

Scholarly Knowledge: At an Inflection Point?

Kenneth Prewitt

Abstract

In the rapidly expanding sector of higher education worldwide, high quality research is disproportionately produced by a small number of research-intensive universities, probably no more than 400 worldwide. These universities are experiencing major changes, spurred by new technologies and data sources from those technologies, by the commercialization in the “knowledge economy” and competition from the for-profit private sector, and of course by opportunities and pressures of globalization itself. The phase we are in is further shaped by changes in how the state and the market set research priorities, partly by creating an accountability regime tied to timely and measurable contributions of products, services, and policies.

Where does Africa fit in? It does not have competitive research-intensive universities. It does have high quality individual researchers. The author argues that its strength lies in robust regional research collaborations, coupled with serious engagement with stakeholder platforms including government, commerce, and NGOs.

Dans le secteur de l'enseignement supérieur mondial à l'expansion rapide, la recherche de grande qualité est produite disproportionnellement par un nombre restreint d'universités fortement axées sur la recherche, dont le nombre ne s'élève probablement pas à plus de 400 dans le monde entier. Ces universités sont en train de connaître des changements majeurs, déclenchés par les nouvelles technologies et les sources de données émanant de ces technologies, par la commer-

ABOUT THE AUTHOR: KENNETH PREWITT is Carnegie Professor at the School of International and Public Affairs, director of the Future of Scholarly Knowledge project, and special advisor to the President, Columbia University, US. E-mail: Kp2058@columbia.edu.

cialisation dans l' « économie du savoir » et la compétition provenant du secteur privé lucratif, et bien entendu, par des opportunités et des pressions créées par la mondialisation elle-même. La phase que nous traversons est, qui plus est, caractérisée par le changement de la manière dont l'état et le marché établissent les priorités de la recherche, partiellement en créant un régime où les institutions doivent rendre des comptes, un régime lié aux contributions opportunes et mesurables de produits, de services et de politiques.

Dans ce contexte, où l'Afrique trouve-t-elle sa place ? Elle n'a pas d'universités compétitives axées fortement sur la recherche. Elle possède, néanmoins, des chercheurs individuels de grande qualité. L'auteur estime que sa force repose sur des partenariats de recherche régionaux solides, couplés à des engagements sérieux pris envers des parties prenantes comme le gouvernement, le milieu du commerce et les ONG.

“Scholarly knowledge” is a phrase not frequently found in the voluminous popular and academic literature on today's perils and promises of higher education. That voluminous literature need not be summarized for the readership of IJAHE, and will in any case be referenced by other authors in this collection. We know its confusing message: for anxious faculty and administrators, the perils present an existential threat to higher education as we have known it; for techno-optimists, the promises are unprecedented opportunities for higher education to lead the way to a prosperous and peaceful world.

Although the research role of universities is caught up in this overhyped debate, it merits separate treatment. In the huge and growing landscape of higher education, intensive research is limited to a small subset of institutions. There are nearly 5000 colleges and universities in the United States. Fewer than a half percent are identified in the Carnegie Classification as having “very high research activity,” institutions defined as dedicated to knowledge discovery and advanced training across a wide array of disciplines, specialties, and professional fields. To focus on scholarly knowledge in the United States is to focus on this small subset of research-intensive universities.

This focus does not exclude research libraries and museums, other specialized research institutes and government laboratories. They constitute an ecosystem, in which universities are the main players. This ecosystem also includes scholarly societies and publishers and, more indirectly but obviously critical, public and private funding.

Research universities worldwide also benefit from their local ecosystems, though, except in Western Europe and Australia, these are

generally less robust than in the United States. How many research-intensive universities are there worldwide? It is not an accident that the *Times Higher Education World University Rankings* stops at 400 universities. This, I believe, is a reasonable estimate of the number of universities that produce the substantial majority of academic books and peer-reviewed research papers. Certainly, research by scholars in less research-intensive universities can be of the highest quality, but I focus here on institutions, not individuals. It is the system of knowledge making that is undergoing major changes, leading to the question: will the research university remain as the center of this system? The second half of the essay turns to Africa, with a near absence of worldwide high quality, research-intensive universities. What is the future of scholarly knowledge in Africa?

Scholarly Knowledge Defined

The term “scholarly knowledge” is used in the spirit of *wissenschaft*, the German term that covers all disciplines, specialties, and professional practices of the modern research university. It is knowledge produced by rule-governed processes of learning and inquiring. These processes vary from one specialty to another. Astronomers observe and chemists experiment, but both apply established standards of evidence and inference, as do art historians, philosophers, biologists, economists, and so on.

Inquiry that produces scholarly knowledge is methodologically transparent. This allows for replication, whether the method is an experiment, carbon dating, archival sources, or a questionnaire. The inquiry process is open-ended, always uncertain about what comes next. In principle, if not always in practice, inquiry is unbiased by political influence, commercial rewards, or donor convictions. A key feature of scholarly knowledge is its link to the common good—openly accessible and available for improving the public welfare and public enlightenment.

There are many other forms of knowledge—religious, craft, artistic, legal, managerial, etc. A healthy society will find room for all of them. I do not claim that scholarly knowledge is superior to other forms of knowledge. I do claim that it is indispensable a) where there is search for a grounded theoretical understanding of the natural and the social world; b) where there is the curiosity and desire to deepen the understanding of literature, art, and music; c) where there is motivation to uncover, as best possible, truths about history; and, d) where there is openness to new methods—from data analytics to robots on Mars. This “indispensableness” is cause for attending to the ways in which the changing landscape will strengthen or threaten the principles that are the foundation of research universities.

The astute reader will note that I have avoided the basic vs. applied terminology. Both have been present since the beginning of institutions devoted to what is sketched above as scholarly knowledge, and intertwined in ways that would take another lengthy essay to sort through. Even the vocabulary used takes time to sort out: intrinsic and self-referential vs. extrinsic and responsive to outside expectations; fundamental and practical; or, my favorite, knowledge being used and knowledge waiting to be used. Quantum physics was around for nearly a half decade before it gave us today's electronic gadgets; the double helix structure was basic science, but is now applied in precision medicine.

It is not necessary to unpack this terminology to make my points in this essay.

The Changing Landscape

The changing landscape of higher education is being endlessly discussed around the world—with alarm in some quarters, but in others as an opportunity to retrofit universities and colleges for the 21st century. The emphasis varies from one conference, newsletter, or blog to the next, but always there is mention of new *technologies* relevant to teaching and research; growing *commercialization* as for-profit institutions move into spaces long viewed as belonging to the sphere of non-profits and governments; and *globalization*, signaled by the worldwide flow of students, faculty, and research topics, and the growing number of universities with global ambitions.

The familiar trilogy—technology, commercialization, globalization—cannot affect universities without also affecting their role in the production and dissemination of scholarly knowledge.

Under technology, there is big data, with its huge promise to transform how we learn from history, or at least its written records, and how we study texts. What we see emerging in the humanities is moving faster in the social sciences, now having available data sets orders of magnitude larger than what standard methods—survey research or social experiments—can compete with. Of course, the potential of new technologies for knowledge making extends well beyond big data. CERN and the discovery of the Higgs Boson, genetic experiments and personalized medicine, nanotechnology and new materials, even new machines, come to mind.

Under commercialization, we take note that the big data just mentioned are produced as a by-product of commercial interests, and nearly always with proprietary algorithms. Commercialization also points to the phrase, “knowledge economy,” or the monetization of knowledge that, among other developments, assesses research by the probable

commercial value of its findings. If this becomes pervasive across universities and their ecosystem, research with an uncertain outcome or a distant pay-off is less favored than research with a more certain and nearer-term pay-off. Or take note of MOOCs companies such as Coursera, a for-profit that has now reached 10 million students; or, the proposition that the value of education is best measured by the future earnings power of the student, or the fact that private for-profit universities in Africa outnumber public universities by three to one.

Under globalization, there is the rapid growth of “international universities,” a must-become mantra in the United States and Western Europe, but also increasingly in Asia, as educational power players—China, South Korea, Singapore—compete for international students and begin to expand their footprints outside the home country.

None of these forces are entirely new. The printing press was once a new technology, with far-reaching consequences for the generation and distribution of knowledge. Commercialization of engineering and medical advances was a goal, the public good character of scholarly knowledge notwithstanding. And ideas and students crossed borders in ancient history. The issue is not whether these forces are new, but whether they are transforming today's principles and practices in new ways.

At an Inflection Point?

I use the term “inflection point” not in its mathematical sense but more colloquially, as suggesting conditions that have the power to radically change how we think and act in the scholarly world. Conditions external to that world are sending powerful signals that cannot be ignored, though they can, up to a point, be negotiated. At the highest level of abstraction, these external conditions are the state and the market: donors to, and users of scholarly knowledge.

The dominant signals being sent are summarized in terms of accountability: instrumental uses, impacts, performance metrics, return on investment, ranking systems, and the like. This vocabulary, gathering momentum in today's economic and political circles, has little sympathy with, and at times treats with disdain, much beloved late 18th century metaphors, when scholars spoke confidently of knowledge for its own sake; of Ivory Towers, secluded from commerce and politics; of autonomy, institutionalized as the fundamental principles of free inquiry and academic freedom; of pure mathematics and basic science pursued because it gave us more reliable truths about the way the world worked than those found in religion, home then and still to competing truths. (In the same historical period, “art for art's sake” came into use,

holding that the purpose of art was not its devotional or decorative uses, but its intrinsic merits.)

Of course the tension between scholarly autonomy and expected duties beyond a self-referential autonomous sphere is not new to our times. The modern social sciences are illustrative. They arrived toward the end of the 19th century, dedicated to knowledge building, especially to the positivism then pushing the natural and biological sciences forward. But social science was also expected to serve nation-building tasks: protect national security; improve economic competitiveness; solve the social problems of industrialization; strengthen democracy. Commercial goals were less pronounced, but not absent—a testing industry that now controls school reform efforts; the polling industry and market research; evaluation and consultancy on a grand scale; the globally spreading policy enterprise of think tanks and civil society advocacy.

Indicators of an inflection point, then, are changes in the relative emphasis given to knowledge building vs. nation building; or, the weakening of a narrative of curiosity-driven research and a comparative strengthening of purposive or instrumental knowledge in search of products, services, and policies.

An inflection point does not indicate that all is new, the popularity of the metaphor “creative destruction” notwithstanding. Less apocalyptically, inflection indicates a rearrangement of what is dominant and subordinate, a change in who sets research priorities. In this more moderate formulation, I argue that scholarly knowledge is at an inflection point.

The reason, I suggest, is its growing importance to the state and the market. Whatever we understand a knowledge society to be (and definitions vary widely), it does of course require a constant flow of knowledge. To put it simply, scholarly knowledge is at an inflection point because both state and market have knowledge requirements that, if not met by research universities, will be sought out, and paid for, elsewhere. Even in these early days of the new landscape, it is clear that research universities no longer have the monopoly they enjoyed for more than a century. They now share knowledge making with for-profits—from social media corporations to pharmaceutical laboratories, from think tanks (non-profit and for-profit) to consultancy firms. Universities traditionally supplied the human capital for these new competitors, but even that arrangement is in small ways being challenged, as suggested by the in-house training and credentialing in such firms as Apple or McKenzie.

Most of the discussion about innovative disruption in higher education focuses on the delivery of knowledge to students via technologies

rather than classrooms. Less attention is given to the disruption emerging in knowledge discovery and dissemination. Early in its life, Google proudly described itself as providing universal information, made universally available. Now we hear Google’s leaders speak of universal knowledge, made universally available. At some level, this is nonsense—we do not expect Google to compete with CERN or the Max Planck Institutes or Stanford’s medical research teams. At another level, it is not nonsense: knowledge from any source, including search patterns on Google, can be packaged, disseminated, and, up to a point, sold—by Google or firms not yet known.

If I am confident in claiming that scholarly knowledge is at an inflection point, I am not confident in my (or anyone else’s) prediction of what the institutional platform will be in a quarter century, except to repeat a truism: it won’t be then what it is today. Let us see what can be learned from Africa.

Africa’s Inflection Point

Obviously, missing from my discussion thus far is recognition that in knowledge making there is variability across the world regions—Africa, Europe, Middle East, North America, South America. It is Africa that interests us. Africa especially lacks robust research universities, and by world standards will not change that fact soon. In international rankings, the highest ranked African university is the University of Cape Town, which misses the top 100, though in all three of the major ranking systems it does appear as one of the world’s top 150. No other African university is within reach of a spot in the top 250, and is not likely to get there.

Why such a harsh judgment? Ranking systems, such as the *Times Higher Education World University Rankings* (used here) are zero-sum. Even if every university is improving over time (and thousands are), there are still only 100 in the top 100. If Japan’s 10-year project is to place 10 of its universities in the top 100, rather than its two today, eight other universities have to crowd into the next lower tier, pushing its current occupants even lower. Germany’s Excellence Initiative intends to increase the number of its universities, now six, in the highest tier. China, unsatisfied with its four places, is also making huge investments in its research universities.

These European and Asian efforts compete with the now dominant position of the United States, Great Britain, and Australia, which will not cede leadership easily. It is obvious that over the next quarter century, the University of Cape Town is as likely to be pushed down as it is to climb in the rankings.

I make the counterintuitive claim that *this is beneficial to Africa*. If its universities cannot win in the rankings, they should ignore them, which liberates them to pursue alternative platforms of excellence. The remainder of this section is a defense of this proposition.

One reason is apparent, if I momentarily shift attention and consider teaching rather than knowledge making. If African countries spend resources chasing the top 100 slots, even the top 400 (which currently include Stellenbosch and the University of Marrakech Cadi Ayyad, though at rankings much lower than Cape Town), they will have to do more and better than what Northern universities currently at the top are doing, recruiting large numbers of faculty and rewarding them for publishing in peer-reviewed journals—the dominant metric in most rankings.

Among other distortions, rankings that heavily favor research output signal that teaching is of secondary importance. Africa can ill afford low quality teaching as it continues its higher education expansion. The current 6 percent tertiary enrollment rate is inadequate for the challenges facing the continent. But further expansion only makes sense if quality improves faster than quantity. Adding to the high numbers of the university-educated-but-unemployed is not a wise direction. Increasing access to higher education *if* coupled to quality teaching is wise, resulting in higher education more equitable and more productive than chasing the rankings.

Am I suggesting that Africa ignore research and knowledge making in favor of better teaching? Of course not. There are thousands of African scholars doing high quality and much needed research—from epidemiology to archeology, from agronomy to economics. But the overall picture is bleak. Research funds are scarce. PhD training is limited. Publishing rates are low. Scholars are overworked and often poorly paid. I have already noted that only three African universities are ranked among the top 400, our global cutoff of research active universities, and pointed out that those three are not likely to be joined by other African universities.

How, then, can I claim that the absence of African universities from the top ranks is beneficial to Africa? Ranking systems focus on universities as solo actors, and incentivize them to compete in a zero-sum game. Obviously, this does not prevent academic cooperation between universities, within and across national borders. There are multiple examples of cooperative behavior. Whether there would be more in, say, the United States or China if ranking systems disappeared invites counterfactual guesses that we can skip for now.

The more serious point draws attention to institutional collaboration,

that is, in Africa, to the necessity of advanced level research and training programs that combine the resources of multiple universities.

In the 1960s, I spent several years in East Africa, first at Makerere University and then at the University of Nairobi, supported initially by the US government (Agency for International Development) and then by the University Development Program of the Rockefeller Foundation. That program, active across the continent, was in East Africa focused on linking Makerere University, the University of Nairobi, and the University of Dar es Salaam under the shared label of the University of East Africa. The effort failed. Each country wanted its own premier university, with all the bells and whistles. When, after ten years, the original East African Community collapsed, in 1977, the dream of a University of East Africa went with it.

A decade later, Canada's International Development Research Center pioneered a research and teaching collaboration for African economists as an in-house program. Its early successes led to its legal independence, facilitated by the Rockefeller Foundation. As vice-president of the Foundation, in 1988, I chaired the founding donor-dominated board of the African Economic Research Consortium (AERC). AERC's research and training programs, however, were shaped not by donors but by the most distinguished African economists on the continent. From the outset, AERC sponsored collaborative research, a master's program (currently 23 universities are actively engaged), adding later PhD training (currently eight economic departments are awarding PhDs). Outside funders were initially critical, as is the case for other initiatives such as the Carnegie-funded US Social Science Research Council program strengthening social science PhD-granting departments in five African countries.

AERC also sponsored a policy outreach effort, growing more ambitious as the years passed. Its most recent achievement is the formation of a Governor's Forum in collaboration with the African Governors of Central Banks. In February 2015, the Central Bank Governors (several of them AERC alumni) joined AERC as donors and selected a member from the group to serve on the AERC Board of Directors.

AERC's impressive record has been noticed. The Global Go To Think Tank Index (2014), ranks AERC *62nd* in think tanks globally, and in its relevant category of international development think tanks, ranks AERC *25th* (and *35th* in the category, international economic policy). AERC is not alone in reaching the top tier. Among global health policy think tanks, for example, the African Technology Policy Studies Network gets a top listing, at *21st*. The implication is obvious. When individual African universities are ranked, only three appear in the top 400 globally. When

African universities establish successful collaborative institutional platforms, they earn top tier spots in global rankings.

A top ranking, however, is not the goal. Scholarly knowledge is. African university research collaborations flourish today. Nine universities and four research institutes, with northern partners, under the sponsorship of the Consortium for Advanced Research Training in Africa (CARTA), are establishing a research and training program in population and health research. The idea is simple. If a cohort trains together at the PhD level, it will maintain ties that facilitate research collaboration when members return to their home country.

The Common Market for Eastern and Southern African (COMESA) has plans to create a virtual university to work with existing institutions. The purpose is to create a research network focusing on regional integration, now expanding across many sectors. The “virtual” label points to e-learning and online platforms. The Alliance for Accelerating Excellence in Science in Africa (AESA) is another pan-African platform, with support from the African Academy of Sciences and an endorsement by the African Union.

The agricultural sciences, in research and training, are especially well equipped with institutional collaborations: the Regional Universities Forum for Capacity Building in Agriculture—46 universities in 22 countries; Biosciences eastern and central Africa—18 countries; and, affiliated with AERC, the Collaborative MSc Program in Agriculture and Applied Economics—17 universities in 13 countries. Improved agricultural productivity in Africa is based on the human capacity and research findings generated by these and related networks.

Other major players are the nationally based academies of science, 20 of which cooperate in the Network of African Science Academies (NASAC), facilitated by the African Academy of Science. These academies have recently benefited from a ten-year program of consultation and strengthening provided the US national academies of science, engineering, and medicine, and funded by the Gates Foundation.

This listing of cooperative ventures is not exhaustive. It skips the many efforts relying on technology as a basis for research collaboration, and, even more, for teaching. I am not assuming across the board success. Even if the African Union is successful at pushing R&D funding above 1 percent GDP, resource constraints remain. Moreover, not all good ideas succeed, as the Rockefeller Foundation learned a half century ago in its University of East Africa effort, but some do, as AERC demonstrates.

The important message is that the *scholarly knowledge model* for Africa is not in duplicating the North’s model—which gave rise to the insidious insistence on ranking universities as if they are solo players. Robust

regional collaboration is evidence of a continent-wide determination to conduct original research, to produce scholarly knowledge, and to provide knowledge that both market and state will find reasons to apply. It is this final point that introduces my conclusions.

Conclusions

OECD’s *African Economic Outlook* 2015 reports that the average growth rate across Africa’s countries in 2014 was 3.9 percent. The forecast for 2015 is 4.5 percent and for 2016 a further increase to 5 percent, converging with Asia’s current growth rates. Though always alert to barriers to growth, OECD believes macroeconomic prospects are encouraging overall.

It is of course the premise of this essay, and no doubt of other essays in this collection, that a sound knowledge infrastructure contributes to economic growth and social progress, a premise that returns us to the proposition that scholarly knowledge is at an inflection point.

I observed above that the inflection point is a consequence of the importance of knowledge to governments and the commercial sector. That is why we talk of the knowledge society or knowledge economy. I then sounded the alarm: state and market have knowledge requirements that, if not met by the research universities, will be sought out and paid for elsewhere. The extent to which this is happening in the United States or Western Europe, home to the greatest of the world’s research universities and, by far, the world’s most impressive concentration of research scientists, requires more space than available here, but I add two thoughts.

First, Western universities will continue to seek funds in order to improve their rankings, and in many cases will find their governments willing partners. China, South Korea, Singapore, even Saudi Arabia, show signs of following this path. If anything, rankings will grow in importance, operating as incentives and, worse, as measures of merit. We know that this is, if not outright nonsense, a trap based on a flawed definition of “merit.”

The good news is that Africa’s comparative poverty and weaker universities rule out this strategy. In its turn to collaboration, it is adopting a more 21st century model, one perhaps in tune with its deep communitarian principles. Africa’s leap-frogging success is well-known. It missed the landline phone phase and was an early adopter of mobile phones. It missed making the kind of university investments that earn top 100 rankings, so it can now skip that phase altogether in favor of a fresh *African platform* for scholarly knowledge.

Second, in the Western countries, the for-profit private sector is

capable of competing with research universities in the provision of knowledge required by the government and commerce—or at least is capable of doing so if basic science needed for long-term innovation is ignored. The latter is a distinct possibility, as the vocabulary of impact and performance metrics pushes against the narrative of curiosity-driven research and autonomy.

Except in for-profit teaching platforms, African universities have much less competition from the commercial sector. Moreover, Africa's collaborative research and training initiatives are giving serious attention to partnering with government, commerce, and NGOs, producing stakeholder platforms that will gradually so strengthen public good linkages that outside players cannot replace them.

If this is carried to the extent that basic research is left underfunded, the victory will be short-lived. Investing for the long-term requires a mature, African-specific science policy, one that realistically accepts why long-term investment is not likely from outside donors, which increasingly favor short-term and measurable outcomes. African governments will have to appreciate and fund basic research. Maybe somewhere in Africa's current economic growth is space for a mature science policy. Maybe this issue is already on the agenda of the national academies. I am too far removed from the African scene to know, but I am, with dismay, watching the possible dismantling of a science policy that served the United States well for seven decades. It balanced short-term needs with long-term investments, knowledge relevant to current conditions and knowledge that produced nonpredictable innovations years and even decades later—the Internet being a well-known example.

Setting aside the future of America's science policy, it would be a very happy development if, out of Africa, came a mature science policy.