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Institutional Invention: (How) is it possible?

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In loving memory of

David

Contents

Institutional Invention

(How) Is It Possible?

LOUISE WETHERBEE PHELPS

In this chapter I want to explore several broad questions with respect to higher education: Is institutional invention possible? What are the conditions that enable it, and how can they be created and sustained? What are the obstacles to institutional invention? How can academic leadership foster institutional invention?

Institutional invention has two complementary interpretations in my inquiry. First, it applies reflexively to the academic institution itself: forming and reforming its ideals, governance structure, financial resources, curriculum, and so on. For a college or university, invention in this sense might mean designing new general education requirements, "restructuring" its mission and budget, or developing a student advising system. Second, it refers to the idea that an educational institution can deliberately organize itself as a hospitable environment for people to engage in their own creative work and learning. In either case, innovation might involve either a whole institution or one of its parts or functions. I am interested in the relationships of complementarity, interdependence, and possible conflict between these two aspects of institutional invention as they come together in the academy today. My topic also entails the problem of leadership: What part do leaders play, and how is leadership to be understood, in relation to institutional invention? I raise this question with a special concern for the dangers inherent in faculty disengagement from leadership roles and leaders during a period of intensive change for American colleges and universities.

Whence come such questions? The need for institutional invention first became visible to me when I was hired to lead composition faculty in building a new university writing program at Syracuse University. From the start I perceived this collective enterprise and my own leadership role in analogies drawn from rhetoric and writing—composing, communication, the creation of genres, collaborative inquiry, invention. In curriculum and pedagogy, it was really a task of deep revision, since writing had been taught in a particular paradigm at the university for over fifteen years and would continue to be taught by many of the same people who would ultimately invent the new curriculum. Organizationally, it meant designing from scratch every feature and element of a decidedly nontraditional academic unit from its budget, space, and staffing to its mission, communications, and social architecture.

After six years as director, I stepped down to become a faculty member in the writing program we had successfully built into a department. This post-directorship offered an extraordinary opportunity to observe the unexpected consequences of institutional invention, to reexamine my own actions and assumptions as a change agent, and to develop a more complex understanding of innovation and change processes. As the program faced new, more stringent circumstances, it thrived in ways that both exceeded and fell short of our earlier visions. My attention shifted from what came to seem relatively easy—introducing new ideas and structures in a time of excitement and expansion—to the difficult, frustrating labor of consolidating and institutionalizing those changes. Later, realizing that inscribing a revolution ultimately recreates stasis, I changed focus again: from preserving the innovations per se to sustaining a climate of invention—an environment that would encourage and support creative work and learning by everyone in an ongoing way. Reframing the task this way transforms and complicates assumptions about leadership.

As I learned of the high stakes for constructive change in higher education, I redefined, expanded, and recontextualized my questions about institutional invention from writing programs to the broader arena of educational reform. What I bring to the following discussion—and what I believe the field of composition and rhetoric can offer higher education—is this dual perspective on institutional change: a writing program administrator's practical experience in educational reform and innovation combined with a rhetorician's theoretical perspectives and frameworks for understanding invention.

The Need for Institutional Invention in Higher Education

At the beginning of the twenty-first century, we find ourselves in the midst of accelerating cultural changes that demand constant innovation and adaptation to new challenges. Core faculty in higher education, cushioned by tenure and the tremendous conservatism of the academy, have felt these pressures later and less dramatically than professionals in sectors such as health care or business. Change factors affect institutions unevenly, having their mildest and most delayed impact on those of greatest prestige and wealth. Thus, while academics in some schools, regions, or disciplines have suffered keenly from deteriorating conditions and attitudes toward higher education, many others were long able to ignore such forces or treat them as only temporary or localized.

They had good reason for their faith in the immutability of the academy. Its fundamental structure and values hadn't changed much in the United States since the late nineteenth century and, in some respects, since the earliest foundings of universities. (Twenty years ago, Clark Kerr observed that of sixty-six institutions existing in 1530 and still extant, sixty-two were universities [qtd. in Zemsky and Massy 41].) Yet this continuity and stability had allowed the American higher education system to develop unparalleled diversity and (paradoxically) supported unfettered innovation and perpetual change in the knowledge disciplines and curricula it housed. Now, however, many observers suggest that such constancy is no longer adaptive, but is making the academy inflexible in meeting a situation of great fluidity and new societal demands. Historians point out, too, that the research university that dominated U.S. education during the twentieth century was itself an innovation responding to social pressures, notably the late-nineteenth-century need to pursue science as a means of creating advanced knowledge rather than as a practical, empirical art (Kevles). The ability to remake itself radically in times of social transformation is itself part of the tradition of the American academy (Rudolph).

Since the early nineties, prophetic leaders and scholars of higher education have been analyzing the multiple, synergistic forces affecting education, warning of their profound, far-reaching consequences and trying to stimulate proactive reform by individual institutions and by leaders of the collective enterprise.[1] Their consensus is that this is not a passing phenomenon to be waited out or fixed by tinkering, but a constitutional

crisis that challenges American higher education once more to redefine its purpose and its social contract with its many publics. In the familiar cliché, higher education, like every other sector of society from health care and business to government, needs to be "reinvented" if it is to survive and thrive in this new century, when it will no longer hold a monopoly on the production and dissemination of knowledge.

Most academics wince at "reinvention" as a corporate buzzword and (with some justification) fear the specter of business taking over the academy and corrupting its core values and mission. But for a writing teacher and administrator, the idea of "reinventing" the academy evokes a different frame of reference—that of rhetoric. To what extent might academic leaders or collectives be thought of as "composing" or "revising" an institution in response to an exigence, in situations defined as rhetorical by their uncertainty, indeterminacy, probable reasoning, and conflicts of value? One might even suspect that a great deal of the work of an academic leader is rhetorical in the stricter sense: discursive, accomplished through spoken and textual dynamics.

But the diminished notion of agency developed in composition and rhetoric within the last ten years provides weak support for theorizing such a role for faculty leaders as composing or reinventing our institutions. (Similarly, as we will see, traditional academic culture offers little help for such a concept in its understandings of faculty activity, faculty role, governance, and relationships between faculty and administration.) Typically, in recent composition studies, agency within institutions (or cultures) is imagined primarily in terms of conflict or resistance. Institutions, and leadership of or within them, are construed primarily as instruments or channels of (coercive) cultural power rather than of constructive action or invention, while creativity is understood as a subversive or countercultural force (in effect, the individual academic or student against the institution) rather than as a potential feature of the institution.

There is historical truth in this view with respect to academe as we have known it in the last fifty years, at least in the ideal that has been transmitted over many academic generations. (That is one reason that idealized notions of collaboration and consensus, proposed by some feminists in rhetoric and composition as principles for academic leadership, remain utopian.) "Inventiveness" or creative force within the academy has been thought of as a feature or quality of the autonomous faculty—either of individuals or of research groups; and it has been powerfully attributed to and located not within the local institution per se, but

within the transinstitutional disciplinary domain, where it applies only to scholarly research. Higher education institutions themselves, as noted, are still deeply conservative in structure and concept. So, within the long-standing and still current paradigm of higher education, the idea of "institutional invention" (that is, of institutions being holistically inventive or continually self-inventing) seems to be an oxymoron.

Yet present circumstances demand that institutions themselves must become radically inventive, in these two distinct but interdependent senses:

- to thoughtfully—not reactively—transform themselves (their goals, organization, financing, relations to their publics, and so on) in order to meet new social expectations and needs without losing the qualities they value most
- to enable continual innovation and adaptation in any domain by those populating or served by the institution: not just by faculty, but by students, staff, administrators, and institutional partners in the community; not just in research but in all possible academic roles and services.

Insofar as local institutions, or units and domains within them, succeed in becoming inventive in these terms, they may contribute to the work of reforming higher education itself as a system, an institution in the more abstract sense.

Considerable work, both conceptual and practical, has been done by policy makers and administrators toward this end, but it has not yet become truly a faculty enterprise. Faculties have responded variably to the heralds of change and to the would-be reformers: with indifference, cynicism, or denial; with grief, rage, and resistance; rarely, with a sense of control, confidence, or shared personal investment in local changes. Only recently have faculties, refreshed by increasing numbers of a new generation, begun genuinely to believe (even if many deplore) that the academy is subject to the same powerful forces that are restructuring other sectors of society. Presented with unmistakable evidence that change is inevitable and irreversible, faced with the ambiguities of reform and the dangers of inaction, professors are beginning to wonder what responsibility they need take for shaping such a transformation of the academy, with all its destructive and creative potential.

The challenges facing higher education call for creative faculty leadership in and of institutions. We are all simultaneously actors and acted upon within an intensely interactive (though sometimes invisible) network of events and forces. Those of us working in the academy must confront

questions regarding our own responsibility and effectivity as agents of institutional change or, perhaps, as guardians of academic tradition—or both at once. As faculty careers progress we find ourselves playing such institutionally empowered roles as project coordinators, curriculum designers, program directors, department chairs, committee chairs, deans, or central administrators. Some of us work in venues outside the institution proper, writing and speaking as public intellectuals or taking positions in higher education organizations. Even as ordinary academic citizens we must help select, support or resist, judge, even cultivate and develop leaders within our institutions. All these activities fall within the broader understandings of "faculty role" and suggest that leadership contributions may be made at all levels of rank and position, often from those who hold no formal administrative position.

For professionals in the field of composition and rhetoric, institutional invention in the context of change in higher education presents a particularly salient and congenial set of problems. Salient because composition specialists face the challenges of administrative leadership earlier and more often than faculty in most disciplines; their professional expertise and hands-on experience increasingly include cross-institutional knowledges and responsibilities for innovation far broader than writing itself (for instance, service learning, multimedia technology, and interdisciplinary teaching). Congenial because a rhetorician's training and concerns with inquiry, invention, and problem solving in writing are adaptable to analyzing what I am calling "institutional invention." I will work here at the intersection of these two forms of knowledge: a rhetorically informed understanding of invention and a practical experience of leadership as a site for creative action.

Concepts of Invention

At first sight it may appear that my questions and concerns are far removed from a traditional understanding of rhetorical invention. However, in the revival of invention within contemporary composition and rhetoric there has always been a systematic ambiguity in the concept between a generic notion of creativity or discovery (as in science and the fine arts) and a highly specific art of finding proofs for spoken or written arguments. The distinction isn't sharp; and definitions and uses of invention in rhetoric and composition tend to waffle between the two senses or fall somewhere in the continuum between the two poles.[2] Typically, studies of

rhetorical invention (e.g., Young, Becker, and Pike) that tilt toward the general end emphasize creativity as an inquiry phase in a process of making new knowledge or meaning to which discourse becomes instrumental. These theories associate invention with indeterminate situations, problem formulation and problem solving, and a process of inquiry, especially as applied in knowledge disciplines. They hold what Kaufer and Butler call the modern "novelty standard" for invention in contrast to the classical criterion of cultural resonance: "on the novelty standard, persuasion means little [in evaluating the quality of an idea] if it is not also seen as innovation, as ideas pushing the boundaries beyond what is currently known or archived" (3). The narrower or more classical definitions (e.g., Corbett) stress the composition of specifically discursive ideas appropriate to, organized by, and directed toward written or spoken genres and rhetorical situations specifying purpose, audience, exigence, and so on.

Karen LeFevre in her study of invention as a social act adopts a similar distinction between a "broad" and a "narrow" view of rhetorical invention. She chooses the broader interpretation because "[c]onceiving of rhetorical invention as a search for wisdom—a search that involves analyzing subjects, audiences, and problems as well as generating and judging ideas, information, propositions, and lines of reasoning—aligns rhetorical invention closely with inquiry or with 'invention' in the generic sense: the creation of what is new in any discipline or endeavor. Rhetorical invention becomes a species of invention in general" (2). Noting that she could either use rhetoric as a lens for understanding invention in any endeavor or take the converse approach, LeFevre decides to study invention in the generic sense for the insights it will yield into rhetorical invention.

Although, like hers, my approach is steeped in rhetorical ideas and I am mindful of the metaphorical resonances between rhetorical and institutional invention, I don't intend to use rhetorical theories directly to derive a concept of institutional invention. One reason is that, with a few exceptions, they don't seem readily adaptable or extendable to understanding invention as an attribute of a system. Instead I will follow LeFevre's strategy by exploring institutional invention as a species of invention in general. From this perspective, rhetorical and institutional invention are parallel or analogous arts: each is a specialized type of invention with its own sites, materials, audience, products, and so on. Other relations between them are possible, as well. For example, institutional invention must be a highly rhetorical phenomenon itself, insofar as organizations are internally networked and their inventiveness depends on communication. I have already

suggested that rhetorical invention provided me with powerful metaphors to understand program building and its constituent activities as institutionally inventive. Only time can tell whether a more developed art of institutional invention may in turn illuminate the concept and practice of rhetorical invention, perhaps in its collaborative or collective aspects. Certainly it should help us to understand the design of programs and curriculum, administration of writing programs, classroom teaching, and student learning as domains of creative activity.

These observations frame an inquiry that will proceed in several steps. First, I will develop a concept of invention as an emergent phenomenon of complex systems. Second, I will ask how this concept might change our perspective on leaders' responsibilities and generate new questions about leadership. Third, I will examine the barriers to institutional invention in current academic culture. My goal is to set the stage for developing a practical art of institutional invention, with special attention to the role of leaders at all levels and degrees of power and authority in fostering it. I hope this preliminary inquiry will contribute to that effort by formulating the problem in fresh terms and generating an array of productively specific questions.

Invention as a Phenomenon of Complex Systems

In order to understand how inventiveness (including self-invention) might characterize an organization, group, or institutional setting, we need a concept of creation or discovery as a holistic feature of cultural systems. At first sight, LeFevre's study of invention as a social act appears at least in principle to offer such an account. She distinguishes four interpretations of invention as social, on a spectrum from the individual to the collective: the Platonic, the internal dialogic, the collaborative, and the collective perspectives (48–94; see table of comparison, 52–53). The most individualistic view, which she ascribes (misleadingly, I think) to Plato, treats invention as private and asocial, "engaged in by an individual who possesses innate knowledge to be recollected or expressed, or innate cognitive structures to be projected onto the world" (50). The internal dialogic view locates invention in the thinker's mental conversation with internalized others or social constructs. The collaborative perspective emphasizes how "people interact to invent and to create a resonating environment for inventors" (50), either as partners who invent together

or through social interactions that help one person to invent. The collective perspective focuses on the way that individual invention is "encouraged or constrained by social collectives whose views are transmitted through such things as institutions, societal prohibitions, and cultural expectations" (50).

The collaborative and collective views of invention both appear promising for my purposes, and, in fact, I will draw on LeFevre's insightful analysis for later parts of this discussion. But a close look finds that her development of these ideas, and specifically of the collective view, falls short of what is needed here. LeFevre carefully acknowledges the potential of a collective interpretation of invention for explaining how social forces might impinge on the powers of individuals or collaborators to invent, specifically through institutions: "A collectivity infuses its institutions with social facts, and then the institutions, as well as smaller social groups and individuals, operationalize the dictates" (84). But she considers it, at the extreme, nondialectic, implying that "the socioculture itself is what thinks through individuals or by means of individuals" (81). This is an appropriate criticism from her perspective as a specialist in writing and rhetorical invention, interested primarily in how "an individual who is at the same time a social being interacts in a distinctive way with society and culture to create something" (1). But here my goal is to imagine how (or even whether) a social entity (an organization or institution) could be understood as systemically inventive and to ask how such a holistic property would affect or relate to the invention of individuals and leaders in the organization.

In part, LeFevre doesn't offer such an account because she can't find one in composition and rhetoric. In fact, at the time of writing, she noted that the field of writing studies had barely recognized the possibility of collective views of invention; and she called for studies and applications of them to rhetoric (93–94). Ironically, shortly after her study was published the field took a sharp turn toward collective views of rhetoric (in such forms as ideology critique, feminism, Marxism, and identity politics). But invention simultaneously lost its centrality for composition studies and disappeared as an explicit topic; attention shifted from the epistemic role of language to its functions as an instrument of social action, power struggles, ideology, and identity formation.[3] Thus LeFevre's provocative suggestions for examining invention from a collective perspective (for example, doing empirical and historical studies of the ecology of invention) were left undeveloped.

LeFevre foreshadows a systemic or relational understanding of invention in her preferred definition of (individuals') invention as a dialectical process in which "the inventing individual(s) and the socioculture are coexisting and mutually defining" (35). Drawing on Silvano Arieti's idea of the "magic synthesis," she suggests that creativity occurs when "the characteristics of certain people mesh with characteristics made available by their socioculture at a given time and place. . . . A culture cannot 'think' . . . without the synthesis made possible by individuals who interact with culture in certain ways, nor can individuals create ideas in a vacuum removed from society and culture" (36). However, her discussion seems to maintain a separation between the creativity of individuals and the culture that does or does not support or respond to them. Mihaly Csikszentmihalyi takes this idea a step further in his empirical study of ninety-one people who have made creative contributions in a variety of fields. It is his definition of creativity that will best serve my purposes of conceptualizing institutional invention.

Csikszentmihalyi begins by asking not what creativity is but where it is found. He acknowledges that one may attribute creativity to individuals as a set of personal qualities, but finds this definition of creativity too subjective to be useful. Creativity is observable and public only insofar as it "leaves a trace in the cultural matrix" (27). He therefore develops a systemic definition of creativity as jointly constituted or co-constructed in a set of relations among three elements: domain, field, and person. In his initial explanation of these terms, domain refers to symbolic rules and procedures that govern some cultural activity such as mathematics, visual arts, or law. Field "includes all the individuals who act as gatekeepers to the domain. It is their job to decide whether a new idea or product should be included in the domain." Creativity is consummated, one might say, when a person uses the symbols of a given domain to conceive a new idea or pattern that is "selected by the appropriate field for inclusion into the relevant domain." From this perspective, "Creativity is any act, idea, or product that changes an existing domain, or that transforms an existing domain into a new one. And the definition of a creative person is: someone whose thoughts or actions change a domain, or establish a new domain . . . [which] cannot be changed without the explicit or implicit consent of a field responsible for it" (28).

Csikszentmihalyi's approach contrasts with LeFevre's in that rather than interacting with separate "collectives" or their ideologies, the individual, for Csikszentmihalyi, is a part of the system of creativity. The

difference becomes visible when we realize that he treats the creativity of famous persons and their inventions as variable over time, depending on their cultural acceptance: "If creativity is more than personal insight and is cocreated by domains, fields, and persons, then creativity can be constructed, deconstructed, and reconstructed several times over the course of history" (30). Csikszentmihalyi proceeds in his book to explore the contribution of each element, how they vary, and how the way they enter into the relation may affect the potential for creativity.

These definitions of terms are not as precise as I would like, and in using them I will refine their meaning to fit Csikszentmihalyi's usage in the study as a whole (and my own needs). For example, domain is best used to refer not to symbolic rules themselves but to the sphere of activity governed by them. Rhetoricians can help greatly to specify the idea of symbolically structured activity as characteristic of a domain (as it does in studies of textual dynamics, genre, and writing in the professions.[4]) Csikzentmihalyi stresses that persons can't contribute inventively to a domain without mastering and internalizing a complex of rules for symbolic manipulations. Rhetoricians would agree, but would stretch the notion of such mastery to cover a much broader set of skills and generic knowledge (of audience, situation, customs, knowledge content, characteristic strategies, epistemological assumptions, etc.). Field seems to denote not just any people who might take up an activity, but the legitimate or authorized participants in the activities of a domain, functioning as an "epistemic court."[5] For example, the field of tennis would not include you and me in our leisure time, but those top-ranked players who are authorized as expert enough to introduce innovations in play and to judge, respond to, use, and disseminate those of others. (That example brings up the interesting possibility—relevant to institutions—of overlapping and intersecting domains: e.g., who is the innovator when a new racquet technology is developed? Who acts as the "field"—the well-known player who uses and advertises the new racquet, the manufacturers who decide to market it, or the public who buys it?)

Csikszentmihalyi tends to focus on domains of discursive knowledge making (i.e., academic disciplines and related professions) or esthetic activity (the arts). But his generic use of "domain" broadens his claims to almost any organized human behavior, and his study (a series of interviews) addresses a great variety of spheres for invention. Examples from the lives of his subjects (see biographical sketches 373–91) include philosophy, acting, physics, sculpture, jazz piano, poetry, zoology, astronomy,

social activism, electronics, law, the media, business, philanthropy, politics, and educational administration. Among these are a few administrators and executives whose creative domain is an organization or institution. While Csikszentmihalyi recognizes this possibility, he finds it awkward to call an organization a symbolic domain. "In cases where the responsibility is to lead a group of people in novel directions, work is usually dictated not by a symbolic domain but by the requirements of the organization itself. . . . [Here] the medium is the message; what they accomplish within their organizational structure is their creative accomplishment" (92). He does not develop this idea of an organizational equivalent to a symbolic domain very satisfactorily. Part of the problem is that Csikszentmihalyi does not acknowledge in discussing domains that symbols must structure something, call it "content," and domains differ by the content they structure as well as by their symbolic means and materials. For example, music symbolically structures sound at one level in order to represent human feeling at another (Langer).

For my purposes, I will accept his insight that any sphere of knowledge or cultural activity is symbolically structured and think of an educational institution, like a knowledge discipline or esthetic art, as a domain with its own symbolic rules and procedures, situations, strategies, and generic behaviors. But it might be useful to distinguish broadly between domains that exist specifically and somewhat autonomously to develop knowledge about natural or cultural phenomena (i.e., the traditional academic discipline) and those that are themselves spheres of practical activity. I think this is what is Csikszentmihalyi is getting at in the comment quoted above. As an organization, an institution of higher education is a zone of practice whereby its academic and administrative activities are holistically organized and carried out. According to Zemsky and Massy, responsibilities for the educational enterprise as a whole have increasingly passed from faculty members to others: "administrative and professional personnel ended up holding the institution together—advising students; managing programs, centers, and institutes; and, in increasing numbers, providing the technical support for the faculty members' expanding research efforts" (43). This shift is reflected in strong concerns about the diminished faculty role in shared governance (e.g., Lazerson, Leatherman).

This distinction, if sharply maintained, would get us into a lot of trouble if we tried to account for many of the fields in universities that blend practice and theoretical knowledge (including rhetoric itself), but it may

help for now to think about educational institutions as organizations, or spheres of practical activity, that, however, embed domains whose primary activity is to develop knowledge or undertake creative activity for its own sake. It is the tension between the two that complicates any understanding of institutions as inventive.

As an organization, a college or university might be inventive with respect to its own goals and constituent activities or the structures that organize it both literally and symbolically. The two are significantly linked. Barr and Tagg, contrasting a traditional "Instructional Paradigm" with a novel "Learning Paradigm" for undergraduate education, cite management expert Peter Senge in arguing the importance of reinventing structures in educational institutions. They define structures as "those features of an organization that are stable over time and that form the framework within which activities and processes occur and through which the purposes of the organization are achieved. Structure includes the organization chart, role and reward systems, technologies and methods, facilities and equipment, decision-making customs, communication channels, feedback loops, financial arrangements, and funding streams" (18). They see "restructuring" these organizational features as a key to broad educational reform. As I will discuss later, in today's institutions such innovation with respect to the institution itself (its goals, activities, and structures) coexists and comes into conflict with its role and function of housing knowledge domains which are their own, relatively autonomous spheres of creativity.

Csikszentmihalyi's systemic conception of creativity suggests that we might understand institutional invention better by studying the features of complex systems. Theorists of complex systems believe they share common features and qualities that enable unpredictability and novelty. Consider, for instance, Stuart Kauffman's effort to abstract properties of complexity, using the origins of life and the behavior of coevolving species in ecosystems, among others, as case studies, along with computer simulations of abstract complex networks. Kauffman repeatedly cautions that these descriptions at present have only metaphorical application to human systems and culture, while at the same time hoping and believing that there do exist laws of order that govern all self-organizing systems and have everything to do with their ability to evolve to novel, unpredictable states, in what might be called invention. For example, he says,

> The question of what kinds of complex systems can be assembled by an evolutionary search process not only is important for understanding biology, but may be of practical importance in understanding technological and cultural evolution as well. The sensitivity of our most complex artifacts to catastrophic failure from tiny causes . . . suggest that we are now butting our heads against a problem that life has nuzzled for enormously long periods: how to produce complex systems that do not teeter on the brink of collapse. Perhaps general principles governing search in vast spaces of possibilities cover all these diverse evolutionary processes, and will help us design—or even evolve—more robust systems. (157)

I will feel free, therefore, to mine his analysis for suggestive parallels or intuitions about creativity in institutional systems without taking them too seriously as literal claims.

Concerning the origin of life, Kauffman argues that innovation emerges inherently from complexity in self-organizing systems—even a simple chemical system—when they become diverse enough networks of connected parts. In a hypothetical network of chemical reactions, he shows that as the diversity of molecules in the system increases and they become more interconnected, more of the reactions are catalyzed by members of the system until they reach a critical level of diversity (catalytic closure) at which "a collectively autocatalytic system snaps into existence. . . . Life emerges as a phase transition" (62). He explains, "Catalytic closure ensures that the whole exists by means of the parts, and they are present both because of and in order to sustain the whole. Autocatalytic sets exhibit the emergent property of holism" (69).

Imagine a teaching program in which teachers work separately in their individual classrooms in diverse ways to improve writing. If these activities are systemically interconnected through communication and exchange so that they catalyze one another, his theory suggests, at some point the system will pass through a phase transition and become a teaching community, a whole that is capable of institutional invention.[6] One of the problems that faces leaders of such a program is how to balance individual teachers' freedom to experiment and diversify the curriculum (at the extreme, falling into chaos) against the need for coherence and consistency (at the extreme, freezing practice into a rigid order). Kauffman's central insight (illustrated by simulating huge networks of interconnected light bulbs) is that there is an optimal point for innovation in such a system: near the edge of chaos, in the ordered regime: "just near this phase transition, just at the edge of chaos, the

most complex behaviors can occur—orderly enough to ensure stability, yet full of flexibility and surprise" (87). Orderly dynamics emerge when the connectivity of the light bulbs is "tuned" so that, like Goldilocks and the three bears, the network is not so interconnected as to produce chaos and not so sparsely connected as to be rigidly ordered (80–81). He speculates that complex adaptive systems evolve to this position: "Perhaps such a location on the axis, ordered and stable, but still flexible, will emerge as a kind of universal feature of complex adaptive systems in biology and beyond" (91).

Another expression of this principle is the idea that complex systems can't find the best solutions to problems but must optimize and compromise. After simulating biological evolution metaphorically as a process of climbing a rugged landscape to achieve the highest peaks (of fitness), he argues that

> both biological evolution and technological evolution are processes attempting to optimize systems riddled with conflicting constraints. Organisms, artifacts, and organizations evolve on correlated but rugged landscapes [i.e., they are both highly interconnected and highly constrained]. Suppose we are designing a supersonic transport and have to place the fuel tanks somewhere, but also have to design strong but flexible wings to carry the load, install controls to the flight surfaces, place seating, hydraulics, and so forth. Optimal solutions to one part of the overall design problem conflict with optimal solutions to other parts of the overall design. Then we must find compromise solutions to the joint problem that meet the conflicting constraints of the different subproblems. (179)

In complex biological and human systems, this picture is complicated by the fact that subsystems (e.g., species in biology or, in an institution, different practical or disciplinary domains) coevolve and thus change the context in which the others evolve. Kauffman argues that such ecosystems over time maximize overall fitness and minimize the rate of extinction: another expression of the idea that systems "may self-tune to a transition between order and chaos" (234–35).

A final insight from Kauffman is the idea that systemic complexity globally escapes mindful human control and planning. Even though we, unlike evolution, can be self-aware of the systems we inhabit and constitute, he suggests that thinking doesn't help that much: we are not much better than Darwin's blind watchmaker, unable to predict the long-term consequences of our actions (243). At the edge of chaos, small moves can unpredictably

trigger cataclysmic changes that cascade across the delicately poised system. "All we players can do is be locally wise, not globally wise" (29).

This claim seems to contradict, but is not entirely incompatible with, the ideas of management theorists who want to elucidate the behavior of systems and promote self-conscious systems thinking in order to facilitate the possibility of an innovative culture in organizations. I will use Peter Senge's *The Fifth Discipline* to stand for this large body of work, which documents and teaches principles and practices for organizational creativity in response to complex, rapidly changing environments.[7] Senge's purpose is to build what he calls "learning organizations" by teaching members to practice five "disciplines" that enhance individual and joint creativity. The learning organization is one capable of institutional invention "where people continually expand their capacity to create the results they truly desire, where new and expansive patterns of thinking are nurtured, where collective aspiration is set free, and where people are continually learning how to learn together" (3).

Senge describes complex systems in terms strikingly similar to Kauffman's. For example, he too emphasizes the impossibility of fully understanding and controlling the whole system because of what he calls "detail complexity," the number of variables which "renders all rational explanations inherently incomplete" (365). But his disciplines for systems thinking are designed to help understand and manage "dynamic complexity," the fact that "'cause and effect' are not close in time and space and obvious interventions do not produce expected outcomes" (364). His thesis is that by mastering these disciplines, members of an organization individually and collaboratively can exert leverage, which is to say that they can discern how and where to make small, strategically chosen changes in structure to achieve large-scale, significant changes—echoing Kauffman's comments on tiny changes, but with a more optimistic twist. Similarly, he observes many of the same patterns of innovation as do Kauffman and others, for example, bursts of innovation and rapid learning followed by exponential slowing and limits on growth; but he has practical suggestions for how to recognize and manage them, at least better than the blind watchmaker.

I find it fruitful to juxtapose an understanding of creativity as systemic with a concept of sufficiently complex systems as inherently creative. Together they provide a new metaphorical frame that help us define problems and generate specific questions about institutional invention.

Rethinking Leadership for Institutional Invention

One reason I have chosen these sources to think about changing institutions is their refreshing focus on the inventiveness of a human system rather than exclusively on its function of distributing and controlling power. That shift requires, at least, expanding traditional roles and functions for leaders and, perhaps, radically rethinking the concept of leadership and a good deal else that academics, in particular, take for granted about power, authority, and their relationships to institutions. My goals are more modest here. I simply want to use the perspectives I have introduced to ask more perspicuously how it is possible to enable inventiveness in an institution—and see where that takes me in contemplating new responsibilities for academic leaders.

Let me begin with the fertile concept of "affordance" as defined by ecological psychologists (Shaw and Bransford). Roughly, an affordance is anything in the environment viewed or defined uniquely from the perspective of a given animal (for my purposes, let's say a human being): "the affordances of the environment are what it offers animals, what it provides and furnishes, for good or ill" (Gibson 67). In Gibson's example, the objects we call seats, stools, benches, and chairs afford sitting-on. Other animals of an environment afford "a rich and complex set of interactions, sexual, predatory, nurturing, fighting, play, cooperating, and communicating. What other persons afford, for man, comprise the whole realm of social significance" (68). To simplify here, I will speak of an institutional environment "affording" human inventiveness when I mean what Gibson would call "positive affordance." So I might frame a preliminary question this way: what kind of environment (positively) affords invention?

The theme that some environments afford human creativity better than others is echoed in many of my sources. Csikszentmihalyi exhaustively explores what his subjects find stimulating and inspiring in physical and social surroundings and the ways in which they not only select but reshape environments to afford their own creativity (127–47). More importantly, he regards the domain and the field as offering essential affordances for realizing the creativity of any individual or group (and details how each can provide negative ones). LeFevre uses Harold Lasswell's concept of resonance to explain how social interactions intensify and prolong an individual's inventional activity. Resonance "may occur when someone acts as a

facilitator to assist or extend what is regarded as primarily another's invention, or when people are mutual collaborators at work on a task. Resonance also occurs indirectly when people provide a supportive social environment that nurtures thought and enables ideas to be received, thus completing the inventive act" (65). Neither really considers (as many writers on organizational creativity do) how groups or organizations become inventive as a whole (see, e.g., Bennis and Biederman, Douglas); or how leaders might deliberately try to construct organizations or units as resonating environments; or how such environments might work to promote invention.

This was my own explicit goal as a writing program administrator, and I later found Kauffman's analysis an illuminating metaphor for thinking systemically about the problems of creating an inventive climate in a teaching community. Roughly, his theory suggests that to be innovative (flexible and adaptive) a system must achieve an ordered state poised as close to chaos as possible (cf. Tom Peters's concept of "thriving on chaos"). Such a system is highly diverse and optimally interconnected. In human terms, an organization in this state would value risk taking, encourage open communication, and tolerate ambiguity, uncertainty, frequent failure, and mess. Translating these features into an institutional framework means maximizing personal liberty and decentralizing authority and responsibility (for example, to teachers in designing courses, or to students in learning through inquiry or writing on their own topics). Senge describes this approach as one of "local control": "Learning organizations will, increasingly, be 'localized' organizations, extending the maximum degree of authority and power as far from the 'top' or corporate center as possible. . . . Localness means unleashing people's commitment by giving them the freedom to act, to try out their own ideas and be responsible for producing results" (287–88). As Ray Stata (a CEO) explains, traditional organizations have made managers the thinkers and local workers the doers, producing extremes of overconceptualization and pure pragmatism: "The core challenge faced by the aspiring learning organization is to develop tools and processes for conceptualizing the big picture and testing ideas in practice. All in the organization must master the cycle of thinking, doing, evaluating, and reflecting" (qtd. in Senge 351).

However, "balancing" also means remaining within the ordered regime and not slipping over the edge into anarchy—at least if invention is to be comprehensively institutional. In that sense, for invention to be institutional would mean, first, that all its members could participate to jointly

change or reinvent it (its purposes and structures) as an organization, and, second, that the creativity of its members would collectively serve not only their personal intellectual goals but also its common purposes as an organization. An alternate concept might be an inventionally chaotic institution with no precise global mission to which its members must subscribe, existing simply to facilitate the autonomous creative work of individuals (or subgroups). Such an institution could in various ways create an inventional climate (bring together mutually stimulating people for conversation—or allow them to coexist in complete privacy and quiet; provide a beautiful physical setting, or an ascetic one; provide financial support or uninterrupted time; and so on). "Institutions" like this exist: for example, research centers, institutes, and think tanks; retreats for artists and writers; and perhaps the kinds of large, complex educational institutions that Birnbaum calls "anarchic" because they house disparate research and teaching communities and are loosely coupled, without superordinate goals or common rules (151–74). As we will see, the tension over innovation in academic institutions lies precisely along the line of this difference. For the moment, however, let me pursue the implications of the more orderly concept of institutional invention.

Senge discusses usefully the problems that localism presents for order (287–301), which are clearly represented in my example of a writing program that has a mission represented in courses collectively taught by a large number of people. In this situation the demands for consistency and fulfillment of common goals conflict inherently with the requirements for inventiveness of individual liberty and responsibility. Senge describes what can go wrong in terms of the "Tragedy of the Commons" and the corresponding need to coordinate creative activities. The Tragedy of the Commons describes the situation, exacerbated by short-term thinking, where "apparently logical local decision making can become completely illogical for the larger system" (294). Within a complex organization that is optimally local and affords creativity by distributing responsibility and control, there is still the problem of coordinating and channeling invention by individuals and local units in the service of the commons and, ultimately, of a collective purpose. These tasks of articulating such a purpose (a rhetorical function) and coordinating the activities of the system define new roles for leaders.

In general, it appears that leadership is a meta-function in systems where individuals and units are inventive and have local control with respect to both the content and means of accomplishing the organization's practical

activity. From one perspective, leaders need to take responsibility for the system's capacity to afford invention. It would be impossible to describe such affordances exhaustively (many may be context specific). I have mentioned localism and resonance as affording institutional creativity. My own experience, supported by Kauffman abstractly and Senge practically, suggests that another general affordance is the rhetoricity of the system, the degree to which information is broadly shared and communication is intensive and extensive among members of the system. Bazerman puts this point well in his explanation of textual dynamics in the workplace: "These texts are the transactions that make institutional collaborations possible; they are the means by which individuals collectively construct the contexts out of which intellectual and material products emerge. In the pragmatic worlds of these specialized work communities, texts are a force that transforms human physical and conceptual limits. . . . [T]extual dynamics are a central agency in the social construction of objects, concepts, and institutions" (4). However, Kauffman's analysis of complex systems implies, and my experience confirms, that a system like a teaching community can become too interconnected rhetorically. If everything affects everything else, or if everything must be communicated to everyone before action can be taken, either anarchy or paralysis may result.

Another meta-function of leadership in the inventive organization is, broadly, reflection, which facilitates the ability of the organization to be self-aware and thus to redesign itself. Senge, for instance, describes the essence of the new leader's role as research and design: "What does she or he research? Understanding the organization as a system and understanding the internal and external forces driving change. What does she or he design? The learning processes whereby managers throughout the organization come to understand these trends and forces" (299). Further, leaders as teachers (and coordinators of activity) focus the attention of people in the system primarily on its purpose or vision and the structure of the system: "how different parts of the organization interact, how different situations parallel one another because of common underlying structures, how local actions have longer-range and broader impacts than local actors often realize, and why certain operating policies are needed for the system as a whole" (353). There are abundant resources for understanding reflection in educational contexts and in practice, generally, that might now be brought to bear on considering reflection as potentially an institutional feature, like invention itself, and closely linked to it.[8]

One implication of this discussion is that the traditional idea of a central, authoritarian leader does not survive the change to an inventional paradigm for institutions. If we imagine some of the functions I have described (affording an inventional climate, interconnecting an organization rhetorically, designing and reflecting on organizational structures and processes, and articulating purpose) as new leadership roles, we can also conclude that they aren't very obviously confined to a centralized figure. In fact, one of the principles of a learning organization is that cognition, knowledge, responsibility, rhetorical power, decision making, and systems thinking are distributed broadly—ideally, to everyone.[9] I want to remain agnostic on the question of what specific roles still need to be performed centrally and what special functions still require a single leader for an inventional organization or for its units. I believe that such needs remain and that we must eventually define them to fit the very complicated and conflicted situation of academic institutions, where attitudes toward creativity are deeply entangled with the difficulty of taking or accepting leadership. I turn to that situation next.

Conflict of Visions: Academic Culture and Institutional Invention

It has often been noted that academic culture resists organizational leadership and, more generally, institutional change. Underlying that truth is a conflict between two visions of creativity in relation to academic institutions. William Brown's acerbic analysis of academic values can help us to understand why institutional invention is oxymoronic in traditional academe.

Brown argues that academic culture is governed by a set of normative values, rather than a universal mission or one specific to a given institution. He finds an expression of such values in a summary of "Cartesian principles" (I omit his quotations from Descartes):

1. Intellectual activity should be pursued individually and independently.
2. There can be no limit on inquiry.
3. Rational consideration is universal.
4. The scholar should have objectivity. . . .
5. Personal calculations of a scholar must always be made to amplify the time allowed for scholarship.
6. A secure and stable environment is essential to the cultivation of reason. (18–19)

This ideal of the academic citizen and his or her work (for which he draws on Michael Oakeshot's description of a rationalist) determines that the autonomy of the faculty member, which allows the free pursuit of reasoned inquiry, is a supreme value. Citing J. Baldridge and his associates, Brown describes the university as "a collection of individuals who somehow produce a joint product while operating in a highly independent fashion. All activity is organized around the practitioner's academic discipline. Because of the style of academic performance, the academician is inclined to see all collectives as threats to his free pursuit," including the institution itself (12). Autonomy is thus closely linked to creativity, and creativity is identified with the individual academic, while the institution is organized to make such invention possible: "the essence of the proper academic life is creativity and . . . the profession is organized to allow the participant the time for inventive pursuits" (80). Within the institution, other faculty activities like teaching are assimilated to this model of creativity, while contributions to the organization of the institution ("service") by faculty or others are stigmatized as managerial and noncreative.

These values (which have been described similarly by many other analysts) make it difficult for academics either to accept or to exercise locally institutional authority, to invest themselves in defining or pursuing collective goals of the institution, or even to recognize its organizational structures. They do not, like most employees, view themselves as means to accomplish an end that is the mission of the organization as a whole. Brown argues that "[t]he academician, in effect, hopes to conduct his affairs in an institution that does not really have the attributes of an institution. The university carries the ideal of low power orientation, if not the obliteration of power altogether. . . . Colleagues who seek power . . . are deprecated as local politicians. Administrators who overtly exercise power are viewed with suspicion, and their efforts at rationalizing institutional relationships are opposed" (22). He believes that most academics misunderstand how institutions work as systems of practical activity and are uninterested in the pressures and constraints such organizations work under. For example, they have little idea of scarcity and tend to view resources as unlimited if the goal is deserving (28–29, 32–33).[10] Such a culture is naturally hostile to strong organizational leadership at any level.

This is a view of higher education that makes faculty creativity competitive with institutional innovation (which would displace it and require faculty to direct creative energies toward goals that are neither personal

nor autonomous) and even with student learning as itself creative and inventive. Thus, we can argue that if this ideal of the faculty entrepreneur is realized (as it clearly has been at many of the most prestigious institutions), it certainly illustrates one way for institutions to create a climate remarkably hospitable to creativity, although its benefits are limited to a subset of those working and learning there. But if we ask whether this same system of values can support reinvention of institutional goals and structures, or creative action in service of common local goals, or more widespread opportunities for invention (extended to administrators, students, and staff), the answer is no.

This antithesis, however, is not so stark as it appears, and it doesn't refute the systems concept of invention. First, it is not a conflict between individualism and communalism (as Brown overclaims)—in practice, perhaps, but not in essence. Faculty in the most successfully entrepreneurial universities frequently work in teams and groups, labs and research centers, and foster interconnectivity within and across disciplinary lines. If they don't, they still draw on human interactions that catalyze ideas. The current lack of these is, in fact, a source of faculty anomie and represents a breakdown of traditional faculty culture (Massy, Wilger, and Colbeck). Second, faculty do belong to domains and fields (their disciplines) and function within these systems. As I pointed out earlier, educational institutions are domains of practical activity that embed and nurture more purely knowledge-making domains.

The conflict of visions, then, is not a simplistic one featuring an individualistic perspective on creativity that defends faculty autonomy vs. the oppressive collectivism of a bureaucratic regime that discourages invention. It is rather a genuinely difficult conflict between two domains that place rival claims on individuals' inventional abilities and all that it takes for them to be creative in a sphere of activity: time and attention, continual learning, constant practice, systems thinking about the domain, networking, institutional resources, and so on. At issue also is who is recognized or allowed to be creative: in the traditional model, it is only the (tenure-track) faculty, not staff, students, adjuncts and part-time instructors, or administrators. The current environment for higher education exerts pressure on the status quo in both cases: to rebalance the competition for faculty members' creative efforts in favor of local institutional needs, against the exclusive claim of the disciplinary domain; and to broaden support for inventional activity to include students as learners

along with those (administrators, staff, faculty in service roles) whose domain of invention is the institution itself.

For a considerable period of our history, certain institutions have successfully enacted (and articulated for others) an idea of institutions acting as "holding companies" (Burton Clark, qtd. in Keller 36) for faculty functioning within autonomous domains and their fields (disciplines). This model, which depended on extraordinary stability and conservatism of institutional structure, was possible during an expansive time when societal goals made funds and popular support available. Now, the balance has broken down because institutions can no longer operate without their own organizational creativity. They need to undertake new activities, reinvent old ones, and transform their structures and processes to adapt to new conditions, make difficult choices, exploit new opportunities, and meet evolving societal needs for education and problem solving. In response, faculty need to grasp and act on their local institution's urgent need for their participation in becoming institutionally inventive. In doing so they must rethink creativity as a more democratic and distributed value. By acknowledging the potential for an institution to become systemically inventive (to be a domain in which individuals and groups can act creatively), faculty could give more weight to collective activities and actions (including teaching) oriented locally and serving an institutional mission rather than disproportionately valuing contributions to their transinstitutional disciplinary domains. Capabilities and opportunities for innovation and creative learning must expand in principle to include students, administrators, and staff in their different spheres of activity, along with the institution itself as a collective. Faculty must also reconsider their negative and passive attitude about academic leadership in the light of new functions and the need for them to take more active responsibilities for the health and collective purposes of the organization.[11]

At the time of Brown's work in the early eighties, he and the other theorists he cited seemed resigned to the view that higher education institutions were essentially ungovernable and needed to settle for some gently modified forms of anarchy. Brown asserted the need to work within both views of creativity, but didn't seem to have very concrete ideas how to do so other than the status quo he described so brilliantly (if not always displaying such keen perceptions for actual practices as he did for underlying norms and ideals). The situation has since evolved to the point that educational analysts are able to describe a new, more collectively oriented

academic model which they claim is now replacing the one that Brown, Keller, and others described.[12] One of the most successfully decentralized and entrepreneurial cultures I have observed, that of Johns Hopkins University, recently ran into the limits of this organizational model in undertaking strategic planning for the future. Their report (Committee of the 21st Century) concluded that certain functions like technological innovation needed to be more centrally planned and managed (i.e., in Kauffman's terms, more ordered) while they reaffirmed their commitment to localism and faculty creativity through entrepreneurship (anarchy). In other words, they tried to have it both ways: to rebalance order and chaos so as to remain as close to the edge of chaos as possible, but not quite so close to the point that Birnbaum calls "organized anarchy" (153).

However, faculty resistance remains extremely strong, especially in those institutions that most fully embody the old model. As an issue of fundamental values, the problem can't be solved simply by brute force or through the pressures of external demand. Approaches to this crisis in faculty culture need to address these conceptual incompatibilities, along with the commitments, associations, and responses they engender, and find both reasons and ways to mediate them. The notion of institutional invention developed here may help to imagine reconciliation among the different domains of creativity experienced by faculty members, administrators, staff, and student learners.

My best hope in undertaking this exploration of institutional invention was to start a conversation about the idea that institutions could be inventive, like organisms or academic disciplines, and that we could help to make them so. It's an idea that is novel and alien to many academic minds, though commonplace in other sectors of society. But only those in composition and rhetoric are likely to interpret institutional invention in the context of rhetorical invention and, by extension, of invention and heuristic inquiry generally. We would understand differently, and more richly, the possibility of developing institutional invention as a practical art—and realize that the analogs and interrelationships between invention and rhetoric will make that easier. My references to actual practice of institutional invention have been sketchy, but I hope sufficient to suggest that these abstract theories and models have very concrete and vivid practical translations for someone whose goal is expressly to afford invention within a community of teaching, research, or any other socially organized activity. How can we learn more?

At the exploratory stage of inquiry into institutional invention, one of my purposes was to generate questions fruitful and specific enough to

invite further investigation. Attached is a list of questions that grew from this inquiry, ones that I hope others will amplify and pursue.

Second, I suggest that we follow LeFevre's prescription to study examples of institutional invention both empirically and historically, as well as through textual accounts. Academics should look very widely for such examples. For example, in higher education we can look at experiments with teaching and learning communities and project-based courses that use teams to solve problems; study innovative projects on any campus; and learn about experiments in widespread institutional change (such as those on assessment or faculty roles and rewards, among a number sponsored by the American Association for Higher Education). But we can also suspend preconceptions and prejudices to search other sectors of society—business, government, the military, civic groups, religious organizations, charities, nontraditional communities, and others—for ideas, structures, and experiments with organizational invention and related leadership practices that the academy can borrow and adapt to its unique needs and values. Closer to home, I suggest we look very carefully at writing programs as potentially rich and flexible sites, just right in size and human scale for experimenting with innovative organization, coping with (and researching) the human difficulties of change, and trying out new leadership models infused with understandings of rhetoric.

Finally, I would turn to rhetorical theory to further examine and enrich the role of rhetoric within institutional invention (as a means of effecting change; a language for explaining invention; a feature of its operations as a system; and so on). It seems to me, too, that all practical arts inform one another by analogy; so it may be that a practical art of institutional invention will become, in turn, a provocative model for arts of text, rhetorical practice, and teaching.

Appendix

Questions on Institutional Invention

- What conditions enable or define a "climate of invention" for those in a program or unit? How stable can such a state be? Does it run down? Can it be reenergized?
- How do changes in educational institutions play out general patterns of innovation like cycles or learning curves? Do institutional innovations shift from initial, deliberate inventions to self-organized evolution?
- What are the characteristics of an optimally inventive institution or unit? How can we define and sustain the precarious balance between freedom and control, chaos and order—in curriculum, pedagogy, governance, faculty roles?

- How do patterns, principles, and problems of institutional invention apply to classrooms—to student invention and student learning?
- What are some differences between a domain of knowledge making and a domain of practical activity? What can we learn about institutional invention from studying domains that blend theory with practice (artistry)?
- What role do inside forces, conditions and participants play in institutional invention vis-à-vis outside forces, ideas, resources, people?
- Research institutions or labs have been institutionally inventive as collective enterprises: what can we learn from them? How can a teaching group or community be similarly inventive?
- How can we incorporate time into our understanding of the processes and difficulties of institutional invention?
- What is the role of rhetoric in promoting interconnectivity within an organization or unit as a complex system?
- How can we use human-scaled units with a collective mission, like writing programs, to observe and experiment with institutional invention?
- What are the downsides or negative effects of any institutional change? What are the human costs of engaging in and trying to sustain habits and environments of perpetual risk, constant adaptation to change, and continual inventiveness?
- What are the limits of invention as an institutional value? What are some important countervalues?
- What defines leadership in the context of institutional invention? Is there an inherent conflict between creative leadership and widely distributed inventiveness?
- What is the proper role of leaders in changing the institution itself? in fostering a climate for individual invention? Specifically, what are the relations between the creativity or vision of an academic/administrative leader and the creativity of others (faculty . . . staff . . . students) within the institution? For example, (how) might a leader's own invention displace, supplement, enable, direct, generate, or otherwise affect the inventiveness of others?
- How may the goals and forms of reinventing institutions themselves come into conflict with faculty members' goals for creativity in disciplinary domains? What are the trade-offs between collective invention and individual entrepreneurship . . . between local institutional goals and values and cosmopolitan discipline-based ones?
- What are the obstacles to institutional invention? How, for example, does one invent or mobilize broad-based invention without a sanctioned leadership position or office? from a relatively powerless rank or role? from a position deep within an institution, in a mini-domain like a program, department, or committee? against the weight of institutional inertia? in the face of prejudice against one's gender, disciplinary allegiance, color, culture, age, or other difference? How is one's imagination or action constrained by limited resources, peer pressure, the institutional reward system, lack of information, bureaucratic rules, or other factors?

Notes

1. For a sense of this conversation, see the Pew Policy Perspectives that report on the Pew Higher Education Roundtables and related initiatives; and the magazine *Change,* published by the American Association of Higher Education.

2. Compare, for example, definitions of invention by Crowley; Corbett; Young; Young and Liu; and Bushman.

3. Janice Lauer claims that invention was not lost but underwent a diaspora. It has "migrated, entered, settled, and shaped" other areas of rhetoric and composition, becoming "implicit, fragmented" in such sites as writing in the disciplines, cultural studies, and theories of technology ("Rhetorical Invention" 1–2).

4. Examples include: for textual dynamics, Bazerman and Paradis; for genre studies in the academy and other organizations, Bazerman, Freedman and Medway; Berkenkotter and Huckin, Prior, and Swales; for writing in the professions, Duin and Hansen and MacDonald.

5. See (in "Composition Studies") Lauer's adaptation for rhetoric of Stephen Toulmin's term.

6. David Franke is currently completing a dissertation that analyzes how a teaching community functions as such a self-organizing inventional system in the Writing Program at Syracuse University. He uses genre theory to show how that is accomplished through teachers' functional writings (e.g., syllabi, assignments) and interdependent reflections. Although his is not a historical study, I estimate it took about three to five years from the founding of the Writing Program to reach the phase transition where the teaching community became holistically inventive; certainly since its sixth year, it has functioned this way independent of specific leaders.

7. Some other examples of work on creativity, organizations, and leadership include Peters, Green and McDade, Bennis and Biederman, Douglas, Gardner, Kelley, and Bergquist.

8. For work on reflection and reflective practice in educational contexts, see Qualley, Hillocks, Schon, van Manen, Stenhouse, Brookfield, and Phelps.

9. For a practical analysis of leadership at different levels of responsibility in educational institutions, see Green and McDade.

10. For a more current and nuanced study of faculty views on resource limits and their consequences, see Massy and Wilger.

11. Some ideas on expanding the sites of faculty creativity (under the rubric of "intellectual work") are developed in a report for the disciplines of language and literature ("Making Faculty Work Visible").

12. See, for example, Rice on the general shift in faculty culture, and Barr and Tagg for differences between the Instructional and the Learning Paradigms of

undergraduate instruction. Among Rice's points of contrast, he describes the following trends: from "maintaining a primary focus on faculty—who we are and what we know" to "a primary focus on learning"; from "an emphasis on the professional autonomy of faculty" and "highly individualistic ways of working ('my work')" to "increased faculty involvement in academic institution-building" and "greater collaboration ('our work')" (21). When I first heard him outline this paradigm change, I thought it was wishful thinking. Now there are many signs that it is taking place in certain institutions, at least, if not across the board; typically, those under severe pressures—e.g., demographic and financial—or, in some cases, led by a visionary president.

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