

Chapter XXVIII: MASTER PLAN AND ASSESSMENT WORKSHOP

This chapter includes a more detailed summary of the 1999 Annual Planning and Assessment Workshop as well as a paper on Critical Thinking presented at the workshop.

1999 Annual Planning and Assessment Workshop July 19-20, 1999

Summary of Activities and Presentations

One of the enduring traditions at Truman State University has been its annual planning workshop held each summer. The workshop is open to the campus community and typically includes a review of current assessment data as well as an overview of issues that will constitute the institution's agenda for focused improvement during the coming academic year. As Truman has sought to implement its liberal arts and sciences mission, these planning workshops have assumed an important role in guiding the institution's development and ensuring the involvement of a broad cross-section of the academic community in the attainment of Truman's goals.

The 1999 Annual Planning and Assessment Workshop began with a review of Truman's progress in the implementation of its University Master Plan, *Affirming the Promise*, by both President Jack Magruder and Vice President Garry Gordon. The two-day agenda also included discussions of the "First Sixty Hours," i.e., the freshmen and sophomore years at Truman, in the context of both value-added testing and the rigor of the curriculum from the student perspective. Presentations were also made regarding the role of critical thinking in the curriculum, the progress of the Residential Colleges Program, an update on the MAE program, and a review of the annual discipline action plans that are to be developed by the faculty in each discipline. The theme of the workshop which clearly emerged as the presentations unfolded was the importance of fostering a strong sense of shared responsibility for institutional performance and outcomes among all members of Truman's academic community – faculty, staff, and students.

University Master Overview President Jack Magruder

President Magruder opened the workshop with a PowerPoint presentation which provided an overview of Truman's recent history and the institution's goals and plans for the future. He noted that Truman's public liberal arts and sciences mission is well-established and is centered on our core values as outlined in *Affirming the Promise*: (1) ensuring a student- and student learning-centered focus; (2) providing a rigorous academic experience in a nurturing environment; (3) maintaining affordability; and (4) sustaining a commitment to assessment and continuous improvement. Although a good beginning has been made, our goal has not yet been reached – to become a nationally recognized liberal arts and sciences institution. The quality of Truman's students and faculty, its graduation rates, the graduate school participation rates of its students, and the MAE learning outcomes all suggest that Truman is the public education leader in Missouri. However, benchmark data against "Best of Class" institutions in both the

public and private sectors for liberal arts and sciences institutions indicate that we can do better.

In order to attain its objective of becoming a nationally recognized liberal arts and sciences university, Truman has developed a series of specific goals that relate to numerous critical aspects of the Truman experience, e.g., graduation rates, graduate school participation, test score results, enhanced diversity of the student body and faculty, and intellectual growth with respect to interdisciplinarity, critical thinking, and other core liberal arts capabilities. Truman has also developed an integrated program of specific initiatives and investment opportunities through the CBHE's Mission Enhancement Program and selected capital improvements that are designed to foster the desired change. Included among these initiatives are the following:

- Recruiting and Supporting Outstanding Faculty -- \$3,884,000;
- Enhanced Freshman Experience -- \$435,000;
- Expanded Student Faculty Collaborative Research -- \$405,000;
- Excellent Support for the Teaching/Learning Process -- \$1,465,000;
- Residence Hall Network Project -- \$1,350,000;
- Renovated and Expanded Fine Arts Facility -- \$23,010,000;
- Renovated and Expanded Science Hall -- \$24,779,000; and
- Renovated and Expanded Baldwin and McClain Halls - \$15,447,000.

In closing, President Magruder noted everyone in the Truman community can play a role in helping to secure the resources necessary to assure Truman's future success – ranging from serving our students well every day they are here to continuing to support the annual fund. Higher education is an investment in our collective futures, and Truman has a leadership role in Missouri and the region.

Sharing the Responsibility for Institutional Performance Vice President Garry Gordon

Vice President Gordon continued the workshop with an overview of data related to the University Master Plan. These indicators of performance show a range of attainment that reflect great institutional success in some areas, patterns of continuity and stability in others, and problems/issues that need to be addressed in a few areas. Examples of successes include increased ACT scores for entering freshmen, improved freshman-to-sophomore retention rates, and rising graduate and professional school participation rates by recent graduates. The 1998 Faculty Survey shows that faculty/administration relations are much more positive at Truman than at comparable institutions and that the faculty values community development between faculty and students at a much higher rate than faculty at comparable institutions. These data also indicate that Truman is making progress toward its goal of a nine-hour course load: the average load was 9.74 in fall 98 with 52 percent of the faculty teaching 9 or fewer hours.

With respect to areas needing improvement, the data show that although senior test scores are improving, they are lagging master plan projections. Also, faculty ownership of the Liberal Studies Program is concentrated in a minority of the total full-time faculty – only 45 percent teach in the LSP. In addition, both faculty and student survey data show that faculty enthusiasm is less in LSP courses than in courses in the major. The development of a sufficient number of LSP courses for the junior interdisciplinary seminar and the communicative mode of inquiry remain a challenge. Grade inflation may also be an issue at Truman: the university-wide average GPA is 3.03 while the 50th percentile for graduating seniors is a 3.28 – indicating that the typical student performs at the solid B to B+ range. This strong performance is not always supported by objective test data or self-reported student data on time spent outside class studying – suggesting a possible need to examine in-class expectations for student performance. Finally, the data show that more than 70 percent of the faculty give short answer or multiple choice examinations most of the time rather than essay examinations.

In closing, Vice President Gordon noted that the key to continuing to improve Truman and to strengthen its liberal arts culture will be the development of a shared sense of responsibility among the faculty for the liberal studies program, residential colleges, the MAE program, and student learning across the curriculum. Just as a strong assessment program requires an institution to view its performance holistically, excellence in the liberal arts requires an academic community to take responsibility for student learning that extends beyond the major.

The First 60 Hours and Value-added Testing Results Ruthie Dare-Halma, Vaughn Pultz, and Candy Young

Following a lunch break, Ruthie Dare-Halma, Vaughn Pultz, and Candy Young reported on recent research they had completed regarding value-added test results for students completing the first two years of study at Truman – “The First Sixty Hours.” Truman has engaged in valued-added assessment of student learning in the general education/liberal studies program component of its degree programs since 1975. These test results have been used in the past to help identify areas of the curriculum which needed review – e.g., the mathematics requirement. Although Truman’s assessment program is much richer and more complex today than in the late 1970s, value-added testing is still an important component of the of the assessment program. Value-added testing is particularly salient to external audiences, provides a convenient reality check on student progress in the context of objective comparisons with students at other institutions, and helps the institution meet state Funding for Results requirements. Internally, value-added testing has the potential to continue to suggest areas for curricular improvement, communicates important institutional values to both students and faculty, assists advising and student goal-setting, and helps reinforce a culture of continuous improvement.

Given the continuing importance and relevance of value-added testing, the results of these assessments in recent years is source of some concern. Actual performance

levels do not appear to reflect the quality of Truman's students; both freshmen and juniors are experiencing stable or declining scores; and the percentages of students who show increased scores are declining. Since about two-thirds of the students report that they put forth their best efforts on the examinations, lack of student motivation does not fully explain the results. In order to understand better the reality behind these results, the presenters conducted a review of a random sample of 100 student transcripts in an effort to identify possible causal relationships. In this context a student was regarded as having made significant gains if he or she increased her raw score by 3 or more points. The following results were suggestive.

In *mathematics* 22 percent of the sample had significant gains, and most of these students had one or more applied mathematics courses. In the *writing* assessment section, the results were more mixed, 11 percent of the sample were "gainers" while 9 percent were "decliners." A possible hypothesis to explain these observations is that students who had more courses with significant writing requirements improve more, but the data necessary to classify a course as "writing intensive" was not available. With respect to *reading*, the results were also mixed – 25 percent of the sample were "gainers" while 31 percent were "decliners." Further complicating the picture, some "gainers" appeared to have underperformed on the assessment as freshmen based upon their ACT scores. A possible hypothesis to explain the observed gains is that students who completed more 300+ level courses performed better than those students who did not have these experiences. Student performance in the category of *critical thinking* was also somewhat mixed with 26 percent registering gains and 19 percent recording declines. Once again, a possible hypothesis is that students who received more challenging course assignments and who completed more 300+ courses performed better. Finally, student test results in *science reasoning* were very evenly balanced with 17 percent reporting gains and 15 percent reporting declines. The data suggest that students who completed two or more science courses prior to the junior year were more likely to make improvements than those students who did not. Finally, it was noted that the results on these standardized tests are similar to portfolio and sophomore writing experience results.

Although these data are suggestive, more work is needed to better understand the student motivational and curricular relationships that underlie the observed results. First steps would include continuing to enhance Truman's assessment culture by helping both students and faculty to understand how value-added testing data can be used (1) to improve advising by identifying individual strengths and weaknesses, (2) to provide concrete evidence to support letters of reference, and (3) to demonstrate the acquisition of abilities central to a liberally educated student. Other possible actions include expanding and enhancing the transcript analysis, using the annual interview project to explore student experiences in their courses relative to the acquisition of intellectual abilities associated with the liberal arts, establishing faculty goals regarding deep reading and critical thinking, and using the portfolio project to identify exemplary assignments that successfully fostered higher order thinking skills. Finally, student motivation issues should be addressed by considering the development of appropriate incentives for more students to invest their best efforts into the value-added assessment testing – e.g., a letter

from the president explaining the importance of the program, recognition of outstanding student performance, and perhaps even the placement of students scores on the transcript.

Fostering Intellectual Challenge in the First 60 Hours: A Student Perspective
John Halski, Jessica Neighbors, and Julia Kittsmiller

The faculty panel on valued-added testing during the first 60 hours was followed by a student panel concerning how intellectual challenge might best be fostered during a student's first 60 hours at Truman. Presentations were made by current students John Halski and Jessica Neighbors and recent graduate Julia Kittsmiller.

Mr. Halski reported his belief that faculty should be more pro-active in advising students; many new students would benefit from more direction. He also noted that for some particularly well-prepared students many standard Liberal Studies Program courses were not sufficiently challenging or relevant. As a consequence, he favored more flexibility in permitting substitutions of advanced courses for lower division LSP courses, e.g., through the honors program. He also thought the faculty should more deliberately encourage and foster substantive inter-disciplinarity in their courses.

Ms. Neighbors reminded the faculty that most students mix LSP courses and major courses even during the first 60 hours. She also noted that many students are underprepared in mathematics and critical thinking. Both of these factors have an important impact on how students respond to the curriculum. With respect to the issue of challenge and deep reading, Ms. Neighbors noted that in her experience *some* students read for comprehension; *most* students skim for information; and *all* students cram for information at test time. Students also quickly figure out the system and, like everyone else, conserve their energy by focusing on necessary tasks and avoiding nonessential work. As a consequence, students will not read assignments carefully if there is no incentive to read – e.g., the lectures repeat the material to be read or the readings are not covered on subsequent tests. Students will also avoid reading if the texts are bad or if they see no future relevance in the material. In her view the key to improving student involvement in serious reading is to improve lectures; choose better text books; require more writing, presentations, and critiques with opportunities to re-write and edit initial drafts; and improve tests by increasing the scope and combining multiple choice questions with short answer questions and essays.

Ms. Kittsmiller reported that in her experience most LSP core courses were of only average difficulty. Too often the teacher's expectations for the class were not clear; students were rarely called on; and most tests were multiple choice or true/false. In order to improve introductory courses, faculty should consider requiring more writing, using more essay tests, and assigning more work that requires critical thinking. With respect to the latter issue, faculty should, in her judgment, be careful to distinguish between

assignments that require more thinking and those that require just more busy work. Ms. Kittsmiller also noted that honors courses can provide important extra challenge for some students: some students will actually make A's in hard classes and B's in easier classes owing to lack of challenge and motivation. Good professors are interested in their students, know their students' names, have clear goals for their classes, and explain things well.

Reflections on Critical Thinking **Stuart Vorkink, Ian Lindevald, Royce Kallerud, and Sara Orel**

The first day the planning workshop ended with a faculty panel focused on the issue of critical thinking. Stuart Vorkink, Ian Lindevald, Royce Kallerud, and Sara Orel comprised the panel and brought a rich diversity of perspective to the topic. An initial framework for the session was provided by Stuart Vorkink through a set of assumptions outlined by that included the following.

- Critical thinking is a skill essential to and central in the liberal arts tradition.
- Critical thinking is often undefined and implicit.
- Improvements in critical thinking is not a function of age – improvements do not occur automatically with the passage of time.
- Students should experience manifestations of critical thinking in both LSP core courses and in the major.
- Each faculty member should accept responsibility for explicitly fostering critical thinking in their classes.
- Both faculty and staff should actively model critical thinking in their work.

Although critical thinking can sometimes be an elusive concept, more and more institutions are self-consciously exploring the issue. At least fourteen institutions have assessment programs or processes for critical thinking that reach across the institution. Much of this research suggests that critical thinking skills do not exist independent of concepts and abilities associated with a discipline: to be an effective critical thinker in a discipline, one must be familiar with the content and methods of the discipline.

At Truman the portfolio project is the assessment activity that most directly addresses the development of students' critical thinking abilities. Ian Lindevald reported that the portfolio project provides data on students' academic achievements, is an outstanding faculty development activity, and enables students to assess their own intellectual growth as scholars. As an approximate, qualitative guide to the current quality of thinking among Truman's graduates, the results of the portfolio project suggest that 25 percent of the students have strong skills, 50 percent are competent, and 25 percent are weak. Clearly, then, there is room for improvement in most students' performance.

Royce Kallerud and Sara Orel provided insights and comments on how they approach critical thinking in their respective disciplines. For Professor Kallerud, critical thinking is linked to critical teaching. It is also a way of challenging the identity and thinking of not only the student but the teacher as well. In this model critical thinking can be viewed as a dialogue between two people who do not share a common language, so teaching becomes a form of translation that seeks to develop a common understanding between students and between students and the teacher. This method of discovery and exploration might take the form of student critiques of their colleagues' work or development of a new way of reading a novel. For Professor Orel, critical thinking is closely tied to the ability to read deeply and critically as well as the development of appropriate research projects. All too often, young students will believe almost anything they read – a tendency that must be addressed. She also noted that in the art history program the curriculum is deliberately structured to lead students through progressively more demanding exercises and expectations for critical thinking. As freshmen students complete survey courses that lay the ground work for more in-depth studies through research projects and examinations that require them to apply known information to the analysis of unknown works. By the senior year students are writing a senior thesis that in part is dependent upon the development of their own ways of approaching art in its historical and aesthetic context.

Residential Colleges, 1999-2000 **Mary Macmanus Ramsbottom**

Day two of the planning workshop began with a report on the progress of the Residential College Program by Mary Macmanus Ramsbottom, who is interim dean of the residential colleges. The colleges are a priority in the University Master Plan and have been identified for additional support through Truman's Mission Enhancement Initiative. It is anticipated that the revitalized colleges will play a critical role in helping Truman to achieve its goal of an deepened and enhanced liberal arts culture by fostering a strengthened living/ learning environment that blurs the line between the classroom and the residence halls. In this manner, the program will help students develop a sense of belonging to the university as a community of learners, hopefully increasing their personal engagement in their education.

Dean Ramsbottom reported that for the 1999-2000 academic year academic advising for freshmen and all undeclared students has been reorganized under the aegis of the Residential College Program. Additional advisors have been hired and all professional academic advising will occur in the residence halls where students live. In addition, college rectors have been hired for three of the five major residence halls – Missouri, Ryle, and Centennial – and enhanced programming will be implemented in these colleges during the academic year. The remaining two halls – Blanton-Nason and Dobson – will receive rectors next year as part of a deliberate phase-in of the program. Faculty fellows – about three dozen – have also been identified for the current academic year, and approximately 45 classes with residential college sections will have been offered last year and this year combined.

Separate student and faculty surveys of those involved in these special residential college course sections have shown that these classes have been very positive experiences for both. In comparison with regular Truman classes, nearly 75 percent of students in residential college sections reported they felt more connected with their fellow students; more than 60 percent felt their instructor was more approachable; more than 56 percent were more likely to discuss course-related issues outside of class; and almost 50 percent of students felt more engaged and enthusiastic about the class. Similarly, faculty reported substantially higher rates of student class attendance, student participation in class, student connectedness, and student learning in their residential college sections versus their regular classes. Based on these experiences last year, expectations are high that the new Residential College Program will be successful.

Master of Arts in Education Update
Donna Rhinesmith and John Hoffmann

The nation's attention continues to be focused on teacher education and the quality of our public school systems. Last year Congress passed legislation that will require all institutions to report performance data on their teacher education programs. This is nothing new, however, for Missouri institutions. Since 1992 the Coordinating Board for Higher Education has established high expectations for both entrance and exit requirements to teacher education programs and has reported these data publicly. These data show that Truman's MAE program is a leader in the state, but the MAE faculty continue to seek ways to strengthen the program. The University Master Plan established the MAE as a key institutional priority, and owing to the program's special structure, it is in a very real sense a shared responsibility of the entire university.

In the 1998-99 academic year the MAE faculty have been able to record a number of significant accomplishments. A partial list would include improved advising through a new freshman seminar, the development of digital student portfolios, establishment of an interdisciplinary LSP course, and enhanced recruitment and retention activities at the undergraduate level. The program is particularly pleased that the quality of the students admitted to the program has increased while the number of students admitted remains high. In 1999 ninety-eight students were admitted to the MAE with average GRE scores at 50 percent or above on the verbal, math, and analytical sections; these students also had an average ACT score of 26.2. In 1996 the MAE enrollment had fallen to 63 students; last year it reached 103 and is well on-track to reach the master plan goal of 120 in 2002. CBHE data show that Truman's MAE students also have the highest pass rate on the state licensure examination of any program in Missouri. Finally, placement rates for program graduates remain very high at 98 percent, and employer school districts are very positive about the capability of our graduates. These many accomplishments could not have been attained without the broad support of Truman's academic community – yet another example of successful shared responsibility.

Discipline Action Plans
Vice President Garry Gordon

The last major formal presentation of the 1999 planning workshop was an overview of the Discipline Action Plans report for the academic years 2000-2001 and 2001-2002. Vice President Gordon noted that each discipline is asked to report its progress and contributions to the goals included in the University Master Plan, particularly as they relate to the Liberal Studies Program; the Residential College Program; the Freshman Experience; the Major; and the MAE.

M. Royce Kallerud

Critical Thinking

Truman State University 1999 Master Plan/Assessment Workshop

July 18, 1999

Introduction

I want to first ask myself when have I taught critically. In part I ask this question because I feel we need to be extremely careful when we talk about teaching and critical thinking. If we're not, ideas like critical thinking can mean nearly anything. This vagueness is bad by itself, worse when it is presented to students *in the name of critical thinking*. In *Lives on the Boundary*, a book that argues that critical thinking and a liberal arts education are near synonymous, Mike Rose gets right to this point: "When teachers would write 'no' or 'awkward' or 'rewrite' alongside the sentences I had worked so hard to produce, I would be peeved and disappointed. 'Well, what the hell *do* they want?' I'd grumble to no one in particular" (55). In this category, I felt—as a student—extremely frustrated when teachers would write "vague" in the margin of my essays. Wasn't the logically appropriate response to write "vague" once more, next to the teacher's "vague"? Rose contrasts this first method of commenting on student papers to the attitude one of his teachers took to his writing:

He always began by reading the sentence out loud: "Camus ascended to a richer vision of life that was to characterize the entirety of his work." Then he would fiddle with the sentence, talking and looking up at me to comment or ask questions: "'Ascent.' That sounds like 'assent,' I know, but look it up Mike." He'd wait while I fluttered the dictionary. (55)

Taken much further this line of thought will produce more questions than I can answer. There's one question in particular that I don't know how to answer adequately: This kind of critical teaching takes a lot of time on the part of teachers and students both. Without trying to address

that difficulty, I'll try to outline some of the boundaries of critical thinking in the classroom and—eventually—say a few words about when I have taught critically.

1. Defining Critical Thinking: Karl Popper

If we think of teaching as analogous to *translation* we can, I believe, determine precisely what is wrong with writing “vague” in the margin of a student’s paper. I have a clear set of expectations when I read an essay (whether it is a student’s or a teacher’s), and these expectations can be said to constitute a *language* or, more precisely, they can be said to constitute my understanding of the disciplinary language of writing instructors. When a writer does not meet these expectations, she is often guilty of vagueness; even, however, if a student somehow figures out how to make precise a particularly vague sentence, her essay might not be improved. To explain, then, what is vague in a particular sentence is near impossible: To do so would require dozens, perhaps hundreds, of pages of comments. To illustrate: I teach English literature. If another professor of English writes “vague” in the margin of a manuscript of mine I—more or less—know how to respond, and I know how to respond *because* I spent a significant portion of my life in graduate school. In this sense, I share a common language with other professors of English and, more broadly, with other academics.

So, one of the central problems of critical thinking is the problem of translation: A set of expectations—disciplinary, academic, institutional, etc.—underlies our every comment, and to understand our comments students need to somehow access this set of expectations. Critical thinking is not, however, contained in these expectations; rather, critical thinking emerges in our ability to translate, to make these expectations available to people who don’t speak our language. This is why I see an encounter between two people who speak separate languages and attempt—nevertheless—to communicate as the *fundamental educational relationship*. This educational or *critical* relationship plainly exists when another professor comments on my writing, but it is much more clearly delineated when people with broadly divergent experiences—like teachers and students—attempt to communicate. Thus my conclusion that critical thinking is, from an important perspective, a mode of translation, and—further—that we can most clearly understand the requirements of critical thinking if we imagine teaching on the model of two people who speak

separate languages but still manage to communicate: The pivotal question, then, is *how they manage to communicate*. If we can answer that question then we will (even if I am only partly correct) be better able to teach critically.

I've been inspired, in this line of thought, by Karl Popper's *Conjectures and Refutations*. This work provides a detailed analysis of the critical process; in particular, it has led me to think about the relation between critical teaching and critical thought (i.e., research). Both, I believe, require a transformation in the way we talk about the world; both critical teaching and research require—as I have suggested with the metaphor of translation—the creation of a new language. Hence, I expect, the connection between critical thinking and interdisciplinarity in Truman's Liberal Studies Program: The deepest critical thinking—i.e., thinking that discovers the need to reconfigure existing disciplines by putting one discipline in dialogue with another—is not, I would suggest, significantly different than the critical thinking that we need to pursue in our classroom. If I had more time I would give Popper's full definition of critical thinking. For now, the first line of his book gives us a strong hint at Popper's position: "The essays and lectures of which this book is composed," Popper writes, "are variations on one very simple theme—the thesis that *we can learn from our mistakes*" (vii).

2. Practicing Critical Thinking

I want to focus, then, on the relation between *mistake* and *critical thinking*. Recently several works have been published in which distinguished literary scholars in this country present their assumptions about teaching as fundamentally flawed. Recently, for instance, Elaine Showalter has written about her work as a teacher. Her essay focuses on her experiences training teaching assistants at Princeton, and her comments cut deep: "For most of us," she writes, "teaching is a jealously guarded private domain, fraught with anxiety and uncertainty. Setting ourselves up as experts on teaching feels like tempting fate. Given the fickleness of student opinion, which of us dares to volunteer our own class as a teaching laboratory?" Besides being immediately recognizable to many (most?) teachers, Showalter's "anxiety and uncertainty" reflects, she suggests, an unnecessary fear of "mistake."

Even more pointedly, Showalter cites Jane Tompkins' comments on her own classroom persona: "I had been putting on a performance whose true goal was not to help the students learn, as I had thought, but to perform before them in such a way that they would have a good opinion of me. I realized that my fear of being found wanting, of being shown up as a fraud, must have transmitted itself to them." This kind of experience is not surprising, since I see critical thinking, first of all, as *a method of challenging our established ideas and identities*, an activity that requires a comfort with mistake that is not, I think, adequately accounted for by what we do in the classroom. What's wonderful about Showalter and Tompkins' comments is that they show this mode of critical thinking to be a two-way street: We need to do more—in our classrooms—than simply challenge our students. What Showalter and Tompkins describes as their best teaching cuts right to the core of their scholarly and teacherly identities and *shows those identities as inadequate*.

This seems a negative realization, but Popper helps us revise our understanding of concepts like "inadequate" in his contrast of the *dogmatic* and the *critical*: If, he proposes, "the dogmatic attitude is clearly related to the tendency to verify our laws and schemata by seeking to apply them and to confirm them, even to the point of neglecting refutations . . . the critical attitude is one of readiness to change them—to test them; to refute them; to *falsify* them, if possible" (50).¹ Thus, if we see our thought as inadequate—if we look to see how it is out of synch with the world—then it stands a chance of being critical. One of the conditions of critical thought, then, is the inadequacy that Showalter and Tompkins had worked so hard to avoid. So—and this is what I was

¹"[T]he dogmatic attitude," Popper further explains,

is clearly related to the tendency to *verify* our laws and schemata by seeking to apply them and to confirm them, even to the point of neglecting refutations, whereas the critical attitude is one of readiness to change them—to test them; to refute them; to *falsify* them, if possible. . . . [However,] the critical attitude is not so much opposed to the dogmatic attitude as super-imposed upon it: criticism must be directed against existing and influential beliefs in need of critical revision—in other words, dogmatic beliefs. A critical attitude needs for its raw material, as it were, theories or beliefs which are held more or less dogmatically. . . . Thus science must begin with myths, and with the criticism of myths; neither with the collection of observations, nor with the invention of experiments, but with the critical discussion of myths, and of magical techniques and practices. The scientific tradition is distinguished from the pre-scientific tradition in having two layers" (50).

asked to talk about in the first place—we can bring our critical thinking to bear in the classroom if we can both recognize our students as critical thinkers and recognize our current thinking as *dogmatic*. In fact, I'd venture that—as long as we carefully explore the ramifications of this argument—this might be all it takes to teach critically.

I've stirred up a hornet's nest of questions here: Is it possible for all classrooms—especially when we cut across disciplines—to be critical in this way? Will this kind of critical thinking cause our students to lose confidence in our expertise? Can we equate our mistakes as professional scholars with the mistakes of our students? Do we have to transform our disciplines in order to teach critically? My provisional responses to these questions are probably apparent: Yes, all classrooms can be critical in this way. No, this approach won't cause students to lose confidence in our expertise (in fact, I expect that this approach will deepen our intellectual and even moral authority). Yes, we can equate our mistakes with those of our students. No, we don't need to transform our disciplines in order to teach critically. Instead, however, of pursuing these questions further (we don't, in the end, need to find their answers to teach critically) will talk very briefly about my own attempts to teach critically.

Conclusion

While I doubt these comments are surprising—they might, it seems to me be boiled down to the idea that teaching is an art, a perpetual attempt to balance seemingly irreconcilable positions—they do help me to pose a number of questions that I return to whenever I think about teaching: To what extent do we need to re-imagine our teaching and scholarship to teach critically? (This model of critical thinking, for instance, seems at least partly at odds with courses that must cover a certain body of material.) How might this critical teaching require us to value our knowledge, our scholarship, differently? What new sorts of courses might we teach in light of this model? And, perhaps the question that I think about most frequently: If critical thinking entails not only calling the thinking of others into question but calling our own thinking into question, how can we practice this in our classrooms given the differential in expertise between us and our students? How can we practice critical teaching? Though these questions are implied, and perhaps answered, in the Liberal Studies Program, we need to keep posing them.

And now I have to do what I haven't yet been brave enough to do: Say a few words about when I have taught critically. What comes to mind is this. One of the main things that I thought about when I first taught college writing was how frustrated and disappointed I had been when even the teachers I loved made comments like "vague" in the margins of my essays. I was willing to believe them—in fact, I was desperate to believe them—but didn't, as a student, know what to do. This didn't work nearly as well as I hoped because it reinforced the notion that writing was founded not on critical thinking—not, that is, on our willing to test our readiness to change our laws and schemata, "to test them; to refute them; to *falsify* them, if possible"—but on the idea, which I didn't believe, that writing is based on laws and schemata. Reflecting on this, I suspect my professors wrote "vague" from a split position, one of both wisdom and insecurity: They knew that a "translation" of the word vague wouldn't be an efficient or effective pedagogical method, but they didn't know what else to do, so they just wrote "vague" and hoped that, by hook or crook, their students would figure out what vague meant. When, in contrast, I wore myself out trying to explain "vague," I was perhaps able to escape vagueness, but at the same time I tended towards the mode of dogmatism that Popper opposes directly to critical thinking. This is better, I think, than "vague," but it's not good enough.

I continued trying to explain "vague" until I had to teach two writing and two literature courses this past spring. Faced with stacks of papers many times thicker than any I had previously encountered, I handed much (though not all) of the responsibility for commenting on first drafts over to my students. I am pleased with the results of this approach for a number of reasons, not least of all because it helped to make my students better writers. In the present context, however, this approach fulfilled many of the criteria I have set out for critical thinking: First, it made it possible for me to learn my students' expectations. Often, for instance, this approach led me to see where my values as a writer were posed uncritically—even if they were "correct"—and thus to see where my responses to student writing weren't making sense to my students (where, despite my assiduousness, they remained vague). This, in turn, made my students more receptive to and more critical of the strategies I later used to comment on their papers (here I am operating, once more, on the model of two people who upon meeting share no language but nevertheless learn how to communicate). Interestingly, too, this process might even

be seen as directly analogous to the creation of new disciplinary languages. It is the case, I believe, that we are creating new knowledge when our interactions with students lead to critical thinking. In sum, this approach allowed me to recognize not only my students as critical thinkers but, more subtly, it gave me the information I needed to be more critical of my own thinking. If we think back to the student Mike Rose—who clearly wanted to “rewrite” in response to his teachers’ comments, who wanted, in short, to change his laws and schema (and that is what rewriting is all about)—the sensibility of this position should be apparent.

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