Chapter XXIII: FULL STUDENT PORTFOLIO REPORT

A summary of the report is found in Volume II.

LAS PORTFOLIOS: CAMPUS CONVERSATIONS ABOUT LIBERAL LEARNING

The Liberal Arts and Sciences Portfolio was purposefully proposed as a local assessment of the liberal arts and sciences curriculum because of the protean nature of portfolio assessment. In contrast to national standardized exams, a portfolio assessment can be more quickly and easily adapted to ongoing dialogue about the learning outcomes and learning experiences of a continuously evolving liberal learning culture. Local questions about the effectiveness of specific aspects of the core or the major or the liberal learning culture can be researched almost as soon as they arise. As "answers" are reported, the prompts can be revised to focus more specifically on issues or they can be easily discarded if they have served their purpose because the results of the prompts are the "field tests" Disciplines can add on discipline-specific tasks as they collect the LAS portfolios through their capstone courses. In capstone courses or cover letters, students can recommend additional or revised prompts which can be presented to their peers in the next academic year.

Faculty understanding of the plasticity of this form of assessment was evidenced during the 1996-1997 design of outcome statements and possible assessment procedures for each of the essential skills courses, each mode of inquiry, the junior year interdisciplinary seminar, and the other interconnecting perspectives as they were part of, or stand alone, courses. The Chair of Undergraduate Council counted thirty-four statements from the course outcomes reports citing that the LAS Portfolio assessment could or would be the site for outcomes assessment.

Obviously, the portfolio assessment can be a site for some of the outcomes assessment and would most logically be a site for outcomes assessment which it has been monitoring for six years: interdisciplinary thinking, the scientific, quantitative, and aesthetic modes of inquiry, and growth over time as thinkers. Obviously, our continuous assessment of liberal arts and sciences learning requires multiple measures by multiple assessors: students, classroom teachers, the Truman faculty and administration working collegially in assessment projects described in this almanac and with the assessment instruments that will be designed as needed in years to come, and external examiners. We need to balance quantitative and qualitative measurements to provide ourselves with the richest and most multi-dimensional snapshots we can obtain of what we do, how we do it, how effective it is, and how we can maintain its quality and improve the educational experiences of our students.

This chapter expands upon the processes and findings reported in the summary "1996 and 1997 Liberal Arts and Sciences Portfolio Assessment" which follows in this chapter**.** It describes the organization, administration, assessment practices, and uses of the portfolio assessment. It recommends future directions for the portfolio project as one local assessment of a constantly evolving Liberal Arts and Sciences curriculum and culture and as a major faculty development opportunity.

Portfolio collection and review is a qualitative assessment measure which offers at once a thicker and less controlled assessment of outcomes of liberal learning than is available through national or local standardized exams. The qualitative and quantitative combination of assessment measures provides the University community with more perspectives on student learning and institutional effectiveness than either assessment measure alone. Faculty uncertainty about or distrust of the proposed portfolio assessment in 1989-1990 resulted in the catalog statement that undergraduates "are expected to maintain a portfolio containing representative pieces of work from inside and outside class experiences". The usual questions about portfolio assessment dominated the early discussions: Who keeps the portfolio? What if students don't save "the right stuff"? How much of my time will it consume? Where would we store those portfolios? What if students can't evaluate what is the best material to submit?

Since the project began in Fall of 1990, many of the questions have been answered. Others remain. In particular, some faculty still question the usefulness of portfolio assessment because any process of collecting, reviewing, assessing and selecting materials for a portfolio could be restricted by the organization, evaluative, and reflective skills of the person who creates the portfolio, whether it's a writing portfolio for Composition 1, an art portfolio, a teaching portfolio, or a student's Liberal Arts and Sciences Portfolio. Maintaining any portfolio is a self-educative activity. The process encourages metacognition and self-assessment. The first LAS Portfolio report concluded that, whatever the value of the assessment findings, students should maintain and submit LAS portfolios because it encourages self-reflection on what has been learned. For many seniors, as evidenced by cover letters each year, that process of self-reflection increases self-confidence, assists in goal setting, and provides some closure as they graduate.

It is true that portfolio owners may only discover by hindsight what they should have kept and may not have come to the strongest realization of quality or appropriateness of submissions until after they submit their portfolios. Those limitations must always be acknowledged.

Other questions have been answered. Students .keep materials in a "macro-portfolio" or a collection of materials. For five years, they have been encouraged to keep "everything" by the "Your Liberal Arts and Sciences Portfolio" distributed during Freshman Week and sent to transfer students and new first-year students who matriculate in January. Capstone professors collect and hold portfolios temporarily. Some disciplines like to review the portfolios before sending them on. The Nursing faculty include some requests pertinent to the goals of their new curriculum and their goals for supporting the liberal arts and sciences mission and keep photocopies of senior portfolios for use during accreditation reviews. Political Science faculty teams hold individual exit conferences with seniors as part of their ongoing assessment of the major; they ask seniors to discuss choices made for their capstone portfolio and also for the LAS Portfolio.

After the annual scoring sessions, portfolios are stored for ten years after which they will be returned to graduates. This practice ensures opportunities for longitudinal

research and for disciplines to gather data specific to their majors over time. The portfolio guidelines which seniors receive tell the students that they will receive their portfolios back in ten years, if they keep their address current with the Alumni office.

Faculty time invested in the portfolio assessment is a matter of choice. As advisors, we should all encourage advisees to secure and keep course materials so that our advisees can reflect on and monitor their own learning. We can ask advisees to discuss their materials in our conversations with them about personal and academic development. All faculty have the opportunity to serve as portfolio reader in the week-long sessions held during the May interim and to receive an honorarium for their work. The corps of readers each year includes veteran and new readers, colleagues from all ranks representing a wide variety of disciplines. Forty faculty from nineteen disciplines assessed 661 portfolios in 1996 while sixty faculty from twenty-four disciplines assessed 712 portfolios in 1997, continuing a tradition of faculty ownership of portfolio assessment and increasing crossdisciplinary discussions about student learning and achievement

Participation

61% of the 1997 graduating class (August, December, and May ceremonies) from twenty disciplines participated in the Liberal Arts and Sciences Portfolio Assessment. Student folklore, as evidenced by frantic notes and calls to the chair of the LAS Portfolio Task Force in the last month of each semester, indicates that everyone must submit a portfolio in order to graduate. In fact, student participation is dictated by disciplines or, in perhaps ten to fifteen occasions each year, is a personal decision because the student values the process of reflection and is proud to share the portfolio.

Fifteen disciplines currently require majors to participate; individual capstone professors in other disciplines decide whether their section of the capstone course will participate. In the cover letters to their portfolios, 138 seniors commented on the uneven participation in the portfolio assessment. Some majors complained about the injustice of some majors in a discipline being held by a capstone course requirement to participate when colleagues in other sections of the capstone courses were not assembling portfolios. Majors in some of the disciplines with a tradition of requiring participation argue that the assessment should be a graduation requirement for all majors or the student's choice about submitting a portfolio. In 1996 and 1997 cover letters, ninety-seven seniors cited the benefits of the portfolio for reflection and recommended that all graduating seniors participate. Twenty-five seniors argued in 1997 that, since the LAS Portfolio Assessment was designed to assess liberal arts and sciences education, all majors and disciplines should benefit from a universal requirement.

Organization

For the first three years, a standing committee termed the University Portfolio Committee collaboratively designed and administered the assessment project. Currently, a faculty member who chairs the "Liberal Arts and Sciences Portfolio Task Force" has the

responsibilities of revising and overseeing the annual publication of the "Your Liberal Arts and Sciences Portfolio", the portfolio guidelines and directions for seniors, and all assessment forms used during the readings. That chairperson, an *ex officio* member of the Assessment Committee, recruits colleagues to participate in the LAS Portfolio Assessment, as capstone professors who collect the portfolios, as "table leaders" during the reading sessions, and as readers. The "Task Force" itself is the collective activities of all these faculty members.

Currently, the chair organizes the reading sessions, trains faculty readers in evaluation activities, builds and maintains the data base, and reports the findings. In 1996 and 1997, the chair and a group of veteran readers worked together, designing a process to establish interrater reliability for Interdisciplinary Thinking submissions. This project and a 5% increase in student participation in portfolio assessment were local initiatives in Truman's Funding for Results proposal. Both initiatives garnered "new" funding for the University community.

Administration

Seniors submit their portfolios in envelopes designed for efficient monitoring of the evaluation of each category in the assessment. Portfolio packets of prompts and cover sheets are organized and stapled in the sequence of an explanatory letter followed by the "growth as a thinker" prompt and the prompts for interdisciplinary prompt, quantitative reasoning, scientific reasoning, aesthetic analysis and evaluation., and "most satisfying work or activity". However, during the week of assessment, readers first holistically evaluate the interdisciplinary thinking submissions and then move to each of the "modes of inquiry" submissions before assessing the two items submitted to demonstrate growth as a thinker. As a result, readers focus on each kind of inquiry before encountering the diversity of cognitive skills and practices that are found in the "growth as a thinker" sets. In addition, the growth as a thinker set affords faculty assessors more of a sense of the whole person. The "most satisfying work or activity" and the reflective cover letters further personalize the senior who created the portfolio. Throughout the readings sessions, there is an emphasis on respecting the students and their work.

Because of the centrality of interdisciplinary thinking to Truman's vision of agile learners and liberal learning and because discussions of interdisciplinarity provide common ground for colleagues to talk about student learning and teaching practices, the reading sessions always begin with the interdisciplinary submissions. Defining and assessing ways of thinking is not an easy task. Defining and assessing interdisciplinary thinking engages faculty in serious reflection of what we mean when we say we value interdisciplinarity and how we might elicit and foster that habit of mind in ourselves and our students. Ideally, the process of assessing what is and isn't interdisciplinary thinking (or quantitative reasoning or scientific reasoning or aesthetic analysis and analysis) will assist us in our pedagogies and improve student learning.

Although the Task Force worked first to establish "interrater reliability for interdisciplinary thinking, each of the categories needs to have more reliable data to accompany the strong validity of qualitative assessment strategies. To establish some possible working definitions of interdisciplinary thinking, a group of veteran readers read samples of interdisciplinary submissions from the 1995 reading sessions and ranked them against each other. Spirited conversations about what features in each demonstrated "interdisciplinary thinking" or a lack thereof led to a scoring rubric with descriptions of five levels of thinking. (The descriptors are appended to this chapter.)

"Anchor papers" for each level were used to train readers in "holistic evaluation", a process in which a faculty member reads through each entry completely, reserving judgment until after completing the entry and then thinks about his or her overall impression of the "interdisciplinarity of the piece, and moves on, reading and comparing each submission against others when ranking and scoring the item. Readers try to use the entire range of the scoring rubric, rewarding the student for what evidence of interdisciplinary thinking is found in the work and not penalizing unduly for what is not present or is not what the reader believes must be present.

Two readers, minimally, asses each submission. If their scores match or touch, the average of the two scores is assigned by the chair. If scores disagree by more than one step, a third reader assesses the item to resolve the "split". The less frequent the incidence of two-step disagreements about scoring, the higher the "interrelater reliability" and the more confidence others can have about what the score might signify. Colleagues agreed to agree about using the scoring rubric, even as some may have personally emphasized some other features of interdisciplinary thinking in their own evaluation and grading practices. As a result, interrater reliability rates of 83% in 1996 and 86% in 1997 were achieved, providing baselines data for future assessments of interdisciplinary thinking as the Liberal Studies Program is implemented and improved. A score above 80% per cent is considered good, but an even higher reliability rate would be important to make solid judgments about what the data signify.

In a large-scale assessment like the Sophomore Writing Experience, assessors have more control over the materials that will be presented. Students must sit for the examination and complete it before taking their last universally required writing course in the core. They have a common time for reading and preparing for the exam, two weeks before the date they select for the exam. The prompt presented in the three-hour writing session calls for critical reading and analysis of a short reading passage and directs writers to support or argue against the argument of the short passage. When faculty from across the curriculum meet to holistically evaluate the writing samples, they can more easily weigh sample against sample during training and consult those rangefinders or anchor papers as they holistically read and score "live" essays.

Quantitative and Scientific Reasoning

The prompts for the portfolio assessment deliberately leave the time invested and the selection of materials and media used to demonstrate each category up to students. The greater diversity of responses and of discourse conventions which govern each response complicates the task of analysis and evaluation. As a consequence, the corps of readers purposefully includes specialists who teach quantitative reasoning, scientific reasoning and aesthetic reasoning as well as colleagues who can read Spanish or French or German or Latin, etc. Colleagues consult with the "specialist" when they cannot read the language or do not know the discourse conventions in which the item is produced. The intensely focused reading sessions, in contrast to the very structured reading and scoring sessions of the Sophomore Writing Experience, are susceptible to interruptions when a particularly difficult or particularly insightful or a particularly strong item is discovered. Spontaneously, the corps of readers switches from evaluating outcomes to discussions about teaching and learning. They confer with each other about something a student has just taught many non-specialists or they share and discuss teaching strategies which would prompt or support the phenomenon being reserved. These shifts from evaluation to professional development conversations are commonly cited as major benefits by faculty readers; they are also commonly cited by some faculty readers as weakening the effectiveness of the assessment. Administration of any portfolio assessment needs to provide opportunities for faculty to improve their evaluative skills (which have been annually reported by multiple readers as positively affecting their feedback and grading procedures), to evaluate materials consistently and reliably so that portfolio data can be useful to the Truman community, to reflect on what he or she is learning about student learning, student achievement, and the ways that curricular components do or should interconnect, to acquire or share good practices of undergraduate instruction, and to rekindle the passion for teaching which may have cooled during the rigor, crowded schedules and hard work of the academic year.

LIBERAL ARTS AND SCIENCES PORTFOLIO ASSESSMENT 1996 AND 1997

Administration of the portfolio assessment must ensure that the corps of assessors include faculty who are veteran readers and faculty readers new to the assessment, whatever their rank or discipline. Training sessions for each portfolio category include the reading of "anchor" entries for each level of assessment; annually, entries read against the anchors are identified by scores and faculty recommendations on scoring sheets and the samples are replenished. Care is taken to insure diversity of formats, disciplinary content or methodology, discourse conventions, and time in the student's career when the work was produced. When faculty readers identify work during reading sessions that further clarify discussion issues, those materials are photocopied and reviewed. In May of 1996, three papers written in response to assignments in the experimental "LAS Calculus" course were introduced into the set of anchors for "application of quantitative reasoning" and assessed against established "range finders", resulting in a clear distribution across a range.

Administration must also ensure that each item be carefully reviewed. In 1996, non-print entries increased as ten videotapes, sixteen audiotapes, eight computer disks, and ten series of slides were submitted. The participation of Communications majors in 1997 increased the use of videotape and audiotape entries and MAE-bound students shared videotapes of practice teaching in Clinical Experiences. Four home pages and two web sites were made available on disks. Seventeen series of slides were presented, mostly by Art majors. In 75 percent of these entries, readers indicated that they needed more student explanation and reflection on what the non-print items evidences. In contrast, the submission of non-print items under the "Most Satisfying Experience" category were routinely accompanied with more complete explanations.

ASSESSMENT PRACTICES

Interdisciplinary Thinking

As of May, 1997, "interrater reliability" had been established for only one of the portfolio items: interdisciplinary thinking. Faculty Senate proposed a "Funding for Results" local initiative to establish a process to promote and measure "interrater reliability" of the interdisciplinary entries as part of the 1996 and 1997 portfolio readings. A group of veteran readers met in 1996 to read and rank samples identified in 1995 as demonstrating no interdisciplinary thinking or minimal, competent strong interdisciplinary thinking. In those entries, a distinction was made between work produced by assignments or courses which were inherently interdisciplinary and work produced by the student synthesizing materials and working in an interdisciplinary manner by his or her own initiative.

The readers meeting in 1996 discarded distinctions about where and why students worked as interdisciplinary thinkers, and read against each other, establishing a range from no evidence of interdisciplinary thinking through strong interdisciplinary thinking, and describing features that demonstrated interdisciplinary thought. These readers agreed to serve as "table leaders" during the assessment of interdisciplinary entries, conferring with readers at the table as they puzzled over scoring difficult entries, and "reading behind" faculty readers to observe whether each reader was attempting to use the whole scale. Each entry was evaluated by two readers; a two-step disagreement on scores sent the entry to a table leader or the chair for resolution of the score. Three reading sessions were held in 1996 due to the sharp increase in portfolios. At each session, the number of "splits" or two-step or larger disagreement of the two scores was within a range that indicated establishment of reliability among diverse readers within and among three reading sessions at an overall rate of 83%. In 1997, sixty readers in two sessions read reliably at the of 86%. In a 15% sample of entries read by two readers from the first week and two readers the second weak, 90% of entries were scored similarly.

Beginning with the first portfolio assessment, , faculty read interdisciplinary entries first and then read the other submissions to determine whether any of those materials demonstrated interdisciplinary thinking. Early on, readers discovered that students would indicate they had no work that demonstrated interdisciplinary thinking or would submit work that was either weak or simply not interdisciplinary. It was clear that many students did not understand what "interdisciplinary thinking" meant, even as they submitted work in other portfolio categories which clearly demonstrated interdisciplinary thinking. Often readers found very strong interdisciplinary work in later categories that could have been submitted but wasn't submitted for the category of interdisciplinary thinking. Revisions over four years of the prompt provided students with both definitions and examples of interdisciplinary thinking.

In 1996, readers read the entire portfolio and scored materials which students had not submitted for the category but which the readers judged as demonstrating interdisciplinary thinking. They identified 127 interdisciplinary items. An interrater reliability rate of 80% was achieved, indicating that readers continued to read supportively and to use the descriptors of the scoring rubric even as they were making decisions whether any other entries demonstrated any interdisciplinary thinking. Seven students whose interdisciplinary entries received scores of 3.5 or 4 demonstrated interdisciplinary thinking throughout their portfolio. It might be useful follow-up once transcript audit becomes available on such students to reflect on whether the courses they took fostered a habit of interdisciplinarity.

Some faculty commentary at week's end indicated that the highest score of 4 was pitched too high and that the 3's and 4's should be collapsed. Many faculty in 1996 and 1997 commented on their dismay over the frequency of scores of 1 where students submitted materials that demonstrated no interdisciplinary thinking: 19% of entries in 1996 and 32% in 1997. The 1997 score in part indicates the addition of new disciplines in the assessment; the longer a discipline has participated in the assessment, the more carefully have majors collected materials for portfolio. Frequently students commented on cover sheets that they were submitting work which they did not actually assess to be demonstrating interdisciplinary thinking but which was "the closest I could come to it in what I have."

In 1996, 12% of seniors and, in 1997, 13% did not submit entries to demonstrate "interdisciplinary. In 1996, 34% of entries were assessed as "weak" evidence of interdisciplinary thinking, 34% as "minimal competence in interdisciplinary thinking", 12% as competent, and 1% as strong. In 1997, 27% of were weak demonstration of interdisciplinary thinking, 28% minimally competent, 11% competent, and 2% strong.

For each of four portfolio categories, only 10% of entries were read twice. In 1996, a 10% sample of twice-read entries, 12% of scores for quantitative reasoning while 2% for scientific reasoning were two steps apart. In 1997, 4% of scores for quantitative reasoning and 3% of scientific were two steps apart. To increase the reliability of the

data, a more specific scoring scale could be devised to make finer distinctions than the current evaluations of "not adequate", "adequate", and "good" evaluations.

In marked contrast to previous years, most students selected and submitted items to demonstrate "quantitative reasoning"; only 1% of 1996 and 6% of 1997 portfolios lacked items for this category. Significantly, the number of entries which showed only computation or homework exercises declined sharply, perhaps due to a quantitative reasoning prompt revised by the 1996 faculty readers. The prompt requested work in which a student "applied mathematical skills and techniques at the highest level you have attained in discovering new knowledge through quantitative reasoning."

Despite the increase in appropriate entries for quantitative reasoning in 1997, each year 42% of entries were judged as "not adequate" application of quantitative reasoning. In contrast, 29% of 1996 entries and 10% of 1997 entries for scientific reasoning judged were judged as "not adequate", repeating a pattern of contrast which has occurred each year of portfolio assessment.

Logical Thinking

Faculty discussion of assessment results in May, 1995, had led to a recommendation of a new request in the 1996 LAS Portfolio Guidelines. Faculty readers from Physics, Mathematics and Computer Sciences argued that their majors were penalized by a focus on explicit application of quantitative reasoning in entries. Explaining that advance quantitative reasoning subsumes most of the skills demonstrated by non-specialists, they suggested a category where their majors could demonstrate the quantitative reasoning implicit in their mature work. The prompt, designed to elicit the effective use of logical thinking, suggested examples such as oral or written arguments, mathematical proofs, proposition papers, theoretical physics problems, computer programs, or examinations of methodologies.

In 1996, 23% of portfolios lacked entries to demonstrate the effective use of logical thinking. Despite the expectation that some entries would be sophisticated computer programs, mathematical proofs, or theoretical problems, most students interpreted the prompt as soliciting formal arguments from their Composition II classes or any writing in which a logical organization was apparent.

While observing and evaluating submissions, readers discussed scoring descriptions ranging from "no evidence" through "not adequate", "weak", "adequate", or "strong." After conversations about what might constitute "adequate" in such widely ranging student interpretations of effective use of logical thinking, readers made a rough cut, judging the logical thinking as weak or strong. 15% of the entries were cited as providing no evidence, 41 % weak, and 44% strong.

When a 10% sample of items demonstrating "aesthetic analysis and evaluation" was read by faculty in each of the three sessions in 1996 and two sessions in 1997, 13% of

portfolios lacked submissions demonstrating "aesthetic analysis and evaluation.". The request for both analysis and evaluation has challenged many students with each iteration of the assessment. In 1996, 10%, and in 1997, 12% of students submitted entries where only analytical thinking skills were applied. Score for aesthetic analysis were "weak" in 23% of 1996 entries and 35% of 1997, "competent" in 37% of entries each year, and "strong" in 17% of 1996 and 7% of 1997 submissions.

In both 1996 and 1997, holistic judgments about the readers' overall impression of the submissions showed that 25% lacked evidence of aesthetic reasoning (continuing a pattern since the introduction of this prompt), 40% showed weak aesthetic reasoning, 25% demonstrated competent and 10% strong aesthetic analysis and evaluation. 1997 data on aesthetic analysis is encouraging. Both years, entries lacking evidence of analysis (10%) and demonstrating competent analysis (36%) were constant. 1996 scores of weak analysis (35%) contrasted with 1997 scores of 22%. 1996 scores of strong analysis (18%) contrasted with 1997 scores of 30%. The shift in 1997 is unprecedented and may reflect specific changes in course offerings in the Fine Arts or literature courses which are the sources for 80% of all the entries.

When a 10% sample of materials submitted to demonstrate "growth as a thinker" was read by faculty in any of the three sessions in 1996 and two sessions in 1997, only 1% of scores were two steps apart. Reader agreement on "growth as a thinker" items is a positive occurrence because this portfolio category is the most unwieldy to assess. Students and faculty have multiple definitions for cognitive growth and critical thinking and a wide variety of cognitive tasks appear in two entries of student work, one early in the student's career and one recent. During training sessions, faculty could quickly agree on which anchor papers demonstrated "growth", but engaged in lively conversations about the kinds of cognitive growth and critical thinking which they privileged in their own assessments of student learning.

As with each portfolio submission, students identify and reflect on materials that show growth for them as thinkers. Because "metacognition" may not be habitual to students even as Truman works to encourage self-assessment and reflection, the prompt includes a description of Bloom's "Taxonomy of Cognitive Skills" which provides one vocabulary for describing what students analyze and identify in their work. Readers made three judgments: occurrence of growth as a thinker, quality of critical thinking in the later entry, and accuracy of student self-assessment. The score sheet provides a "flow sheet" of Bloom's taxonomy where readers can, if they choose, check off the kind of thinking they observe as they read each entry.

In 1997, 12% of the portfolios lacked entries or lacked both an early and more recent work for comparison. When readers compared the quality of thinking in the second entry to that in the first as "worse than, about the same as, or better than" the first, in 1996 they concluded that the thinking in 6% of later work was worse than earlier work, that the thinking was about the same as that of the early work in 29% of entries, and that 70% of "late" entries showed better thinking. In 1997, 4% of later entries demonstrated "worse"

thinking in later entries, 34% of the later entries demonstrated the "same" quality of thinking as early entries, and 63% of later entries showed "better" thinking than earlier entries.

Focusing on the quality of critical thinking in the second entry, readers observed that 78% of students in 1996 and 71% in 1997 demonstrated at least "competence" if not "strength" in their mature critical thinking. In 1996, they scored 22% of entries as weak, 45% as competent, and 33% as strong; in 1997, 29% were judged weak, 47% competent, and 24% strong.

Of those who submitted paired items, 6% of seniors in 1996 and 9% in 1997 did not reflect on and explain their assessment of "growth as thinkers" on the cover sheets which accompany the submissions. The instances, length and specificity of self-assessment in 1996 contrasted sharply with that of the 1995 portfolio readings, perhaps indicating more habits of reflection and more practice with self-assessment. Content analysis of the cover sheets showed that both in 1996 and 1997, 50% of seniors analyzed the kind of thinking present in each submission using a vocabulary that described cognitive skills.

Faculty "accuracy" of student self-assessment of their "growth as thinker" submissions by asking to what extent the student's evaluation of the thinking in both items and the student's evaluation of "growth" matched the faculty reader's observation and evaluation of materials. Using descriptors of "no accuracy", "weak", "medium", and "strong", readers concluded that in 1996, 6% of the students' assessment of growth was not accurate and, in 1997, 9%. "Not accurate" worked both directions; one student identified thinking that was "evaluative and synthesizing" which readers could not find in the entry while another identified only "being able to have more ideas now" in a position paper with systematic use of analysis, extrapolation, synthesis and evaluation.

The "accuracy" or "efficacy" of student self-assessment was judge as weak in 26% of 1996 and 32% of 1997 descriptions, as medium or competent in 37% of 1996 and 32% of 1997 scores, and as strong in 31% of 1996 and 27% of 1997 scores.

Most Satisfying Work or Activity

Senior Seminar students in 1992 who reviewed drafts of the portfolio guidelines recommended that the portfolio include a site where seniors could describe and discuss experiences that they were most proud of. This prompt annually produces the highest percentage of submissions to a category: 98% in 1996 and 97% in 1997. Entries range across the curriculum and cocurriculum. Faculty observe the entries, categorize them if possible, summarize the reasons entries were most satisfying. These submissions are sandwiched throughout the reading sessions to provide a break from the focused assessment of a mode of inquiry. Readers save submissions which particularly impressed or moved them for reading aloud toward the end of a reading day.

Both years, "most satisfying work or activity" entries originated from these sites in these proportions:

30% from the major
23% from liberal arts and sciences core courses
7% from Residence Life
6% from independent research, practicum, and internships
5% from capstone experiences including recitals, readings, and gallery shows
5% campus employment
5% athletics
5% social sororities and fraternities
4% minors and elective courses
4% leadership roles in Student Senate, SAB, academic/honorary fraternities
2% service fraternities and volunteer work
2% Study Abroad or other travel

The "most satisfying" entry may include some artifact (published essays or poetry, theatre or concert programs, photocopies of certificates, photo of a fiancee or a newborn child, audiotape, videotape). It may refer to other entries in the portfolio or it may simply describe the satisfying work or activity and its significance on the cover sheets. A variety of written texts (research proposals and research papers, case studies, interpretative essays, lab notebooks, Fulbright applications, grant proposals, and exams) accounted for 10% of the two years of report. Specific class assignments or projects which presented challenges were frequently described. For example, seniors submitted:

--an Advanced Calculus which increased "my self-reliance when I had success with so high a challenge"
--an Art History Thesis Proposal which the major explained as, "for me acknowledgment that I finally knew what the hell I was talking about."
--a Cell Biology final exam
--a description of a senior's favorite class
--a description of a paper for Human Nutrition where she "used my education and what I know from my sources in my required training. I know it applies directly to my future career.'
--a description of the process of doing an assignment which "made me realize that learning occurred. I felt real joy in learning with this assignment."
--a description of athletic ability and the thinking involved
--a description of a project which required hands-on learning and "gave responsibility to the students to teach themselves."
--a description of an internship which "reassured me about my major."
--a description of a Marketing Research project which "let me experience the work expected of a professional in my field."
--a description of McNair summer research
--exams for Physics 186 from three students
--a final exam from Linear Algebra

--a final BSAD class analysis of a company in Bulgaria which was satisfying because "I used the skills I learned on a larger project."
--A Freshman Week syllabus which the student used as a preceptor and related to his career as an educator.
--a group research project which "was a worthwhile academic effort for all."
--homework assignments from Math 300 because "after failing this course, I took it again and got an 'A'."
--notes from Math 488:Topics in Math which the major was proud of because the instructor informed him that many faculty members had worked on that with no avail.
--a paper presented in Biology 640 which "represents what I have been working for the past four years".
--problems from Advanced Calculus II
--A Russian vocabulary quiz
--slides from Art 316: Sculpture two which document that "I learned something about my own creative capacities."
--a self-assessment exercise in Nursing 295 which showed the major growth
--a spreadsheet assignment for Accounting 212

Each year, several themes recur when students explain what makes the work or activity meaningful. The data indicate that an average submission sets out at least three reasons why the work or activity was most satisfactory. Among those reasons, successful collaborative learning and work was cited in 27% of the collected reasons. Establishing a "personal best" (17%) and achieving personal goals (17%) were twinned. Seniors described a work or activity as "challenging" and an impetus for growth in 15% of the data collection.. The remaining 29% of explanations often focused on friendship, relationship, and family issues which were affected by unanticipated connections with pursuing a college education.

In 1997, 179 writings were submitted: abstracts of scholarly articles; applications to graduate school law school and medical school; articles written for the **Index** and **The Monitor;** care plans for Nursing courses; collaborative papers; essays written in French, German or Spanish; Ethics arguments; internship reports; journal entries; lesson plans; newsletters for campus organizations; picture books; poetry, position papers, report of field work, research designs, research papers, resumes, sermon notes, short stories, take home exams, and a thesis that took departmental honors. A wide range of explanations why papers were satisfying were provided, including:

--an abstract for the Undergraduate Research Symposium and acceptance notification to present at the National Conference on Undergraduate because "I leaned a lot through the experience about my work and thinking skills and I learned that medicine really is the right career for me."
--an admission brochure because it was a tangible artifact and a publication that was "actually being used"
--a case study that "forced me to combine a variety of ideas".

--a collaborative paper from the 1997 Math Modeling Competition which garnered an honorable mention.
--a Composition I personal narrative which recounts " a transforming experience of difficult ethical choices.
--a Composition I reflective essay which described "past accomplishment early in my freshman year getting courage to face college which also got me a good grade."
--A Composition I personal narrative that "gave me a chance to really deal with the death of a friend."
--an essay on global warning: "I learned more from this professor than any other at Truman and the topic was most meaningful; I feel strongly about the topic and the paper made me change my original views of this topic."
--an Exploring Religions paper that "allowed me to reflect on my religion which is very important to me."
--an Exploring Religions paper that "illustrates the way in which a liberal arts and sciences education leads a person to be more well-rounded and knowledgeable about a variety of different things."
--an External Grant Application that "let me know I was ready for the next phase of my professional life."
--a Genetics lab notebook excerpt that is "a fine demonstration of my ability to think scientifically…the professor used it as a model of good reasoning in Science."
--a Head Start paper for Child Development which "gave me a more complete understanding of 'Others", particularly young children who are impoverished minorities. This made my major become more practical to me."
--a Head Start paper for Child Development in which "I gave a contribution to others socially. I felt productive and morally useful."
--an Internship Project Report which "helped me determine that this field was **not** how I want to devote my future."
--a journal entry with drawings from a semester abroad which "records the most powerful, exhilarating experience. My drawings show the effects of the experience."
--a letter from a cultural exchange trip with Campus Christian Fellowship which "taught me the most about myself".
--a letter of acceptance from a medical school which "made all my learning valid".
--letters home to and from her mother showing "my personal growth in my relationship with my mother>"
--a paper for which "I didn't understand this assignment very well, but kept at it and really learned, "
--a paper from ED 389 which "both allowed and encouraged self-reflection and self-expression"
--a paper where "I got to make connections among my courses".
--a paper which "represents the person I started in college as and yet it shows me how much I've grown."

--a paper where "The professor asked me for a copy to keep. This really increased my confidence about my writing."
--a paper on phonophoresis as a therapeutic technique in which "I recognized this as a genuine act within my profession, rather than mere student work."
--a paper which was "all my own."
--a paper where "I was free to express my ideas in the conservative environment of Truman State University."
--a paper where "I could talk about my emotions running a marathon."
--a personal statement with the application to the Biology major which "helped me clarify my decision about the major."

--A PHRE 186 paper on the social contract in which "I found a way to express the social contract I have with the school."
--a Psychology self-reflective essay which "forced me to think specifically about how events affected me."
--a Public Policy research paper in which "My visit to the Truman Presidential Library made me feel more like an academician."
--a research paper which "allowed me an opportunity to examine a subject outside of my specialization."
--a research paper which "let me know that I wanted to study microbiology in graduate school and beyond."
--a research paper on race, class, and gender which "created empathy in me with disabled persons."
--a Renaissance Art paper which was "my first piece of research. I felt passion this piece of art I researched."

Tally of Race, Class, Gender, and International Themes

Since the inception of the LAS Portfolio Assessment, faculty have tallied submissions which had themes connected with race, class or gender constructions or focused on international experiences and cultures, in light of self-criticism of the limited multiculturalism of the curriculum and culture. Because faculty read each portfolio through early on to identify interdisciplinary work in the other portfolio categories, the University Portfolio Committee (predecessor to the Portfolio Task Force) used that opportunity to also tally these themes. In 1996, they tallied 243 entries that showed students working with these themes both in the core and in the major; the tally in 1997 was 213.

Cover Letters

Seniors are encouraged to draft reflective cover letters for their portfolios, describing the processes of assembling the portfolio and reporting the time invested in the process. They are invited to reflect on what they learned or affirmed through the process of assessing and selecting materials for their portfolios, to discuss change or growth during their tenure at Truman and elsewhere, and to make any assessments or

recommendations they wish about the curriculum, student learning, teaching, or the University at large.

Thankfully I am a pack rat! I kept every piece of homework, lab write-up, test, essay, speech and journal since I entered as an inexperienced freshmen in 1993, thousands of miles from my home in England. It paid off to be a hoarder, as when it came to compiling my portfolio it was a relatively easy and painless task. I followed the advice I was given Freshmen Week. I purchased a folder and began to build my portfolio from the day I entered class for the first time. During my junior year, I had Foundations of Education and here we started to organize the materials we have accumulated over the first few years. This semester I have my Senior Science class for Exercise Science. The course required organizing our portfolios and indexing them. At present I am compiling a database of my materials for my clinical class for education.

Through the continual development of my portfolio I have been able to measure my growth as an individual towards my goal of coaching and teaching. I believe this university has shaped me into a reflective inquirer, who has the ability to critically analyze and reason. I now have the knowledge and the experience to function professionally in a pluralistic teaching environment.

Faculty read cover letters on the last day of the portfolio assessment to capture a fuller sense of student aspirations and achievements. They describe and record discreet data: time involved in compiling the portfolio, use of computer disks to store work, and indications of the students attitude toward the portfolio process of toward the student's education at Truman. Readers assess and report whether students engaged in reflection and self-assessment in the cover letter. They call attention to statements in letters which should be shared with some or all constituents of the university. Roughly a third of the letters in 1996 and 1997 included data on how much time students invested in the portfolio process. The average time reported was 4.5 hours, with a range from one hour to one week of time invested. In 1997 forty-seven seniors talked about investing time over four or five years as they maintained portfolios and used them for reflection, self-motivation and goal setting.

Cover letters often provide personal and thick description of a student's "summing up" of his or her experience at Truman. Some writers are specific and terse while others expand on their opinions about assessment, the curriculum, skills that they have acquired which are not easily demonstrated in assessment projects, future goals, and outcomes achieved.

Readers assess attitudes toward the portfolio process and toward the senior's education using descriptors of "negative", "mixed", or "positive". "Mixed" attitudes are discerned in letters which often begin with statements like this from a 1996 cover letter:

> "Seniors have more important things to do their last semester than wasting their time on this useless assessment. If it's so important, why haven't I heard from you {faculty} about it since Freshman Week?"

These letters often conclude with statements similar to these from the same 1996 cover letter:

> "Okay, so maybe it's not so wasted, I you hadn't forced me, I doubt I would have stopped to look hard at my five years here. I discovered that some things I've learned connected more than I realized going through classes. I also saw that I didn't give myself enough credit for some good stuff I wrote that got B's. " .

Attitudes towards the portfolio process in 1996 were not indicated in 16% of portfolios. In contrast to the 1995 data, negative attitudes declined by 6 points to 8% and positive attitudes increased by 10 points. This data may reflect the facts that portfolio assessment for the class of 1996 was introduced more systematically to them as first year students, that the 200% per cent increase in seniors and the concomitant increase in disciplines made the portfolio process a more common "rite of passage", that student conversations about senior portfolios had created more interest in the process, and more expectations about its benefits.

This letter from a 1997 graduate was recommended by three faculty readers for inclusion in this report.

> Dear LAS Portfolio Taskforce:
>
> I transferred to [then] Northeast Missouri State University from Quincy University in the fall of 1995, at the beginning of my Junior year. After having heard of the LAS Portfolio during an orientation for transfer students, I began to save those items which I thought would best represent my collegiate experience here. Items from classes as diverse as *Basic Approach to the Arts* to *Genetics* to *Introduction to Logic* were saved on computer file; artwork and essays were stuffed into folders, lab reports placed in bound notebooks, etc., all to be forgotten about until the day I would go through them again as I began the assembly of my portfolio.
>
> I began that very task nearly two weeks ago. In that time, I have gone through all that which I have saved in my two years at [now] Truman State University. I quickly eliminated from consideration those papers that, though perhaps given high marks, were not as well-thought-out or as well organized as I would have liked. I gradually eliminated some papers and artwork which I didn't have much feeling about. After sifting through everything, and deciding which works best satisfied the individual requests of the LAS Portfolio Task Force, I have arrived at what you will soon read– a collection of work which I feel very positively about. It does, in retrospect, speak volumes about who I am and how I have changed; what I do well, and what I could improve upon.
>
> I am very proud of my maturation as a person and as a thinker over my collegiate career. I am aware of the changes– physically, academically, and spiritually– I have gone through in this time, gradually evolving from carefree seventeen-year old to the responsible, educated, and mature person I am today. As I approach

> graduation, assembling this portfolio provided me with a pleasant opportunity to review my collegiate experience and assess the progress I have made (and what progress I have yet to make). I certainly hope that my efforts prove helpful in the evaluation, and perhaps improvement, of Truman State University's liberal arts and sciences curriculum.

The 1997 data show that more students indicated their attitude towards portfolios: 7% in contrast to 16% the previous year. There also seems to a be a drift in attitude towards mixed and positive in the combined data of 83% in 1997 but 76% in 1996.

A student's attitude towards his education at Truman might be presented in the letter as at times positive, at times cynical, at times respectful, at times negative, and ultimately optimistic and grateful in the last paragraph. A faculty reader would describe the attitude exhibited as more mixed than either negative or positive. During the 1997 reading sessions, one colleague read aloud a well-crafted and painful letter from a senior from Chicago who talked at length about his satisfaction with his major, his pride in his undergraduate research results, and his strong sense of belonging to an educational community. He then detailed at length his experiences as an American Arab in northeast Missouri, his continuous confrontations with racism on the Kirksville streets and a lack of tolerance of diversity on campus to buffer his experiences beyond the Quad.

More 1997 seniors indicated their attitudes towards their educational experiences at Truman than did 1996 seniors: 93% in contrast to 79%. Although more of the 1997 attitudes were negative than were 1996 (7% in contrast to 2%), more were also mixed (19% in contrast to 10%). The 67% of cover letters both years that indicated a positive attitude towards education is encouraging.

Readers report whether cover letters are reflective. Writers reflect on their experiences at Truman and share their opinions about learning, teaching, the curriculum and cocurriculum, assessment, and other aspects of Truman's culture. In 1997, there was a marked increase in the number of students who engaged in some self-assessment: 93% in contrast to 83%. To distinguish the tenor of the self-assessment, readers use "yes" to report that self-assessment is presented as generalizations and "yes with findings" to report that the writer develops the insights further. "Yes, with finding" cover letters usually extend beyond one page. Often readers shared those essays with each other because of the full portrait they found of the senior. One cover letter captured a reader's attention for ten pages.

As they read the letters, faculty highlight passages in cover letters that should be shared with audiences, be they the first year students who learn about the processes and benefits of maintaining Liberal Arts and Sciences from the cover letters of graduated students or the Portfolio Task Force who hear recommendations about improving the process or specific offices and disciplines singled out for praise or critique. Analysis of the letters indicates that these seniors have become accustomed to the use of portfolios in composition courses, and in some majors and realize the benefits of presenting a more

whole portrait of themselves through the ways they construct portfolios. In 1997, sixty-three seniors critiqued the portfolio categories as not being enough of a representation of the unique student who produced the portfolio. Capstone professors might take notice of this desire for more personalized portfolios as they consider theirs seminars

> Putting this portfolio made me think of a quote I read or heard a song or s: something: "I don't know where I'm going but I sure know where I've been." This project gave me a lot of confidence. (If I can pass Advanced Calculus I can do just about anything.) That is a nice feeling to have as I enter the "real world." There were many points along the ways that I thought I would not make it. This gave me a chance to have that feeling you get when you work really hard on something and it comes out the way you would like it to. By the time I was done with the portfolio, I realized what a truly great accomplishment it will be to graduate from Truman. Maybe it wasn't such a bad assignment after all. Thank you.

In 1995, Vice President Morley endorsed the concept that each student receive a letter thanking the graduate for submitting a portfolio and reporting any strong evaluations and compliments written by faculty readers on scoring sheets. Effective 1995, graduates were informed that their portfolios would be returned to them ten years after submission. In the interim, the materials are available for use as baseline data and for longitudinal research by individual faculty, disciplinary faculty, and other members of the Truman community.

Uses of Portfolios and the Assessment Data

In 1991, the seven-person University Portfolio concluded from their evaluation of portfolios that, whatever the benefits and uses of portfolio assessment to the University, seniors should construct portfolios as an integrative experience that prompts self-assessment and encourages reflection, and provides some sense of closure to graduating students. Increasingly the tenor of cover letters demonstrate these benefits. Faculty readers in 1997 selected this letter as a strong example of the benefits of the portfolio process.

> Dear Portfolio Taskforce:
>
> As I sit here surrounded by four years of notes, tests and essays, I begin to wonder when all of the drastic changes in my thinking and writing skills occurred. Of course, I am satisfied with simply knowing why these changes have occurred. To pinpoint the exact moment I learned how to critique a piece of literature would be impossible because it took much more time than a single moment to tackle such a task. Nonetheless, I can sit here today and be proud of the drastic changes that have taken place in my academic career.
>
> Perhaps the most valuable opportunity I have experienced has been compiling this portfolio. Without actually forcing myself to sit down and review the

past four years on paper, I may not have been able to see what a benefit the liberal arts core courses have been to me as an art major. Like many college students, I once questioned the relevance of taking such a wide variety of core classes. It was during my second semester here that I discovered the importance of the core classes. I was in a psychology course and we were discussing how a person's mental set can hinder problem-solving ability. After the professor gave a couple of illustrations, it was as if I had been sitting in a dark room that had just been illuminated. There had been an assignment in my design class in which we were to solve a compositional problem. Suddenly I realized it was my mental set that kept me from solving the compositional problem in a new way.

That particular example was a mere inch in the four years of education I have traveled but it was an important inch. I took that one connection and generalized it. I realized that for every one connection I am able to see, there are probably thousands of connections between disciplines that I make every day and do not even think about. So, much like a parent telling a child: "One day you will be thanking me for this," I began to reaffirm the statement: "One day this will all mean something-" The "one day" I have always been looking for is finally "today" and I do see reasons why the liberal arts core courses are so important. No one is simply an art major or a math major. Along with whatever man. . or a person may be, there is an individual who cannot be placed under a specific category. This facet of a person which cannot be categorized is the same facet benefiting from a liberal arts and sciences education.

For four years, I have looked forward to being able to play the role of advisor to the university; however, much of the advice I once wanted to give has changed. I used to feel there were too many core requirements and that the student was not given enough personal choice in which core courses s/he could take. Further personal reflection on my part enables me to come up with an entirely different conclusion about the core. Although I understand the importance of a liberal arts education now, I have not always understood its value. So, for me to say there should be fewer required core hours would be a mistake. I have benefited from every core course I have taken regardless of whether or not the experience was a positive or negative one. If someone told me today that it was possible to remove any of my core experiences from my memory and transcript, I would have to refuse. As for more personal choice in the core requirements, although I would have once rejoiced at the thought of being able to take more than two courses from an area, I must be honest with myself. I would have given up any opportunity to receive a well-rounded education by simply finding an area that I was proficient in, taken a cluster of courses from that area, and would have cheated myself out of everything I could have learned from areas I was not so proficient in.

The three hours I have spent compiling this portfolio have been useful as well as enjoyable**.** This experience has given me the opportunity to relive the past four years from a safe an objective distance. Relying on sheer reminiscence for

self-reflection can be a dangerous practice; however, when four years worth of work is scattered before you on your living room floor, the process of self-reflection is not only more efficient but it is also much more realistic. Seeing personal change takes a great deal more than a mirror. But in many ways the papers covering my floor and the ones that will be placed in my portfolio are mirrors that allow me to catch a glimpse of my inner thoughts both past and present. Hopefully my portfolio will allow others to gain an understanding of how a liberal arts and sciences education benefits students.

Thank you all for allowing me this opportunity to express my thoughts and feelings on the past four years of my education here at Truman State University.

Uses of Portfolio Assessment Data

The Liberal Arts and Sciences Portfolio as one of the measures of the effectiveness of the curriculum particularizes the diversity and commonality of student learning experiences and achievements and makes "thick description" available to the University community. Triangulated with standardized national exams in the liberal arts and sciences core and the major, with student surveys, with the Interview Project data, and the Sophomore Writing Experiences findings, the portfolio offers useful information about student perceptions of their skills and of cognitive and personal growth over time. It provides an "holistic" perspective from which the University can make judgments about its effectiveness as an educational institution.

Portfolio data provoked serious questions about the quality of liberal learning during the deliberations of the Liberal Arts and Sciences Task force, provided evidence of purposeful design and delivery of a liberal arts and sciences education in the North Central Accreditation Report, and prompted reflection on and intensive dialogue about the critical learning outcomes and most appropriate academic experiences for liberal learners as the Undergraduate Council and Faculty Senate evaluated the current core curriculum and designed the Liberal Studies Program. In particular, the assessment of the occurrence and quality of students' interdisciplinary thinking influenced the adoption of a new direction for the curriculum with a required mid-career interdisciplinary seminar.

Because of its protean nature, the portfolio assessment can fairly quickly gather information about student learning and respond to questions faculty raise about student achievement and learning. For example, in May of 1994, a reader from Fine Arts representing his discipline requested a portfolio prompt asking for work that demonstrated "aesthetic analysis and evaluation"; the following May, faculty readers were describing and assessing those skills. When faculty or institutional needs for information change, prompts can be revised accordingly.

Portfolio data are reported as university averages, but individual disciplines can request disciplinary data to study the competencies and learning experiences of their majors in the liberal arts curriculum. For example, the Art faculty requested university

wide data on "aesthetic analysis and evaluation" as they review their core offerings and disciplinary data as they analyzed their majors as liberal arts and sciences students. The Nursing faculty requested disciplinary data to consider the strengths of their majors in the essential skills and modes of inquiry so they could more effectively integrate the professional and the liberal arts and sciences education of their majors. They also request university-wide data and disciplinary data for use in their accreditation reports. Disciplines engaged in five-year program review can similarly request university-wide and disciplinary data.

The quantitative, scientific and aesthetic "modes of inquiry" courses that will be implemented in the Liberal Studies Program can use the baseline data generated over seven years to monitor improvement in the delivery of those course. The interdisciplinary thinking database provides an initial benchmark against which the junior seminar and perhaps interdisciplinary minors and majors could measure effectiveness of courses and pedagogies.

Future Directions and Recommendations

The implementation of the Liberal Studies Program will include design or redesign of assessment strategies so that the curriculum can become as rich and productive as the vision of it in the **Liberal Arts and Sciences Task Force Report.** The portfolio will certainly be part of the assessment program for the Liberal Studies Program and one method of monitoring the evolution of a liberal arts culture.

Specifically, the focus on interdisciplinary thinking as a habit of mind for the "agile learners" described in the **University Master Plan** will continue, both to gather a "big picture" so students' experiences as interdisciplinary thinkers and to foster the vigorous and synergistic conversations about interdisciplinarity and interdisciplinary teaching which ensue with each iteration of the assessment. In 1996 and 1997, faculty readers reported that a major benefit of their participation in the reading sessions was the way those conversations prompted their reflection on and goal setting for teaching in an interdisciplinary fashion. One colleague from Business wrote in 1996 this variation on a frequent theme in faculty feedback: :

> If I carried only one thing away [from the reading session], I would have to say that it was in the area of interdisciplinary thinking. I would like to think in these terms more than I do. I feel that the students that I have in my classes should practice making links between different courses and disciplines of study… .As a teacher, after this experience, I expect that my prompts for papers will reflect a greater interest in interdisciplinary work."

A foreign language professor detailed the effects of evaluating and discussing the interdisciplinary submissions:

> I take away from this experience first a sense of the need to make interdisciplinarity a central part of my course in the core and a sense that this would not be difficult to do... After reading portfolios last year, I instituted the policy of requiring students in upper-division course to red and summarize two articles from different disciplines per week on the topic of their proposed research. I also bought in guest speakers from various disciplines (4 in one course) to increase interdisciplinary awareness. After reading portfolios this year, I inserted three class sessions dedicated to interdisciplinary goals at the lower-division level as well (core), and changed the writing assignments to reflect my plan for making the course more interdisciplinary.

Ninety members of the current faculty from thirty-three disciplines participated in portfolio assessment in the last three years. To maximize the benefits of the reading sessions on campus wide understanding and privileging of interdisciplinary teaching and learning, more "new" readers must be able to accept invitations to join the project. This may entail reconfiguring occasions when faculty could be trained in holistic assessment to evaluate interdisciplinary entries.

The process by which we have attained a respectable interrater reliability when assessing submissions must be continued and improved. By the introduction of the junior year interdisciplinary seminar to the class which matriculates in 1998, more faculty should feel more confident about prompting and evaluation interdisiciplinarity from students. An increase in the interrater reliability rate over time to rates in the 90th percentile should be an outcome of continuous practice with assessing interdisciplinary items.

In similar fashion, each of the current "modes of inquiry" portfolio requests needs to have a process developed to insure the reliability of scoring. Most immediately and practically, the quantitative reasoning submissions should be scrutinized as carefully as we now scrutinize interdisciplinary items. With the improved prompt (judged as an effective prompt by a senior Mathematics portfolio reader) in place, a core group of readers should work with the LAS Portfolio Task Force chair to read and evaluate quantitative reasoning samples and develop descriptors for the scores which they agree to award each samples. These reader would be "table leaders" and serve as trainers and resources during the larger May readings. Establishing a process for interrater reliability for quantitative reasoning should produce useful information for the Mathematics faculty and the Undergraduate Council to consult in 1999 when they review the question of what course(s) should be implemented for the Mathematical mode of inquiry

A standing LAS Portfolio Committee should be established to assist and advise the chair with both the design and quality of the portfolio assessment and the continuous education of students and faculty about the purposes, processes and benefits of participation in portfolio assessment. The chair should be reconfigured and retitled as a "Director" of Portfolio Assessment to parallel to parallel this large campus wide assessment project with the campus wide Sophomore Writing Assessment.

With the inception of the Liberal Studies Program, first year students reading the "Your LAS Portfolio" brochure distributed through Freshman Week courses should learn that participation in portfolio assessment is a graduation requirement. In the cover letters of 300 graduates from the classes of 1996 and 1997, readers found recommendation that the LAS portfolio be a requirement for all students graduating from Truman. The benefits to students of the portfolio as a site for reflection, affirmation, and closure should be a common experience. Readers' commentary on their participation in the assessment included thirty-six recommendations that all students maintain portfolios as a graduation requirement. The complexity of the Liberal Studies Program and the assumptions that all students will be served by its requirements and that all the faculty are responsible for fostering student learning would seem to dictate that all students, whatever their major, will have important things to tell us through their portfolios about how adequately or well Truman has fostered liberal learning. The Assessment Committee should propose to the Undergraduate Council that the Liberal Arts and Sciences portfolio become a graduation requirement effective August 15, 1998.

Interdisciplinary Thinking

Please read the work which the student submitted to demonstrate "interdisciplinary thinking." Think about your overall, holistic impression of the interdisciplinary thinking demonstrated, and compare it with your rangefinders. Then score it, keeping in mind that with holistic evaluation, we reward what is there rather than penalize for absence of any one feature.

Conversations for two years about what demonstrates "interdisciplinary thinking" produced these descriptors. These are only descriptors, not primary traits that must be measurable in the submission to warrant a score. You may find other features that make you call the work interdisciplinary. Feel free to visit with you "table leader" about any submission which puzzles you or creates some kind of challenge in assessing.

Some Descriptors of competence as an interdisciplinary thinker:

The items may have some, many, or all of these features:

4 Strong Competence

A number of disciplines
Significant disparity of disciplines
Uses methodolgy from other disciplines for inquiry
Analyzes using multiple discipline
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 comprehension of interdisciplinarity

1 Weak Competence

Two or more disciplines
Mentions disciplines without making meaningful connections among them
No analysis using multiple disciplines
No evidence of comprehension of inerdisciplinarity

0 No demonstration of competence as an interdisciplinary thinker

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