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# University expansion and the knowledge society

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**Abstract** For centuries, the processes of social differentiation associated with Modernity have often been thought to intensify the need for site-specific forms of role training and knowledge production, threatening the university's survival either through fragmentation or through failure to adapt. Other lines of argument emphasize the extent to which the Modern system creates and relies on an integrated knowledge system, but most of the literature stresses functional differentiation and putative threats to the university. And yet over this period the university has flourished. In our view, this seeming paradox is explained by the fact that modern society rests as much on universalistic cosmological bases as it does on differentiation. The university expands over recent centuries because – as it has from its religious origins – it casts cultural and human materials in universalistic terms. Our view helps explain empirical phenomena that confound standard accounts: the university's extraordinary expansion and global diffusion, its curricular and structural isomorphism, and its relatively unified structure. All of this holds increasingly true after World War II, as national state societies made up of citizens are increasingly embedded in a world society constituted of empowered individuals. The redefinition of society in global and individual terms reduces nationally bounded models of nature and culture, extends the pool of university beneficiaries and investigators, and empowers the human persons who are understood to root it all. The changes intensify universalization and the university's rate of worldwide growth. For the university's knowledge and "knowers," and for the pedagogy that joins them together, the implications are many. The emerging societal context intensifies longstanding processes of cultural rationalization and ontological elaboration, yielding great expansions in what can and should be known, and in who can and should know. These changes in turn alter the menu of approved techniques for joining knowledge and knower as one. The "knowledge society" that results is distinguished by the extraordinary degree to which the university is linked to society. But it is also distinguished by the degree to

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which society is organized around the university's abstracted and universalized understandings of the world and its degree-certified graduates.

In this article, we examine the contemporary development of the university around the world. Over recent decades, higher education has amassed a large and rapidly increasing population of young persons thought eligible for study, the great majority of whom attend university-level institutions rather than more limited or specialized schools. Now approximately 20% of the relevant age cohort is enrolled in higher education worldwide (Altbach 1998; Schofer and Meyer 2005; UNESCO 2005). Not only are more people involved in tertiary schooling but also more kinds of people are understood to be appropriate candidates (some once stigmatized, as with females or minority and lower class persons – see Karabel (2005)). Thus the university increasingly incorporates an array of persons with highly variable qualities, accommodating differences in personal interests and capacities – across gender, class, ethnic, and national lines – and welcoming a variety of individual tastes. Also around the world in the post-World War II period, the university broadens to encompass a much wider academic portfolio, extending to cover grand schemes and minute details of nature and society and all kinds of personal perspectives and interests (Frank and Gabler 2006). Within the university context now, for instance, it is possible to study performing plastic surgery, managing a small business, and producing formerly denigrated forms of lowbrow art.[1]

It is common to see all this growth as rooted in the university's success at training students and shaping cultural materials for the elaborating role demands of contemporary society. The university, it is asserted, provides the differentiated training and research programs functionally required by complex societies or their power structures, and may even play a role in producing desired social development.

While sensible on the surface, and taken-for-granted in many quarters, this functionalist explanation of the university's expansion shows several limitations, detailed below. Here we offer an alternative interpretation, proposing that the university's worldwide success reflects factors far removed from the technical demands and training requirements of today's complex societies. The university survives and flourishes in the contemporary era not by practically shaping people and cultures for a great modern societal machine but rather by casting the building blocks of a universalistic and principled cultural unity. In the original model of the university, this unity was religious and transcendental. The frame is now secularized – rationalized and scientized. But the old model's meta-principles – that universal knowledge covers the entire world of nature and social practice and stands accessible to competent humans – remain secure. The university, we argue, organizes students and cultural materials less around efficient production than around principles that transcend local realities and stand at considerable distance from any concrete particularities, and less in particular local terms than as microcosms of the global and universal.[2]

[1]Already a century ago, the range of university subjects was sufficiently extended to include, for example, courses in Bandaging and Cattle Feeding at Tokyo Imperial University and degrees in Brewery Engineering at Belgium's l'Université Catholique de Louvain.

[2]One finds many examples of the university's universalizing tendencies. For example in the 1879–80 Catalogue of the University of Wisconsin, a course in Agricultural Botany – addressed to Wisconsin's farm-raised youth – is presented in highly abstracted and scientized terms. "Agricultural Botany: Botanical characteristics and geographical distributions of the natural orders, with their relative importance. The genera and species having agricultural value; those having commercial or medical value; those having ornamental value; and those which are noxious or detrimental, as weeds or poisonous plants."

From this viewpoint, the huge expansions in the university's student enrollments and academic contents do not principally reflect a rise in society's operational complexity. Rather, they exhibit the intensifying interpenetration of the global and universal with the local and particular. The Modern globalized knowledge system increasingly extends into the furthest reaches of daily life, spreading universalized understandings of all aspects of nature and every social institution worldwide. At the same time, a great many young locals are now seen to be capable and fit for university studies, and these persons, in becoming schooled, exchange the distinguishing marks of locale for the discipline of universalized global life. In the university, in short, the local particularities both of that which is known and those who know are increasingly reconstituted in global and universal terms.

## Background

Over the whole Modern period, and especially over the last 60 years, the university has expanded greatly along several main dimensions all over the world. There are many indicators of change.

(1) Most simply, the number of universities globally has expanded exponentially, and practically all nation-states now have universities (Riddle 1989, 1993; UNESCO 2005). This is true even in the tiniest and poorest countries (e.g., the National University of Samoa serves a population of about 175,000, and the National University of East Timor operates in a country with a GDP/capita of around $400).
(2) Student enrollments have risen sharply, exploding in number and also becoming substantially more diverse. In 1900, there were about three tertiary education students per 10,000 people worldwide. By 1950, this number had increased eight-fold to 25. By 2000, it had increased another six-fold to 166. In aggregate, this means there were more than 100 million students globally in the year 2000 (Schofer and Meyer 2005). And these students are no longer simply core-country elite males, as in the past (Karabel 2005). Enrollments have escalated almost as rapidly in the world's peripheries as in the core (Schofer and Meyer 2005; UNESCO 2005), and growth has been especially dramatic among females, formerly often excluded. Female students, in many countries, are now in the majority (Bradley and Ramirez 1996; Schofer and Meyer 2005). For instance according to Saudi Arabia's Minister of Education, female students represented 53% of the kingdom's total in 1996, as higher education "follow[ed] an open-door policy and provide[d] equal opportunities for all citizens without any discrimination."[3]
(3) The traditional variables thought to produce and/or require higher education – social differentiation and development – turn out to make little difference in predicting expansion in the current period (Schofer and Meyer 2005; Windolf 1997). In Armenia, for example – a country with fewer than three million people and a GDP/capita barely 60% of Romania's – there are 103 universities and institutes of higher education, enrolling over 200,000 students (Antonian 2000).
(4) The range of cultural materials incorporated into the university curriculum has also swiftly elaborated. Departments, degree programs, institutes, and centers of instruction all have multiplied rapidly. In 1879 for instance, University of Wisconsin students chose among just six possible majors, with few elective options within each

[3] See http://unesco.unesco.org/images/0011/001172/117267.e.pdf.

major. By 2005, Wisconsin students faced 155 possibilities, with a multitude of internal choices (Frank and Meyer 2006; Robinson 2005). Such changes reflect more than simple differentiation. Many new arenas of study and research have been established, so that one can study matters formerly considered mundane, trivial, or otherwise inappropriate (popular culture, for instance, or civil disobedience). While many of the new topics have appeared in the natural sciences and the humanities, the greatest expansion by far has involved the creation and rise of the social sciences (Drori and Moon 2006; Frank and Gabler 2006). Fields such as sociology, economics, political science, and psychology, which once had no place at all in the university, are now found almost everywhere.

(5) As a final indicator of university expansion, we note that the structure of the university organization has developed greatly. Far beyond lengthening faculty and student rosters, a wave of managerialism has washed over universities globally in recent decades (Drori et al. 2006; Krücken and Meier 2006; Ramirez 2006), catalyzing the rise of many new administrative, service, and management posts. Whole new categories of employee – experts in such matters as public relations, fundraising, and environmental health and safety – now appear routinely in university organizations. In effect, this structural expansion indicates a rapid proliferation of linkages between the university and the wider society – linkages carrying social influence into the university and incorporating expanding societal interests, but also linkages carrying university influence out into society, under banners of progress and change.

In fact, the five developments discussed above – which produce more universities in more countries with more students, more objects of study, and elaborated organizational structures – all imply denser linkages between the university and society. Increasingly, political, economic, and cultural forces, formerly bounded off, have been incorporated into university life. Problems, demands, and resources associated with every institution in contemporary society now appear on university agendas, calling for relevant research and teaching. The university is called upon to help with great social problems – improving business organizations and capital investments, protecting the natural environment, preserving human rights and cultural diversity, resolving crises of governance, promoting democracy, etc. – in every country around the world. At the same time, the university is accountable to immediate problems at hand – training local business leaders, preserving local cultures, improving local childrearing practices, protecting local species, and so on – all in light of general norms.

This process is often regarded with alarm. The thickening web of linkages typically is seen to lower the university's resistance to virulent external interests. But it is just as reasonable to see the elaborating connections as reflecting the university's mounting influence, and even dominance, in contemporary society. If the university is increasingly saddled with demands from society at large, it is obvious that society is even more besieged by the university. Over the last two centuries, and dramatically over recent decades, the university has assumed ever more authority over every societal function. Virtually all elite occupations globally are certified by the university (Sullivan 2005), and nearly all the world's stratification systems are legitimated by university-based knowledge. Socio-economic progress itself is now thought to rest on university knowledge (so-called cultural capital) and university certificates (a form of social capital). Thus education-based discrimination can be encouraged and even compelled by law, while other and older forms of discrimination – on class, gender, age, ethnic, or religious grounds – are strictly prohibited (Brown 2001; Collins 1979). In short, vis-à-vis all sorts of public and private matters, the authority of the university speaks to the widest range of decision makers.

Along these and other dimensions, the university has experienced extraordinary growth, rising over the course of Modernity and diffusing worldwide. In the post-World War II period, the university's development has even intensified. Amidst such sweeping changes, it is unsurprising to find criticisms of particular aspects of the university's expansion, including the rise of market pressures as the university expands into society, the fall of the Canon as formerly excluded subjects gain curricular standing, and the creeping appearance of social conventions (e.g., speech codes) in deference to increasingly diverse university populations (e.g., Bok 2003; Geiger 2004; Kirp 2003; Kors and Silverglate 1998; Readings 1996; Slaughter and Leslie 1997). More surprising perhaps is the general sense of misgiving that haunts much of the university expansion literature.

On the face of it, after all, the university over the last several decades has enjoyed stunning success. But the literature is curiously wary in tone. In most judgments, the institution's expansion is thought to signal fragmentation, not vitality, involving a descent from a Golden Age and the weakening of cultural integration, established values, and high knowledge, and even the fall of autonomous truth in the face of the Modern Leviathan (Kerr 1991; Rojstaczer 1999). The proliferation of university-society linkages, meanwhile, is seen not to reflect the university's rising authority but to represent new forms of subjugation, involving heightened submission to external – and particularly now commercial – powers (Bok 2003; Washburn 2005). Only a few analysts see in the tightened linkages – and even in the university's prophesied collapse in the face of more specialized educational arrangements – the potential for improved rationality and efficiency (Hatakenaka 2004). Thus the rise of tertiary instruction outside the traditional university form – in industries, by consultants, in for-profit arrangements, through licensing and franchising schemes, etc. – attracts much attention, whether from fear or hope (e.g., Berg 2005). At least, it is assumed that the present-day university must become more efficient to survive the onset of less favorable, more competitive societal conditions.

Underlying nearly all work along these lines is a common analysis of university expansion. It rests on a depiction of contemporary society as ever more complex, differentiated, and dependent on specialized knowledge. And it poses the functional demands of this system – the needs of the emerging "knowledge society" – as driving the university's recent growth and in turn threatening to overpower its core.

The whole story here is a familiar reprise. During the high period of Modernity – between the late eighteenth century and World War II – much the same thing happened. On one hand to the surprise of many, universities expanded worldwide – in size, in number, and in importance. On the other hand, traditionalists lamented the institution's expected demise, while progressives hailed the impending downfall of an organization too moribund to fuel the Modern social machine. The basic analysis then was the same as that found now. Observers assumed social differentiation would come to demand more highly tailored and specialized sites of training and knowledge creation than the university could offer, or else that in accommodating to the new demands, the integrated character of the university would be completely undercut.[4]

Indeed during the high Modern period, major episodes of university destruction did occur (Riddle 1989). The radical Moderns successfully, if temporarily, undermined the institution – the French in preference for more specialized forms of state technical training and the Americans in favor of broader collegiate forms of national citizen socialization

[4]Note however that in arguments closely akin to those developed here, Ernest Gellner (1983) observed that the extreme differentiation of modern society is accompanied by the least specialized and most standardized educational system in history. We are indebted to the editor for this point and reference.

(Hofstadter 1963; Lenhardt 2002, 2005). In Germany and Spain, too, universities weakened during the period. However by the late nineteenth century, they had resurged everywhere, and the overriding story then as now is one of expansion – in the university's numbers, locations, and societal centrality.

In short, during the nineteenth century neither the traditionalists' fears nor the progressives' hopes materialized. The university did not collapse and give way, as was often foretold, to narrow-gauge training centers, catering to the differentiated society. On the contrary during the era, the population of universities swelled and the institution diffused worldwide. Exactly the same thing is now underway even more intensely, with recent rates of university creation and expansion exceeding those of the earlier Modern period (Riddle 1989; Schofer and Meyer 2005). In a sample of British Commonwealth universities, for example, the mean number of university faculty spiraled upward between 1955 and 1995 – from 270 to 711 (Gabler and Frank 2005).

To understand the evolution of the present-day university, it is helpful to reflect on what went wrong with nineteenth century forecasts of the university's demise at the hand of complexity. The root intellectual problem lies only partly with a flawed understanding of the university and its role in society. A deeper problem lies in a mistaken analysis of Modern society itself.

## The "knowledge" society and the university

As suggested above, two broad and closely related guides to the university's changes recur throughout the literature. In the more positive view, the institution's striking growth follows from its capacities to meet the technical–functional requirements of Modern society (and/or its elites). From this standpoint, the varied aspects of higher-educational expansion reflect adaptation to the intensifying needs of a rapidly differentiating social system, rather than either failure to adapt or fragmentation (Gumport and Snydman 2002; Kerr 1963; World Bank 2000).

In the less positive view, the very same changes eventuate in disorder and fragmentation in the university. For instance, it is imagined that expansion diminishes social unity (as in, e.g., identity politics), propelling the university toward incompatible ends (Bloom 1987), while the incorporation of disparate knowledge-dependent political and economic interests fractures and distorts the university's mission. Lost curricular coherence, fallen academic standards, a gutted Canon, and moral relativism are all thought to symptomatize an institution whose explosive growth endangers its core foundations.

Both of these analyses have obvious functionalist overtones and come in centrist, left-wing (against inequality/injustice), and right-wing (against statism/socialism) variants. The core idea – rooted in much realist social theory – is that Modern society is characterized by complexity and role differentiation, which increasingly demand from the university specialized knowledge, socialization, and technical training. Even among theorists such as Weber, Durkheim, and Parsons who are conscious of the social contract's non-contractual bases – i.e., those who recognize that not all members of society agree by choice to its terms – the tendency is to project reified or essentialized societal bases (for instance, values) into the university's foundations.

The empirical problems with such functionalist analyses are clear. First, the expansion of the university vastly outruns in scale and scope the social changes thought to drive it (Schofer and Meyer 2005). Second, functionalist explanations lead one mistakenly to anticipate radical cross-national variations in the enrollments and academic contents of developed and

developing countries, whereas universities, and their expansion, show a good deal of homogeneity worldwide (Drori and Moon 2006; Frank and Gabler 2006; Frank and Meyer 2006; Schofer and Meyer 2005). Third, functional logics falsely lead one to expect, or hope, or fear, the fragmentation of the university over recent decades into specialized modular programs that map directly onto society's role structure. But again this consequence fails to manifest in reality: the main expansions in higher education occur under the umbrella of the university per se, not in disparate narrow-gauge institutions, and while the so-called Multiversity surely incorporates a broader range of topics and personnel than its predecessors (Kerr 1963; Krücken et al. 2006), the university's fundamental unity – both organizationally and culturally – prevails. Fourth, functional logics generate the misplaced expectation that rapid social change should undermine the university's traditional social form, exactly as occurs with businesses and states. But in fact over the past millennium higher-educational institutions conspicuously retain the university's time-honored semblance, symbolically maintained in distinctive architectural and ceremonial styles and recently advanced by the more crass expansions of standardized course-credit systems (which equalize instruction in frogs and princes) and the European "Bologna process" (which formally integrates instruction across many dozens of countries [Krücken 2005; Teichler 2002]).[5]

A further problem besetting functionalist analyses is that they suppose universities actually train people to perform important social roles effectively (or at least did so during the institution's Golden Age). This supposition runs against a substantial research tradition (and common awareness) demonstrating that university education is in fact not very good at preparing people to perform particular jobs. Arrangements such as apprenticeships, internships, and on-the-job training are much more successful (see Berg 1971 for a classic empirical statement; see also Sullivan 2005). Doctors learn to be doctors on patient rounds and through experience, not in medical classrooms. Business managers learn to manage from corporate mentors and from trial and error, not from business-school coursework. Schoolteachers learn their craft in front of classrooms – as student teachers and in their initial years on the job. This is the way it stands now, and there is every reason to believe it was all the more true in days of yore.[6]

These considerations forcefully raise the issue of the university's role in Modernity, especially in the nascent knowledge society. If not to provide more elaborated role training to more persons in more domains, then why does the university enlarge so rapidly? We address this question first by reflecting on the nature of Modern society and of the knowledge at its center. Then we consider the role of the university in relation to these structures.

## Modernity and the knowledge society

Unto itself, the "knowledge society" label is an odd one, since all societies obviously rest on a good deal of institutionalized cultural knowledge. The label's relatively recent entry

[5] Wolfe (1996) uses businesses and states as foils for the university's "feudal culture." Architectural dramatizations of the university's continuity – e.g., in the brand new Gothic buildings at Korea University – are striking and commonplace.

[6] Early on, U.S. land-grant universities often explicitly recognized the university's inability to replace on-the-job training. For example in the 1879–80 *Catalogue of the University of Wisconsin,* the department of mining and metallurgy conceded: "It is not claimed that the [program] turns out experts...but that it produces the proper kind of raw material to make experts from." Likewise, the civil engineering department modestly sought, "to give its students such instruction...as shall fit them, after a fair share of experience, to fill responsible positions in the profession."

into the vernacular may suggest that contemporary society involves more knowledge, and more specialized knowledge, than its predecessors.[7] But that interpretation assumes a simple continuum of social complexity, involving not an exploding university but only the slow elaboration of timeworn knowledge-production and role-socialization arrangements, such as apprenticeships. This is not what is observed empirically. Something more is clearly afoot.

We suggest that the *knowledge* at the heart of Modernity – and even more at the crux of the contemporary knowledge society – is quite distinct from information and skills tied to role-performance. Knowledge, rather, refers to the understanding of cultural materials organized around supra-local principles, involving highly schooled conceptions of reality. In the current period, especially, skills in practice – no matter how productive or efficient – usually fail to count as knowledge proper. To make the knowledge grade, practical skills must be at least nominally supplemented by general principles, i.e., linked to universal and educationally certified truths transcending any particular local situation. This is so whether the skill in question is navigating by stars or locating crude-oil reserves. Skills and knowledge, indeed, may be sharply decoupled. Being a good parent and knowing about good parenting are not obviously related. In the present day, individuals must be able to articulate supra-local principles, and indeed the ability to do so, encouraged in and certified by the university, is for many purposes more important than the mastery of everyday competencies. Experiences and skills may or may not help one to become a doctor; passing through many highly schooled examination barriers is essential.

The core point here – crucial to understanding the extraordinary survival and expansion of the university both in the nineteenth century and currently – is that knowledge refers to a body of universalized principles, which can be understood by properly socialized and certified persons (Meyer 1977). While the university may be poorly organized to teach people how to do their jobs, it is well poised to teach people how specific features of nature and society relate to ultimately encompassing truths. Even more, the university is positioned to teach both students and society at large the meta-principle that all sorts of particulars can and/or could be understood, and should be understood, as instances of general abstractions. In the world at hand almost without exception, cultural materials are conceived to be amenable to schooling – i.e., to being cast in the light of general laws and principles, and thus to being highly scripted worldwide.

What is true of "knowledge" in the contemporary world is also true of its possessors. It is now commonly thought that virtually all people (including those formerly stigmatized as retarded [Schmidt 2005]) have natural capacities to comprehend higher truths and to be schooled in the university to administer these understandings in generalized ways. University credentials and degrees, thus, can be recognized globally, on bases that cut across social sectors of practice. A certified engineer does not stop being certified when moving from one industry to another and an economist with a PhD from Canada does not lose that degree upon relocating to India.

From this analytical purchase, it becomes clear that however much contemporary society requires sharpened skills to fuel its day-to-day operations, it rests fundamentally on universalistic forms of knowledge, embodying abstract and general truths (Bell 1973;

[7] This imagery is commonplace. For instance, "A knowledge-based society is one where knowledge diffusion, production and application become the organizing principle in all aspects of human activity: culture, society, the economy, politics and private life" (UNDP 2003: 2).

Kerr et al. 1960).[8] Indeed it is only because they are based on such transcendent matters that university degree certifications provide legitimate bases for discriminating between persons in the knowledge society's role-allocation and stratification systems.

The universalistic essence of contemporary knowledge is all the more apparent if we look back to the nineteenth and early twentieth centuries, before the most recent waves of university expansion began. At that time, deep commitments to rationalized and scientized forms of understanding were rapidly expanding, as were the hopes they inspired (Drori et al. 2003). Guided accordingly, leaders of the period, in the name of the common good, called upon their fellows to be socialized into scientific disciplines (such as sociology) that hardly existed outside the imagination. Such calls now read as striking assertions of faith.

What seems to have changed with the recent rise of the contemporary knowledge society – raising the rate of university growth – is the nature of the societal model for which knowledge is required. The high Modern period supposed a bounded nation-state society that was a real functional social system, built on clear (often material) interdependencies. Knowledge, often scientific but sometimes more cultural (to support social integration [see Readings 1996]), was deemed necessary to perform the interdependent roles involved. Under these conditions, the university was conceived to serve the needs of a bounded and reified societal machine. Thus it was possible to imagine the phenomenon of over-education, in which a surfeit of training signaled inefficiency in a nation-state's role-allocation system and possibly even led to social disorder and dreaded anomie.

In several dramatic ways, the emergence of the "knowledge society" after World War II indicated a change in this older vision of the societal context – beyond merely adding complexity requiring more training. A globalized and individualized society began to surface in the post-war era, offering enhanced centrality to the university and increasing the pace of its expansion (and all but burying the concept of over-education).

This means first that to an increasing extent it came to be understood that university education could actively create the kinds of knowledge and personnel that could produce – not just adapt to – societal development. For example in the economy, the idea took hold that human capital (viz., education) could directly lead to innovations, new occupations, and increased prosperity. Similar ideas arose vis-à-vis political and social development. Overall, it became accepted that higher education could initiate, not simply respond to, a future golden age (e.g., Bridges et al. 2006).

Second, more and more of the institutions seen as defining socio-economic development came to derive immediately from the educational system. In a host of new professions – forged from knowledge-system elements more than material-production dependencies – huge educational establishments rendered schooling as directly integral to development, measured by GDP/capita (Chabbott 1999). Contemporary managerialism, for instance, consists of a mass of intangibles (strategy, branding, etc., often formulated as best practices), as does the state apparatus, the healthcare system, and so on. Much of the role activity of present-day

[8] Recent discussions of the fragmentation of knowledge seem overstated given the extent to which university curricula in fact expand on universalistic bases. "Higher education has atomized knowledge by dividing it into disciplines, subdisciplines, and sub-subdisciplines – breaking it up into smaller and smaller unconnected fragments of academic specialization, even as the world looks to colleges for help in integrating and synthesizing the exponential increases in information....We must reform higher education to reconstruct the unity and value of knowledge...[which] is really just shorthand for saying that the complexity of the world requires us to have a better understanding of the relationships and connections between all fields that intersect and overlap" (Gregorian 2004).

society, that is, is not merely served by the educational system but is literally constituted by it. Thus when advanced degrees are involved, a comforting heart-to-heart talk is transformed into expensive and valuable therapy. A similar metamorphosis occurs when educational credentials render casual business advice as consulting, or when the informal assessment of dangers succumbs to university-certified risk analysis. Much of this value is educationally constructed without regard to the delivery of verifiable services. Therapy adds value to the GDP even when the patient fails to get better, whereas solace from friends is economically valueless even when the person improves dramatically (Meyer and Rowan 1977). In short, the knowledge society is fundamentally based on schooled understandings – in the form of universal principles – that can be required and can count as progress per se, over and above material outcomes.

The consequences of these continuing changes in dominant societal models show up everywhere in global and national policies. The World Bank's (2000) discussion of higher education for developing countries, for instance, makes no mention of the once-feared possibility of over-education. More is better, in the vision of the Bank. The only concern now seems to be whether developing countries can sustain enough higher education, of sufficient quality, to enter into the brave new world of the knowledge society.

## The expanding role of the university

Thus we arrive at an understanding of the university's endurance and rapid expansion through the current period. Its core task goes beyond shaping culture and personnel for efficient role performance in a bounded society. Much more, the university exists to design and assemble the cultural and human features of an expanded map of a universalistic cosmos. We now turn to a discussion of why this encompassing cosmic map – read the "knowledge society" – first arises.

The current waves of expansion characterizing the world's universities originated in the period following World War II. The war and its aftermath undermined the earlier Modern synthesis, in which society took form in the high national state, and it opened the door to a world society. At the heart of the postwar transition lay the decline of nation-state sovereignty under conditions of universalism. Obvious military forces (the nuclear age) were involved in the process, along with cultural ones (the stigmatization of fascism) and also political ones (a Cold War built around universal principle – democracy versus communism – rather than national cultures). Economic forces also contributed to the development of world society, but these tend to be exaggerated in current thinking, which often mistakenly defines globalization mainly in economic terms. Central to the ongoing shift was the conviction that the great new global world represented the forces of progress and development rather than contraction and retreat. Against the backdrop of war, depression, and fascism (all thought to be produced by closed national states), there could be no turning back. An expanded new world was in formation, to which the university stood central.

We can see the co-evolution of university and society if we look back at the rise of the university itself, in the eighteenth and nineteenth centuries. The university's first widespread emergence occurred concomitantly with the rise of the Modern nation-state. These twins of the age of reason provided reciprocal support to each other spurred by interstate and inter-university competitions. As closed and competitive national states grew institutionalized over time, becoming virtually coterminous with Modern rationalized society, universities came to be seen as their natural appendages: The university's students and academic contents increasingly took on national meanings and purposes (Altbach 1998).[9] As public life, in other

words, became embedded in national community, and as personal roles and identities were packaged together into citizenship (Frank and Meyer 2002), both the domain of university knowledge and the population of university knowers were cast as nation-state projects – historically attached forms, integrally bound to national culture, tradition, and history, and to the putative functional requirements of nation-state society (Readings 1996; Soares 1999).

Under these societal conditions, the university enlarged substantially. First that which could count as official knowledge expanded. In the name of national progress, the university laid claim to cultural realms formerly considered inaccessible and forbidden, extending human sovereignty over natural territories, with rationalization based on empirical science, and also over spiritual and social territories, with rationalization based on principles.[10] The new university knowledge, as means for collective ends, promised benefits for the nation-state as a whole – in national literature and history (Frank et al. 2000) and in sciences oriented on natural-resource exploitation (prominently including agriculture and mining, which often predated the "basic" natural sciences in the university). For example in 1900, the University of Tokyo featured nation-state-centric departments of Technology of Explosives and Technology of Arms. More generally during the period, the social sciences first appeared (Frank and Gabler 2006).[11]

Also with the rise of nation-state society, those who could count as university knowers multiplied. In opening its doors to new student populations, the university constituted Modernity's most active members – leaders and citizens for the national polity, producers and consumers for the national economy, and so on.

The end of World War II marked a shift in this mutually beneficial arrangement, altering the cosmic map rooting both nation-state society and the university. The liberal victory, part moral and part military, unleashed forces that undermined corporate bodies stigmatized in the war (religious, ethnic, and especially national) and eroded the limits they imposed on universalization. At the same time, the liberal victory energized the move toward a new world society, composed of individualized persons, commonly conceived as autonomous, equal actors with a wide range of human rights (Suárez 2007; Tsutsui and Wotipka 2004). In the post-war transition, that is, the nation-state lost some of its primordial standing, and so too did citizens and bureaucratic and professional bodies associated with the state, such as national scientific structures (Frank and Meyer 2002; Mann 1990; Paul et al. 2003; Soysal 1994).[12] In their wake, new and encompassing imageries of the world, individualized persons, and humanity – all conceived on universalistic grounds – strengthened considerably (Boli 2005).

[9]Dewey made this point in his 1916 classic, *Democracy and Education,* which Winther-Jensen (1998) summarizes thus: "[E]ducation became a civic function and the civic function was identified with the realization of the ideal of the national state. The 'state' was substituted for humanity; cosmopolitanism gave way to nationalism. To form the citizen, not the 'man,' became the aim of education."

[10]A principles-based rationalization of nature seems subjective and therefore arbitrary, while a science-based rationalization of God seems reductionist and therefore arbitrary.

[11]The state-centric impulse appears clearly, e.g., in political science and development economics (as in manpower planning [e.g., Livingstone 1998]).

[12]The reconfiguration of "society" shows in the changing contents of Colonial Studies. In the early twentieth century, these stressed the colonizing nation-state's objectives. For instance in 1930, a Colonial Sciences degree from the Université Catholique de Louvain required courses in Congolese Languages, Colonial Law, Cultures of the Congo (Farming, Hunting, and Fishing), Political Economy and Tools of the Colony, Ethnology and Ethnography (Indigenous Politics), Colonial Hygiene, and the Catholic Missions. In universities now, Colonial Studies highlight the experiences of colonized individuals.

The reconstitution of society in global–individual terms inaugurated a new and continuing age of university expansion. By (a) extending the natural and social contexts of university activities out beyond competitive nation-states to a unified world, (b) scaling up the presumed engines and beneficiaries of university activities from national citizenries to global humanity, and (c) breaking down the corporatist elements of society – church, family, and nation when constructed as primordially rooted in race, religion, and history – into individuals conceived as extraordinarily agentic social actors (Meyer and Jepperson 2000), the developing model of a global and individual-based society facilitated previously unimagined universalization and thus university growth.[13]

With the raw materials of knowledge – society and nature – reconceived on global rather than national bases, and with the authorization of a global corps of knowledge producers, the post-war shift toward an individualized world society unleashed an enormous proliferation of globally systematized understandings. The universalization-inhibiting boundaries imposed by nation-state society weakened, enabling the discovery of rationalized and lawful principles common to the whole human race and extending far down into the details of every Modern social structure (Castells 1996). Likewise, prevailing models of nature shifted from national resource to global ecosystem – the former an only partially scientized feature of national wealth and the latter a pervasively scientized system of global life sustenance (Frank 1997). Both dimensions of change are captured in the rise of the university's medical sciences, which assume both the universal value of human life and the universality of the human body. Between 1863 and 1930, for instance, the number of degrees offered by the Faculty of Medicine at l'Université Catholique de Louvain, Belgium, increased from 1 to 3, and between 1930 and 2005, increased further to 12 degrees (Medicine, Dentistry, Pharmacy, Clinical Biomedicine, Experimental Biomedicine, Clinical and Biomedical Technology, Human Nutrition, Toxicology, Public Health, Motricity, Kinesitherapy and Rehabilitation, and Physical Education).

The same post-war changes also generated a considerably broadened and empowered population of university knowers, with enhanced capacities for understanding. In the emerging globalized and individualized world, categorical restrictions on educational access were steadily broken down (including those based on sex, race, and citizenry), as were collective controls over knowledge distribution (opening access, e.g., to once guarded national secrets, such as those associated with the Cold War Space Race). As individuals schooled in knowledge came to anchor world society, the salience of degree certifications rose. Numbers of students and university faculty shot upward accordingly.

The new causal dynamics favored not only the university's contemporary expansion but also the unprecedented opening and interconnection of the university with society writ large (as in the rise of the "practical arts" [Brint 2002; see also Ramirez 2002]). With so few cultural materials remaining outside the university orbit and with wide-open access to the student role, the post-war university began to enmesh with society as never before, undercutting the ivory-tower-style isolation that had been celebrated earlier as a measure of purity.

Critics of this process see the university's penetration by society (and by its commercial and market elements in particular) as representing the destruction of academic values. But they tend to grossly understate the countervailing trend – the rising extent to which academic

[13] An 1891 letter from future University of Chicago president Harry Judson to then president William Harper suggests the nation-state's curbs on knowledge: "I dislike the idea of a foreigner at the head of such a department in an American university. It seems to me that departments involving American history, American literature, and American politics should be in charge of Americans.... I must confess that I don't fancy having to work under a German. I doubt if many American professors would" (Boyer 2003).

values, perspectives, expertise, and knowledge come to transform and in many senses dominate society (Bell 1973; Kerr et al. 1960; Maassen and Weingart 2005; Schofer 1999). In important ways, the compromise of university autonomy by the incursion of mundane societal interests is far less thoroughgoing than the destruction of what was once thought of as local "society" by a universalizing academy. Thus, for instance, the proliferation of Boeing professorships in various universities may indicate something much less revolutionary than Boeing's own requirement that its engineers – without exception – hold university degrees. Indeed over recent decades, this reverse infiltration proceeds unabatedly: university knowledge and university graduates deeply penetrate society's constitutive foundations, so much so that the arrival of the so-called knowledge society – built around the university and its universalized meanings – is widely announced (Beck 1992; Castells 1996; Habermas 1987; Stichweh 2004).

Our overall argument thus is that – more than a system of material production – the "knowledge society" is a system of cosmic mapping. Even more so than its earlier Modern analogue, contemporary society is built around religious-like pretenses (i.e., universal principles) more than actual competences (i.e., local techniques). If expanded competencies were the only issue, an elaboration of routine training relationships probably could have handled the socialization requirements arising over time, and the university might indeed have fragmented and collapsed as forecast. But the university survives and flourishes, as a grand and cohesive scheme, precisely because what are forged at its core are not mundane skills but rather the transcendent principles that constitute the knowledge society's foundations.

The argument put forward here enlightens aspects of the university's contemporary development that are otherwise difficult to fathom. First it helps explain why the university so completely outlasts all the technically-superior competition that is supposed to undercut it in the current period – exactly as it prevailed, in earlier form, in the nineteenth century. The university's gifts at cosmological or religious work – the great ceremony of higher education, celebrating universal beliefs and doctrines – give the institution enduring power.

Second, our argument helps account for the surprising degree of homogeneity found among university curricula and enrollment patterns around the world, despite enormous cross-national variations in economies, political systems, occupational structures, and so on. If the university's main agenda is to bathe local activities in the light of universal truths – invoking models of the ideal society more than summoning realities at hand – worldwide homogeneity in university foci makes sense. Notions of the ideal society, after all, and progress toward it, are quite uniform globally: centering on human rights, scientific models, and principles of social rationality (Meyer et al. 1997). Since such world-level models are much more homogeneous than the diverse realities on the ground, the university exhibits considerable isomorphism.[14]

Third, our argument helps explain the rapid penetration of university understandings and graduates deep into local societies. Everywhere now positions of value and esteem require the symbolic possession of certified knowledge, embodied in university degrees (Brown 2001). Under conditions of rapid globalization and weakening state sovereignty, local

[14]Thus, for example, the University of Zululand's 2006 degree offerings are largely conventional (imaginable in Kansas or Bosnia). In the Faculty of Arts, one may study Afrikaans, Anthropology, Arts and Culture, Communications, Criminal Justice, English, Linguistics, Geography and Environmental Studies, German, History, Intercultural Communication, IsiZulu, Language Studies, Library Science, Nursing, Philosophy, Psychology, Recreation and Tourism, Social Work, Sociology, Theology, and Human Movement Sciences. The 1999 Bologna Declaration seeks unprecedented organizational homogeneity among the historically distinct universities of Europe (Krücken 2005; Lenhardt 2002, 2005; Teichler 2002).

societies gain stability and legitimacy by invoking world models of meritocracy (Jencks and Riesman 1968). Thus the world's stratification systems, long known to display surprising similarity, assemble around a relatively unified system of educational credentials (Treiman and Ganzeboom 2000).

## Research implications for university knowledge and for the student role

As the national state slowly gives way to a new world society built around individuals, scientization, and social rationalization, both the university's structural and human dimensions (its knowledge and student identities) are transformed. First along the structural dimension, many aspects of social life are reorganized around principled university knowledge, making it routine to develop and promulgate general or universal analyses of cultural materials and role behaviors formerly treated as particular to national or civilizational context (as with former foci on national history and national literature or civilizational art – see, e.g., Frank et al. 2000) or outside the university domain. One now can have seminars, for example, on peasant agriculture, teen-age sexuality, tribal artifacts seen as high art, proper diet, and the medical effects of stress. Many aspects of nature likewise lose their idiosyncratic and unique qualities, accumulating instead universal and law-like meanings. The recognition of singular natural "wonders" declines, for instance, as the wonders themselves are demystified and subject to scientific scrutiny (Weber 1978).

In parallel along the human dimension, there is enormous expansion in the number of those who can and should – it is thought – be university students. At the same time, there is solidification in the standing of each individual student, as a person with the right, capability, and obligation to acquire universal knowledge and understandings. Under the new rules of the new society, it seems obvious that all sorts of persons stand to benefit from university tutelage, independent of class, race, gender, ethnicity, nationality, or even what was once considered academic aptitude. Thus the university becomes the core site for the ultimate in contemporary baptisms – the union of empowered individual knower and universal knowledge.

At the heart of both these expansions are two longstanding processes, accelerated in the post-war era. They are rationalization and ontological elaboration. Rationalization entails developing the causal texture of natural and social life – spelling out processes of action in globally pertinent cause-and-effect chains. We can now specify, for instance, the precise logics behind "right" and "wrong" ways to employ people or to use materials in the classroom (Jackson and Davis 2000; Shulman 1999). Rationalization furthermore involves defining the structure of natural and social life, detailing its complex organizations and hierarchies of interconnection. Thus we can specify the ramifications of "wrong" classroom decisions well beyond their immediate interaction contexts (on the chances, say, of future criminal behavior). Rationalization means that deep into the minutiae of natural and social life, and into the actions of people in these arenas, general rules are discovered, structures of interrelationship are established, and abstract analyses are conducted. Rationalization strengthens our grasp both of how things work and how they fit together, and it does so in universalistic terms.

By itself, of course, the reduction of both natural and social worlds to general causal principles and abstract chains of relation can be seen to be profoundly alienating. This is a perspective common to critical analyses of societal development over the last two centuries, as in Weber's iron cage. But rationalized analysis is not the only vector of global cultural change underway in the Modern period (Drori et al. 2003).

For if rationalization provides one main engine driving the interpenetration of global and local, an expanded and liberalized ontology provides the other – specifying exactly what things exist in reality and delineating precisely what those things can do (Thomas et al. 1987: Ch. 1). In particular, the liberal-ontological elaboration characteristic of the current era reconstitutes society around individualized and activated global persons, bestowing them with autonomy and ultimate standing in increasingly lawful and comprehensible worlds of society and nature. By definition, these individualized actors (and the complex social organizations and states they create) can and naturally want to use, manage, and acquire knowledge (Meyer and Jepperson 2000). Furthermore with schooling, these individuals – the linchpins of the new society – can hone capacities to benefit firsthand from their own personal experiences, which universalizing filters imbue with great general significance.[15]

Ontological specification also occurs in the natural world. For example, more and more animal species are demarcated, with enhanced statuses and itemized "rights," on top of increasingly elaborated capacities (such that now even dolphins are known to use tools). Physical places, likewise, are distributed among progressively more refined categories. They are discovered not only to do more but also to be more, occupying positions in unique constellations of physical and social (e.g., recreational) relations (what was once, for example, a simple swamp may now be any number of quite specific and highly variable things). Indeed as universalized meanings accumulate, entities increasingly achieve singularity via distinctive packages of universals. Thus a world that is increasingly rendered as the same in its subjection to general causal laws is also increasingly filled with elaborately recognized difference (as also occurs in "glocalization" – the global production of local particularities according to universal standards [Robertson 1992]). Given its strengths at both rationalization and ontological elaboration, the university is uniquely suited to accommodate both the standardizing and the particularizing processes underway.

As is clearly implied, the Modern tendency toward ontological clarification stands parallel to, and interdependent with, the tendency toward rationalization. For instance as the category "copper" is specified ever more precisely, there can and must be more rules about how it works and fits together with other things. And in turn the elaboration of rationalized rules and relationship structures around copper require finer specifications of the metal's forms and properties. Both processes, of course, displace local realities with universal understandings.

In broad perspective, thus, we have the rise of an orderly and predictable world, in which empowered knowers command abstract knowledge through schooling and managed experience.[16] We turn now to suggest more specific propositions about what rationalization and ontological construction have done to the routine fabric of the university as it has changed over the last two centuries, giving special attention to the post-World War II era.

[15]The recent displacement of novels by memoirs on U.S. best-seller lists suggests the contemporary blanket relevance of private lives. While the rationalization of knowledge may seem at odds with pedagogical emphases on experience, in fact experiential knowledge takes on highly rationalized forms. Given the primordiality of the human individual, experience can be tightly specified and highly generalized.

[16]We describe the university's changes as if they occurred simultaneously everywhere. The implicit assumption is that expansive rationalization and liberalizing ontological construction are very widespread, as are their university consequences. This is not entirely unreasonable – changes in the university indeed occur in parallel worldwide. But it is also true that much variation remains at lower levels of analysis – at national levels, amongst individual universities, and at departmental and program levels (see Jepperson 2002 for an illustrative general analysis and Lenhardt 2005 for a specific discussion of cross-national university variations).

## Changes in the theory of knowledge

In the nascent university of the medieval period, knowledge was conceived to be precious and scarce. Beyond theology, few cultural matters could be formulated in universalistic terms.[17] What limited knowledge there was retained mysterious and arbitrary airs, being encased in ritual, tradition, and in sanctified texts (as in the monastery). The Modern period of the nineteenth century undercut many customary restrictions limiting the universalization of cultural materials. Order, albeit fragmentary, spread in the universe, giving rise to more lawful and factual understandings of nature and society. Such understandings, rendered as knowledge, lengthened the roster of university disciplines.

In the contemporary knowledge society, the globalized and individualized context invites extensive interpenetration of the local and the cosmic, creating a knowledge explosion. It is now increasingly the case that all things – including the likes of black holes, for which evidence may be only speculative – can be perceived and understood within universalistic frameworks. As knowledge grows pervasive, it is not only stored in university organizations but also woven into the fabrics of everyday practices and routines (including those identifying the characteristics of proper handshakes and the ingredients of ideal laundry detergents). Knowledge furthermore comes to be structured into the proper life experiences of society's individual constituents. To wit, even the most personal and seemingly nonsensical dreams can be interpreted, thanks to Freud and Jung, within common symbolic frameworks.

The rising authority of knowledge over human experience is paralleled by a great increase in the authorization of social experience by the knowledge system. Thus while all can be known in the new world society, so also all should be known – that is, analyzed in light of general principles of science, rationality, and human competence and rights. The individual has primordial status in the whole modern period (as in Durkheim's ([1957] 1975, or [1898] 1969 "cult of the individual"). So it would be offensive under current conditions to eliminate or bar from the university all sorts of familiarities formerly considered mundane or corrupted. One must legitimate the sober analysis of old sharecropper dialects, or dime-store romance novels, or lesser forms of fauna and flora, or the mistaken thoughts of children. In contemporary society, these things should be studied as instances of abiding truths and designated accordingly as knowledge. Doing so is thought to enrich individual experience, at the same time that it subjects individual experience to the standardizing order of universalistic principles. Much changes when the old peasant dialect becomes an object of university analysis.

From the deep and mutual penetration of universal knowledge with local culture and individual experience follows the proliferation of university-based teaching and research programs (degrees, majors, departments, centers, and other university divisions). New study domains appear, existing domains differentiate, and all domains deepen in the course of official knowledge permeation. For example, the number of departments at the University of Tokyo jumped from 33 to 84 between 1900 and 2000, and the number of history courses at Harvard catapulted from 3 to 229 between 1853 and 2000 (Frank and Meyer 2006).[18]

[17]Until 1961, the world's oldest university, Al-Azhar in Egypt (founded 975), encompassed only three faculties: Theology, Shariat (Islamic canon law), and Arabic Language. Now, there are also faculties of Commerce, Education and Instruction, Languages and Translation, Sciences, Medicine, Chemistry, Engineering, Dentistry, Agriculture, Islamic and Arab Studies, and Islamic Da'awa (spiritual awakening).

[18]Of Harvard's three history courses in 1853, none focused on the American Revolution, despite the university's location in the cradle thereof.

Along the path of proliferation and expansion, university-based programs also extend into the wider society – connecting with the non-academic world through, for instance, the credentialing explosion, knowledge-sharing agreements, adult learning curricula, internship schemes, and technology transfer programs (e.g., Hatakenaka 2004). Thus from 1945 onward, the number of Tokyo's specialized institutes (e.g., the Earthquake Research Institute) increased from 4 to 29, at the same time as Harvard's rose from 2 to 33.

Entirely apart from the university during the present period, university-style programs materialize in all sorts of public and private organizations. Firms and states and non-profits alike all come to see their practices as framed by universals, requiring university-like endeavors to conduct research and instruction (from the classic Bell Labs to the more prosaic McDonald's Hamburger University).[19] Partly such programs discipline the local world in practical terms. And partly they flaunt the universal knowledge that secures local organizational identities and activities.

Amidst such widespread growth, the content of knowledge changes, too. There is extensive rationalization and global standardization, as local arenas acquire universal underpinnings. Thus, for instance, the study of the French Revolution gives way to the study of revolutions generally (Hymans 2005). Also, there is much ontology-based change, as knowledge in the form of inert substantive facts ("what is" knowledge) gets rearranged into process-oriented abstract principles, suited to the capacities of activated individuals ("how to" knowledge). This shift is clearly apparent in the retreat of taxonomic frameworks in the natural sciences and the onrush of actor-directed experimentation (Gabler and Frank 2005; McEneaney 2003).

We thus find ourselves in a world where everything is knowable (and in principle should be known); where knowledge is deeply institutionalized in the codes and procedures of society; and where knowledge is the master key to a wide variety of social structures (greatly advantaging schooled persons). It is also a world where all kinds of local activities and phenomena are linked to universal natural laws, which often transcend the positive national laws that earlier were so prominent (Boyle and Meyer 1998; Drori et al. 2003).[20]

Thus we envision a broad time sequence in the manifestation of knowledge in the university. In the pre-Modern era, isolated bundles of categories – lists of birds or stars or sins such as usury, surrounded by clumps of rules and facts and theories – existed for elect students to come laboriously to know. Over time, Modernity disciplined much of this: birds turned into ornithology, sins of usury evolved into ethics and economics, and stars became the stuff of astronomy. Slowly, knowledge expanded, rationalized, and systematized.

The present-day synthesis represents great steps forward in rationalization, with elongated and enumerated causal chains of interrelation. Birds, stars, and sins can now be analyzed within complex webs of evolution, function, and interdependence with their environments, which now prominently include not only natural but also human and social realms. The knowledge thereby produced has a functional-theory quality – given its origins in cause-and-effect rationalization and orientation around human individuals. Thus it tends to diffuse out from the university, becoming rooted in benchmark routines of production and practice. For example, elaborate causal links between birds, pesticides, and human

[19]Hamburger University shows just how far the process has gone. In Leidner's account (1993), Hamburger universalizes products and services under heavily theorized rationales. Consultancies such as the Corporate University Xchange give advice on such issues as Corporate University Design and Development.

[20]For example, the reinterpretation of female genital cutting on universalistic medical and psychological grounds transforms a local custom into a global women's rights violation (Boyle 2002).

health arise, standardizing the list of legally acceptable active ingredients in pesticides and the precise strength at which they may be delivered.

At the same time, liberal-ontological clarification also proceeds, elaborating the categories and capacities of entities generally and also invigorating the human individual. Given the emerging assumptions of society, the once simple bird acquires standing beyond that provided by Modern ornithology. Now, birds may be seen in terms of their relation to the essential person, such that inside and outside the university courses in bird-watching proliferate, alongside studies of the human interpretation of bird song, bird painting, bird appreciation, and the historical meanings of birds in diverse societies. In the contemporary world, it is even possible that the putative perspectives of birds on the rest of nature and society become the focus of instruction (e.g., in courses on Deep Ecology). Similarly while humanity's views of the stars can provide rich fodder for instruction and research, so also, with the search for extra-terrestrial intelligence, can the attributed perspectives of stars on humans. In the same way, the matter of profit – stigmatized in the medieval period and later turned respectable by economics – develops various forms: e.g., detailed bookkeeping instruction with clear rules on the rationalization side and on the ontological side investment clubs to help elaborate the choice-making and taste-expressing logics of human actors.[21]

## Changes in the theories of student and pedagogy

Transformations parallel to those outlined above simultaneously reform the model of the student-learner. In the medieval world, few were deemed capable of knowing, and those few were thought to require enormous external discipline to be elevated out of their inherent corruption. Purification required relentless imitation, rote learning, behavioral correctness, and exact mimicry – and even then, most students were thought unable to move beyond the simplest forms of knowledge reproduction.[22] Under such circumstances, university instruction could be quite concrete, emphasizing things like correct grammar, precise penmanship, and various forms of drill.[23] Courses typically focused on tangible modes of thought and behavior and were unlikely to stress broad law-like pictures of scientized nature, the liberalized individual, or rationalized society. Indeed, the celebrated Latin and Greek writers, whose decline in the university is widely mourned, were used mainly for grammar exercises – not for deep literary study (Hofstadter and Smith 1961).

[21] Gibbons et al. (1994) describe the evolving theory of knowledge as a shift from "mode 1" knowledge (pure, disciplinary, homogeneous, expert-led, supply-driven, hierarchical, peer-reviewed, university-based) to "mode 2" knowledge (applied, problem-centered, trans-disciplinary, heterogeneous, hybrid, demand-driven, entrepreneurial, network-embedded). Harrington (2007) analyzes the investment-club phenomenon.

[22] Hirsch (1999) and others stand by the value of such pedagogical techniques.

[23] At China's Imperial Tientsen University in 1900, e.g., penmanship and military drill were mandatory. The Yale Report of 1828, written to rebut critics of the classical curriculum, summarizes the discipline-oriented view: "The two great points to be gained in intellectual culture, are the *discipline* and the *furniture* of the mind; expanding its powers, and storing it with knowledge. The former of these is, perhaps, the more important of the two. A commanding object, therefore, in a collegiate course, should be, to call into daily and vigorous exercise the faculties of the student. Those branches of study should be prescribed, and those modes of instruction adopted, which are best calculated to teach the art of fixing the attention, directing the train of thought, analyzing a subject proposed for investigation; following, with accurate discrimination, the course of argument; balancing nicely the evidence presented to the judgment; awakening, elevating, and controlling the imagination; arranging, with skill, the treasures which memory gathers; rousing and guiding the powers of genius....The habits of thinking are to be formed, by long continued and close application.... If a dexterous performance of the manual operations, in many of the mechanical arts, requires an apprenticeship, with diligent attention for years; much more does the training of the powers of the mind."

The Modern period retained many of these accents, still stressing the university's distinctive nature and remove from everyday life and the scarcity of eligible or competent citizen-students (as evident, say, in barriers to women's participation [Bradley and Ramirez 1996]). Required character references insured that those lacking moral fiber never trespassed on university grounds. Still, at least some persons were thought to possess reason or inclination sufficient to acquire it (the period, after all, celebrated rationalistic analyses). Thus a disciplined pedagogical approach to clear and differentiated bodies of knowledge became feasible. As a result, learning techniques grew increasingly codified in specialized organizations, roles, and materials, most obviously in the formalization of pedagogy itself. The textbook commenced its reign as the ultimate carrier of general laws and fixed facts, and the standardized "introductory" course became the sanctioned start of a rationalized pathway from elementary to advanced studies.

In the contemporary university much of this has opened up. Everyone in principle should know and can, even through extra-classroom and extra-university participatory activities (such as internships and study-abroad programs). Recast as individual actors, people are instilled with broadband authority to create, discover, and use knowledge drawn from little more than daily life experience.[24] Personal statements thus replace character references in university admissions. The new world is one where no one is obliged to know anything in particular (to the chagrin of critics [Hirsch 1987]) but where everyone is authorized to know anything at all. Mandatory language requirements, for example, collapse at the same time as optional language programs proliferate (now including Quechua at Stanford and Uzbek at Chicago). Specialized knowledge becomes subject to individual taste, even as generalized competency and wide-ranging agency become de rigueur. Shakespeare is optional accordingly, but reading and writing – and the ability to exercise one's interests in choosing a major – are utterly compulsory.

Pedagogy in the current era changes correspondingly, coming to emphasize participation, choice, decision-making, and experience, in versions of a "real world." None of Harvard's 229 history courses in 2000 were required for all students, and a good deal of student-directed individual study was encouraged, often on the basis of real-world experiences (even highly personal ones, in which history merges with biography and genealogy). Thus it seems that the textbook loses some of its former centrality (there is limited evidence addressing the question, but see McEneaney and Meyer 2000) and is replaced at times by students' journals recording their own (broadly relevant) life lessons. Learning by doing becomes a preferred classroom technique, so that voice studies gain ground on music appreciation, and composition courses begin to edge out literature. Now university curricula are rife with free electives and independent studies (Robinson 2005), supplanting core requirements, prerequisites, and serial examinations (in 1906 at the University of the Cape of Good Hope, there were matriculation, intermediate, and B.A. exams, all standard for all students; similarly the Harvard of 1853 had, essentially, a single major). The principal idea now is that the student, as a bona fide participant in the enterprise of education and life, has built-in capacities and interests to understand all aspects of social and natural reality. Cast as creator and educational consumer with sovereignty over the territories of knowledge, today's student decreasingly requires the moral and intellectual discipline of introductory "principles" courses or long chains of preparatory prerequisites. He is his own Schoolmaster (and so of course is she). One consequence of all this is a reduction in standardizing pressures on students – e.g., from compulsory courses, inflexible behavioral regulations, rigid tracking systems, hazing rituals, and so on – and the near-disappearance of the public rankings and humiliations that once marked failure to conform, as formerly embodied in disciplined

[24]The valuation of individual experience in part underlies recent recognitions of diversity's educational benefits (Antonio et al. 2004; Hale 2003).

grading systems (with failing grades).[25] Students have rights, and rights to their individuality. The world in general opens up to the comprehension of individual students, empowered with natural abilities and inclinations to understand it. Pedagogy, then, becomes an enabling rather than a disciplining process, linking students to the many available channels of knowledge and experience (Magolda 1999).

Thus in contemporary society, more students appear and from a broader range of backgrounds. Their interests cover more domains, including all aspects of their own life experiences, and they are seen to be furnished with capacities to make gainful choices – among programs, courses, topics, and a plethora of extracurricular activities (Harvard, in its 2000 catalogue, listed 287 officially recognized student organizations). Pedagogically, the instructional system unfolds to encourage students' authority and full participation, both inside the classroom and in pedagogically-legitimated and accredited outside experiences.

Illustrations of all these changes – both in the theory of knowledge and in the theories of students and pedagogy – are easy to accumulate. More systematic work is obviously required, however, before we can empirically ground generalizations about the university's transformations.[26]

## Discussion and conclusion

Over the last two centuries, a main social-scientific vision of societal development stresses differentiation as Modernity's key tendency. From this perspective, expanded contemporary education is a functional response to increased operational complexity, training young people to meet the demands of ever more intricate roles. On one hand, this idea is convincing, in part because it echoes the self-depictions of Modern educational institutions. On the other hand, doubts arise: why does the training for complex and specialized roles occur off-site – away from the role demands in question and under the unified umbrella of the university, which makes claims to transcendent truths and continuity over time and organizes around models that flow worldwide across the most variable societies?

Doubts concerning the conventional storyline are not only theoretical but also practical. For the last two centuries, a common refrain has predicted the destruction of the integrated university and its cultural Canon in favor of narrowly tailored training operations, as differentiation amplified the need for focused, flexible, and site-specific modes of preparation – in place of the university's sweeping truths. And yet for all the doomsday prophecies, the university has held steadfast and even flourished throughout the period, showing long-term, across-the-board growth, which in recent decades accelerates. The university certifies ever more people for ever more roles in the Modern system, enrolling massive proportions of the young and providing instruction on a constantly broadening range of topics.

Here we interpret this outcome by emphasizing the centrality of the universalistic cosmological foundations of contemporary society, rather than the differentiation and role

[25] Public rankings and humiliations once were common. For example, the Dublin University Calendar of 1914–15 lists the *Order of Rank in the College:* "Provost; Fellows; Noblemen, Sons of Noblemen, and Baronets; Doctors and Masters in the several Faculties; Bachelors; Fellow-Commoners; Scholars; Pensioners; and Sizars, who are students of limited means." Additionally, Dublin held regular *Corrections:* "At half-past ten o'clock on Saturday mornings, the Junior Dean attends in the Hall, and reads out the names of all Students who have been punished for neglect of duties or other offences."

[26] In particular, one may argue that our ideas pertain to elite universities more than lower-status institutions. We have explored this argument preliminarily, with materials from the historically black Tuskegee Normal and Industrial Institute (now Tuskegee University) from around World War I. So far it is not supported.

specialization that arises on these bases. We understand the university's defining task as a generalizing one with cosmological or religious overtones – to render the world in encompassing law-like frames, rather than to impart specific role-oriented skills. Thus we see the striking expansions of the university's student enrollments and academic contents as expressions of universalization, signifying the intensified interpenetration of the global and universal with the local and particular.

It thus becomes relatively easy to account for the university's astonishing expansion and global diffusion, its high levels of isomorphism, and its enduring cohesion under a unifying frame. All of this holds especially true in the wake of World War II, as "society" is increasingly relocated from nation-states and citizens to a world society of empowered individuals embedded in a rationalized and scientized context.

For the university's knowledge and knowers, and for the pedagogy that connects them, the implications of society's reinvention are striking. The new context recharges old processes of rationalization and ontological elaboration, yielding great expansions in what can and should be known and in who can and should know. These in turn alter the menu of approved strategies, techniques, and approaches for joining knowledge and knower as one. The new societal context favors the rise of individual-based experiential knowledge, even as it grants students greatly enhanced command of learning and authority. Pedagogy shifts to empowerment rather than discipline and to participation rather than imitation.

The "knowledge society" that eventuates is marked by the exceptional degree to which the university is opened to society (including, of course, to the bogeyman of corporate capitalism, but also to virtually every other institution demanding consideration). But the knowledge society is at least equally distinguished by the exceptional degree to which society is built around the university – its abstracted and universalized understandings and its all-important degree certifications.

A prominent feature of the resultant contemporary university is that it not only rests on universalistic claims but is in fact globalized as an institution. There are, of course, country-to-country and university-to-university variations. But the trends we analyze are global in scope, and impact the whole population of universities. Most impressively, even the resistant old European core institutions now are compelled to surrender centuries of feudal and early Modern tradition under the homogenizing pressures of what is called the "Bologna Process." Where change is too slow, private universities arise to fill in the gaps. Meanwhile in the developing world, where fewer inertial traditions anchor resistance, university transformation is even more rapid and thoroughgoing.

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