

# The Pathbreaking, Fractionalized, Uncertain World of Knowledge

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Many years ago, the philosopher Alfred North Whitehead remarked, "The task of the university is the creation of the future, so far as rational thought, and civilized modes of appreciation, can affect the issue." But for many of today's academics, rationality is in question, civilization is anathema, and universities have not created, for themselves or for their societies, the future Whitehead envisaged. What, then, are we about? If, as Stanley O. Ikenberry, former president of the American Council of Education, has claimed, American universities are "at the top of their game," then just what game are they playing, and what's the prize?

One way to approach those questions is to look at how our universities support the intellectual infrastructure of our country and the world. The task of building and maintaining intellectual infrastructure is much more daunting today than it was for Whitehead and his colleagues, although the resources for undertaking it are unbelievably richer. In the United States and elsewhere, universities have both created some of the changes they face today, especially those related to the production of new knowledge, and been affected by others -- for example, the growth in some demographic groups and the democratization of American society.

The biggest of the changes, however, is probably in how we Americans think about universities: what we expect of them. Up to the middle of the last century, we asked higher education to provide basic and professional education for young people, to discover and preserve the knowledge of the past, and, especially in the sciences, to create new knowledge. We thought of knowledge, however, in a unitary fashion, and did not distinguish as sharply as we do today between the practical and useless kinds (although it is true that many years ago the philosopher George Santayana spoke out for the "utility of useless knowledge"). Knowledge grew slowly and incrementally, and we were mostly content to leave its creation to university academics and industrial laboratories.

But all of that has changed. One could argue about starting points, but the rapid pace of discovery in atomic science that took off in the 1930s and 1940s may have been the formative process. For one thing, the Manhattan Project and the postwar establishment of the National Science Foundation in 1950 began large-scale government support of scientific research. For another, cold-war competitiveness initiated the state-sponsored expansion of our university system (just as the earlier GI Bill launched the tremendous growth in the number of students in higher education). Money and the rapidly growing scale of the system created the modern research university, in which the production of knowledge and its publication became virtually the sole criterion of academic success -- the be-all and end-all of the growing cohort of research universities.

And produce knowledge they did, at an incredible rate and with astonishing successes -- with the revolution in cell biology perhaps the largest. They were able to do so, first and most obviously, because of the scaling up of the educational system. Not only were more research institutions of all kinds (including independent research institutes and industrial laboratories) created, but also an increasing number of well-trained Ph.D.'s, postdocs, and graduate students (both domestic and foreign), and an infrastructure to support them (journals, libraries, national and international learned societies). Second, more money was poured into universities from more sources than had ever before been available to the academic research community. Most came from state and (especially) federal government sources, though private philanthropic foundations, corporations, and even individuals also made major contributions.

The quantity and quality of knowledge production in the second half of the 20th century was stupendous. Lewis Thomas once remarked that more had been learned about medicine during his working career than had been learned in all of history up to that time. And it may be that he was right. The era witnessed an explosion of knowledge of staggering proportions, and much of that was generated in the academy, most of it in the research universities. That was just as true across the humanities, social sciences, and professions as it was in the physical and life sciences.

But there was a cost. The increase in knowledge depended on a phenomenon first identified by Adam Smith -- task specialization. In every field, the growing number of investigators led to narrower and more precise specification of the problem to be addressed. The traditional fields were subdivided into finer and finer parts, while, at the same time, whole new fields of investigation (to some extent in all areas but, because of funding, particularly in the sciences) were created, sometimes as old fields were merged into new ones, for example in the creation of biological physics and medical engineering. New learned societies emerged to professionalize these suband supra-fields, and new journals emerged to communicate their findings. In every field, specialization won the day over generalization.

To cite a trivial example, I was trained in American history, with a specialization in colonial history (which in those days meant from the arrival of Europeans until the Revolution or the post-Constitutional period). My minor field was all of English history. I was trained to be able to teach any course relating to American history, and at the beginning of my career I was also teaching TudorStuart English history. I tried to keep up with all the new work in those fields. Within five years, I had begun to concentrate on colonial-American legal history, and soon I was struggling simply to keep up with that. It has gotten a lot more specialized since then.

Nevertheless, universities were held in high regard by the public during most of the period following the Second World War -- for their training of undergraduates, for their professional education, for their research accomplishments. The public was also receptive to the books, speeches, and interviews of the most articulate university scholars, though those appreciated were not necessarily those held in highest esteem by their academic confreres. Similarly, university presidents and other institutional officials were also once public intellectuals and, sometimes, nationally important figures.

So, the current university has clearly been doing many things right, although it is hard to generalize about the 125 or so research universities that sustain the intellectual infrastructure in the United States. Differing substantially from one another, they are, in most respects, awesome institutions. They have superb faculties and student bodies (both substantially internationalized). They train their students well in most respects. They produce pathbreaking research in large quantities. They have magnificent laboratories and libraries. They engage, to some extent, in serving the interests of their communities through work in the schools, continuing education, extension services, and the like. To excel in teaching, learning, and service has long been the professed ambition of American higher education, and today's institutions largely live up to it.

Yet, current triumphs notwithstanding, the high-water mark of general admiration for the research universities may well have come by about 1980. The national political atmosphere of the 1980s was hostile to intellectuals to an extent not seen since the dog days of McCarthyism in the early 1950s -- populist anti-intellectualism once again became respectable. For that and other reasons, public intellectuals have become thin on the ground. On the whole, professors did best in print culture; as new media have developed, their overwhelming commercial character increasingly has had little use for intellectuals unless they are very good looking and can shout with the best of the commercial talking heads. And today's university presidents are rarely widely known beyond the fringes of their own campuses -- for good reason. Hired to be managers and fund raisers rather than educational leaders, they have largely ceased speaking out on major educational issues, not to mention their silence on most other issues of public import and interest.

Indeed, I think the public (and public officials) have come to see research universities as self-aggrandizing money machines populated by professors who have lost interest both in teaching and in creating immediately useful knowledge.

The institutions have, sadly, become too large, arrogant, rapacious, and impersonal for outsiders to understand and sympathize with (despite their best efforts to generate loyalty through the introduction of quasi-professional sports). The public's sense of the professoriate is now similar to Robert Maynard Hutchins's castigation of his own University of Chicago faculty at its annual Christmas dinner in 1943 -- you are engaged in "making molehills out of mountains."

But it's not just the public view that has altered. Even if the abstract goals of the universities have not changed, their behavior and, especially, their management have changed profoundly over the past half century. Here the central fact is not that there are more research universities, but that each institution has become so much larger, more complex, and harder to finance. It is not so much that there are more students (nearly 50,000 on just the Twin Cities campus of the University of Minnesota and more than that number on the Columbus campus of Ohio State University, for example), but that there are more departments, centers, schools, buildings -- and correspondingly more faculty and staff members.

Universities are very big businesses, usually the largest employers in their local communities, and, like any large organism, they must spend more and more time nourishing themselves. The raising of funds for research, physical-plant maintenance, faculty salaries, and other costs requires personnel, energy, and attention on a scale that dwarfs the needs of institutions even a few decades ago.

A second type of change is hard to define precisely -- the transformation of the intellectual atmosphere on our university campuses. At one end of the political spectrum is the emergence of cultural politics as a dominating force. That is primarily a function of the emergence of identity politics that has made a wide range of policies and ideas hard to discuss freely -- gender, sexual orientation, and race and ethnicity, for instance. While there is broad support on our campuses for diversity as a goal, the academy has fallen into a self-censorship that makes it hard to express thoughtful disagreement about relevant policies. At the other end of the spectrum is the emergence of a variety of politically and religiously conservative ideologies, which to a lesser extent constrain the development of a truly civilized campus community of discourse. Should it really be so hard to determine whether it is appropriate for freshmen to be exposed to some of the ideas of the Koran?

Why does that matter for what universities contribute to the national intellectual infrastructure? Mainly, I think, because the institutions are intellectually out of focus

and out of control. Earlier they were organized around a limited number of schools and departments, and there was substantial consensus as to what ought to be taught and what ought to be researched. Faculty members were primarily loyal to their own institutions. There was a better balance between teaching and research -- and let us not forget that one of the most important tasks of teaching is training new generations to carry on the intellectual mission of the academy.

But, most of all, enormous damage has been done to the creation and sustenance of our intellectual infrastructure by the increasing inability of teaching faculties to agree upon what constitutes Whitehead's "civilized modes of appreciation." Both the organization and the content of the academic life of the mind have become fractionalized, anomic, and increasingly uncertain. Too many individual professors are running their own research programs, frequently institutionalized as centers, buying out their teaching time, and setting their own agendas, more frequently in response to funding sources than to colleagues or students. The result is that departments and even administrations have little impact on research direction, and there is increasingly a struggle to mount plausible curriculums for undergraduates and even for graduate students.

An analogous phenomenon afflicts faculties more generally, since most faculty members in universities confine their teaching to their own increasingly narrow research fields. Less and less effort goes into constructing intellectually comprehensive and coherent curriculums to help students make sense of the highly sophisticated knowledge they are taught. The dominance of research as the primary criterion for faculty hiring, reward, and promotion has increased the pressure for professors to publish -- more and more frequently in narrowly professional areas. Contributions tend to be framed in technical jargon and sharply focused. More and more, specialists address other specialists.

Not only does that lessen the chance that they will reach general audiences, but it also means that the very language they use in their written work is different from their speech to students, who are not up to or interested in the publishable production of their teachers. And, of course, this problem is exacerbated by the increasing proportion of teaching done by graduate students (who are shooting for a professional foothold) and by non-tenure-track adjunct professors.

And, in many fields, changes in the sociology of knowledge have created profound problems in communicating research beyond the inner core of professional academic elites. One example would be the "turn to theory" prevalent in the humanities during the 1970s, 1980s, and early 1990s; another would be the increasingly theoretical bent of the social sciences, especially economics and political science.

In literature and related fields, the impact of French philosophy in the United States (in the form of postmodernism and deconstruction) produced, along with much original and exciting work, texts that were so jargon-ridden and abstruse that even many professionals had a tough time understanding them. Many works in the humanities became altogether incomprehensible to even the most sophisticated general readers. In political science, to take another example, emphasis on the economistic "rational choice" approach to political analysis has produced highly abstract statistical modeling that is not only hard for laypersons to understand, but is driving out the traditional study of legislatures, cities, and other organizations that genuinely interests nonspecialist academics and the general public, and is frequently the basis for public policy.

These problems have been accentuated by continuing administrative attempts to gain control of the university budget by what amount to neo-liberal economic strategies to impose rigorous expenditure responsibility on individual schools and departments. The result has frequently been to privilege those academic units that have the greatest access to external funding, and to punish those more traditional departments, especially in the humanities, that survive on their portion of the general university budget. A more profound effect is to lessen the communal sense of the institution, to reward individual departmental initiative rather than commitment to general university purposes.

In the end, what is the impact of all this on the larger intellectual structure of American life? There are clearly many things that universities are doing better than ever before. Despite Hutchins's sarcasm, universities are generating more knowledge (and better knowledge) than they have in any previous period of human history. We know more and more about most things -- even if we also learn more and more about less and less. Academic scientific and technical knowledge is the basis for an incredible range of techniques and products that serve to better our country and the world. If we are truly living in a "knowledge economy," then the university contribution to the economy is profound -- even if it does not result in the quick turnaround to product and profit that some outside the academy demand. We have, in sum, become extremely efficient in producing many types of knowledge.

But it could be argued that, in other respects, universities are not holding up their end of their implicit compact with society. I would say that we are neglecting undergraduate education in a serious way, although probably not for the reasons many populist critics of higher education have contended. They have charged professors with teaching too few hours, ignoring students and pursuing useless research, out of bad politics and bad motives; such critics have ignored the context in which change has occurred. It is interesting to note, however, that public complaint about this aspect of higher education, intense during the early 1990s, seems mainly to have

disappeared. Today, beyond understandable anguish over the cost of higher education, critical voices are, for some reason, less frequently heard.

Nevertheless, we should not forget: If "general education" is one of the bases for democratic citizenship, and I believe that it is, we need to think much harder about what we are offering our students. The opportunities are immense, since today's universities educate such a large and representative segment of the relevant age cohort. But both the material structure and intellectual direction of the professoriate work against a reform of undergraduate education. The challenge of the university is to train an elite cohort (these days increasingly selected on egalitarian terms) to lead society politically and socially, as well as to run its businesses and laboratories. Such young people are currently very well trained in specialized techniques, but not so well prepared in those general critical thinking skills that have always been thought basic to liberal education.

It may also be the case that the theoretical complexity of the knowledge currently generated by research universities is too inaccessible to large numbers of citizens outside the academy. That is true in the sciences and the humanities and the social sciences, though it may well be that the tradition of high-level popularization of scientific thought is healthier than in the social sciences and humanities. There is a sense in which the modalities for communicating with the public are less vibrant than they used to be. If so, that is probably as much a factor of the dominance of highly commercialized new media as it is of the unwillingness or inability of academics to translate their work for the general public. And the current crisis -- economic and intellectual -- in serious publishing is surely another sign of the same phenomenon.

So in some respects the glass is overflowing, but in others it is less than half full. The intellectual accomplishments of universities are undeniably rich and valuable to our larger society. One obvious cost of the accentuation of research, however, has been a relative decline in the quality (though an increase in the quantity) of undergraduate education. But the larger question may be whether the recent turn to the hyper-professionalization of knowledge in research universities has not subtly and adversely affected the tone of the university's impact on society. We may be contributing more to information than to what Whitehead thought of as "rational thought."

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