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REFORM OF THE SOCIAL SCIENCES AND OF UNIVERSITIES THROUGH ACTION RESEARCH

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When dissatisfied practitioners seek to explain why important, innovative, transdisciplinary developments such as feminism, grounded theory, cultural studies, social studies of science, naturalistic inquiry, and action research have difficulty gaining a foothold and then surviving in universities, the analysis focuses on the organizational structures created by the disciplines and their aggregations into centrifugal colleges (Messer-Davidow, 2002). Most critics account for the conservative behavior of which they do not approve by referring to academic "politics," to the maintenance of mini-cartels and disciplinary monopolies that control publication, promotion, research funding, and similar processes. The apparent cause is the political power of the owners of the various disciplinary bunkers on campuses.

As "political" as this behavior seems, it is obvious worldwide that the relationship between what is done in universities—especially what we do in the social sciences—and what the rest of society (on which we depend) wants is not being handled with much political skill. In our opinion, university relationships to key external constituencies (e.g., taxpayers, national and state government funders, private foundations, our surrounding communities, and public and private sector organizations) embody politically (and economically) self-destructive behavior.

A great number of university social scientists write about each other and for each other, purposely engaging as little as possible in public debates and in issues that are socially salient. Often, their research is written up in a language and with concepts that are incomprehensible to the people who are the "subjects" of research and to those outside the university who might want to use the findings. That philosophers, mathematicians, or musicologists do this fits their image as humanists conserving and enhancing ideas and productions of human value, regardless of their direct applicability. That social scientists do this as well, despite their claims to study and comprehend the workings of society, is more problematic.

Put more bluntly, most social science disciplines have excused themselves from social engagement by defining doing "social science" as separate from the application of their insights. The remaining gestures toward social engagement are left mainly to the social science associations' mission statements. The cost of this disengagement to the social sciences is visible in the small state and federal research allocations for academic social science research.[1]

These observations raise the following questions: How can social scientists be at once so "political" on campus and so impolitic in relation to society at large? Why is it that the knowledge created by social science research seldom leads to solutions to major societal problems? Why is it that social disengagement is more typical than atypical for social scientists? This chapter is our effort to sort out these issues. We seek to account for the disconnection between the internal politics of professional practice and the external constituencies of the conventional social sciences (e.g., sociology, anthropology, political science, and many branches of economics) in view of the fact that those external constituencies provide the financial and institutional support needed for the survival of the social sciences. We then present an alternative approach to social science and action research, because we believe that action research is key to the needed fundamental transformation of the behaviors engaged in by social scientists.

■ Why Is There Such a Disconnection Between the Social Sciences and Society at Large?

There is no one right way to conceptualize and understand the relationship between social science work at universities and society at large, and different perspectives lead to different insights. What we offer is simply our view, based on the use of three elements: Marxism, the sociology of the professions, and historical/developmental perspectives.

Marxist or Neo-Marxist Views

These analytical frameworks stress the impact of the larger political economy on institutions and ideologies, including those of the academy (Silva & Slaughter, 1984; Slaughter & Leslie, 1997). From this perspective, the principal function of universities is the reproduction of social class differences through teaching, research, and the provision of new generations with access to key positions of power within the class system. From a Marxist perspective, universities contain a complex mix of elements that involve both promoting and demoting the claims of aspirants to social mobility.

Universities emphasize respect for the past and its structuring value schemes while simultaneously engaging in research designed to change the human condition. Much of this research is externally funded, placing universities in a service relationship to existing structures of power. Furthermore, most universities are both tax exempt and tax subsidized, placing them in a relationship of subordination to the state and to the public. Despite this, it is quite typical for many of those employed in universities to forget that they are beneficiaries of public subsidies.

As work organizations, universities are characterized by strong hierarchical structures and a number of superimposed networks. They are divided into colleges, with further division of the colleges into disciplinary departments and the departments into subdisciplines, with nationally and internationally networked sets of relationships linking individual researchers to each other. Teaching is strongly controlled bureaucratically, but the organization of research is more entrepreneurial and more determined by the researchers themselves. Despite the recruitment of some senior faculty into administrative roles, universities increasingly are run by managers who often have strongly Tayloristic visions of work organization and who operate at a great distance from the site of value production.

As in feudalism, administrative power is wielded by enforcing competitiveness among the units. Academic management philosophies and schemes generally mimic those of the private

sector, but with a time delay measured in years. As a result, most of the recent efforts to become more "businesslike" in universities involve the application of management strategies already tried and discarded by the private sector (Birnbaum, 2000).

Ideologically, universities claim to serve the "public good" by educating the young for good jobs and conducting research that is in society's interest or that directly creates value for society. Internal management ideologies stress cost-effectiveness, encouragement of entrepreneurial activity in university operations, competitiveness in student admissions and support services, and entrepreneurialism in attracting research money and alumni gifts.

The Tayloristic and economistic ideologies of cost-effectiveness and market tests, increasingly used by university administrators and boards of trustees to discipline campus activities, have to deal with the crippling inconvenience that there are few true "market tests" for academic activity. As a result, administrative "impressions" and beliefs often substitute for market tests, and framing them in "market" language serves mainly to obscure the constant shifts of power within the system, including shifts in the structures of patron-client relationships, changes in favoritisms, and the ongoing consolidation of administrative power. This situation is basically the same in most industrial societies, even if the university forms part of the public administrative system, as it does in many European countries.

At the level of work organization, universities are characterized by intensely hierarchical relationships between senior and junior faculty; between faculty and staff; and among faculty, students, and staff. The same contradictions between public political expressions of prosocial values and privately competitive and entrepreneurial behaviors that characterize major corporations and political parties are visible within university structures at all levels. The notion of egalitarian collegiality, often used to describe relationships between "disciplinary" peers, rarely is visible and arises usually when a disciplinary peer group is under threat or is trying to wrest resources from other such groups. Most people involved in the workings of universities—faculty, students, administrators, and staff—experience them as profoundly authoritarian workplaces.

Sociology of the Professions Views

Perhaps the most abundant literature on the issues discussed in this chapter is found in the many variants of the sociology of the professions. These approaches range among Marxist, functionalist, and intepretivist strategies and resist easy summary (see Abbott, 1988; Brint, 1996; Freidson, 1986; Krause, 1996). What they share is a more "internalist" perspective than is commonly found in the more comprehensive Marxist/neo-Marxist framings of these issues. The sociology of the professions focuses on the multiple structurings of professional powers. These structurings involve centrally the development of boundary maintenance mechanisms that serve to include, exclude, certify, and decertify practitioners and groups of practitioners. This literature also emphasizes the development of internal professional power structures that set agendas for work, that define the "discipline" of which the profession is an embodiment, and that establish the genealogies of some of the most powerful subgroups of practitioners and turn these partisan genealogies into a "history" of the profession (Madoo Lengermann & Niebrugge-Brantley, 1998).

In these approaches, the self-interest of the established academic practitioners is central. Essential to professionalism is that a strong boundary exist between what is inside and what is outside the profession. This is key to the development of academic professional structures and also directly requires that groups of professional colleagues engage in numerous transactions with superordinate systems of power in order to be certified by them. To function, the academic professions must be accepted and accredited by those in power at universities, yet members of the profession owe principal allegiance to their professional peers, not to their universities.

Within the university structure, disciplinary department chairs—no matter how important their discipline might be—are subordinate to deans, provosts, and presidents. Thus, a department

chair who might be a major player in the national and international disciplinary associations in his or her field is, on campus, a relatively low-level functionary. This situation often leads to a double strategy. Ambitious department chairs work on the ranking of their departments in various national schemes in order to acquire and control university resources. Deans, provosts, and vice-chancellors must pay attention to these rankings because declines in the rankings of the units in their charge are part of the pseudo-market test of their abilities as academic administrators.

Such professional strategies have some advantages for senior academic administrators or public higher education officials because they encourage the faculty and the departments to compete mainly with each other. In this way, the disciplines "discipline" each other and permit higher administrators to behave like referees in a contest. Clearly, organizations structured this way are generally passive in relation to central power and are relatively easy to control. These campus controls are backed up by national ranking schemes that encourage further competitiveness and by state and national funding schemes that set the terms of the competition within groups and that privilege and punish professional groups according to extradisciplinary criteria.

Students and junior colleagues are socialized into these structures through required curricula, examinations, ideological pressures, and threats to their ability to continue in the profession. Their attention is driven inward and away from the external relations or social roles/responsibilities of their professions, and certainly away from issuing any challenges to higher authorities.

These structures, of course, are highly sensitive to the larger management schemes into which they fit and to the larger political economy. As a result, there are quite dramatic national differences in the composition, mission, and ranking of different professions, as Elliott Krause has shown (1996), but pursuing this topic would take us beyond the scope of this chapter.

Historical/Developmental Views

Perhaps the best-developed literature on these topics comes from history. Scholars such as Mary Furner (1975), Ellen Messer-Davidow (2002), Dorothy Ross (1991), and George Stocking, Jr. (1968) have documented and analyzed the long-run transitions in the social sciences and the humanities. There are also scores of self-promoting and self-protective professional association histories (i.e., the "official stories"). We ignore this latter set here, finding them useful as ethnographic documents but not as explanations of the processes involved. There is an advantage in having a long time perspective because large-scale changes in the disciplines often become sharply visible only when viewed as they develop over several decades.

The literature on the history of the social sciences in the United States suggests something like the following narrative. It begins with the founding of the American Social Science Association in 1865 as an association of senior academics who would study and debate major issues of public policy and provide governments and corporate leaders with supposedly balanced advice. By the 1880s, this approach began to wane, and the various social science disciplinary associations emerged, beginning with economics. The link between the founding of these associations and the emergence of disciplinary departments in PhD-granting institutions was a sea change in the trajectory of the social sciences and resulted in many of the structures that exist today.

The works of Mary Furner (1975), Patricia Madoo Lengermann and Jill Niebrugge-Brantley (1998), Ellen Messer-Davidow (2002), and Edward Silva and Sheila Slaughter (1984) amplify this larger picture by showing how the institutionalization of the disciplines and their professional associations was achieved through homogenizing the intellectual and political agendas of each field, ejecting the reformers, and creating the self-regulating and self-regarding disciplinary structures that are so powerful in universities today.

These histories also show that these outcomes were human products, were context dependent, and were fought over for decades at a time. Despite differences in the disciplines and in timing, the overall trajectory from "advocacy to objectivity" (as Furner [1975] phrased it) seems to be overdetermined. One of the sobering apparent lessons

of these histories is that the prospect of rebuilding a socially connected or, less likely, a socially reformist agenda in the conventional social sciences not only faces negative odds but also runs directly counter to the course of 120 years of disciplinary histories.

Just how this process of disciplinarization and domestication applies to the newer social sciences (e.g., policy studies, management studies, organizational behavior) is not clear, as there is little critical historical work available. Impressionistically, it seems to us that these newer social sciences are beginning to repeat the process undergone in conventional social sciences, a process that resulted in their current disciplinarization and separation from engagement in the everyday world of social practice.

The consistent divergence between theory and practice in all the social science fields is especially notable. How this develops in a group of disciplines explicitly founded to inform social practice should puzzle everyone. Even the great national differences that appear in these trajectories and their organizational contexts do not overcome the global dynamics of disciplinarization and the segregation of theory from practice in academic work. Whatever the causes of these consistent phenomena, they must be both powerful and global. There appear to be direct links among disciplinarization, the purging of reformers, and the splitting of theory and practice, with theory becoming the focus of the academic social sciences. Having better understandings of these dynamics obviously is crucial to the future of the social sciences.

The above, highly selective, survey suggests a few things about this subject. There is ample reason to agree with Pierre Bourdieu's (1994) observation that academics resist being self-reflective about their professional practice. As interesting as the materials we have cited are, they are a very small window into a largely unstudied world. We social scientists generally do not apply our own social science frameworks to the study of our professional behavior. Instead, we permit ourselves to inhabit positions and espouse ideologies often in direct conflict with the very theories and methods we claim to have created (Bourdieu, 1994). For example, Greenwood has pointed out repeatedly that when threatened, anthropologists—who for generations assiduously have deconstructed the notion of the homogeneity and stability of notions like "tradition"—often refer to the "traditions" of anthropology as an ideological prop to defend their professional interests.

It is also striking how little academics reflect upon and understand the idea that they are members of a larger work organization in which relationships both to colleagues and to management have important effects on their capacity to do academic work. "Social" scientists regularly conceptualize themselves as solo entrepreneurs, leaving aside their professional knowledge of social structures and power relations, as if these were only disguises they wear while making their way into the "discipline."

The Political Economy Within Institutions of Higher Education

Whatever else one concludes from the above, it should be clear that what happens on university campuses is not isolated from what happens in society at large. The notion of the "ivory tower" notwithstanding, universities are both "in" and "of" their societies, but it is important to understand that these external forces do not apply across a smooth, undifferentiated internal academic surface. Universities show a high degree of internal differentiation, and this differentiation matters a great deal to our topic of university reform.

The internal political economy of universities is heterogeneous. In the United States and in other industrialized societies, one of the strongly emergent features of university life is the highly entrepreneurial behavior in the sciences and in engineering. Driven by the governmental and private sector markets and by explicit higher education policy designs, these fields have become expert in and structurally organized to capture, manage, and recapture the governmental and private sector funds that keep their research operations going. A complex web of interpenetrated interests links governments, businesses,

and university scientists and engineers in a collaborative activity in which senior scientists and engineers basically become entrepreneurs who manage large laboratories and research projects, with the assistance of large numbers of graduate assistants, lab technicians, and grants administrators.

Social scientists, except those in the relatively rare environments of major contract research shops (such as the University of Michigan's Survey Research Center), are not so organized. Groups of economists, some psychologists, and some sociologists occasionally manage to mount multiperson projects, found institutes, support some graduate students, and bring some resources into the university. In this regard, from a university budgetary point of view, they are scientist-like, with the virtue that their research does not require the large infrastructural investments typical of much scientific research. The activities of even the most successful economists, psychologists, and sociologists, however, appear minuscule financially when compared to the scale of what goes on in the natural sciences and engineering.

Generally speaking, in political science, anthropology, and the qualitative branches of sociology and psychology, the funding sources brought in for external research are derisory. As a consequence, from the point of view of a central financial officer at a university, large proportions of the budgets for the social sciences and the humanities in the U.S. context represent calls on the university's resources that are not matched by an external revenue source. Instead, the social sciences and humanities, focused as they are on issues of social critique, interdisciplinary research, gender, and positionality, provide a kind of prestige to universities. They are part of the university "offering" that makes an institution seem appropriately academic, but their activities are maintained by cross-subsidies, justified in ideological rather than economic terms, and always in danger of being cut off.

Because self-justification in terms of financial revenues in excess of costs is not possible, the social sciences generally focus on being highly ranked nationally among their competitor departments at other universities. That is, they substitute one kind of market test for another. These national rankings follow a variety of reputational and accountancy schemes and are the subject of both strong critique and constant attention in the United States, the United Kingdom, and, increasingly, elsewhere.

Explaining how these ranking systems were generated and are maintained would take us beyond the scope of this chapter, but such an explanation must be provided. Suffice it to say that the disciplinary departments need to do well in national rankings in order to carry clout on campus, to recruit bright faculty, and to attract good undergraduate and graduate students. A great deal of energy goes into assessing, managing, and debating these rankings.

These dynamics create a heterogeneous surface within universities. The sciences, engineering, parts of economics, psychology (mainly laboratory work) and sociology (mainly quantitative), the applied fields of management, and law all generate significant revenues. Most are either organized as profit centers or are understood to be self-financing and to be good investments. By contrast, the rest of the social sciences (including all those practicing qualitative methods) and the humanities depend for their survival on redistributions from these "profitable" units and on subsidies from tuition, the general fund, alumni giving, and earnings on university investments. That is to say, a competitive, market-based research economy—in which the deans, individual entrepreneurial academics, and others seek to minimize costs and maximize earnings—coexists with a redistributive economy in which those who generate expenses without revenues are the net beneficiaries of the profits of others.

Whatever else this means, it suggests that a university "economy" is a complex organization in which a variety of economic principles are at work and in which the relationships among the sciences, engineering, the social sciences, and the humanities are negotiated through the central administration. Counterintuitively, there currently exists no overall management model that explicitly conceptualizes these conditions or provides guidance about how to manage them effectively

for the ongoing growth of the organization. Rather, given the hierarchical structure of decision making described above, senior administrators are faced with attempting to keep a complex system afloat while not being able to operate most of the units in an "economic" way. To put it more bluntly, the complexity of university "economies" is such that neither faculty nor senior administrators have relevant understandings to guide them in making choices. No one can turn to well-argued visions about the principles that should be used to operate a university, about how much entrepreneurial activity is compatible with university life, and about what happens when and if tuition revenues, research contracts, patent income, and alumni gifts start oscillating wildly. Neither social democratic nor neoliberal models are adequate to the task. In the absence of intelligently structured models, simplistic neoliberal fiscal fantasies take over, to the detriment of everyone (Rhind, 2003).

This is the internal "political economy" of the contemporary research university. Because its structures are neither widely understood nor carefully studied, most university administrators and public authorities apply less differentiated, monodimensional management models to universities, succumbing often to the temptation of attempting to view whole universities as for-profit businesses and thereby making both "irrational" and counterproductive decisions, engaging in anti-economic behavior, and supporting unjustified and highly politicized cross-subsidies while not guaranteeing the survival of their institutions.

What Counts as Knowledge in Contemporary Universities?

If, among other things, one of the key missions of universities is the production and transmission of knowledge, then what counts as knowledge is central to any definition and proposed reform of universities. Within this, what counts as social science knowledge is quite problematic.

Just because universities are, among other things, knowledge producing systems, it is not necessarily the case that universities have a very clear idea about what constitutes relevant knowledge. There are some conventional views of knowledge in the sciences and engineering that at least keep their enterprises funded, but the views of knowledge in current circulation are not much help when we try to think about the social sciences.

The conventional understanding of knowledge tends to be grounded in its explicit forms: what can be recorded in words, numbers, and figures and thus is explicitly accessible for humans. Based on this understanding, knowledge tends to be treated as an individualistic, cognitive phenomenon formed by the ability to capture insights (Fuller, 2002). This conception of knowledge is of very little use in the social sciences and the humanities, and challenging this view is necessary to our argument.

Social Science Knowledge

If we attempt to conceptualize social science knowledge, consistent with its origins, as the knowledge that is necessary to create a bridge between social research and the knowledge needs of society at large, then the disconnection between what currently counts as social science knowledge and what serves society's needs is nearly complete. In what follows, we intend to create a different picture by expanding the understanding of what counts as knowledge to include bridging concrete practical intelligence and reflective and value-based reflectivity.

Knowing

Very limited organizational and administrative meanings attach to knowledge concepts at universities. Contemporary debates about what constitutes knowledge can add three important dimensions to commonsense notions, dimensions that have the potential for shifting the way universities generate and apply knowledge.

Tacit Knowing

Much of our knowing is tacit; it expresses itself in our actions. We focus on the verb *knowing*

instead of the noun *knowledge* because knowing emphasizes the point that knowledge is linked to people's actions. Tacit knowing is a term generally attributed to Michael Polanyi (1974), and Polanyi's argument is partially built on the arguments in *The Concept of Mind* written by Oxford philosopher Gilbert Ryle (1949). In Polanyi's view, tacit knowing connotes the "hidden" understandings that guide our actions without our ability to explicitly communicate what the knowledge is.

Knowing How

Although Polanyi's work is more recent, in our view, Ryle created a more fruitful concept than Polanyi's "tacit knowing" by introducing the notion of "knowing how." "Knowing how" grounds knowledge in actions and, because this is precisely how we are able to identify tacit knowing, knowing how seems a more direct anchor to use.

Collective Knowing

Knowledge is also inherently collective. Work by Berger and Luckmann (1967) and Schutz (1967/1972) on the social construction of social realities paved the road for a deeper understanding of knowing as a socially constructed and socially distributed phenomenon. People working together develop and share knowledge as a collective effort and collective product, the petty commodity view of knowledge production notwithstanding (Greenwood, 1991).

Bent Flyvbjerg (2001) follows a somewhat different path but ends up making some of the same distinctions. He refers to the work of Aristotle in making a taxonomy based on *episteme* (theoretical knowledge), *techne* (pragmatic and context-dependent practical rationality[2]), and *phronesis* (practical and context-dependent deliberation about values).

He seeks a solution to the current dilemmas of the social sciences by advocating a closer link to *phronesis*.[3] The argument is that *techne* and *phronesis* constitute the necessary "know-how" for organizational change, social reform, and regional economic development. Neither we nor Flyvbjerg assign any special priority to *episteme*, the conventional and favored form of explicit and theoretical knowledge and the form that currently dominates the academic social sciences.

The Aristotelian distinctions between *episteme*, *techne*, and *phronesis* center on distinguishing three kinds of knowledge. One is not superior to the other; all are equally valid forms of knowing in particular contexts. The key here is the equal validity of these forms of knowing when they are properly contextualized and deployed.

Episteme centers fundamentally on contemplative ways of knowing aimed at understanding the eternal and unchangeable operations of the world. The sources of *episteme* are multiple—speculative, analytical, logical, and experiential—but the focus is always on eternal truths beyond their materialization in concrete situations. Typically, the kinds of complexity found in *episteme* take the form of definitional statements, logical connections, and building of models and analogies. *Episteme* is highly self-contained because it is deployed mainly in theoretical discourses themselves. Although *episteme* obviously is not a self-contained activity, it aims to remove as many concrete empirical referents as possible in order to achieve the status of general truth.

If this meaning of *episteme* accords rather closely to everyday usage of the term *theory*, this is not the case with *techne* and *phronesis*. *Techne* is one of two other kinds of knowledge beyond *episteme*. *Techne* arises from Aristotle's poetical episteme. It is a form of knowledge that is inherently action oriented and inherently productive. *Techne* engages in the analysis of what should be done in the world in order to increase human happiness. The sources of *techne* are multiple. They necessarily involve sufficient experiential engagement in the world to permit the analysis of "what should be done." It is a mode of knowing and acting of its own. To quote Flyvbjerg, "*Techne* is thus craft and art, and as an activity it is concrete, variable, and context-dependent. The objective of *techne* is application of technical knowledge and skills according to a pragmatic instrumental rationality, what Foucault calls 'a practical rationality governed by a conscious goal'" (Flyvbjerg, 2001, p. 56).

The development of *techne* involves, first and foremost, the creation of that conscious goal, the

generation of ideas of better designs for living that will increase human happiness. The types of complexity involved in *techne* arise around the debate among ideal ends, the complex contextualization of these ends, and the instrumental design of activities to enhance the human condition. *Techne* is not the application of *episteme* and, indeed, its link to *episteme* is tenuous in many situations. *Techne* arises from its own sources in moral/ethical debate and visions of an ideal society.

Techne is evaluated primarily by impact measures developed by the professional experts themselves who decide whether or not their projects have enhanced human happiness and, if not, why not. Practitioners of *techne* do engage with local stakeholders, power holders, and other experts, often being contracted by those in power to attempt to achieve positive social changes. Their relationship to the subjects of their work is often close and collaborative, but they are first and foremost professional experts who do things "for," not "with," the local stakeholders. They bring general designs and habits of work to the local case and privilege their own knowledge over that of the local stakeholders.

Phronesis is a less well-known idea. Formally defined by Aristotle as internally consistent reasoning that deals with all possible particulars, *phronesis* is best understood as the design of action through collaborative knowledge construction with the legitimate stakeholders in a problematic situation.

The sources of *phronesis* are collaborative arenas for knowledge development in which the professional researcher's knowledge is combined with the local knowledge of the stakeholders in defining the problem to be addressed. Together, they design and implement the research that needs to be done to understand the problem. They then design the actions to improve the situation together, and they evaluate the adequacy of what was done. If they are not satisfied, they cycle through the process again until the results are satisfactory to all the parties.

The types of complexity involved in *phronesis* are at once intellectual, contextual, and social, as *phronesis* involves the creation of a new space for collaborative reflection, the contrast and integration of many kinds of knowledge systems, the linking of the general and the particular through action and analysis, and the collaborative design of both the goals and the actions aimed at achieving them.

Phronesis is a practice that is deployed in groups in which all the stakeholders—both research experts and local collaborators—have legitimate knowledge claims and rights to determine the outcome. It is evaluated by the collaborators diversely according to their interests, but all share an interest in the adequacy of the outcomes achieved in relation to the goals they collaboratively developed. Thus, *phronesis* involves an egalitarian engagement across knowledge systems and diverse experiences.

This praxis-oriented knowing, which is collective, develops out of communities of practice, to use the wording of Brown and Duguid (1991) and Wenger (1998). This literature pinpoints how people, through working together, develop and cultivate knowledge that enables the participants to take the appropriate actions to achieve the goals they seek. The core perspective is a conceptualization of knowledge as inscribed in actions that are collectively developed and shared by people working together. Explicit knowledge is present and necessary but not dominant.

This kind of knowing linked to action inherently has physical and technological dimensions. Theoretical capability is necessary, but no results ever will be achieved unless local actors learn how to act in appropriate and effective ways and use suitable tools and methods. Thus technique, technology, and knowledge merge in an understanding of *knowing how to act* to reach certain desired goals. Knowledge is not a passive form of reflection but emerges through actively struggling to know how to act in real-world contexts with real-world materials.

When knowledge is understood as *knowing how to act*, skillful actions are always highly contextual. It is impossible to conceptualize action as taking place in a "generalized" environment. To act is to contextualize behavior, and being able to act skillfully implies that actions are appropriate to the given context. The actor needs to make sense of the context to enable appropriate actions. "Knowing how" thus implies knowing how in a given context in which appropriate

actions emerge from contextual knowing. The conventional understanding of general knowledge that treats it as supracontextual and thus universally applicable is of very little interest to us because we do not believe that what constitutes knowledge in the social sciences can be addressed usefully from the hothouse of armchair intellectual debate.

Why Knowledge Matters to Universities

Universities increasingly view themselves as knowledge generation and knowledge management organizations, and they attempt to profit from knowledge generation efforts and gain or retain control over knowledge products that have a value in the marketplace (Fuller, 2002). In this regard, scientific and engineering knowledge has led the way, creating patentable discoveries and processes that, at least in the United States, make significant contributions to the financial well-being of research universities. There are pressures for the expansion of this commodity production notion of knowledge into broader spheres, pressures that go along with increasing emphasis on cost-benefit models in decision making by higher education managers.

Just how this struggle over the university generation, management, and sale of knowledge will turn out is not clear. On one hand, research universities increasingly act to commoditize knowledge production to create regular revenue flows (as well as academic prestige in the commodity production–based ranking systems). In the sciences, this has led to a spate of applied research and a de-emphasis on basic research. In the social sciences, the bulk of the external research money available to university social science is for positivistic research on economic issues, demographic trends, and public attitudes.

Whatever else it does, the current academic fiscal regime does not support unequivocally *episteme*-centered views of social science knowledge. However, it is also clear that few universities support "knowing how" work either, because such work focuses attention on fundamental needs for social and economic reform and thus often irritates public and private sector constituencies and wealthy donors. There is almost no indication that existing research funding patterns support more linked efforts between multiple academic partners and relevant non-university stakeholders.

The "Humpty Dumpty" Problem

Another difficulty in the way universities, most particularly in the social sciences, organize knowledge production activities has been called the "Humpty Dumpty" problem by Waddock and Spangler:

> Specialization in professions today resembles all the king's horses and all the king's men tackling the puzzle created by the fragments of Humpty Dumpty's broken body. Professionals . . . are tackling problems with only some of the knowledge needed to solve the problems. . . . Despite the fragmentation into professional specialties, professionals and managers are expected to somehow put their—and only their—pieces of Humpty Dumpty back together again. Further, they are to accomplish this task without really understanding what Humpty looked like in the first place, or what the other professions can do to make him whole again. Clearly, this model does not work. In addition to their traditional areas of expertise, professionals must be able to see society holistically, thorough lenses capable of integrating multiple perspectives simultaneously. (Waddock & Spangler, 2000, p. 211)

The Humpty Dumpty problem is relevant because the world does not issue problems in neat disciplinary packages. Problems come up as complex, multidimensional, and often confusing congeries of issues. To deal with them, their multiple dimensions must be understood, as well as what holds them together as problems. Only a university work organization that moves easily across boundaries between forms of expertise and between insider and outsider knowledges can deal with such problems.

Action Research as "Science"[4]

We reject arguments for separating praxis and theory in social research. Either social research is collaboratively applied or we do not believe that it deserves to be called research. It should simply be

called what it is: speculation. The terms "pure" and "applied" research, current everywhere in university life, imply that a division of labor between the "pure" and the "applied" can exist. We believe that this division makes social research impossible. Thus, for us, the world divides into action research, which we support and practice, and conventional social research (subdivided into pure and applied social research and organized into professional subgroupings) that we reject on combined epistemological, methodological, and ethical/political grounds (Greenwood & Levin, 1998a, 1998b, 2000a, 2000b, 2001a, 2001b; Levin & Greenwood, 1998).

Because of the dominance of positivistic frameworks and *episteme* in the organization of the conventional social sciences, our view automatically is heard as a retreat from the scientific method into "activism." To hard-line interpretivists, we are seen as so epistemologically naïve as not to understand that it is impossible to commit ourselves to any course of action on the basis of any kind of social research, since all knowledge is contingent and positional—the ultimate form of self-justifying inaction. The operating assumptions in the conventional social sciences are that greater relevance and engagement automatically involves a loss of scientific validity or a loss of courage in the face of the yawning abyss of endless subjectivity.

Pragmatism

A different grounding for social research can be found in pragmatic philosophy. Dewey, James, Pierce, and others (Diggins, 1994) offer an interesting and fruitful foundation for ontological and epistemological questions inherent in social research that is action relevant. Pragmatism links theory and praxis. The core reflection process is connected to action outcomes that involve manipulating material and social factors in a given context. Experience emerges in a continual interaction between people and their environment; accordingly, this process constitutes both the subjects and objects of inquiry. The actions taken are purposeful and aim at creating desired outcomes. Hence, the knowledge creation process is based on the inquirers' norms, values, and interests.

Validity claims are identified as "warranted" assertions resulting from an inquiry process in which an indeterminate situation is made determinate through concrete actions in an actual context. The research logic is constituted in the inquiry process itself, and it guides the knowledge generation process.

Although it seems paradoxical to positivists, with their *episteme*-based views of knowledge, as action researchers we strongly advocate the use of scientific methods and emphasize the importance and possibility of the creation of valid knowledge in social research (see Greenwood & Levin, 1998b). Furthermore, we believe that this kind of inquiry is a foundational element in democratic processes in society and is the core mission of the "social" sciences.

These general characteristics of the pragmatist position ground the action research approach. Two central parameters stand out clearly: knowledge generation through action and experimentation in context, and participative democracy as both a method and a goal. Neither of these is routinely found in the current academic social sciences.

The Action Research Practice of Science

Everyone is supposed to know by now that social research is different from the study of atoms, molecules, rocks, tigers, slime molds, and other physical objects. Yet one can only be amazed by the emphasis that so many conventional social scientists still place on the claim that being "scientific" requires researchers to sever all relations with the observed. Though epistemologically and methodologically indefensible, this view is still largely dominant in social science practice, most particularly in the fields gaining the bulk of social science research money and dominating the world of social science publications: economics, sociology, and political science. This positivistic credo obviously is wrong, and it leads away from producing reliable information, meaningful interpretations, and social actions in social research. It has been subjected to generations of critique, even from within the conventional social sciences.[5] Yet it persists, suggesting that its social embeddedness itself deserves attention.

We believe that strong interventions in the organization of universities and the academic professions are required to root it out. Put more simply, the epistemological ideas underlying action research are not new ideas; they simply have been purged as conventional social researchers (and the social interests they serve—consciously or unconsciously) have rejected university engagement in social reform.

Cogenerative Inquiry

Action research aims to solve pertinent problems in a given context through democratic inquiry in which professional researchers collaborate with local stakeholders to seek and enact solutions to problems of major importance to the stakeholders. We refer to this as cogenerative inquiry because it is built on professional researcher–stakeholder collaboration and aims to solve real-life problems in context. Cogenerative inquiry processes involve trained professional researchers and knowledgeable local stakeholders who work together to define the problems to be addressed, to gather and organize relevant knowledge and data, to analyze the resulting information, and to design social change interventions. The relationship between the professional researcher and the local stakeholders is based on bringing the diverse bases of their knowledge and their distinctive social locations to bear on a problem collaboratively. The professional researcher often brings knowledge of other relevant cases and of relevant research methods, and he or she often has experience in organizing research processes. The insiders have extensive and long-term knowledge of the problems at hand and the contexts in which they occur, as well as knowledge about how and from whom to get additional information. They also contribute urgency and focus to the process, because it centers on problems they are eager to solve. Together, these partners create a powerful research team.

Local Knowledge and Professional Knowledge

For cogenerative inquiry to occur, the collaboration must be based on an interaction between local knowledge and professional knowledge. Whereas conventional social research and consulting privileges professional knowledge over local knowledge, action research does not. Given the complexity of the problems addressed, only local stakeholders, with their years of experience in a particular situation, have sufficient information and knowledge about the situation to design effective social change processes. We do not, however, romanticize local knowledge and denigrate professional knowledge. Both forms of knowledge are essential to cogenerative inquiry.

Validity, Credibility, and Reliability

Validity, credibility, and reliability in action research are measured by the willingness of local stakeholders to act on the results of the action research, thereby risking their welfare on the "validity" of their ideas and the degree to which the outcomes meet their expectations. Thus, cogenerated contextual knowledge is deemed valid if it generates warrants for action. The core validity claim centers on the workability of the actual social change activity engaged in, and the test is whether or not the actual solution to a problem arrived at solves the problem.

Dealing With Context-Centered Knowledge

Communicating context-centered knowledge effectively to academics and to other potential users is a complex process. The action research inquiry process is linked intimately to action in context. This means considerable challenges in communicating and abstracting results in a way that others who did not participate in a particular project, including other stakeholder groups facing comparable but not identical situations, will understand. Precisely because the knowledge is cogenerated, includes local knowledge and analyses, and is built deeply into the local context, comparison of results across cases and the creation of generalizations is a challenge.[6]

Comparison and Generalization

We do not think that these complexities justify having handed over the territory of comparative

generalization and abstract theorization to conventional social researchers working in an *episteme* mode only. The approach of positivistic research to generalization has been to abstract from context, average out cases, lose sight of the world as lived in by human beings, and generally make the knowledge gained impossible to apply (which, for us, means that it is not "knowledge" at all). Despite the vast sums of money and huge numbers of person-hours put into this kind of research, we find the theoretical harvest scanty. On the other side, the rejection of the possibility of learning and generalizing at all, typical of much interpretivism, constructivism, and vulgar postmodernism, strikes us as an equally open invitation to intellectual posturing without any sense of social or moral responsibility.

Central to the action research view of generalization is that any single case that runs counter to a generalization invalidates it (Lewin, 1948) and requires the generalization to be reformulated. In contrast, positivist research often approaches exceptional cases by attempting to disqualify them, in order to preserve the existing generalization. Rather than welcoming the opportunity to revise the generalization, the reaction often is to find a way to ignore it.

Greenwood became particularly well aware of this during his period of action research in the labor-managed cooperatives of Mondragón, Spain, the most successful labor-managed industrial cooperatives anywhere (see Greenwood, González Santos, et al., 1992). Because the "official story" is that cooperatives cannot succeed, that Spaniards are religious fanatics, and that they are not good at working hard or at making money, the bulk of the literature on Mondragón in the 1960s and 1970s attempted to explain the case away as a mere oddity. Basque cultural predispositions, charismatic leadership, and solidarity were all tried as ways of making this exception one that could be ignored, letting the celebration of the supposed greater competitiveness of the standard capitalist firm go on unaffected by this, and other, glaring exceptions. Positivist theorists did not want to learn from the case, in direct contravention of the requirements of scientific thinking that view important exceptions as the most potentially valuable sources of new knowledge.

William Foote Whyte (1982) captured the idea of the productivity of exceptions in his concept of "social inventions." He proposed that all forms of business organizations could learn from this Basque case by trying to figure out how the unique social inventions they had made helped explain their success. Having identified these inventions, researchers could then begin the process of figuring out which of them could be generalized and diffused to other contexts where their utility could be tested, again in collaborative action. Of course, the key to this approach is that the validity of the comparison is also tested in action and not treated as a thought experiment.

If we readdress generalizations in light of what we have argued above, we reframe generalization in action research terms as necessitating a process of reflective action rather than as being based on structures of rule-based interpretation. Given our position that knowledge is context bound, the key to utilizing this knowledge in a different setting is to follow a two-step model. First, it is important to understand the contextual conditions under which the knowledge has been created. This recognizes the inherent contextualization of the knowledge itself. Second, the transfer of this knowledge to another setting implies understanding the contextual conditions of the new setting, how these differ from the setting in which the knowledge was produced, and it involves a reflection on what consequences this has for applying the actual knowledge in the new context. Hence, generalization becomes an active process of reflection in which involved actors must make up their minds whether the previous knowledge makes sense in the new context or not and begin working on ways of acting in the new context.

Although it would take much more space to make the full case (see Greenwood & Levin, 1998b), we have said enough to make it clear that action research is not some kind of a social science dead end. It is a disciplined way of developing valid knowledge and theory while promoting positive social change.

Reconstructing the Relationships Between Universities and Social Stakeholders

We believe that the proper response to the epistemological, methodological, political economic, and ethical issues we have been raising is to reconstruct the relationships between the universities and the multiple stakeholders in society. We believe that a significant part of the answer is to make action research *the* central strategy in social research and organizational development. This is because action research, as we have explained above, involves research efforts in which the users (such as governments, social service agencies, corporations large and small, communities, and nongovernmental organizations) have a definite stake in the problems under study and in which the research process integrates collaborative teaching/learning among multiple disciplines with groups of these non-university partners. We know that this kind of university-based action research is possible because a number of successful examples exist. We will end this chapter by providing an account of two such examples, drawn from a much larger set.

Social Science–Engineering Research Relationships and University-Industry Cooperation: The "Offshore Yard"[7]

This project began when the Norwegian Research Council awarded a major research and development contract to SINTEF, a Norwegian research organization located in Trondheim and closely linked to the Norwegian University of Science and Technology. This contract focused on what is called "enterprise modeling," an information systems–centered technique for developing models of complex organizational processes, both to improve efficiency and to restructure organizational behavior. SINTEF received the contract for this work as part of a major national initiative to support applied research and organizational development in manufacturing industries.

A key National Research Council requirement for this program was that engineering research on enterprise modeling had to be linked to social science research on organization and leadership. This required the collaboration of engineers and social scientists within SINTEF of a more intensive sort than usual. The National Research Council argued that enterprise modeling could not be reduced to a technical effort and that the enterprise models themselves had to deal with organizational issues as well, because their deployment would depend on the employees' ability to use the models as "tools" in everyday work.

The research focus of this activity was not clear at the outset. The instrumental goal for the national research organization was to create a useful enterprise model rather than one that would be only a nice puzzle for information technologists to solve. The research focus emerged in the form of an engineering focus on enterprise models as learning opportunities for all employees and a social science focus on participatory change processes.

The Offshore Yard agreed to be a partner in this effort, and the project was launched in early 1996. The Yard employs approximately 1,000 persons and is located a 90-minute drive north of Trondheim on the Trondheim fjord. The yard has a long history of specializing in the design and construction of the large and complex offshore installations used in North Sea oil exploration.

The project was to be comanaged by a joint group of engineers and social scientists. The key researchers were Ivar Blikø, Terje Skarlo, Johan Elvemo, and Ida Munkeby, two engineers and two social scientists, all employed at SINTEF. The expectation was that cooperation across professional boundaries would somehow arise as an automatic feature of their being engaged in the same project.

The process was by no means so simple. Throughout the initial phase of the project, the only cooperation seen meant merely that team members were present at the company site at the same time. In part, this was because the two engineers on the team had a long history with the company. They had many years of contact with the company as consulting researchers, and, before that, they worked as engineers on the staff

in the Yard. As a result, the engineers took the lead in the early project activity.[8] They were running the project, and the social scientists seemed fairly passive. The engineers were working concretely on computer-based mockups of enterprise models and, because this was a strong focus of planning interest in the company, they accordingly received a great deal of attention from the senior management of the yard.

While this was going on, the social scientists were devoting their attention to a general survey of the company and making an ethnographic effort to learn about the organization and social realities of the company. This was considered important to give the social scientists a grasp of what the company was like. This research-based knowledge generation meant little to company people, as this work was neither understood nor valued by the company or by the engineering members of the team.

The first opening for social science knowledge came when the social researchers organized a search conference[9] to address the problems of the organization of work at the shop floor level. This search conference produced results that captured the attention of both the local union and management and made it clear locally that the social scientists had skills that offered significant opportunities for learning and collaborative planning in the company. This was also the first time the researchers managed to include a fairly large number of employees from different layers of the organization in the same knowledge production process.

As a consequence of this experience, cooperation between the university and Offshore Yard began to deepen. At the time, the company was developing a leadership training program. Through the social scientists, company officials learned about other experiences in running such programs, and this helped them plan locally. They were better able to plan their overall organizational development activity in their own training program because knowing about other programs helped them with their design. In addition, they felt it would be an advantage to them if company participants in the training also could get official university credits for their involvement. Thus, the resulting program was designed through a university-company dialogue and, in the end, one of the social scientists on the team ran it. The program also gave official university-based credits to those participants who decided to take a formal exam. The leadership program became an effort that enhanced the formal skill level of the participants, and the university credits gave them recognition outside the context of the yard.

The program was very successful, making evident how close collaboration between the company and the university could be mutually rewarding. The university people could experiment professionally and pedagogically in real-life contexts, while the company got access to cutting-edge knowledge both from the university and from other companies, through the university's contacts. As an interesting side effect, the Yard decided to invite managers from neighboring plants to participate. The Yard recognized that its own future depended on its having good relations with its neighbors and suppliers. Company officials decided that one way to improve this cooperation was to share their program, as a gesture symbolizing the interdependent relationships they have and the mutual stakes in each other's success.

Over the course of the project, the cooperation between engineers and social scientists began to grow and create new insights. A key first move in this direction was a redesign of the tube manufacturing facility in the Yard. The reorganization of work processes that was cogeneratively developed through workers' participation meant that shop floor workers gained direct access to the computer-based production planning and scheduling the company engineers used. Instead of having information from the system filtered through the foreman, workers at the shop floor level could utilize the information system and decide for themselves how to manage the production process. This form of organizational leveling probably would not have come about had it not been for the increased mutual understanding between the SINTEF engineers and social scientists and their company partners that emerged through their working together on the same concrete problems as a team.

Gradually, based on these experiences, a reconceptualization emerged of the whole way to develop enterprise models. The conventional engineering take on enterprise models was that the experts (the engineers) collected information, made an analysis, and then made expert decisions regarding what the model should look like. A new approach to enterprise modeling in the Yard was developed in which the involved employees actually have a direct say. Although this is a modest step in the direction of participation, it is potentially a very important one. It is fair to say that this changed focus toward participation would not have occurred unless the social scientists had presented substantive knowledge on issues of organization and leadership that were testable through participatory processes.

As more mutual trust developed between company people and researchers, the marginalized position of the social scientists gradually changed, and the company came to count on the social scientists as well. For example, one of the major challenges for the company in the future will be how to manage with a significant reduction in the number of employees humanely and without destroying company morale. These changes originate both from restructuring of the corporation the Yard is part of and from new engineering and production processes that led to a reduced need for laborers. The Yard has invited the researchers to take a serious role in this process by asking them to draw, from all over the world, knowledge and diverse perspectives on this difficult subject. The researchers have been able to support new and often critical knowledge that has changed or extended the company's understanding of its downsizing challenge.

The research team also has been asked to assist in working on the learning atmosphere in the Yard. This has involved extensive interviewing of a broad spectrum of employees to build a view about how to improve the Yard's capacity for ongoing learning. The results of these interviews were fed back to the involved employees, and the researchers shaped dialogues with them that aimed both at presenting the results and at examining the inferences made by the researchers through comparison with the local knowledge of the workers. Again, we can see how models of learning with an origin in social science circles can be applied to the local learning process, and the results are important factors in the researchers' assessments of the strength and value of their academic findings.

Perhaps the most interesting overall development in this project is how the company–university relationship developed. The senior executive officer is now a strong supporter of the fruitfulness of the company's relationship with the university. In public presentations, he credits the researchers with bringing relevant and important knowledge to the company and explains that he can see how this relationship can become increasingly important. It took him several years of cooperation to see these possibilities, but now he does, and the university is glad to respond. Although there is no reason to romanticize the relationship, because differences of opinion and interest do emerge, the relationship seems so robust that further developments are likely.

In the end, only through multidisciplinary action research over a sustained period of time were these results possible. The research values and the action values in the process have both been respected, and all the partners in the process have benefited.

Collaborative Research for Organizational Transformation Within the Walls of the University

Here we report on an example of an action research initiative that occurred at Cornell University, resulting in reform of a major, required university course: introductory physics. The protagonist of this effort was Michael Reynolds, who wrote this work up as a doctoral dissertation in science education at Cornell (Reynolds, 1994).[10] Because universities are redoubts of hierarchical and territorial behavior, changes initiated by students or by graduate assistants and lecturers are rare, making this case particularly interesting.

At the time the project began, Reynolds was employed as a teaching assistant in an introductory physics course that is one of the requirements for students wishing to go to medical

school. This makes the course a key gatekeeping mechanism in the very competitive process of acquiring access to the medical profession and makes the stake the students have in doing well high and the power of the faculty and university over their lives considerable. It also means that the course has a guaranteed clientele, almost no matter how badly it is taught.

Although there is more than one physics course, this particular one is crucial in completing pre-medical requirements. Because of a comprehensive reform undertaken in the late 1960s, this course was and is delivered in what is called an "auto-tutorial" format. This means that students work through the course materials at their own pace (within limits), doing experiments and studying in a learning center, asking for advice there, and taking examinations on each unit (often many times) until they have achieved the mastery of the material and grade they seek. Despite the inviting and apparently flexible format, the course had become notoriously unpopular among students. Performance on standardized national exams was poor, morale among the students and staff was relatively low, and the Physics department was concerned.

The staff structure included a professor in charge, a senior lecturer who was the de facto principal course manager, and some graduate assistants. Among these, Reynolds was working as a teaching assistant in the course to support himself while he worked on his PhD in Education. Having heard about action research and finding it consistent with his view of the world, he proposed to the professor and lecturer in charge that they attempt an action research evaluation and reform of the course. With Greenwood's help, they got funding from the office of the Vice President for Academic Programs to support the reform effort.

There followed a long and complex process that was skillfully guided by Reynolds. It involved the undergraduate students, teaching assistants, lecturers, professor, and members of Reynolds's PhD committee in a long-term process. It began with an evaluation of the main difficulties students had with the course, then involved the selection of a new text and piloting the revised course. Reynolds guided this process patiently and consistently. Ultimately, the professor, the lecturer, instructors, teaching assistants, and students collaborated in redesigning the course through intensive meetings and debates.

One of the things they discovered was that the course had become unworkable in part because of its very nature. As new concepts and theories were developed in physics, they were added to the course, but there was no overall system for examining what materials should be eliminated or consolidated to make room for the new ones. The result was an increasingly overstuffed course that the students found increasingly difficult to deal with. In bringing the whole course before all the stakeholders and in examining the choice of a possible new textbook, it was possible for the group to confront these issues.

There were many conflicts on issues of substance and authority during the process, which was stressful for all involved, yet they stayed together and kept at the process until they had completely redesigned the course. It was then piloted, and the results were a dramatic improvement in student performance on national tests and a considerable increase in student satisfaction with the course.

Reynolds then wrote the process up from his detailed field notes and journals and drafted his dissertation. He submitted the draft to his collaborators for comment and revision, then explained to them the revisions he would make. He also offered them the option to add their own written comments in a late chapter of the dissertation, using either their real names or pseudonyms.

This iteration of the process produced some significant changes in the dissertation and solidified the group's own learning process. Eventually, many of the collaborators attended Reynolds's dissertation defense and were engaged in the discussion, the first time we know of that such a "collaborative" defense occurred at Cornell. Subsequently, that kind of defense, with collaborators present, has been repeated with other PhD candidates (Boser, 2001; Grudens-Schuck, 1998).

Interestingly, though the process was extremely stressful for the participants, the results were

phenomenally good for the students. A proposal was made to extend this approach to curriculum reform to other courses at Cornell, but the university administration was unprepared to underwrite the process, despite its obvious great success in this case.

Perhaps the reform of a single course does not seem like much of a social change, but we think it has powerful implications. This case demonstrates the possibility of an action research–based reform being initiated from a position of little power within a profoundly bureaucratic and hierarchical organization, the university. The value of the knowledge of each category of stakeholder was patent throughout, and the shared interests of all in a good outcome for the students helped hold the process together. That such reform is possible and successful means that those who write off the possibility of significant university reforms are simply wrong. Of course, it also shows that an isolated success does not add up to ongoing institutional change without a broader strategy to back it up. Thus, it was a success, but an isolated one.

Although this is a very modest amount of case material to present in support of our contentions, we believe that the cases at least give the reader a general sense of the kind of vision of social research we advocate.

▣ Institutionalizing AR in Academic Environments

One of the major challenges facing modern universities that are funded with private or public money lies in making visible their contribution to important social and technological challenges in the larger society. This cannot be done unless research and teaching are clearly aligned to extra-university needs.

Although such an argument is often heard in the current debates about the social obligations of universities, little progress has been made at mediating university–society relationships because of the profound differences between what is considered appropriate research and teaching by academics and what the public wants and expects. Few processes are in place to work toward creating a shared understanding of what a desired focus of collaboration should be. The parties operate in two different worlds, with very limited cross-boundary communication and learning, and they operate with the inconvenience that the public has the power to make decisions affecting future university budgets.

Action research meets the need for this kind of mediated communication and action. It deals with real-life problems in context, and it is built on participation by the non-university problem owners. It creates mutual learning opportunities for researchers and participants, it produces tangible results. Hence, action research, if managed skillfully, can respond in a positive way to the changing and increasingly interventionist public and private sector environments in which universities must operate.

How, then, do we envisage a university operating within the frame of reference of action research? Given what we have already said about how research would have to be organized, it is clear that problem definition must be accomplished cooperatively with the actors who experience the actual problem situations. Thus, research will have to be conducted in "natural" settings without trying to create a university-centered substitute experimental situation.

Conducting research this way guarantees that research foci will not emerge from reading about the latest fashionable theory within an academic profession, but rather as a negotiated joint understanding of what the problem in focus should be, an understanding in which both professionals and problem owners have a say in setting the issue the group will deal with. For academic researchers, this places a premium on the ability and willingness to frame researchable questions in concrete problem situations, a process that certainly forces the researchers to adopt perspectives that often are not central or even well known within their own disciplines.

One way to create this potential is to train researchers who are capable of embracing perspectives beyond those of single, constrained professional disciplinary territories. Another

possibility is to create teams that contain enough varieties of expertise relevant to the problem at hand so that the internal capacity to mobilize the needed forms of knowledge exists. In both situations, the centerpiece is the requirement that academic researchers be able to operate in a transdisciplinary environment, where the challenges center on actively transforming their own perspectives in order to accommodate and help build the necessary knowledge platform needed for working through the problem. They also would also have to understand their accountability to the extra-university stakeholders' evaluation of the results through action. Thus, team-based research and breaking down boundaries between different professional positions are central features of the deployment of action research in universities.

Teaching would have to change in much the same way. In fact, it is possible to envisage a teaching process that mirrors the action research process we have articulated above. The obvious starting point would be use of concrete problem situations in classrooms, probably accomplished by use of real cases. Starting here, the development of learning foci (e.g., problem definitions) would have to emerge from the concrete problem situations, a position that is the centerpiece of John Dewey's pedagogy.

In this regard, this teaching situation is parallel to an action research project. The main difference is that there are three types of principal actors in the classroom: the problem owners, the students, and the teachers. As in action research, they will all be linked in a mutual learning process. Even though students might themselves be participants, without many of the necessary skills and insights, they will discover that, as students, they bring a different set of experiences and points of view into the collaborative learning arena and can make important contributions as they gain confidence in their own abilities. Thus, all three parties will be teachers and colearners.

The professional academics will have a special obligation to structure the learning situation effectively and to provide necessary substantive knowledge to the participants in the learning process. As is generally the case in teaching, the professors would start the course using their conception of what are key substantive issues in the situation under examination. Because this kind of teaching is problem driven, however, all predetermined plans will have to be adjusted to the concrete teaching situation as new, cogenerated understandings emerge from the learning group.

Focusing on real-life problems also forces the different disciplines to cooperate because relevant knowledge must be sought from any and all sources. No single discipline or strand of thinking can dominate action research because real-world problems are not tailored to match disciplinary structures and standards of academic popularity. The valuable academic professional thus is not the world's leading expert in discipline "X" or theory "Y" but instead is the person who can bring relevant knowledge for solving the problem to the table.

Through such pedagogical processes, whatever else they do, it is certain that students will learn how to apply what they know and how to learn from each other, from the professors, and from the problem owners. What they will not develop is a narrow allegiance to a particular discipline or to a university world separated from life in society at large. And together, the professors and students will be of service to the world outside the academy. Thus, universities that focus their teaching on action research will be able to supply practical results and insights to the surrounding society.

Is This Possible?

The question is not whether action research can be accommodated in contemporary universities, but how to create experimental situations to make it happen. We can find examples of this in undergraduate education, in professional degree courses, and in PhD programs. Programs in action research at both of the authors' institutions (Cornell and the Norwegian University of Science and Technology) have shown that such programs are possible, albeit on a very small scale at present.

The biggest obstacle is how to integrate this type of alternative educational process fully in the

current structures of universities. Everything we have said above constitutes a challenge to the current division of labor and to the disciplinary and administrative structures of universities. Pursuing this would weaken the hegemony of separate professional and disciplinary structures, would force professional activity to move toward meeting social needs, and would limit the self-serving and self-regarding academic professionalism that is the hallmark of contemporary universities.

Despite how difficult it appears to be, there are reasons to think that progress can be made along these lines. The increasing public and fiscal pressure on universities to justify themselves and their activities creates a risky but promising situation in which experimenting with action research approaches may be the only possible solution for universities that wish to survive into the next generation.

There is a choice. One strategy some universities have adopted is that, as the public financial support for universities drops, they consider themselves even less accountable to the public. Another is to try to renegotiate this relationship and reverse the negative trend. We believe in using action research to try to repair the deeply compromised relationships universities have with their publics and governments.

Notes

1. The exceptions to this poverty are positivistic, policy-oriented economic research and bits of policy-relevant social science research anchored primarily in schools of business, planning, and public policy.

2. *Techne* can also be interpreted as the technical rationality that is in the heads and the hands of experts, but, in the context of this essay, it denotes the kind of knowing necessary for making skilled transformation processes and therefore is not connected to the experts' power position.

3. These arguments have been made in much more detail and with a much more comprehensive understanding of their Greek origins by Olav Eikeland (1997).

4. A version of this section was delivered by Greenwood as a paper titled *La antropología "inaplicable": El divorcio entre la teoría y la práctica y el declive de la antropología universitaria* (Inapplicable Anthropology: The Divorce Between Theory and Practice and the Decline of University Anthropology) at the conference of Sociedad Española de Antropología Aplicada in Granada, Spain, in November of 2002.

5. A critique of this kind of blind positivism was central to the ideas of the major social thinkers who gave rise to the social sciences in the first place (Adam Smith, Karl Marx, Max Weber, Emile Durkheim, and John Dewey, among others). A good source of current critiques is James Scheurich (1997).

6. For a full discussion of these issues, see Robert Stake (1995).

7. This is a pseudonym.

8. Levin observed much of this process because he served as a member of the local steering committee for the project. He recollects how little linkage there was at the outset between engineering and the social sciences.

9. A search conference is a democratically organized action research means for bringing a group of problem owners together for an intensive process of reflection, analysis, and action planning. For a more detailed description, see Greenwood and Levin (1998b).

10. Greenwood served as a member of Reynolds's PhD committee and worked with him throughout this research. However, the ideas, processes, and interpretations offered here are those Reynolds generated, not Greenwood's. Because Reynolds is now hard at work in secondary school reform, he has not made a further write-up of his work, so we encourage the interested reader to consult his dissertation directly.

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