Habits of the Mind: Challenges for Multidisciplinary Engagement

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The extraordinary complexity of knowledge in today's world creates a paradox. On the one hand, its sheer volume and intricacy demand disciplinary specialization, even subspecialization; innovative research or scholarship increasingly requires immersion in the details of one’s disciplinary dialogue. On the other hand, that very immersion can limit innovation. Disciplinary specialization inhibits faculty from broadening their intellectual horizons—considering questions of importance outside their discipline, learning other methods for answering these questions and pondering the possible significance of other disciplines’ findings for their own work. This article seeks to understand more fully the factors that enhance and impede cross-disciplinary conversations and the possible longer-term effects of those conversations. Based on 46 interviews with a sample of seminar participants, it examines the experiences of faculty members who ventured (voluntarily) into multidisciplinary waters and its implications for the organization of disciplines and universities.

Keywords: Multidisciplinarity; Disciplines; Academe; Faculty; Knowledge Production

Introduction

The complexity of knowledge in the contemporary world creates a paradox. On the one hand its sheer volume and intricacy demand disciplinary specialization, even subspecialization, because innovative research or scholarship increasingly requires immersion in the details of disciplinary dialogue. On the other hand that very immersion can limit innovation. Disciplinary specialization inhibits faculty from broadening their intellectual horizons: for example, by considering questions of importance outside their discipline, learning other methods for answering these
questions, and pondering the possible significance of other disciplines’ findings for their own work.

To push the frontiers of knowledge forward and create knowledge that helps to solve the problems of the world, we need not only discovery within disciplines, but also integration across them (Boyer 1990; Weingart 2000). Yet few faculty engage in research or teaching outside of their own field. The academic reward structure for hiring, promotion, salary, grants, and prizes provides powerful incentives to specialize narrowly and few opportunities to integrate knowledge from other fields of study (National Academy of Sciences, National Academy of Engineering, and Institute of Medicine 2005). Also, the jargon and shorthand in which members of disciplines often speak and write, and the profound difference in cultures across disciplines, make cross-disciplinary forays arduous. While faculty say they see the value in multidisciplinary scholarship (Boyer 1990) organizational, economic, and cultural barriers keep most from pursuing cross-disciplinary work. Most faculty also discourage cross-disciplinarity in graduate education, ensuring that the next generation of scholars will also find it difficult to break out of disciplinary confines.

Foundations are particularly interested in fostering interdisciplinarity. For example, in a recent issue of the Chronicle of Higher Education, Vartan Gregorian (2004), the President of the Carnegie Foundation and former President of Brown University and the New York Public Library, wrote:

> We must reform higher education to reconstract the unity and value of knowledge… The complexity of the world requires us to have a better understanding of the relationships and connections between all fields that intersect and overlap—economics and sociology, law and psychology, business and history, physics and medicine, anthropology and political science. (Gregorian 2004 B12)

A recent report by the National Institute of Medicine on the National Institutes of Health (NIH) argues for more integration within the sciences and between the sciences and behavioral and social sciences: “[S]ome parts of the scientific frontier require… the mobilization of interdisciplinary research teams… Increasingly, investigators will need to integrate knowledge… And greater prominence must be given to research in the behavioral and social sciences” (National Institute of Medicine 2003: 51–52).

Similarly, the Keck Foundation, in creating the Futures Initiative in 2003, argued: “Training individuals who are conversant in ideas and languages of other fields is central to the continued march of scientific progress in the 21st century” (National Academy of Sciences, National Academy of Engineering, and Institute of Medicine 2005: x).

One of the reasons why foundations, government agencies, and leaders of institutions of higher education would like to see faculty move in the direction of more multidisciplinary work is that they believe there are more opportunities for creativity and breakthroughs at the intersections of disciplines.

In 2000, Atlantic Philanthropic Services (now Atlantic Philanthropies) provided two-year grants to three leading American research universities (to maintain their anonymity, I call them Washington, Adams, and Jefferson) to create broad (not
problem-specific) seminars for the purpose of encouraging dialogue across disciplines. The decision to concentrate the grants in research universities was made because multi-disciplinary dialogue among faculty members is perhaps most difficult to achieve at research universities, where there is considerable pressure to publish in one’s own discipline, where cross-disciplinary teaching is seldom valued, and where the sheer size of the institution prevents faculty from easily meeting colleagues in other fields.

There were six seminars in all, each meeting once a week for one academic year. In 2002 I received a grant from the Ford Foundation to study those seminars in order to understand more fully the factors that enhance and impede cross-disciplinary conversations and the possible longer-term effects of those conversations. Based on 46 interviews with a sample of seminar participants, this article examines the experiences of faculty members who ventured, voluntarily, into multidisciplinary waters.

Given the importance now being placed on creating the conditions that foster cross-disciplinary exchange, my study focuses upon the following questions: What were the difficulties and successes in the scholarly discussions? How did faculty use knowledge from other disciplines? How did barriers to cross-disciplinary integration of knowledge operate? What kinds of intellectual and affective connections did participants make in their own minds and in relationships with colleagues? Also, with respect to these seminars potentially serving as models for other institutions, I considered the following: What can other institutions interested in developing more cross-disciplinary exchange on their campuses learn from the seminars at Washington, Adams, and Jefferson?

Defining Terms

Before proceeding to an overview of the results of this work (the full study will be published as a book), it is important to define the terms used. The dictionary defines a discipline as a branch of knowledge or learning (from the Latin discipulus, a learner). However, for the purpose of distinguishing between disciplinarity and interdisciplinarity, this definition is too ecumenical; interdisciplinary fields are also branches of knowledge or learning.

Using knowledge criteria alone (e.g., the existence of a distinctive theory, paradigm, body of information, methodology, or scholarly journal) to decide whether a branch of knowledge is a discipline, subdiscipline, or multidiscipline is a hopeless task. Based on such criteria, would clinical psychology be deemed a discipline or subdiscipline? Is statistics a discipline, or a branch of mathematics? Is women’s studies a discipline? Knowledge criteria alone do not result in agreement among academics on these matters, in part because knowledge changes even while particular debates rage and in part because participants in the debate are not impartial spectators.

Having a field or subfield declared a discipline has numerous advantages; branches of knowledge that are deemed disciplines are rewarded by being made departments at academic institutions. As such, they receive protection for both their disciples and their knowledge base—theories, methods, content, and procedures for ascertaining “truth” (Lohmann 2003). They obtain financial resources and are permitted to hire, promote, and give tenure to faculty based on their own collective scholarly preferences. They are
permitted to develop curricula and offer courses, train undergraduates, and certify them as majors—and, most importantly for the perpetuation of their field, select, train, examine, and certify doctoral students.

Using departmental status as a proxy for discipline is akin to using revealed preference theory in economics. Economists point out that in studying the behavior of consumers, it is difficult to know, \emph{a priori}, their underlying tastes and preferences. However, once consumers make a purchase, their behavior reveals those underlying tastes and preferences. Similarly, although academics cannot agree in the abstract which branches of knowledge are disciplines, by observing their collective behavior in making what they think are disciplines into departments, the definition of disciplines is revealed.

Using revealed preference theory in this way makes it obvious that the definition of a discipline has political as well as epistemological dimensions. The history of women’s studies, for example, indicates that because of its low status, and perhaps because of gender discrimination, its practitioners have had a difficult time convincing academic authorities to give it departmental status (Boxer 1998, 2000). Moreover, the political and epistemological dimensions of achieving disciplinary status are not independent. Rather, it is likely that the vast majority of academic institutions’ refusal to create women’s studies departments, which forced women’s studies scholars to achieve tenure and promotion within the disciplines in which they were trained and hired, had a negative effect on the development of cross-disciplinary or interdisciplinary theories in women’s studies (Messer-Davidow 2002).

It is important for disciplinary status that there are many departments with the same designation. Having departmental status in only a few institutions (as is the case for women’s studies now) is insufficient for disciplinary status, because new doctorates have an insufficient number of institutions at which to seek jobs. In other words, for a field to be a discipline there must be both “identity and exchange” (Turner 2000: 51). The identity comes from achieving departmental status. The exchange comes from a market for new doctorates. Indeed, Turner defines disciplines as “cartels that organize markets for the production and employment of students by excluding those job-seekers who are not products of the cartel” (Turner 2000: 51).

Although in some respects this definition of disciplinarity is unsatisfactory, because it relies so heavily on political as opposed to purely epistemological considerations, it is in fact useful for understanding interdisciplinarity. One of the hallmarks of interdisciplinarity is the difficulty that scholars or researchers who have been trained and socialized in one field experience when they attempt to talk to or work with scholars trained and socialized in other fields. By defining disciplines as synonymous with departments, we ensure that faculty or other doctorates who wear a particular disciplinary label have all been socialized in pretty much the same way. This is not to say, necessarily, that the socialization “took” equally well for all, but to be assured that their initiations and on-going customs and culture are simultaneously quite different from those of other scholars and quite similar to those with the same disciplinary label.

The terms cross-disciplinary, multidisciplinary, interdisciplinary, and transdisciplinary are often used interchangeably, but they have different meanings. To confuse
the matter further, different authors use the terms differently (e.g., Gibbons et al. 1994: 4–6).

I define cross-disciplinary and multidisciplinary synonymously; both mean that two or more disciplines are being used, but that they are not integrated. I use the term interdisciplinary when there is an integration of some aspects of the disciplines (method, theory, content, perspectives), but where, despite the integration, the separate disciplinary perspectives are still discernible. I use the term transdisciplinary where there has been such a degree of integration of disciplines that tracing distinct disciplinary traits is difficult.

Habits of the Mind

Each of the three institutions I studied took the cross-disciplinary seminars in a different direction. Washington confined the seminar to the social sciences. In the first year, discussions began with Open the Social Sciences, the Gulbenkian Commission’s plea for greater integration across the social sciences (1996). In the second year, they narrowed their focus further and selected a group of social scientists to examine the concept of inequality. Adams University sought to bridge the two cultures defined by C. P. Snow (1959/1998) and selected a group of humanists and scientists to discuss science studies in the first year and ethics in the second. Jefferson had the most varied faculty mix of all—social scientists, scientists, humanists, and artists (including a composer, a painter, and an actress/director). In both years, the discussions began with a consideration of Edward O. Wilson’s book, Consilience: The Unity of Knowledge (1999).

The structure and leadership of the seminars also varied. At Washington, each seminar was run by a (different) prestigious senior faculty member (one a political scientist and one an economist) and the university’s top administrators participated actively in both years. At Adams, the seminars were run in both years by a non-tenure-line humanities faculty member who had had experience with interdisciplinary programs at another university. No administrators participated in Adams’ seminars. At Jefferson, the first year seminar was run by a senior faculty member in the humanities who had been a dean; a prestigious emeritus faculty member, also in the humanities, led the second year seminar. In both years, both former and current administrators participated.

Each seminar was to have a participant-observer, who was to take notes and circulate them periodically to participants and, in abbreviated form, to Atlantic. At Washington and Jefferson, the same faculty member served as participant-observer for both years. However, at Adams, faculty decided they did not want their proceedings recorded and so there was no note-taker and the only person who participated in the seminars for both years was the leader.

At Washington and Adams, administrators at both the university and departmental levels were intent upon improving their institutions’ positions in various national prestige rankings. They viewed the seminars as opportunities not only to promote cross-disciplinary dialogue, but to fulfill other purposes as well: to provide “perks” for key faculty who were considering relocating, as a means for employing a new faculty
member’s significant other, as a means for developing specific new interdisciplinary programs, and as a venue for discussing departmental reorganizations. Jefferson, on the other hand, while less prestigious than Washington or Adams, was more relaxed about its national ranking and saw the seminars as primarily an intellectual activity, an opportunity to get its intellectual “stars” better acquainted with one another, and a venue for incubating new cross-disciplinary courses. As a result, the participants, leaders, and topics of the Washington and Adams seminars were chosen to fulfill multiple goals. Jefferson, on the other hand, chose seminar participants, leaders, and topics solely for the purpose of creating intellectual excitement and cross-fertilization. These two different models had a profound influence on the proceedings of the seminars and the seminars’ effects on participants.

What I seek to do here is to show some of the difficulties seminar participants experienced in overcoming their habits of mind in order to engage in cross-disciplinary dialogues. As will become evident, habits of mind include not only disciplinary content, but also styles of thinking, styles of presenting, and styles of questioning. It is important to recognize from the outset, however, that the snippets I provide here present a very incomplete accounting of these three seminars. The reader should not conclude from this material that the seminars were unsuccessful. On the contrary, there were numerous positive outcomes and almost all of the participants said they would sign up again. I am merely trying here to highlight some of the difficult issues for this special edition.

Perspectives and Experiences

Adams

The seminars at Adams were more contentious than those at either Washington or Jefferson. Some of this was due to the absence of any administrators, who, at the other universities, tended to foster a decided atmosphere of civility; some was due to the fact that the woman who led the seminars for both years was not a tenure-line faculty member. She had been chosen in part because she had a background in interdisciplinarity (indeed she was more knowledgeable about interdisciplinarity as a subject of study than any leader or participant in any of the six seminars) and in part because the university needed to find a position for her in order to be able to hire her partner, whom they were actively courting. She had no say in the topics of the seminar or in the selection of seminar participants; these were chosen by a dean and a senior central administrator.

In the seminar leader’s words, in the first year the participants fought the science wars, and in the second year, the culture wars. The seminar “blew up” in the first year, when an economist was critiquing readings and a presentation in what he reported to me was his “usual style”; a young woman of color (a post-doctoral fellow in religion) called him insensitive and chastised him. The economist’s response was to leave the seminar and refuse to return, despite some modest efforts by the seminar leader to change his mind. Here is an account of the “fight” from a psychologist in the seminar:
[The economist] did a very serious critique of game theory, straight on… And then, the post-doc… thought it was too harsh or too mean or not communal… not the kind of thing a Quaker would have done or something. I don’t know... But... [the economist] was claiming that his... style... that’s what [economists] were trained to do... And this person from religion, where you wouldn’t do that, was appalled, shocked that someone would say, “That’s a stupid idea.” I don’t think... [the economist] ever said, “That’s a stupid idea.”… He said, “That argument doesn’t flow,” or something like that, and then he pursued it. And that’s the game... [But] that wasn’t the game for this woman, and she laid into him for doing it in a very, I felt, a very aggressive way... I think it came out of her views of the world. I think it was her religious background of having to build a community of people who work together... I don’t think she was a Quaker, but [she] kind of [thought] we should come to consensus.

In the second year, nobody left the seminar, but the two key antagonists in the culture wars, a senior white man in analytic philosophy and a young woman of color in English, battled all year. Here is the philosopher’s reply to my question about the meaning that the seminar had for him:

Well, I had thought that the culture wars were over and that everybody had seen that the emperor of postmodernism was naked, but I was completely mistaken. My colleagues in English and cultural studies and literature, who participated in the seminar, cast me into despair about the level of intellectual seriousness and willingness to be intelligible. Their concern with mere fashionability, and sheer ignorance of these disciplines... I was just appalled.

“Sheer ignorance of other people with different views?” I asked:

Of their own disciplines, of the theories and ideologies that they were trying to help themselves to, of the subject matter with which they are traditionally supposed to be concerned, and about the meaning of the word “ethics”. I thought this was a word in ordinary English use, but they didn’t know what it was.

I asked for clarification: “I’m still not clear how the fault lines worked here, where people divided”:

Well, the fault lines were thus: when [three people in the seminar] presented our material, it was intelligible to the others and resulted in give-and-take, a debate, a discussion about the substance of the theses we were defending or attacking... When they [the postmodernists] talked, we couldn’t understand what they were saying and we kept asking them to explain, to translate, and they were completely incapable of doing so.

When I interviewed a younger woman from English and asked her about her experiences in the seminar, she acknowledged the repeated unpleasant encounters with the philosopher and said that, primarily, what she had taken away from the seminar was an appreciation of her own discipline:

I think that the seminar has in some ways made me more attached to my own disciplinary bias... It has sharpened my own attachment to a form of literary reading... I mean, of course, every discipline has their various methodologies of interpretation, and I suppose I began to value and refine my own sense of what mine is in this seminar.

In both seminars there was inadequate a priori appreciation by the key antagonists, the seminar leader, and the other seminar participants of the vast disciplinary gulfs that
needed to be navigated in order for productive dialogue to take place. The need to define terms carefully in all discussions and to negotiate styles of presentation and questioning was never made clear. Despite the seminar leader’s experience in the first year, she was unable or unwilling to raise these issues early enough in the second year to encourage more fruitful discussion.

Nevertheless, when I interviewed the historian in this seminar, he expressed great satisfaction with it, telling me he thought that he was “the happiest person in the seminar”, that he would never have been able to read Derrida on his own, and that post-colonial theory had given him some tools that he could use in his own work. He thought the problem with the seminar had been that the junior and senior faculty had not shown the necessary respect for one another. Interestingly, the young female English professor, when asked whether she would have participated in the seminar again, responded that she would have, but that she would have “demanded respect”.

When I talked with the senior central administrator at Adams, who had been involved in choosing the seminar participants and topics, she commented that she thought that successful interdisciplinary dialogue requires rigor, but that it also requires “a willful suspension of one’s own concept of what rigor means”. More mutual respect and more willful suspension of participants’ own concepts of rigor would have gone a long way toward improving the climate of the seminars at Adams.

**Jefferson**

The seminars at Jefferson were far more amicable than those at Adams, but my interviews with two participants in the second seminar—a mathematician and a dramatist—provided additional examples of the cultural divides across disciplines and the difficulties in bridging them. The second Jefferson seminar was led by a distinguished professor emeritus of English, who had much experience of leading cross-disciplinary seminars over the years and had also been a participant in the first year’s seminar. However, despite his status, he, like the non-tenure-track leader of the Adams seminars, had no say in the choice of seminar participants. He did, however, shape the seminar topic, which he defined as “representation in each of the disciplines”.

In all of my interviews with participants in the second Jefferson seminar, respondents told me that the mathematician in the seminar “had not participated”. He came regularly, but never spoke. My interviewees were perplexed by this. Below is my discussion with the mathematician about his participation in the seminar:

**Me:** I was much less an active participant than I had hoped, [than I] would have liked to have been.

**Him:** Any particular reason?

**Him:** [Pause] I think it wasn’t really my medium, my natural habitat, to be in a situation like that. I hadn’t gotten used to that kind of interaction. It is quite different from the way mathematicians interact.

**Me:** Could you explain that to me? What did you see as the differences?

**Him:** Mathematicians interact much more… one-on-one, or in small groups… In the context of a seminar, where one person is presenting something that they are working on or know well, there’s really not much discussion, as such… Most of the
discussion happens on a one-on-one basis, at some other time outside of that semi-

ner… It really takes time… for most mathematicians to absorb ideas and to under-
stand what it’s all about… like my conversation habits… I want a lot of time to think
and to formulate precisely. I think that’s part of what made me a less active partici-
pant, because in the seminar, people were, you know, talking all the time… I wanted
to take a little time to think about what I’m going to say, and then the discussion’s
been done. It really wasn’t for me.

Despite the fact that the mathematician had a very clear understanding of why he
didn’t speak in the seminar (except when he presented), nobody else in the seminar
did, as evidenced by their perplexity about it. Nobody had ever asked him the
reasons for his non-participation and so nobody could help him to bridge the enor-
mous gap between his style of thinking, presenting, and questioning and the domi-
nant style in the seminar, which was set by the English background of the seminar
leader.

Still, although he did not participate in the discussions, the mathematician felt he
had got a great deal out of the seminar:

Me: If you had it to do all over again, would you participate or would you take a pass?
Him: I’d participate.
Me: Why?
Him: Because it was so interesting. Because I learned so much… Before, I really had very
little sense of what, for example, a sociologist really works on and how they go about
their work… If I did it again, now I have a sense of that… so I might appreciate it
more and participate more, be a more active participant.

The dramatist had a different cross-cultural issue with the same seminar. She
objected to the critical stance that English professors, in particular, took to texts. She
preferred to withhold judgement and “try on” ideas. I asked her: “What did you see as
the most important issues that took place in the seminar, intellectual issues, themes,
ideas?”:

How we responded to work… We read Consilience as our first book… I thought it was
exciting to be taken on a journey, sort of follow the thread, you know, and to try on his
ideas. That’s sort of my way of analysis. I was initially quite shocked at how some of the
more, I guess, traditional academics responded, not only to Consilience, but to the work in
general, by being extremely critical, which, initially, I saw as destructive. I came to under-
stand over time that it was their true process of ascertaining the value of the ideas in the
book; whereas, to me, I start with a positive attitude and I try the ideas on and see what I
can find as an artist. You know, I’m given a script, I dive in, I see what’s there, rather than
going, it’s bad, because I could never then connect to the work and do it justice… I would
say that isolated me in the seminar in a rather extreme way. I did come to terms with the
fact that this was not of cruel or evil intent, though it would never be my way of approac-
ing the analysis… My training has been… to engage in it and try to go with it rather than
to withdraw and judge it… You know, they saw things I didn’t see, [but] I think I had more
fun than they did.

The most important connection the dramatist made in the seminar was with a chem-
istry professor. Both were considering offering a new course together on theatre and
science that would include such plays as “Proof”, “Arcadia”, “In the Matter of J. Robert
Oppenheimer”, and “Copenhagen”.

Entering Multidisciplinary Waters

The purpose of the seminars at Washington, Adams, and Jefferson was to foster conversations across disciplines. Those who wrote the grant proposals hoped that such conversations might lead to team-taught courses and/or joint research proposals. It would have been highly unrealistic to expect that one-year’s worth of weekly conversations or any possible tangible outcomes of those conversations would result in truly integrated courses or research proposals.

As Steven Brint has argued, for many faculty, disciplines are comforting and venturing outside them is scary: “Every academic knows the experience of reading something from outside his or her discipline and knows the unsettling feeling it induces. Disciplines in fact provide a core element of the identity of most intellectuals in Modern America” (2000: 210).

Yet some academics do in fact venture out of their disciplines and appear to delight in doing so. Several faculty I interviewed were not only interested in cross-disciplinary work, but were the sole authors of books that were truly interdisciplinary. Faculty seem to span a spectrum with respect to multidisciplinarity. Some are allergic to it, in part because they don’t feel they have criteria to assess its quality (Mansilla and Gardner). Others say they like it, but don’t act that way. Still others revel in it.

Drawing on Archilochus (a seventh-century-BC Greek soldier-poet), Erasmus of Rotterdam, and Isaiah Berlin, Steven Jay Gould (2003) argues that some scholars, like hedgehogs, stick to a single effective strategy throughout their academic careers, while others, like foxes, devise many strategies. Needless to say, the foxes in the seminars got more out of the readings and discussions than the hedgehogs. Interestingly, for some faculty the main benefit of the seminar was the development of self-awareness; they discovered that they were foxes (or more frequently, hedgehogs), although they didn’t phrase their new self-knowledge in those terms.

In many ways the fox/hedgehog distinction is misleading when applied to multidisciplinary work at research universities. In the first place, it is not the case that successful academics in research universities can choose whether to be a fox or a hedgehog. They must all be certified hedgehogs before they can be foxes. All candidates for faculty promotion and tenure at research universities, even those who show fox-like tendencies early on, must gain their reputations in a relatively narrow specialty. Moreover, even those who seek to be foxes must retain a deep connection to their specialty. Otherwise, it is unlikely that they will be sought out as collaborators. So although one may be a pure hedgehog, one cannot be a fox without also being a hedgehog.

Taking all of this into account, one of the students in my graduate seminar came up with a more fruitful way of distinguishing between those who prefer to dig deeply into a single discipline and those who prefer to roam more widely across disciplines. He labels those who stay close to home “I” and those who roam “T”, arguing that a “T” can be “broad” only if it stands upon an “I” (Landes 2005).

Although it is useful to note the differences between pure hedgehogs and fox/hedgehogs or between “I” and “T” faculty, the distinctions don’t do much to explain why certain faculty seem more open to multidisciplinarity or interdisciplinarity than others.
While it is possible to seek personality characteristics to explain the differences, I don’t take my work in that direction, in part because I am skeptical of the notion of personality differences for explanatory purposes and also because I have very little evidence on faculty members’ personality characteristics. Instead, I use social and anthropological perspectives to explain both the propensity to engage in cross-disciplinary dialogue and the difficulties of doing so.

An anthropological perspective leads toward an understanding of disciplines as distinct cultures (Becher 1989; Geertz 1983) that initiate their faculty into particular ways of thinking and behaving. Moreover, disciplines continually reinforce those styles of thinking and behaving. Certain disciplines (e.g., history) teach their doctoral students to be rather open-minded about paradigms, theories, and research methods (Bromme 2000; Klein 1990). Other disciplines (e.g., economics) teach their doctoral candidates to be relatively closed-minded about alternative ways of viewing human behavior or using alternative research methods. As a result, many historians are like sponges in multidisciplinary situations, eager to soak up what their colleagues have to say, while economists tend to “communicate” mainly by telling others that they would make more progress on whatever problem is on the table if they simply viewed it from an economic perspective.

This is not to say that all historians are interested in being foxes and all economists are hedgehogs. In fact, many economists are neither foxes nor hedgehogs. They often venture out of economics, but not for the purpose of learning new strategies through dialogues with other disciplines. Rather, they seek, often quite successfully, to apply their own disciplinary theories and methods to other social sciences on subjects previously considered out of the economist’s sphere, such as the family, politics, and education.

When discussing the effect of discipline on propensity toward cross-disciplinarity, it is important to distinguish between science and non-science and between cross-disciplinarity within science and cross-disciplinarity between science and non-science. Scientists appear to navigate cross-disciplinarity within science far more successfully than humanists do within the humanities, and certainly more successfully than social scientists do within the social sciences. Part of this may be because of the similarity of scientists’ training and the easy transferability of the scientific method across particular science disciplines. Part of it is also because scientists view the disciplinary boundaries among the sciences as rather fluid; they seem much more instrumental about their work than others in the academy. If there is an important technique, machine, or theory that seems applicable to their work, they have little interest in its disciplinary origins and much greater interest in learning, or having their post-docs learn, whatever it is from the other disciplines that will propel their own projects forward.

In many instances, openness to other sciences also makes scientists open to learning about disciplines outside of the sciences. They may be avid readers of history or fiction or they may remember fondly their undergraduate reading in the humanities and wish to hear more about them, although, since their exposure to the humanities was generally pre-post-modern, they can be baffled by some of the more recent analyses. Scientists are also often open-minded with respect to the social sciences, recognizing in
particular the importance of economics and politics to science and often eagerly seeking to understand more about economic and political forces in society. Of course, this openness and interest does not always translate into a desire to team-teach or create joint research projects with humanists or social scientists, but sometimes it does.

I am certainly not arguing that disciplinary affiliation by itself predicts interest or effectiveness in multidisciplinary endeavors. Several other characteristics matter—for example, gender and age, as well as the current productiveness of one’s research program and developments in one’s field. Gender sometimes makes a difference because so many women in the humanities and social sciences have been involved with women’s studies, which has given them an early and often positive experience of multidisciplinary work. They are often already familiar with colleagues and their work in other disciplines at their university and elsewhere and understand some of the language and research methods of disciplines other than their own.

Age, on the other hand, all other things being constant, may well be negatively related to a propensity toward interdisciplinarity. For most scholars, the longer one has been in a discipline, the more one’s habits of mind become fixed. Theories, research methods, ways of reasoning, colleagues, and networks all become familiar sources of success and reward. Moreover, the longer one has been in a discipline, the more investment one has made in these habits of mind; seeking new intellectual territory has increasing opportunity costs.

Conversely, age gives one the opportunity to take more risks. Having already achieved success as a hedgehog, one can afford to become more fox-like. In academia, becoming a fox is inherently more risky than remaining a hedgehog. It requires a high up-front investment in new learning, the development of new networks, movement into uncharted territory, and the possibility that there will be little or no payoff. Yet on the other hand, the payoff may be quite large, perhaps larger than anything to be gained through straight disciplinary endeavors. Faculty who have already been successful are in a better position to assume the risk of multidisciplinary work.

The decision to become more multidisciplinary depends also on where one’s research is at. If there are clearly more gains to be made by continuing on a pure disciplinary path, perhaps with some added tools or methods from another field, then the impetus to seek multidisciplinary paths will be small. If, on the other hand, one’s line of research has come to a natural halt, or one has become bored with one’s project, then looking for new problems or ideas in other disciplines may become quite attractive. Also, if the field is moving in a more multidisciplinary direction, individual scholars may be motivated to follow suit. For example, many political scientists have begun to learn more about economic maximizing models and game theory as these have taken hold in their own discipline.

Cross-disciplinary work is formidable not only because of language problems—the extreme difficulties in communicating across the specific languages, jargon, and short-hands of the various disciplines. Equally important are the cultural differences across disciplines—the amount of text material normally read, the manner of seminar presentations, the style of thinking and talking in groups, and the degree and style of critique normally given. Even in the seminars that were restricted to social scientists, the
cultural differences among the disciplines played a major role for some seminar participants.

The seminar leaders, without being aware of it, each brought to the table a distinct disciplinary style of seminar organization and leadership. Rules with regard to a wide variety of subjects including level of civility, degree of democratic decision-making, style of presentations, style of discussion of texts, and style of leadership were instituted without group discussion by seminar leaders, based on their own disciplinary cultures. These leaders either did not recognize, or did not care, that other members of the seminar came from disciplines with quite different disciplinary styles. Not surprisingly, participants whose disciplinary cultures were closest to that of the seminar leader tended to report that they felt comfortable in the seminar and got more out of it. At the same time, participants whose disciplinary cultures were quite different from that of the seminar leader reported that they were uncomfortable and that that discomfort often interfered with their learning.

None of the leaders or administrators thought about the likely interpersonal interactions of seminar participants. Rather, the questions asked in the selection process concerned individual intellectual qualities and political issues in the university. For example, administrators and those seminar leaders who had input into the selection process asked not only about whose work was “really interesting”, but also about who might change their mind about taking a job in another university in response to an outside offer if they were given this extra “bennie” of two courses off to participate in the seminar. They also asked about who could help them improve relations with the central administration in a department that had had its resources cut.

In those cases where group interactions were considered, the questions raised were about intellectual or political matters, not about potential interpersonal interactions. With regard to the intellectual dimensions of the seminars, there was no consideration given to the question of which disciplinary perspectives might most fruitfully interact, and which might lead to out-and-out warfare. The most salient kinds of group-related question asked by those choosing participants were: Who can bring a particular intellectual perspective to the table? How can we make sure that all of our “stars” get to know one another better?

Economic analysis of risk is useful with regard to understanding the effects of the seminar on faculty teaching and research, and the role of institutions in encouraging or impeding changes in faculty teaching and research (Tilghman 2005). To understand the economic approach to interdisciplinarity and risk, we need to ask first what it is that faculty and their institutions are seeking to maximize. The answer that is increasingly given by economists and sociologists who study higher education is that both faculty and their institutions seek to maximize prestige (Breneman 1970; Garvin 1980; Massy and Zemsky 1994; Melguizo and Strober 2005; Stinchcombe 1990).

For faculty, this single-minded utility function is far too simplistic a depiction of reality. Faculty also seek to satisfy their curiosity and to enjoy their work. Many also wish to make a contribution to the betterment of their fellow human beings. However, for most faculty, and perhaps especially those at research universities, maximization of prestige is at least one factor to be considered when they decide which research projects to pursue.
An economic framework assumes that in the pursuit of prestige, and perhaps also in the pursuit of other goals, both faculty and institutions weigh the likely benefits and costs of various courses of action. In seeking to determine how much of their research and teaching should be disciplinary and how much, if any, should be multidisciplinary, they look at the probable payoffs and costs of each type of work. In many ways, investing time in disciplinary activities is like investing in bonds. The returns are relatively predictable, but unlikely to be spectacular. Investing in stocks, on the other hand, or spending time in multidisciplinary or interdisciplinary activities, is riskier. That is, in both cases, there is greater possible harm and greater variability in returns. Both stocks and fox-like research have the potential for very high payoffs, but also the potential for disaster. In much the same way that investors combine stocks and bonds in an investment portfolio, in accordance with their risk tolerance, we can envision faculty and institutions of higher education seeking to create optimal disciplinary/multidisciplinary teaching and research “portfolios” to spread their risk.

All other things being equal, the longer one’s time horizon, the more risk tolerance one has. This is why, for example, as workers approach retirement age they are counseled to increase the portion of their portfolio in bonds and decrease the proportion in stocks. Those with a shorter time horizon can much less easily weather a decline in their portfolio. By the same token, universities, with a much longer time horizon than individual faculty, have greater risk tolerance for interdisciplinary activities. To induce faculty to increase their multidisciplinary and interdisciplinary activities, so as to maximize institutional prestige, universities must put certain structures and incentives into place that will reduce risk for faculty.

Similarly, junior faculty and post-docs (and, by extension, doctoral students) who need to work toward tenure (or an acceptable dissertation) have an even shorter time horizon than other faculty, and thereby face even greater risk if they engage in multidisciplinary or interdisciplinary activities. Yet it is in the institution’s interest to expose junior faculty, post-docs, and doctoral students to multidisciplinary and interdisciplinary projects early in their careers, before they become set in their intellectual ways. To do this, institutions need to help younger scholars to reduce the risk of engaging in such work by changing job and tenure criteria and procedures.

An article by James March (1991) entitled “Exploration and Exploitation in Organizational Learning” examines the optimal mix for an organization of two strategies—exploitation of known technologies versus exploration of new ones. If we think of exploitation as disciplinary work and exploration as multidisciplinary or interdisciplinary work, we can make use of March’s analyses when looking at institutional optimization of disciplinary versus interdisciplinary activities. By extension, we can also apply March’s insights to individual faculty decisions.

March lays out some fundamental differences between exploitation and exploration:

The essence of exploitation is the refinement and extension of existing competences, technologies, and paradigms. Its returns are positive, proximate, and predictable. The essence of exploration is experimentation with new alternatives. Its returns are uncertain, distant, and often negative… Such features… lead to a tendency to substitute exploitation of
known alternatives for the exploration of unknown ones, to increase the reliability of performance more than its mean. (1999: 85)

Because of this tendency, March argues, organizations need to take positive steps to encourage exploration. They need to “work to sustain … exploration in the face of adaptive processes that tend to inhibit it” (1999: 85).

March’s article is theoretical and does not deal with the question of the optimum distribution of disciplinary versus multidisciplinary or interdisciplinary work at universities in the real world. However, it is interesting that at least two university presidents have suggested that, in their view, in an optimal world, multidisciplinary research would constitute about one-fifth of all research at their university. Since the current percentage of multidisciplinary work at most universities is probably not this high, analyzing multidisciplinarity from a risk perspective suggests that administrators who wish to move more faculty in the direction of greater multidisciplinarity will need to build new structures and procedures that reduce their risk of doing so.

Summary: Lessons Learned

The cross-disciplinary seminars at Washington, Adams, and Jefferson created difficult dialogues. Yet, overwhelmingly, seminar participants said the seminars were important to their intellectual growth. When asked, “If you had it to do over again, would you?” almost all said yes, although many hedged their assent with phrases like, “Only if certain things were different”. Given the widespread interest in fostering conversations across disciplinary lines, it is instructive to examine these wishes for change in the seminars. Although they didn’t always point in the same direction, certain lessons are clear.

First, seminar participants, and particularly the seminar leader, need to understand explicitly, from the outset, that they are engaged in a difficult cross-cultural activity, that habits of mind are deeply engrained, and that they represent a significant challenge for multidisciplinary conversation. Second, if there are wide differences in age and status among participants, these need to be recognized explicitly and discussed as part of the seminar proceedings. It is counterproductive to discuss only intellectual matters and ignore matters of process. Third, seminar participants generally needed more clarity about the purpose of the seminars and the criteria for success than was provided. Fourth, while diversity of perspectives and willingness to engage in debate were critical to the success of the seminars, so was civility and a respect for others’ ideas and styles of thinking and presenting. Fifth, leading multidisciplinary seminars is exceedingly challenging. Leaders should be given training prior to the seminars and opportunities to talk with administrators about the progress of the discussions over the course of the year. Problems should not be permitted to fester.

Sixth, after multidisciplinary seminars have been completed, a member of the administration should interview participants about their experiences. I found many opportunities for follow-up that were squandered because no-one from the university learned about them. Moreover, several participants told me that it was only through talking to me that they themselves became clear about what they had learned in the seminars and what they wished to follow up. Seventh, if university administrators want
seminar participants to teach new courses or develop new research projects as a result of their seminar experiences, they have to provide resources to seed these activities and they have to remove existing impediments to team-teaching and grant proposals that cross administrative boundaries. Multidisciplinary work is costly and risky. To encourage such work, the costs and risks need to be addressed and transformed.

References


Melguizo, Tatiana and Myra H. Strober. 2005. *A prestige model of the determinants of full-time faculty salaries at four-year institutions in the U.S.* Unpublished manuscript.


