one.

As I was going through all of my old things, I found many of the assignments and old tests reminded me of other things that were going on in my life at the time. Returning to me were memories of old boyfriends, projects and organizations I belonged to, and what was going on in the world. I was able to look at what kind of person I was five years ago, and what kind of person I have become. I realized that I have not only grown academically, but also personally through the different opportunities that were presented to me here at Truman. I know now that I have the knowledge and the ability to succeed in whatever I put my mind to because of all the experiences I have had. It is comforting to know that whatever I strive for in life will be that much more in reach because I was a student here. I don't think I could have developed as much as a complete person had I gone somewhere else.

I hope as you read my portfolio, you will get a general idea of the events and ideas that I experienced while here at Truman. While these are only a few samples of my works and involvement, they are representative of what I have done in my career. Thank you for your time in this matter; I only hope that my experiences here will aid you and give you insight in evaluating the University for the future.

A Communication/Journalism major and pre MAE student discovered improvement in her writing :

Dear LAS Portfolio Task Force,

As I began searching through my old computer disks, I felt as though it were Christmas morning. I could not help but feel excitement and delight each time I opened a new file and found a paper I had stressed over for hours. They had become long forgotten memories before I began this procedure. Reading them again was both humorous and touching. It's amazing to think about how long ago they were written and how much I have experienced and grown since those days. If I had only known then what I know now.

One thing that became apparent as I put my portfolio together is how much I have matured as a writer. I had always considered myself to be a strong writer, but it makes me smile to see how much I needed to improve. I am certain that when you send this back to me in ten years I will again say the same thing about my current work. It does make me proud, however, to realize that I have improved a great deal over the years without even realizing it! I suppose my communications professors knew exactly what they were doing after all.

I can also see how I have matured as a person, which is perhaps the most valuable thing I will take away from this university. Since the day I arrived here as a freshman, I have met thousands of people, had my heart broken too many times, shared the dead of night with either a textbook or my best friends, spent four months in another country and struggled with both success and defeat. It is interesting how the things that I

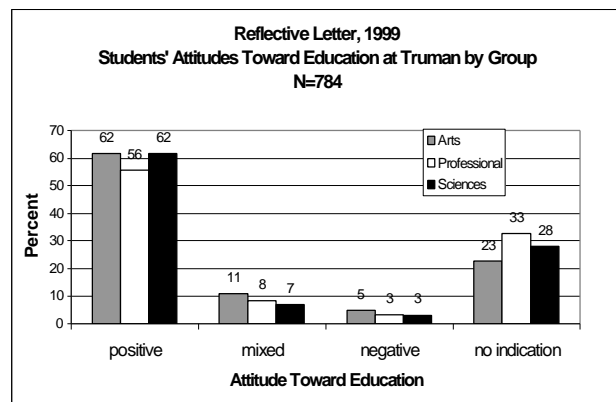
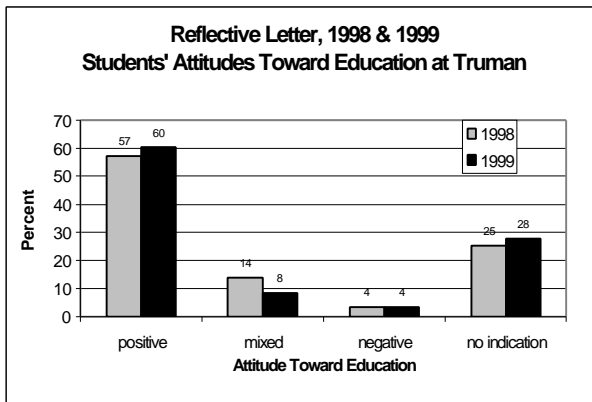
have learned the most from occurred outside the classroom. College came and went entirely too quickly.

An English major chose to reflect on “challenge” in non-major classes, finding personal growth the result of some of the most difficult challenges:

... By looking through these papers for the past few weeks, I have been able to assess my own growth as a scholar and as a thinker. I find it fascinating that this is most evident in several essays that were written without much difficulty for non-major classes. That is not to say that I was not challenged; instead I often found non-major classes just as challenging and difficult as major classes. I feel that most of the difficulty that I was faced with was due to my horizons and comfort zones being expanded by several subjects. I found myself thinking oftentimes that the classes that I struggled with the most and ended up with C's in were the classes that I gained the most knowledge from, and it was this knowledge that was built upon by higher level classes.

Attitude Toward Education at Truman

In 28% of the cover letters seniors did not discuss their attitudes toward their education. Sixty percent of the letters expressed a positive attitude about their education, 8% expressed mixed feelings and, 4% were negative. Overall, the general pattern of a large positive attitude and a small negative attitude towards a Truman education has been demonstrated each year and appears generally constant across disciplines.



One faculty reader suggested sharing this letter from a Political Science major as an example of a letter expressing a positive attitude about her education at Truman:

During the process of putting this portfolio together, it became apparent exactly how much I have learned during my years here at Truman State University. I believe that what you have before you, while a good representation of what I have learned at this institution, is not the complete picture of what I have gained by being in Kirksville. I have not only learned many educational skills, but I have also learned many life lessons while participating in the various organizations and clubs of which I have been a part. From organizational skills to relationship skills, I have grown to be a better individual. The

professors that I have had the honor to learn from have been of the utmost importance in shaping my skills and giving me new eyes from which to see the world.

This portfolio took me about three hours to put together. It was very enlightening to look through my old papers and review them with the insight that I have now. I do believe that I have grown as a writer and as a critical thinker. I have learned several life skills at this University which range from communication skills to writing skills. Thank you for the opportunity to share with you some of my work from the past four years.

Similarly, the concluding paragraph of this longer letter by an English major refers specifically to the liberal arts in expressing a positive attitude toward education at Truman:

As a student at Truman State University I really value the liberal arts and sciences tradition which provided the opportunity to take a variety of classes instead of simply being channeled down one path. I believe that new information and perspectives I learned from classes outside my major discipline have actually helped me in my English courses and fostered some new interests. Even classes I was not particularly interested in now make me feel that I have a full and rounded education, and I think I had a better college experience for that. Hopefully this portfolio will offer some insight into some of these thoughts and work that have helped me to develop as a student.

In a “mixed” cover letter, a student expresses mixed emotions and opinions about his or her education at Truman. Often, a senior will express general satisfaction with his or her education while listing several specific complaints; or cite positive experiences in the major, while complaining that the LAS core requirements were valueless wastes of time.

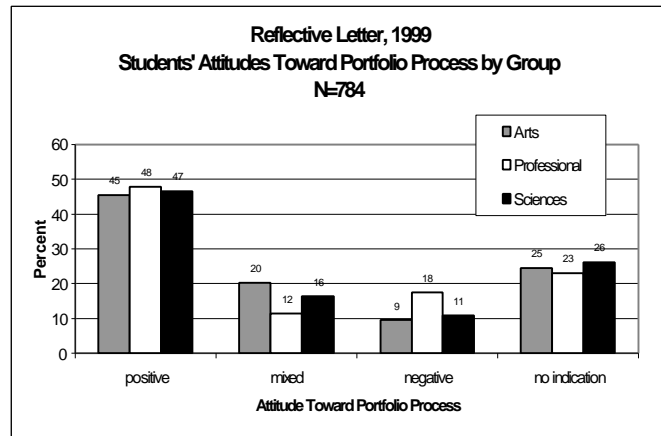
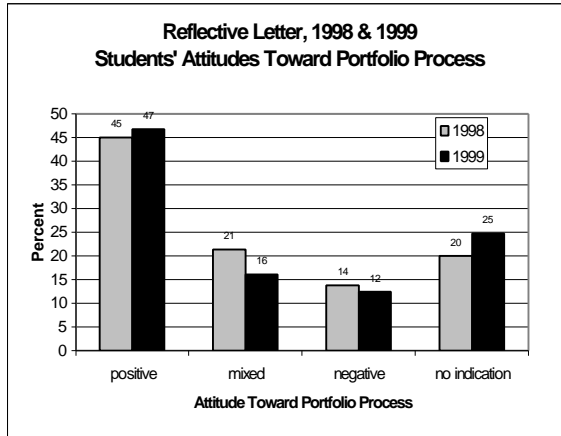
Negative attitudes toward a Truman education were found in only 4% of the cover letters. This is the same percentage as was found last year, and in the last four years the percentage has never been greater than 7%. Those negative attitudes seem to be connected to unfulfilled expectations and a cynicism about the university’s commitment to its stated goals. Here is an example of a letter expressing a negative attitude from a Computer Science major:

In putting together this portfolio for my graduation, I dug through old assignments and papers from my college career which vaguely had to do with the subject being requested. I spent as little time on the portfolio as possible, since I feel as though my basic abilities, which the portfolio is meant to gauge, of thinking, reasoning, and evaluating across disciplines was mostly developed prior to my enrollment in this university. Any differences, in these areas, between my senior year of high school and my senior year of college has been a result of simply having more knowledge in certain disciplines than I had previously. This belief was strongly affirmed as I read through papers from my college career as well as a few from earlier.

The major change I have experienced through my college career, outside of a broadening of my knowledge within certain disciplines, has been a strong increase in my cynicism. I remember coming to college picturing a campus devoted to learning and opening minds, challenging beliefs, and guiding young adults in finding who they are. Instead, I found a business that spent more and more time and money trying to look good to everyone except the students. I spent four years being treated, by the administration, as a child who no longer mattered because I had already enrolled. I witnessed the slow-moving attempt to alter the students’ living environment from one full of opportunity for

the students to make things happen into one in which things happened by the hand of the administration. I still believe that, four years ago, this was the correct university for me to choose. Today, however, if I had to make the choice again, this university would not even be considered.

Attitude Toward the Portfolio Process



Seniors most frequently expressed positive attitudes towards the portfolio assessment process. In 1999, 25% of seniors' cover letters did not express an attitude about portfolio assessment. Forty seven percent of those expressing an opinion were positive, 16% were mixed and 12% were negative. When the findings are sorted by group, seniors in Professional Studies majors were found to be more negative in their attitudes about portfolio assessment than were those in Arts and Sciences.

Faculty readers took note of the many seniors who were reluctant in their expressions of positive attitudes. This letter from a Political Science major is an example:

When I first heard that I had to put together a senior portfolio, my very first thought was along the lines of, "Great ... as if they don't already make us do enough work as it is!" Well, after I had settled down, I realized that I had no real choice in the matter, so I kept the idea of this senior portfolio project in the back of my mind the last couple of months. As the deadline loomed in front of me this past week, I decided to glance over the requirements.

As a political science major, I studied bureaucracy in depth in Public Administration (POL 344) and Public Policy (POL 345). Well, as I scanned the various paper requirements for the portfolio, my immediate thoughts were, "This is one bureaucratic mess!" I was initially turned off by the idea of having to dig through three or four year old papers, just so I could find seven to fit the requirements. However, wanting to get this over with, I began wading through the four years of my cumulative work at Truman State University.

That's when I realized that I was actually (gasp!) sort of enjoying this portfolio. As I reviewed various papers, I found myself flooded with memories of events that pertained to these papers and assignments. It was nice to sit back and read through these works that I had written as far back as three years ago. In the process, I found myself

remembering what the classes were like, and thinking about what else was occurring in my college life at the time these papers were composed. In essence, I was reviewing my thoughts, beliefs, victories, defeats, and all of life's lessons in between. I found myself actually understanding what this whole senior portfolio process was really about after all: my personal and academic growth over the last four years of my life.

As you may be able to infer from these first few paragraphs, I surprisingly enjoyed putting my portfolio together. The process took a total of five hours, but I can honestly say that it has been personally insightful, and definitely time well spent.

Common among seniors expressing negative opinions about the portfolio process was the complaint that it is poorly timed. They tell us that they are especially busy in their senior year, trying to do well in important classes while devoting more time than ever to developing and pursuing options for career or further education. They admit to spending little time on the portfolio and claim to have learned nothing about themselves in the process. Many are cynical about assessment in general.

Here is an example of a letter by a Communication major who is positive about her education at Truman but negative about the portfolio process:

To steal a line from fitness guru Susan Power, "Stop the Assessment!" I am attempting to graduate with some semblance of a good GPA and you decide that I need to dedicate a few hours rummaging through my old papers to find work that fits into the categories for this portfolio! For the love of God, stop!"

I spent approximately three hours on the entire process and basically just looked through my files from the last four years and chose things. Also, I left some of my files at home so I had to just describe some of the pieces. Trust me when I say that I could have found other things to do with those three hours.

I hope that those of you reading this are able to learn something from this portfolio because I certainly didn't and that would have been a horrible waste of my time if no one learned anything.

Anyhow, you probably think that I am some bitter senior who can't wait to get the "hell out of K-ville" (pardon the term). Not true. I love Truman State University! Seriously. I have met some of the most amazing people here, overcome some of the greatest challenges and learned some of the coolest things about myself. I start working in the real world in June and I fully intend on being a supportive alumna, financially and otherwise. But, I find the excess of assessment to be just that, excess. It's just really hard to take the time to do something like this portfolio if I can't see what it's being used for. Understand?

Okay. I'll stop my complaining and let you get on to the actual portfolio. I know. You're so excited you can hardly wait! Well, take your time 'cause this portfolio's not going anywhere!

Comments about portfolio assessment scattered through all the cover letters indicate an uneven acculturation of students to the personal benefits of collecting artifacts in a portfolio, whether digital, cardboard, or milk crate. More important, encouragement of reflection and self-assessment using the portfolio is uneven from instructor to instructor, advisor to advisor. Ironically, the potential to use LAS portfolio to personalize Truman's planning theme of

“deepening an enhanced, self-reflective Liberal Arts Culture” and to demonstrate how it cares for and assists student development as they are here is not being fully realized.

Recommendations for LAS Portfolio Assessment

Both students and faculty readers have offered recommendations about the process of portfolio assessment. To maximize the benefits to students, faculty and the university community of maintaining and sharing Liberal Arts and Sciences Portfolios and to keep step with changes occurring within the university, the portfolio process must be assessed and amended each year.

ACCULTURATING THE COMMUNITY

In 1999, as in past years, new faculty readers expressed strong opinions about the value of the portfolio assessment process. First time faculty readers tell us that coming into the process, they had little idea what the LAS portfolio is, how it is evaluated, and what value it has for the university, for the seniors who assemble the portfolio, and for the faculty who read and evaluate the portfolios. By the end of the week of reading, faculty participants are transformed. They can articulate many ways the LAS portfolio is valuable to all constituents, they express a deeper understanding of the value of reflection and self-assessment as integral aspects of the university’s culture, and they leave, after a week of reading, with new ideas for their classes and for their advising inspired by their experiences reading portfolios.

Unfortunately, the LAS portfolio, and the process used to extract useful data from them remains a mystery to too many faculty and students at Truman. Faculty readers believe that the more that is known about the LAS portfolio and the portfolio evaluation process, the less cynicism there will be about portfolio assessment campus-wide. Some of the experienced readers expressed a general sense that more of the current seniors seemed aware of the portfolio and its purpose than were students in past years. If true, this is a good sign.

Legislation requiring all students to prepare a portfolio before graduation proposed by the Assessment Committee was approved by both the Undergraduate Council and the Faculty Senate in AY 1998-99. This new policy will equalize senior participation in the portfolio process, and will underline the value of reflection and self-assessment articulated in the recent master plan. It will afford all students the opportunity to engage in self-reflection and even out what students have told us they perceive as inconsistency and unfairness in their graduation requirements. It will provide the university with a complete picture of the curriculum as experienced by all majors.

Truman’s enhanced “residential college program” and the “extended freshman experience” both provide important opportunities to acculturate students to the benefits of reflection and self-assessment available through the development of a personal portfolio. Programming in these two aspects of the Truman culture should ensure that no student reach the senior year without expecting to compile and submit a portfolio of their works.

The most effective means for acculturating faculty about the benefits of portfolio assessment is through the reading sessions. There is no substitute for the deep engagement with student work product and for the intensive cross-disciplinary discussion about student learning

that faculty experience during those sessions. In 1999, as in past years, faculty readers endorsed the process of recruiting readers from all disciplines and ranks and recommended that new faculty be encouraged early in their careers to participate.

Faculty readers also recommended that more effort be made to inform those faculty who have never read portfolios about the portfolio process. They suggest the organization of workshops for faculty that mirror the portfolio evaluation process; the design of an informative web page containing the current portfolio guidelines (including the prompts), describing the evaluation process, and answering frequently asked questions about the portfolio process; and the posting of sample portfolios in the library or on the web.

FUTURE PORTFOLIOS

As the portfolio project enters its tenth year, it has accumulated a history of continuous evolution. Some portfolio “categories” have remained constant, others were tried for a year or two and discontinued, and still others were added after the first year of the project and continue as a valuable component of the portfolio. Responding to the kinds of works students choose to submit for a particular portfolio “category”, the prompts used to elicit submissions from seniors are regularly edited to enhance clarity.

The annual portfolio cycle demands new portfolio packets be available for students in the fall. The year 2000 portfolio will contain the same categories as the 1999 portfolio. Several suggestions from faculty readers will result in minor changes to some of the prompts. The most dramatic change, as discussed earlier, is that students will be invited to append an explanation of the reasoning contained in their submission for “quantitative or mathematical reasoning”, and their explanations will be considered in evaluating the submissions.

The implementation of the new LSP is accompanied by a need to assess the outcomes of the various modes of inquiry. The “Scientific Mode”, the “Aesthetic Mode”, and the proposed “Mathematical Mode” are already assessed with categories in the current LAS Portfolio. The “Historical Mode”, the “Social Scientific Mode”, and the “Philosophical/Religious Mode” will be monitored through portfolio assessment in the future. In the coming year, faculty who teach courses in history, social science, and philosophy/religion will need to meet with the portfolio director to develop new prompts and assessment criteria that might begin implementation in 2001. It has also been suggested that the portfolio may serve as an assessment of the “Computer Literacy” component of the LSP included as an “Essential Skill”. This would be accomplished by tallying the computer literacy outcomes met with each portfolio submission, rather than through the creation of a separate category. Finally, there is a pending request to consider the LAS portfolio as a source of information regarding students’ experiences with issues of social diversity. For several years, portfolio readers have been tallying instances in which students have addressed issues of race, class, gender, and international perspectives in their portfolio submissions, and the findings in 1999 are reported throughout this chapter. Whether this informal tally is a sufficient and useful measure of students’ experiences with diversity issues will be the subject of discussions in the coming year.

The potential for the portfolio to become a graduation requirement leads to the expectation that the number of portfolios submitted in a year will grow from the current 900 to as

many as 1200. Combining this growth in numbers with the necessity to augment the portfolio to monitor the outcomes of the LSP's modes of inquiry could quickly make assessing portfolios an even more gargantuan task than it already is. Careful thought must be given to prevent portfolio assessment from becoming an overly burdensome task for students and to ensure that submitted portfolios can be evaluated within a reasonable time and at a reasonable cost. One suggestion is to cycle the assessments of the six LSP modes (including mathematical) from year to year, with only three of the modes included in any one year. This would keep the size of the portfolio constant at six categories (plus a cover letter) as it has been for the last three years. More discussion will be necessary to adequately address these issues of size.

Reliability measures in assessing LAS Portfolios have been developing systematically. Historically, enhancing reliability has been approached by first forming a subcommittee to focus on a particular portfolio category. These faculty members read numerous submissions to that category from past portfolios and engage in intensive discussions regarding what kinds of thinking should be expected from liberally educated Truman students. They consider amending the prompt, they identify range-finding samples, and they develop a list of descriptors to aid the faculty readers in scoring the submissions. During the portfolio readings, subcommittee members serve as "table leaders" overseeing the work of a small group of the faculty readers. Ultimately, reliability is measured by counting "splits" (scores differing by more than one point) for submissions that are scored by two different evaluators. "Interdisciplinary Thinking" was the first portfolio category developed in this way in 1995. "Quantitative Reasoning" was so developed for the 1998 portfolio assessment. With a dramatic increase in the number of portfolio readers from the fine arts (and especially from Music) and with the inception of the dual-faceted "Aesthetic Mode of Inquiry" in the LSP, the time has come to focus on the "aesthetic reasoning" aspect of the LAS portfolios and to enhance and monitor the reliability of its evaluation.

In response to students' complaints that they receive no feedback regarding their portfolios, the university promised to return portfolios to students with current addresses on file after ten years. As the portfolio enters its second decade, the time has come to return the portfolios of the first group of students participating in the portfolio project. It has been suggested that, as we begin returning portfolios to students, it may be time to begin developing some systematic longitudinal studies of portfolio findings over the years. Already plans are being made to look at changes in student attitudes as expressed in their portfolio cover letters since the beginning of the portfolio project a decade ago.

SHARING PORTFOLIO ASSESSMENT FINDINGS

The portfolio assessment generates richer data than any annual report in the **Assessment Almanac** can accommodate. Raw data from the 1999 assessment, which is saved as an *Excel* spreadsheet computer file, will be copied to a computer in the office of the staff assistant for assessment within the offices of the Vice President for Academic Affairs. Here it will be available to interested parties even after the tenure of the current portfolio director has expired.

Starting in 1998, portfolio findings have been sorted by student major and the results for each major have been disseminated to the corresponding disciplines through their division heads. The disciplines are encouraged to study how their majors' portfolios were evaluated and to consider those findings as they engage in program review and curriculum development.

The summer planning workshop and faculty development luncheons have been traditional venues for sharing and discussing portfolio results, and these should continue to be utilized. The Faculty Development Committee should consider designing other workshop experiences where portfolio findings are shared and the portfolio process is explained. Publication of pertinent findings within the university's web pages, in **Truman Today**, and in **The Index** would not only serve to inform the faculty, but would also help students learn to appreciate the value of reflective thought and self-assessment and to anticipate benefits from their participation in creating and maintaining a personal portfolio.