

Fall 1995

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### Recommended Citation

Liu, Goodwin, "A Paradigm Change in Higher Education?" (1995). *Higher Education*. 43.  
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# A Paradigm Change in Higher Education?

by Goodwin Liu

IN THE PAST DECADE, we have witnessed steady progress in the development of service-learning programs on college campuses across the nation. As the director of a federal program that supports these initiatives, I was often asked to describe the national context in which these initiatives take place. The national context can be sketched in many ways. Sometimes I used a historical perspective to explain how the service-learning movement came to be. With other audiences, I used a policy perspective to explain how the Corporation for National Service and other national organizations are working to expand and sustain the movement.

In this essay, I will use a conceptual perspective to describe the national context. This perspective does not focus on organizations, policies, or historical events; instead, it focuses on the ideas that made them possible. I will identify these ideas and use them to develop a national context that speaks directly to educational change.

In my role at the Corporation, I had the opportunity to work with many service-learning programs. From my national vantage point, I saw not only a new interest in service or a new pedagogy on college campuses, but also a broader movement to change higher education. This movement is what I want to discuss. I offer a conceptual framework for understanding what we have accomplished as an educational movement and what we have left to do.

In order to sketch this context, I will borrow a framework from one of my favorite philosophers, the physicist Thomas Kuhn, one of the most important contemporary figures in the philosophy of science. Over 30 years ago, he wrote *The Structure of Scientific Revolutions* (1970) about the nature of change and progress in the sciences. I will explore some of his ideas not only because they are interesting in and of themselves, but also because we can learn something about educational change by examining how it occurs in an enterprise that is central to American higher education.

Most of us understand science as a rational, linear, and cumulative enterprise with methods yielding discoveries that bring us closer to truth. Like masons who build buildings brick by brick, scientists build scientific knowledge by adding facts, laws, and theories one on top of another.

That is how science develops, right? Wrong, says Kuhn. His main point is that science does not develop this way.

Kuhn gathers a fascinating array of historical evidence — from astronomy, physics, biology, and chemistry — to paint a different picture of science. The evolution of scientific knowledge, according to Kuhn, does not resemble a straight line sloping upward toward progress. Instead, it looks more like a step function — with long periods of little innovation or significant change, punctuated by big conceptual leaps that he calls scientific revolutions.

Kuhn argues that scientists, most of the time, work within a paradigm — that is, a shared commitment to a set of fundamental beliefs about the nature of the world, the types of problems worth solving, the allowable methods of research, and the acceptable standards for proof. Normally, science consists of solving problems whose answers are predicted by the paradigm — that is, making nature fit into the paradigm boxes. Kuhn's important point is that science, most of the time, is not about testing established knowledge. It is not about inventing new theories. It is not about questioning the fundamentals of how we understand the world.

But obviously, our understanding of the world has changed over time in fundamental ways. So how does change occur? In the process of working within a paradigm, scientists inevitably come across problems — Kuhn calls them “anomalies” — that cannot be solved by conventional methods. Anomalies provide the first hints that a paradigm change may be imminent. Because a paradigm is a set of fundamental commitments, however, sci-

entific communities often regard the failure to solve a problem as a failure of the scientist, not as a failure of the paradigm.

But over time, some anomalies persist. Try as they might, scientists cannot resolve the anomalies in the terms and categories of the dominant paradigm. Or, resolving an anomaly in one area may cause a different anomaly to show up elsewhere. Gradually, more scientists become aware of the anomalies, and in the process, they reveal further inconsistencies that pervade the paradigm. Kuhn calls this a period of crisis.

Periods of crisis are what open the door to scientific revolutions. New paradigms emerge to solve the anomalies, and we begin to see the kind of fundamental conceptual change that is characteristic of scientific progress. Through revolutions, new paradigms are not built upon or added to old paradigms in any cumulative sense. Instead, new paradigms “replace” old paradigms.

Kuhn offers many examples of this process of paradigm change. One of the most familiar is in the field of astronomy. For hundred of years before and after Christ, astronomers charted the heavens with the belief that all celestial bodies orbited the earth. This geocentric paradigm, developed by the Greek astronomer Ptolemy, was fairly successful in predicting the motion of both stars and planets. For centuries astronomical research consisted of gathering data that confirmed the predictions of the Ptolemaic system, and astronomers corrected discrepancies between predictions and observations by tinkering with the system (1970, p. 68).

But as time went on, *ad hoc* resolution of problems, such as determining the

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... motion of Mars and explain-  
... constant length of the calendar  
... distorted the Ptolemaic system  
... that its complexity was increas-  
... than its accuracy. By the 1500s,  
... paradigm had become so cumbersome  
... inaccurate that it failed even when  
... to problems it had once solved  
... (pp. 68-69). The widespread recog-  
... of its breakdown sent the field of  
... into crisis. This allowed a  
... accurate paradigm to emerge, cen-  
... on the once-heretical notion that the  
... and planets, including earth, revolve  
... around the sun. This heliocentric para-  
... developed by Copernicus, is the  
... foundation of modern astronomy.

Kuhn gives examples from other  
fields: combustion, X-rays, electricity,  
motion, and gravity. In each case, he  
shows that change follows a similar pat-  
tern: long periods of paradigm research,  
accumulation of anomalies, short periods  
of crisis, conceptual revolutions, and the  
emergence of new paradigms with new  
fundamentals. The brick-laying metaphor  
does not describe this pattern of scientific  
progress. Instead, the change process is  
akin to the destruction of an old building  
that cannot be repaired further, followed  
by the construction of a new and better  
structure in the same place — out of new  
materials, with a new design, with a new  
foundation.

What do these ideas tell us about serv-  
ice, scholarship, and educational change?  
A good deal, I think. It is hard to miss the  
similarity between the language of “revo-  
lution” that Kuhn uses and the vernacular  
we use to describe service-learning and its  
recent progress. We talk about reinvent-  
ing higher education and institutional re-  
newal. We read headlines about educa-  
tion reform. We cite books called *Scholar-  
ship Reconsidered* (Boyer, 1991) and  
*Rethinking Tradition* (Kupiec, 1993). Are  
we on the verge of a paradigm change?

To explore that question, I want to  
begin by getting clear on what we are  
rethinking or reinventing. There is a domi-  
nant paradigm in higher education that we  
might call traditional scholarship. It is a  
set of norms that defines a community. It  
consists of fundamental beliefs about the  
nature of knowledge — what counts as  
knowledge, how it is created, and how it is  
transmitted. It also consists of beliefs  
about the nature of students and faculty.

and the relationship between the two. In  
addition, it defines a range of acceptable  
pedagogy.

Most of the work that occurs within  
the paradigm consists of generating and  
codifying knowledge dispassionately, then  
imparting that knowledge from Teacher  
to Student. The educational problems  
within the paradigm, such as how to struc-  
ture a major or what books to include in a  
core curriculum, are important and some-  
times gripping. But most of the time, they  
do not raise fundamental questions about  
the educational process and its assump-  
tions.

In this paradigm, service takes a back  
seat to scholarship. It is mentioned as a  
“nice thing to do” when one is not en-  
gaged in real learning, or as a catch-all  
term that, according to some faculty, de-  
scribes “everything I do.” The paradigm  
does not include boxes that allow us to  
articulate the social and educational value  
of service-learning.

By and large, institutions of higher  
education still operate within this para-  
digm. But it is being re-evaluated. If  
persistent anomalies sow the seeds of revo-  
lution in science, then the recurring prob-  
lems in the mainstream educational para-  
digm are harbingers of change. These  
problems include complaints about the  
quality of teaching across the curriculum;  
the alienation that many students feel when  
they go on to higher learning; and the  
disjunction between liberal or professional  
education and the institution’s stated mis-  
sion of education for citizenship.

But before we rush to believe that a  
revolution is around the corner, we must  
acknowledge that these educational prob-  
lems are important but not new. Maybe  
our “crisis” is only equal in importance to  
all the other “crises” in higher education.  
What more can we say to justify the sense  
of urgency we feel about these issues?

If we go back to Kuhn and take a  
closer look, we learn that a crisis occurs  
not only as a result of long-recognized  
problems within a paradigm, but also as a  
result of external factors that make those  
problems especially significant and  
timely. The crisis in astronomy before  
the Copernican revolution occurred when  
it did not only because the Ptolemaic sys-  
tem was breaking down, but also because  
there was social pressure for a more accu-  
rate calendar and because the philosophi-

cal traditions supporting the geocentric  
view were being attacked from other  
angles (Kuhn, 1970, p. 69).

Similarly, the not-so-new problems  
in our educational paradigm — poor teach-  
ing, student alienation, and a lack of civic  
purpose — are magnified in importance  
by the context of current issues facing  
higher education. New populations of  
learners are asking for an education that  
builds on their experiences and that draws  
on their talents (cf. Schroeder, 1993).  
Changing conceptions of work and orga-  
nizational management are pushing our  
schools to equip students with skills for  
lifelong learning and for community-build-  
ing in diverse environments (cf. Moore,  
Fall, 1994; Winter, 1994). The break-  
down of communities and the failure of  
political problem-solving intensify the  
need to educate students for a life of en-  
gaged citizenship (cf. Barber, 1992, &  
Etzioni, 1993). Through a recent survey,  
we learned that college students are avoid-  
ing politics in greater numbers than ever  
before. Only 32 percent of freshmen think  
it is important to keep up with political  
affairs, and only 16 percent discuss poli-  
tics frequently (Astin, 1994), figures that  
are especially troubling since the survey  
was conducted during an election year.  
This context aggravates the problems of  
poor teaching and student alienation, and  
it creates nothing less than a social, politi-  
cal, and educational imperative to rekindle  
a sense of civic purpose in our schools.

It is this combination of problems  
within the paradigm, plus the external  
factors in our current context, that lead to  
the crisis-state facilitating paradigm  
change. This is an important lesson, for  
it tells us that we need to couch service-  
learning not only as a narrow issue of  
pedagogy, but also as a response to larger,  
pressing issues. We must learn to discuss  
service-learning on the same page as crime  
control, in the same report as Workforce  
2000 (Johnson, 1987), or in the same sen-  
tence as education reform, accountabil-  
ity, or demographic change. If we take  
this broader view, we will have the lever-  
age we need to articulate why the prob-  
lems within the paradigm are urgent and  
critical.

To follow Kuhn’s framework further,  
I think these problems are clearing the  
way for a new paradigm to emerge. For if

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## A Paradigm Change

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the problems mentioned above are the weaknesses of the old paradigm, their solutions are the strengths of our current movement. Collectively, we have the potential to develop a new paradigm, centered on the notion that scholarship and service are mutually dependent and mutually reinforcing.

Within this new paradigm, we would see the world in fundamentally different ways. We would see students not as empty vessels to be filled with knowledge, but as active learners who build meaning through context. We would see the campus not as an ivory tower, but as a socially engaged institution. We would see community service not as charity, but as a reciprocal process with reciprocal benefits. We would see teaching and research not only as the domain of faculty, but also as the work of students and community partners. Moreover, we would see experience, and service in particular, as a legitimate text for study. And we would see education not as a value-free venture, but as a directional process cultivating public virtues and meeting public needs.

These concepts already have been codified into recognized

principles of good practice (cf. Honnet & Poulsen, 1989; Howard, 1993), and they are taught through a variety of institutes and trainings. Moreover, they are realized in a core set of institutions, individuals, and model programs that we recognize as leaders in our field. Together, these alternative concepts, new standards of practice, and key examples are promising signs that a new paradigm is in development.

But a paradigm-in-development is not enough. Service-learning is only one of many approaches being suggested as a way out of today's crisis. Like the others, it may turn out to be a fad, a passing trend, or only a small piece of some broader reforms. If there is one lesson to be learned from Kuhn's history, it is that a community — even one in crisis — will not relinquish an old paradigm until a new one has been fully developed (Kuhn, p. 72). That means we have to be honest about the unfinished work in our field. So let me turn now to discuss some of the issues we still need to resolve.

I think there are significant differences and tensions in how we understand what it means to link service and scholarship. For example, is the service experience really a "text" to be studied in and of itself, or is it simply a vehicle for illuminating the traditional texts we are familiar with? That is, are we saying that service, with its own teachable moments, is a new and independent way of knowing? Or, are we simply using it as a means of reinforcing traditional ways of knowing? If it is the former, then how do we understand knowledge when the text is so highly subjective? If it is the latter, then how do we get at the learning that defies traditional scholarship?

Moreover, does our new paradigm promote change *within* the existing discipline-based structure of scholarship? Or, are we trying to create Ernest Boyer's "New American College" (1994), where interdisciplinary institutes would be organized around pressing social issues (Boyer, 1994)? How radical is our new paradigm? Are we asking that research and teaching be directed at community problems, in order to legitimize them as important problems for scholarship? Or, are we going further to include community members as full participants in teaching and research?

Of course, these are not genuine "either-or" questions. But I think there is both lack of clarity and genuine disagreement on these kinds of questions, especially at the level of implementation. Each perspective has different consequences for the scope of the new paradigm, the problems it is trying to solve, its vocabulary and definitions, and its range of acceptable practices. A sure sign of the irresolution is the persistent problem of evaluation. Without strong answers to normative questions about what we are trying to do, we will continue to find it difficult to assess how well we have done it.

The lack of agreement on fundamentals also shows up in other ways. Do we share a common notion of what "reflection" is? Do we know what we mean when we say "institutionalization"? Do we agree on a definition of "citizenship"? My point is not that we need total agreement or a standardized approach. On the contrary, we need different approaches for different institutions, different students, and different communities. Nevertheless, variation must occur within limits if the new paradigm is to be meaningful. To set these limits, we have to grapple with the tough questions.

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We can already anticipate some anomalies that will arise in our new paradigm. For example, what if students come away from their service-learning experience feeling frustrated and disempowered, instead of energized and inspired? What if students come away with their stereotypes reinforced, instead of dispelled? Is there room in our paradigm for these outcomes? Moreover, if we expect students to become more socially aware and civically engaged through service-learning, then what learning objectives apply to the growing numbers of older, "non-traditional" students who are already aware and engaged when they come to college? These are just some of the issues we have to iron out over time.

As with any process of change that is not yet complete, there are more questions than answers. Nevertheless, many thoughtful people in the service-learning field are addressing these questions and finding answers through their work. I want to offer three observations from Kuhn that might inform our collective effort.

First, one of the remarkable things about change in science is that, in many cases, the solution to a crisis had been anticipated but ignored at a previous time. The Greek scientist Aristarchus had suggested that the earth revolves around the sun in the third century B.C., eighteen hundred years before Copernicus (Kuhn, p.75)! Similarly, the emerging paradigm of service and scholarship is new only in contrast to the old paradigm we are trying to change. It is not new in any absolute sense, and neither are the problems it solves. We can turn to John Dewey, Thomas Jefferson, even the Greeks (not to mention the mission statements of our institutions) to revisit relevant ideas. Moreover, many people have been doing service-learning long before we called it that. We don't need to invent the entire paradigm ourselves. We would do better to build on the work of our predecessors.

Second, one of the hallmarks of a mature science is the ability to draw a clear line between those who are scientists in that field and those who are not. As we enhance the clarity of our paradigm, it too will give precise definition to a community of practitioners, thereby excluding non-members. This is inevitable, but it behooves us all the more to be cautious in how we shape our fundamentals, to be flexible where we can, to avoid jargon that is unnecessarily alienating, and not to mistake rigidity for rigor.

Third, change takes time. Copernicus died in 1543, but it wasn't until a century later that significant numbers of astronomers relinquished the geocentric paradigm in favor of its heliocentric successor (Kuhn, p. 150). We may not want to wait that long — but the reality is that the transformation of concepts occurs faster than the transformation of communities. Group conversion will not happen all at once. Nevertheless, if our new paradigm actually delivers on what we say it can, it will stay around long enough for the resistance to attenuate and (quite literally) die away.

The metaphor of scientific revolution offers a meaningful way to understand how far we have come as a movement and how much further we have to go. Of course, there is reason to wonder whether service-learning eventually will constitute a whole-scale paradigm shift in higher education. Our commitment to service-learning often puts us in the minority on our

campuses and in our professional communities. Indeed, the movement is relatively small, and its significance still hangs in the balance.

Nevertheless, resistance and uncertainty are nothing more than natural parts of the change process. Kuhn tells us that the person who embraces a new paradigm at an early stage must have faith that it will succeed with the many large problems that confront it, knowing only that the older paradigm has failed with a few: "[I]f a paradigm is ever to triumph, it must gain some first supporters, [people] who will develop it...improve it, explore its possibilities, and show what it would be like to belong to the community guided by it" (pp.158-159).

We have the opportunity to do just that, and articulating a strong conceptual context for our national movement is an important first step. For this context can strengthen our commitment to work together as a national community, and it can keep us alive to the possibilities that transcend our institutional limits.

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*This essay is adapted from a speech delivered in January, 1995, in Washington DC at the Colloquium on National and Community Service sponsored by the American Association for Higher Education and Campus Compact.*

*Goodwin Liu was Senior Program Officer at the Corporation for National Service, Washington DC. This fall he enters Yale Law School.*