

Chapter 8

University Research: The Social Contribution of University Research

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8.1 Introduction: Research and the University

The university is a conglomerate organization that combines many roles and functions. Clark Kerr (2001) famously dubbed it the “multiversity,” which immediately poses the question as to what holds the university together and what might be at its core. (Kerr’s answer to the first question was “the university president.” He was a university president, first at Berkeley and then of the University of California system. His answer to the second question, anticipating postmodernism, was “there is no core.”) However, within the balance of functions that comprise the conglomerate, research seems to grow each time we look.

The argument of this paper is that university research has acquired six distinct social roles. We can identify six separate but cojoined sets of research-related practices. Each set of practices is associated with (often largely informal) regulatory activities. Each set of practices is also attached to differing normative discourses about research—discourses often misleading as guides to fact or action, but formative of research and university cultures. There are certain tensions between the different roles, but research is central to both the internal organizational sociology of the university and its external social relations. These social roles of research in universities, which will be considered in turn, are as follows:

1. Research as the function differentiating universities from other educational and social institutions.
2. Research as the function that signifies the culture of the modern university and unites the academic professions.
3. Research as the function that differentiates and rank orders the academic professions.

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4. The research function as a determinant and signifier of brand value in national and global university competition.
5. The research function as one key (in extreme cases, *the* key) to economic innovation and, hence, as a key to economic growth and competitiveness.
6. Research as the source of open-source knowledge and creativity.

All of these roles have long antecedents, but their respective importance—the character of the mix and balances between them—varies over time. It is sensitive to the larger political, economic, and social context in which higher education sits, and to which it contributes. This includes the balance between internal and external elements—the research role evolves on the basis of both internal evolution, for example, disciplinary specialization and organization, as noted by Clark (1996), and it also evolves, shifts, and changes on the basis of the external social shaping and requirements of higher education, such as the advance of global standardization and integration, changes in the nation state and in the policy expectations of and systems in relation to higher education.

An historical note Before these social roles of research are defined and discussed, it should be noted that, while the European university has always had multiple missions, in the 1,000-year history of European universities and the 3,000-year history of university-like institutions that takes in India, China, and the Muslim world, scientific research—though not scholarship—is a recent development.

Like the modern university as a whole, contemporary research functions date from the nineteenth century. In 1810 in Germany, Wilhelm von Humboldt (1970) made an argument for a new University of Berlin. He wanted to combine received wisdom with “objective scientific and scholarly knowledge,” including scientific inquiry designed to push forward the frontiers of knowledge (p. 243). His “Idea of a University” was a teaching/research institution in which professors were free to teach and to inquire as they wished, students were mature self-motivated persons, and received authority could be questioned. “Science and scholarship do not consist of closed bodies of permanently settled truths,” he stated (p. 244). “One unique feature of higher education institutions is that they conceive of science and scholarship as dealing with ultimately inexhaustible tasks: this means they are engaged in an unceasing process of inquiry” (p. 243). Knowledge was often central to the university before this. The difference now was that it was provisional, open to continuous criticism, change, and evolution.

There are questions about whether the implementation of these ideas in Germany was derived primarily from Humboldt. Ash (2006, p. 246) argues that some of the practices associated with the German research university arose prior to the University of Berlin and others later, and the generic “Humboldt model” as such was largely the creation of government-driven university modernization in Germany at the beginning of the twentieth century. Myths, of course, can be powerful, and in the twentieth century, the Humboldt model was mobilized to support the predominance of the professoriate in university affairs, the teaching–research nexus, and the status of basic or pure research, vis-à-vis applied research. Regardless of the antecedents of the model, it took some time for German ideas about the role of

research and critical inquiry to be diffused beyond Germany. There was resistance in Britain. J. H. Newman (1982), in *The Idea of a University*, argued that the university was a teaching-only institution, with no role in research. It was focused on knowledge, yes, but with “the diffusion and extension of knowledge rather than its advancement” (p. xxviii). Newman believed that most major intellectual discoveries emerged from outside the universities. He polemicized against the idea of a teaching and research nexus. “To discover and teach are distinct functions; they are also distinct gifts, and are not commonly found united in the same person,” argued Newman.

The research university reached Britain and the rest of the world more directly from the USA than from Germany. Beginning with the graduate school model developed at The Johns Hopkins University, where nearly all the faculty had been German-trained (Fallon 2007) in the last quarter of the nineteenth century and early twentieth century, the research mission was installed in American institutions. In the US context, especially in the land-grant institutions, research—in contrast with the Humboldt model, there was something of a bias to the applied side—was often associated with the service mission and with economic development and innovation (Scott 2006). These associations with research have now become common to innovation systems in many countries. After World War II, Vannevar Bush developed the famous argument about basic research in science as the “seed corn” of useful discovery and technological advance. This resolved the tension between basic and applied research by advancing the notion of strategic basic research. Research was to be controlled autonomously by faculty, but there was an understanding that its ultimate rationale lay in innovations applied to human betterment and American national interest. The seed corn argument supported a great expansion of government-funded research, much of it sponsored by the federal defense department, or nuclear-related research funded by the energy department, or NASA research related to the space race, all driven by Cold War rivalry.

By the early 1960s, pure and applied research occupied a pivotal role in Clark Kerr’s (2001) vision of the multiversity. Kerr noted that a small number of American universities dominated federal research funding. In 1960, federal research funding provided 15 % of university income, with 57 % going to the leading six institutions (pp. 40–41). Nevertheless, the research ethos had become more widely established in universities, and the research-related spirit of continuous criticism and development had become part of their organizational culture. “Knowledge,” stated Clark Kerr, “has certainly never in history been so central to the conduct of an entire society” (p. 66). The American research university, he said, “has demonstrated how adaptive it can be to new opportunities for creativity; how responsive to money; how eagerly it can play a new and useful role; how fast it can change while pretending that nothing has happened at all. . .” (pp. 34–35). Kerr correctly predicted the transformation of worldwide higher education along the lines of the model of the American research university (p. 65). The last century has seen the diffusion of university science and the research university model throughout the world, but not quite everywhere. For example, the research role of leading universities in Russia is still problematic. Russia has not at all completed the

transition from the Soviet model of a zero-sum division between separate government research institutes and teaching-focused universities (Smolentseva 2007).

Much of the diffusion of the role of the university in research science is very recent, especially in East Asia. University research was initially dominated by the English-speaking countries, Western Europe, Russia, and then also Japan. There are now 48 nations or systems in which more than 1,000 science papers are published each year in recognized global journals, compared to 38 such nations or systems in 1995—an increase of 26.4 % in 14 years. Most such papers are from universities, though government research labs are important in some countries. Diffusion of the research role is not complete. In the majority of sovereign countries, the output of research science remains small or negligible. However, it continues to spread. The next zones of accelerated research performance may be Saudi Arabia and the Gulf States, which there have been marked recent investments in capacity. Iran has already seen a major jump in research output (NSB 2012).

8.2 Research as the Function Differentiating Universities from Other Educational and Social Institutions

In many (though not all) countries, research has become closely associated with the use of the title “university.” The underlying logic is the creation of a bounded university field in Bourdieu’s (1993) sense of field, or to be more strictly accurate in the terms of that argument, the creation of a pole or subfield within the larger field of higher education. The associated discourse is that of the research university. Social organizations such as universities depend on “identity-centering” boundary markers that differentiate themselves from all other social institutions. When those boundaries are blurred, the organization is in trouble (Considine 2006). Claims related to knowledge might be invoked to define universities, and sometimes are, but many knowledge-related functions take place outside universities and non-university knowledge-building is increasingly fostered in digital spaces (Sharrock 2007). Research is a surer marker of identity, and one that is more prestigious. Claims for the research role are claims both for inclusion within the prestigious part of the university field and for differentiation from teaching-focused institutions such as liberal arts colleges, vocational training institutes, and, in some nations, teaching-only universities.

The regulatory activities go to the ordering of the definition of “university” or “research university” on the basis of law or convention—in some countries, it is illegal to claim the title “university” without a recognized research role—and other moves defining the field of higher education and the character of research universities, such as classification and mission statements. University web pages are another informal regulatory practice. Web pages often promote academic drift by claiming a larger role in research than is warranted by the university’s activity

and capacity. Nevertheless, this reinforces the association between the research mission and the external identity-building activities of universities.

That association is not watertight. The field boundaries of the university vary by country. While research in the form of published science has a standard global character, there is variation on the question of teaching-only universities. Further, universities are not the only social organizations that are defined in terms of the research mission. Government laboratories and institutes play a part in many nations, and are especially important in Russia (as previously noted), China, Korea, France, and Germany. Nevertheless, in all these cases, the government is now actively fostering the research mission within universities. The existence of government research institutes no longer diminishes the association between universities and research to the extent that it once did. In that sense, the comprehensive research university is near universal; a tendency reinforced by the facts that the research training function is largely centered on universities, as is both the editing of academic journals and the bulk of published science.

8.3 Research as the Function That Signifies the Culture of the Modern University and Unites the Academic Professions

This is the internal identity-building function of research, counterpart to its role in constituting the external field boundary. It has deep roots and is especially important in forming and demarcating the academic professions and the internal organizational cultures of universities. The underlying logics are research as universal labor and research as an output economy. The associated discourses are those of the teaching–research nexus, and academic freedom and creativity. These discourses play a major role in university life. The corresponding and equally important regulatory activities include doctoral training and the formal requirements of faculty in job performance, appointment, and promotion.

Government and institutional regulation associated with this function of research emphasize cross-field aggregated collections, such as publication counts, in which all fields are given the same nominal status, and there is no differentiation by the quality of journals. In performance management, the standard expectation is that all tenured or tenurable staff should be research-active, and all are respected as potential researchers, even if they are not currently research-active. The collegial and serendipitous culture underpinning this function of research is summed in Oakeshott's statement that research is "a conversation that does not need a chairman [sic], it has no predetermined course . . . and we do not judge its excellence by its conclusion" (Davis 2010, p. 50). Research is a common project of inquiry with no end and, thus, no essential applications or uses. Notions of a research mission universal to the institution are often invoked to support claims to university status and inclusion within the field (see the previous section on function 1). More

generally, the normalization of research as universal faculty activity signifies the completion of the transformation into the research university launched in the nineteenth century in Germany and the USA. As such, it is symbolically important (even while being unachievable!), signifying the full modernization of a national university system.

However, this notion of research, and also the notions of research in the discourse of the teaching–research nexus, tend to be shaded by the notion of scholarship. In this context, non-refereed conference papers might be held to constitute sufficient proof of research activity by faculty. Indeed, in no comprehensive university, including Harvard, do all full-time faculty hold current research grants. This comprehensive and egalitarian understanding of the research function differs from that fostered in excellence discourses and comparisons and management technologies that rank order on the basis of research quality (see the following two sections relating to functions 3 and 4). Social function 2 is closer in sympathy to the mass teaching mission, with its emphasis on universal inclusion, than are those functions of research that emphasize hierarchy, selectivity, and exclusion.

Nevertheless, in some national systems, there are signs of growing differentiation between the faculty role in undergraduate teaching and the research-focused work of the faculty at the graduate level or in the graduate school. This split was always inherent in the American model, though in the USA, it often became expressed more in differentiation between first degree colleges and research institutions, rather than within institutions. More widely, the need to lift research performance so as to push up the rankings is now fostering an increased emphasis on research-only and largely research-only faculty labor.

8.4 Research as the Function That Differentiates and Rank Orders the Academic Professions

This is the elitist and hierarchical function of research within universities, where research activity—more strictly defined than under function 2 as established publications and grant-based projects—is used for differentiating vertically between individuals and also between fields and academic units, and enabling fine-grained systems of performance management and certification. It is the other side of the universal, uniting, and egalitarian role of research among faculty, and, as noted, it has become much more important in the era of the new public management (NPM), which imagines research in terms of production economics. The underlying logic is research as a competitive status economy. The associated discourse is that of excellence. Regulatory activities include the technologies of research performance measurement, the competitive ranking of individual and unit performance within universities, and internal university systems of funding and appointment or promotion linked to status-creating research performance.

The logic of the elitist, exclusive, and highly managed research function 3 is radically in tension with comprehensive egalitarian and bottom-up function 2. In ordering the academic professions, the two functions are opposed at every turn. Yet, they also coexist, as necessary opposites in the ordering of faculty. As Readings (1996) pointed out, the vacuous meaninglessness of the term “excellence” enables it to function as the common denominator of research across fields—nominally preserving the inclusive and egalitarian character of research function 2, while valorizing also the function 3 technologies of differentiation in terms of generic research management (Wechselblatt 2002). It is here that inclusion and differentiation of faculty function as necessary opposites. It is not “excellence” that is common to the disciplines, but the management of them. But function 3 is more than a management plot because it too has deep roots in academic cultures. The one unambiguous driver of career advancement in research universities is success at the highest level of research. “Highest” means both the most prestigious and the most competitive level of performance, as in research grants, and academic publishing status is assigned on the basis of ranked performance. In practice, this means that status and the associated rewards (grants and infrastructure resources, promotion, recognition) are distributed in a highly stratified fashion. In research funding, the distributional picture is clouded by inequalities between disciplines due to the uneven spread of commercial research opportunities and the unequal prestige of fields themselves, so that stratification is not entirely merit based. However, the point is that the amplitude of vertical distinctions made on the basis of research performance is not wholly generated by the instruments of measurement. A persistent pattern in intellectual fields is that a small number of people made a high proportion of the recognized major contributions (Murphy 2010).

8.5 The Research Function as a Determinant and Signifier of Brand Value in National and Global University Competition

Research science, as manifest in rank-ordered measures of university performance, is especially determining of the value of institutional brands in global competition, and, to an increasing degree, their standing in national competition as well. Research performance also feeds into the value of national system brands in a globally competitive environment in which governments operate as “competition states” (Cerny 1997). The determination of value in competition might be the most important function of research in universities, sociologically speaking. The underlying logic is research as a competitive status economy. The associated discourses are those of excellence and quality. Regulatory activities include university research counts and ranking—largely informal but very powerful—and government programs that evaluate and rank universities, disciplines, and units according to measured research performance.

Universities are located in—among other spaces that they inhabit—national and global status markets. Status is a relative or positional concept. Universities are engaged in positional competition (Hirsch 1976) with each other. In this competition, the status of higher education institutions is “the perceived quality of that producer’s products in relation to the perceived quality of that producer’s competitors’ products” (Podolny 1993, p. 830). Here, positional competition is shaped by the structure of positions. “A producer’s position in the market affects the relative opportunities open to that producer in comparison to those available to its competitors” (Bourdieu 1993, p. 830). Hence, the most important factors in determining market position are the identity of the actors and their status rank order, not the standard of their outputs (Aspers 2009). The status or brand power of an institution is valued for two reasons (Podolny 1993, pp. 830–831). Status is an end in itself; for example, students and graduates draw personal value from attending elite institutions; and status is a signal of perceived quality. Also, in research universities, university status, the value of the individual university brand, is primarily determined by research performance (e.g., Dill 1997; Horta 2009). Research determines status that is seen to signify quality. Stellar research performance helps to sustain the reproduction of elite status by attracting both high-scoring students and high-achieving faculty, and the resources they bring, further augmenting research outcomes, and so on.

The relationship between research and status has been much reinforced by the technologies of university ranking. Prominent global rankings are either wholly based on research, such as the Shanghai Jiao Tong Academic Ranking of World Universities, or include research as a sizeable component (QS World University Rankings) or a majority component of the index (Times Higher Education). Status is also augmented by selective student entry, but research reputation is now necessary for continued selectivity at the national level, except in the small liberal arts college sector in the USA. Research is especially essential to global status.

Studies of student choice find that most students prefer a high-status research university to a lesser status institution with better teaching (Hansmann 1999; James et al. 1999). In this context, it is unrealistic to talk of higher education as a competition based on institutional “quality” or student satisfaction, unless “quality” means the market power of university brands. The publication of comparative indicators on graduation rates, student–staff ratios, library facilities, and surveys by students and graduates cannot change this. The comparison that matters is rank-ordered league tables. These settle all questions of value. Here, there is no information asymmetry between producer and consumer, as there is in relation to, say, learning quality. “By having a stable social structure of identities with positions fixed in relation to each other, which make up a status hierarchy, the market overcomes the problem of asymmetry” (Aspers 2009, p. 116). League tables of research output matter more than league tables of student satisfaction. Research is integral to brand value, whereas student satisfaction is not. Even the foreshadowed OECD data on comparative student achievement—while it will have its own power—will not dislodge the centrality of research in status.

Global competitive ranking plays a primary role in dictating not just the global hierarchy of individual institutions, but also the hierarchy between national research and innovation systems, and, therefore, also the hierarchy between different intellectual cultures. As is now well and widely understood, global ranking both drives standardization on the basis of an English-language monoculture and model of science and secures the status dominance of the leading universities in the English-speaking world where that scientific capacity is concentrated. This process is described by Zha (2009): “Competition for scarce resources”—in this case, the scarce resource is status—“causes institutions to become more similar because the uniform environmental conditions of competition bring forth similar responses. Consequently, there is a convergence of institutional function structures elsewhere”... “During the integration process, a hierarchical order begins to emerge, as organizational integration implies standardization, which measures institutions by one single set of criteria and tends to define them by rank or by the score they obtain compared to other institutions. The integrative regime then moves towards a hierarchical regime. In an integrated hierarchical system, research qualifications are usually the essential condition for access to resources and prestige. This has essentially become a worldwide phenomenon” (p. 459). And, further:

In an integrated hierarchical system, research qualifications are usually the essential condition for access to resources and prestige... Consequently, the research-intensive universities become dominant players in the international arena, while the teaching-focused institutions are fundamentally mandated to meet domestic and local needs... In this process, if the more developed countries have experienced to a large extent normative pressure, the developing countries have experienced “mainly coercive and mimetic pressure” (Vaira). (p. 463).

There has been a multiplication of rankings based on composite indicators (e.g., SJTUGSE 2012; HEEACT 2011) or single measures (e.g., Leiden, CWTS; SCIMAGO 2012) of research performance. These vary in the extent to which they factor in quality measures such as highly cited researchers, papers in leading journals, or the ratio of highly cited papers to total papers; or focus instead on paper quantity. The role of these instruments in status valuation makes them especially potent and we can expect much development of the industry in the measurement of research publication and citation, reinforcing this function of research.

8.6 The Research Function as One Key to Economic Innovation and, Hence, as a Key to Economic Growth and Competitiveness

Research in science and technology is positioned as key to innovation, growth, and competitiveness. This includes both commercial research and research as a public good. Here is a typical understanding of this social role of research, from an Australian Government report on the innovation system:

Research in the public and private sectors creates new ideas which fuel innovation, while skilled workers drive innovation by turning ideas into new products, services and processes for the benefit of the economy and society. (Australian Government 2010, p. 2)

The underlying logics are research as a condition of economic production and value-creation in other sectors, and research as a generator of, and commercial market in, intellectual property. The associated discourses, which are ubiquitous, are those of innovation and the knowledge economy, and a subset of those arguments focused on university “engagement” with industry and community. Regulatory activities include research funding programs designed to foster links between universities and innovation in industry, programs focused on engagement and region building, and assessments of university and research performance that are based on the alleged “impact” of research. Nevertheless, the impact of research—especially basic research—is difficult to measure exhaustively because the effects tend to be longer term and positive outcomes are normally dependent on other conditions associated with innovation. For example, even the creation of commercializable research does not, in itself, guarantee industry will find the necessary capital investment and take the risks.

Despite this, the government can be expected to persist with measures of impact as these technologies enable states to strengthen their control over the relationships between universities, industry, and government. In the last analysis, the positioning of research as a branch of the economy and key to competitiveness is primarily a device for securing and maintaining state management of science. In that respect, the innovation discourse and its social function 5 practices are specifically in tension with the collegial notion of research subject to academic freedom that is sustained by social function 2. More generally, there may be some tension between the focus on applied research suggested by function 5 and the valuing of basic research—in quite different ways—that is engineered by the collegial function 2 and the brand building of research in social function 4.

The innovation argument, which also shades into the creativity argument (below), has several antecedents (Peters 2009). For example, in economics, Denison (1962) modeled education and research as the “X-factor” that explained the residual in the long-term growth of the US economy. Denison stated that the residual was large, explaining over 40 % of growth, and assumed that research was the main component. Romer (1990) and others reinvented economic growth models to encompass continuous technological innovation. Porter (1998) included research within the factors affecting the long-term competitiveness of nations. The role of research in innovation and competitiveness has also been powerfully shaped by the growing relative importance of knowledge-intensive production and trade, and conditioned by the ubiquity of information and communications technologies (ICTs). Since the early stages of the Internet, universities and research institutes have been relatively highly networked.

Within innovation systems, universities take the main role in basic research, and at a time when public funding to support university teaching is often problematic, there is little debate about the need for public investment in research, though there is

debate about how and how much to invest. Nations vary in their patterns of investment in university research, but the overall secular trend is for increasing investment. In many but not all countries, the rate of increase in spending on research in universities appears to have been advanced following the beginning of global university ranking in 2003. In some of these cases, spending has also become more concentrated on leading universities. Here, the dynamics of the innovation function coincide with the dynamics of brand competition. Social functions 4 and 5 tend to articulate and support each other. The role of research in innovation systems also underpins both the management of research as a universal aspect of academic labor (function 2) and the targeting of investment on the basis of performance (function 3). The growing emphasis on research impact makes function 3 more important than function 2.

8.7 Research as the Source of Open-Source Knowledge and Creativity

Universities are principal generators of freely accessed knowledge across the range of disciplinary fields (Webometrics 2012), a role that, again, has been enhanced by their takeup of ICTs. This social function of research in universities is associated with a range of activities, from publicly disseminated “open science” via academic publishing (OECD 2008), to the role of universities in the expanding blogosphere, to university contributions to the arts, to the fostering of concentrations or precincts of creative workers across fields. Its underlying logic is research and its dissemination as public goods. The associated discourses are those of open-source knowledge and exchange, and creativity. Regulatory activities are less well developed than in relation to the other social functions of research, but some measures of research output and impact enter this territory.

Unlike the innovation function—where the ultimate index of value is the contribution of research to measured economic growth, except, perhaps, in research on medicine and ecology, where welfare concerns are uppermost—the functions of open-source exchange and creativity do not exclude the arts, humanities, and the humanistic social sciences. In this function of research, also, there is likely to be more emphasis on the role of research, especially social research, in gathering evidence on uncomfortable problems, interrogating society, and speaking truth to power. Here, there are tensions between the practices of university research as open-source knowledge flows and the more instrumental and reproductive functions of research in the innovation economy (social function 5), especially commercial research. There are also tensions within social function 5 between differing uses of research, such as, on the one hand, public goods research in ecology or medicine, and, on the other hand, the development of commercial intellectual property for mining or pharmaceutical companies.

How much of this open-source function of research is university based? Universities that harbor their own role in the validation of knowledge, excluding as much knowledge from circulation as they include, are not perfect vehicles for the open-source movement. Much open-source research, especially much critical scholarship and more creative activity, takes place outside universities. The literature on “hotspots” of creativity (e.g., Florida 2002) emphasizes the social and economic milieu of creative work beyond the universities. Here, universities, as concentrations of research activity and career opportunities for creative people, are seen as contributors to the pool of talent, to its mobility and organization, and to cross-field stimulus. Examples often mentioned are the proximity of Stanford and Berkeley to Silicon Valley, and Harvard/MIT to the Boston corridor. These are arguments by association that rarely get to the bottom of whether the university was a generator of the entrepreneurial activity, or functioned as a necessary but insufficient condition, or had a looser role.

8.8 Discussion

This outline of the six social functions of research makes it possible to explore the actual (and potential) harmonizations and tensions between these functions. In matrix form, the relationships between them is shown in Fig. 8.1.

Research as the function differentiating universities from other educational and social institutions, social function 1, is compatible with research as the unifying culture across the academic professions, and by defining the field of university research activity, it frames the competitive status market in higher education. It has no necessary implications for the functions of research in differentiating the academic professions and the role of research in innovation.

Research as the function that signifies the culture of the modern university and unites the academic professions, social function 2, is compatible with the functions of research in the innovation economy, and it is in necessary tension with the opposing social functioning of research as the differentiating factor in the academic professions. Both rank ordering and egalitarian inclusion, both difference and sameness, are essential to the ordering of university faculty.

Research as the function that differentiates and rank orders the academic professions, social function 3, is strongly compatible with research as the defining value in status competition between universities. Both involve status ordering. Their respective discourses of meritocratic competition are closely overlapped.

As noted, research as a determinant and signifier of brand value in national and global university competition, social function 4, draws its definition from the field boundary (social function 1) and is strongly confirmed by the status ordering of academic faculty within institutions (social function 3). It is also closely compatible with the innovation economy functions, for example, where these emphasize global competitiveness. It is in obvious tension with the egalitarian ordering of the academic professions in social function 2. As noted, the function of research in

	1 Research as border of field	2 Research unites faculty	3 Research stratifies faculty	4 Research as brand value	5 Research innovates economy	6 Open source creativity
1 Research as border of field		MUTUAL SYMPATHY		MUTUAL REINFORCE		TENSION
2 Research unites faculty	MUTUAL SYMPATHY		TENSE but NECESSARY OPPOSITES	TENSION	MUTUAL SYMPATHY	SOME MUTUAL SYMPATHY
3 Research stratifies faculty		TENSE but NECESSARY OPPOSITES		STRONG MUTUAL REINFORCE	MODERATE TENSION	TENSION
4 Research as brand value	MUTUAL REINFORCE	TENSION	STRONG MUTUAL REINFORCE		STRONG MUTUAL SYMPATHY	STRONG TENSION
5 Research innovates economy		MUTUAL SYMPATHY	MODERATE TENSION	STRONG MUTUAL SYMPATHY		TENSION BUT OVERLAPS
6 Open source creativity	TENSION	SOME MUTUAL SYMPATHY	TENSION	STRONG TENSION	TENSION BUT OVERLAPS	

Fig. 8.1 Relationships between the six social functions of university research

economic innovation (social function 5) draws support from brand competition. At the same time, it is framed in the terms of a universal function of universities and, thus, tends to be more compatible with social function 2 than 3.

Research as the source of open-source knowledge and creativity exhibits a greater or lesser level of tension with all of the other social functions of research in universities, except for research as a signifier of faculty commonality (2).

The outline of the six social functions of research also raises questions about the contextual factors that have shaped university research. In the last 20 years, communicative globalization has tended to elevate the importance of some functions, including social functions of research 4, 5, and 6 that relate to status competition, the role of university research in innovation and economic growth, and its role in the open-source knowledge environment. The NPM intensifies competitiveness in higher education—again, augmenting status competition (social function 4) - drives the technologies of performance management and multiplies the means of differentiation of academic work (social function 3), and favors an intensification of the relationship between university research and innovation (social function 5). The NPM explicitly elevates function 3 (academic hierarchy) relative to function 2 (academic college) and rearticulates global convergence as status competition.

More generally, the six roles of research have differing points of origin. Arguably, the social function of research as a boundary marker (social function 1) has been shaped from inside the research university as part of its processes of self-definition and identity formation, even though the specific acts of boundary making must be validated by external authority, usually government. The social function of

research in defining the unitary culture of the academic professions, and its social function in differentiating and ranking that same profession (functions 2 and 3), also originate largely from within universities. The function of university research in open-source knowledge (function 6) has mixed origins, both internal and external, though it is now primarily sustained by Internet technologies developed outside the sector. The social function of research in the innovation economy (function 5) is largely a state-developed discourse foisted on universities from outside, albeit with their often enthusiastic collaboration.

University ranking technologies—research as the index of value in the university status market (social function 4)—partly originated from media companies outside the sector, are supported by public enthusiasm, and are valorized by states that explicitly arrange higher education as a field of competition and construct individual student engagement in higher education as a process of investment in private returns. These moves have made the issue of brand value crucially and generally important. At the same time, research universities also exhibit endogenous desires to compete and hierarchize themselves. The strongest institutions have a vested interest in more intensive competition, which carries little threat to them (elite universities are rarely displaced from their leading role) and helps them to sustain their advantage. Some ranking technologies also come from inside the sector, including those of Shanghai Jiao Tong and Leiden University. In the status market, the external drivers of the research mission coincide with internal drivers. It is not surprising that the status market is now strongly embedded in the contemporary university.

Lastly, this account of the social role of research throws some light on the relationship between research and teaching in the research university. Given that time is zero-sum, there are obvious tensions between these two mega-functions of contemporary universities—between enhancing research activity and enhancing teaching in a mass higher education system. In the end, it is teaching time per student that misses out. There are also tensions between the role of teaching as personal, social, and moral formation of persons, and the more bounded role of research in specific inquiry. It is only in the research training process that the role of research in subject formation is acknowledged, though that role is profound, shaping researchers more deeply than most forms of teaching.

But what are the practical points of junction and potential synergy between teaching and research? There are limited direct overlaps: in research training, though this is mostly categorized as research only; and in research-informed teaching. The systems for defining academic labor and managing academic research performance (social functions of research 2 and 3) provide mechanisms for balancing teaching and research. However, the strongest nexus is through the status-building role of research (social function 4). As noted, research feeds into the brand value of the university degree. Hence, it determines both the value of the teaching/learning opportunity for the student, and, later, the value of the taught degree that she/he takes into the labor markets. This is the true nexus between teaching and research and, arguably, the primary factor in holding together the disparate conglomerate activities of Kerr's "multiversity."

8.9 Conclusions

Research in higher education carries out a multitude of social functions, but this complexity does not exceed the grasp of observation and reason. This paper has identified six distinctive social functions, while acknowledging that there are points of overlap and of internal tension between these six functions. The main point is that there is little to be gained by discussing research in higher education exclusively in terms of one or another function or associated discourse, such as academic freedom or rankings or the innovation economy. Such “single-issue” approaches, often mobilized for normative purposes, tend to confuse discussion.

The six social functions are not fixed in stone and the balances and relations between them are constantly changing. In the last two decades, the dominance of neoliberal and NPM policies and programs has been associated with a decline in the organizing power of the collegial function of research, as a universal signifier of faculty labor (though this function remains strong) and the growing potency of practices associated with research as the differentiating factor in academic labor, research organized by the competition state as a source of innovations and economic competitiveness, and research as the index of value in interuniversity competition. Though globalization is neither in itself neoliberal, competitive, nor national, the particular combination of neoliberal practices and global convergence that characterizes this period has elevated both the competition state and global research competition to unprecedented importance in society. These functions, especially status competition, fragment and localize other social functions of research, including its collegial face and open-source potentials.

In today’s enhancement of five of the six functions of research (the exception is the collegial function), there are signs of research overreach. There must be doubts about whether the centrality of research is merited, especially its default role in global status competition. The normative issue raised by the multiple character and pivotal importance of research is whether and to what degree research values and valuation should enter into judgments about the university’s role in the education of students, including both knowledge transmission and valuation. The question “what is a university” is raised anew. So far, these doubts have been impotent in the face of the research juggernaut, though the growing fragmentation of teaching/research forms of faculty labor might, in the end, prove to be a Pyrrhic victory for the research mission in universities, as it tends to undermine the conditions that have, so far, supported the rise of research.

As the rising social functions of research are both partly (status) or largely (innovation) external to the university, the net result of these shifts is also to bear down upon the internal life and self-reproductive capacity of the university as an institution. It is in this sense that the university might be losing its way. But it is too easy to slide into reflexive pessimism, perhaps the dominant strand in conversations about the future of the university.

The university appears to us as a flabby and raddled beast; like so much of contemporary modernity, it recalls the time of the late Roman Republic, a grand

tradition that is now struggling to survive, shot through with cynicism, with public values stymied by private appetites and reduced to a kind of crude egotistical display. Yet, it still whirrs incessantly and reaches for the stars, fecund and full of life. Always full of multiple potentials, always communicative, and, suddenly, now enlarged to the level of the world. It is not yet time to give away the university and the social functions of its research.

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