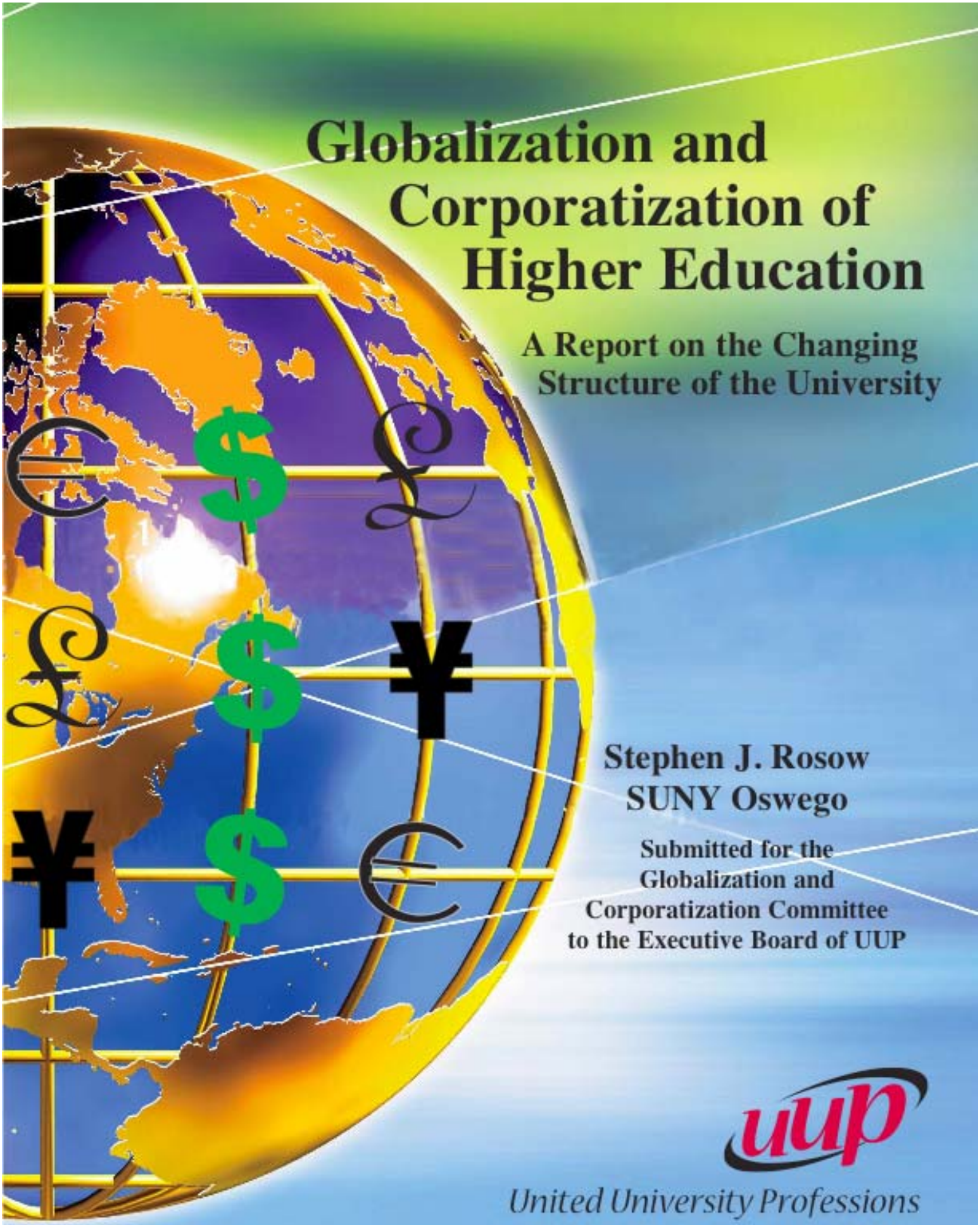


Globalization and Corporatization of Higher Education

A Report on the Changing Structure of the University

Stephen J. Rosow
SUNY Oswego

Submitted for the Globalization and Corporatization Committee to the Executive Board of UUP

United University Professions

Table of Contents

A Report on the Changing Structure of the University

By Stephen Rosow, Chair, UUP Globalization and Corporatization Committee

In October 2000 the Globalization and Corporatization Committee of UUP sponsored a conference on the changing structure of the university and its implications for UUP. The conference involved approximately 50 participants, almost all campuses being represented, and participants being both academics and professionals. A keynote panel introduced theoretical issues and was followed by the convening of five workgroups. During the last several years the workgroups have continued to develop their thinking, and the committee has continued discussions at delegate assemblies. Several work group reports were presented in a preliminary way at a joint academic-professional delegates meeting at the 2004 Spring Delegate Assembly. This report summarizes our work and presents several recommendations for union action.

The aim of this report is to begin to think about the changes in the structure of university education and implications for union activity. The report is speculative and general. It does not seek to duplicate the important work being done by others on specific issues: the effects of technology; part-time concerns; women's and minority rights and equality within the university, etc…. Our charge as a committee was more to articulate a framework within which these might be understood as implicated in the more general transformations of the university and higher education. In the best traditions of academic life, this report aims to prompt serious thinking and engagement with issues and trends that UUP, and faculty in general, must confront in the present and future. We will make specific recommendations; but our goal is also to encourage further research, study, and debate.

In the end, the positions and conclusions of this report are those of its author. I am grateful to the participants in our initial conference, to committee members who have been involved in this discussion within and outside formal meetings, and to the many others who attended committee meetings and hearings providing valuable insights, information, and opinions. However much the positions in this report have been arrived at through the many discussions in committee meetings and outside of them, and as much as they represent distillations of discussions and reports of various working groups, other participants will no doubt disagree with specific elements of this report. Some may, indeed, disagree with its general thrust: all the more reason to see this report as an incitement to further work and debate. For these reasons, several appendices appear with this report. Several are articles written for the committee's work. Another is a report on current developments at SUNY, written by UUP's research department, which can provide data both for furthering the discussion and for encouraging further work on issues of corporatization and globalization by UUP members. In fact, one of our recommendations is that this database be updated annually.

I. Introduction. Basic assumptions

Higher education in American history has always functioned within the context of larger social and political forces. Universities and colleges have provided skilled labor for the work force, scientific knowledge and innovation for manufacturing, and policy expertise for government. Higher education has contributed directly to improving the quality of public life, educating citizens in the institutions and history of the country, making them aware of their responsibilities as citizens, inculcating a spirit of intellectual engagement and commitment to participate in public life, and acquainting them with the larger traditions that underlay the core values and commitments of the nation. More inchoately perhaps, higher education implicates the larger culture in the cosmopolitan values of free, critical inquiry, in tolerance of alternative viewpoints, and in the general search for knowledge against prejudice and unexamined opinions.

All of these functions make the university dependent on the economy as well as susceptible to political forces. Higher education is not the ivory tower in which the pursuit of knowledge rises above the uncertainties and complexities of economic, social, and political life, as much as many would like to think it does. Both teaching and research exist in complex contexts in which different forces and different interests intersect. This is reflected in the multiple positions, attitudes, ideologies and motives of diverse faculty, some enthusiastic about new technologies and trends and willing to mold their teaching and research around them, while others prefer more traditional academic commitments to disinterested learning and the pursuit of critical knowledge. But even the latter has its political fault lines often conditioned by the larger political and social commitments of individual faculty. Scientific inquiry, and academic inquiry in general, is not reducible to the opinions of investigators, or to the background assumptions of the social world in which it takes place. Nevertheless, higher education cannot escape the complexities, tensions and ambiguities of the larger society in which it exists and the social interests it serves.

From this point of view, what is called ‘corporatization’ of the university is not new. But neither does this mean that recent trends ought to be accepted simply as inevitable consequences of the implication of the university in the political and social world at large, or rejected out of hand as dangerous perversions of an idealized academic mission. Careful conceptual and historical analyses are necessary, as is an awareness of the inevitable tensions that emerge from the different cultures that exist within universities and the different axes of intersection between higher education and the larger social world.

Above all, higher education must be viewed as historically constructed. Rather than postulating some idealized model of the university, we need to assess current developments and trends against the background of their emergence within the social world. Universities are historical

productions, subject both to longer-range social and economic trends, and to opportunistic – well meaning or not – interventions by political, economic, and social actors. Only by viewing the university as such a historical construction can we assess the dangers and opportunities of the new conditions of higher education, and chart a reasonable course for the future.

In UUP we come to the issue of higher education from a particular perspective. In its history, UUP has tried to protect our members' jobs and continually improve our working conditions. But this is not all. In addition, UUP has fully promoted the liberal values of free inquiry, the cosmopolitan commitments to tolerance and respect for diversity, and the radical commitment to the pursuit of knowledge that have characterized the modern academic mission. While we cannot ignore how these have been interpreted differently by different colleagues, and how these values have led different faculty to interact with the larger community in different ways, some endorsing recent economic and political trends while others contest them, a widely shared sense remains that the university and higher education form a distinctive space of free inquiry. Moreover, where these values have promoted certain exclusions (for example, those who do poorly on standardized tests) UUP has sought remedies to broaden inclusion.

In short, UUP has taken for granted that higher education has a particular social and political mission that is broadly democratic. This is especially the case given that SUNY expanded into the second largest system of public higher education in the United States during the 1960s and 1970s. The 1960s and 1970s were times in which public education took on the mission, the democratic mission, of giving access to higher education to all members of our society, bridging barriers of class, race, gender, and religion. This mission has continued in the 1990s with demographic changes that have brought more immigrants into New York. Higher education has become a key to a better job and a better life, and colleges and universities socialize students to become critically aware citizens committed to democratic institutions and to social and political equality. With the decline of high-paying manufacturing jobs which once provided a path for immigrants and the working classes to a better life, higher education has become more important to the social mobility of both these groups in our society. In short, an important challenge we face – as faculty, as citizens, and as union members – is to preserve and further this social democratic function of public education, and to adapt it to changing conditions and times.

Globalization and the end of the cold war require that we rethink the social democratic project. The economy is changing, becoming linked more to information technologies, deeper international and global interdependencies, and accelerated changes in technologies and market structures. Globalization may or may not portend the decline of the nation state, but it has clearly undermined the political consensus within most advanced states that the state can ensure general

prosperity and be a positive force for democratic change. The coalition of social forces that struggled to realize the welfare state and social democracy is also eroding, and with it support for fully funding public education (at least among political and economic elites). Furthermore, globalization has produced new competitive economies that have meant persistent fiscal crises, having severe impact on state funding of higher education.

As a result, neoliberal ideology has come to frame much of the public debate about higher education. Neoliberal ideology contends that competitiveness in the global economy can best be assured through free, unrestricted trade, including trade in services (such as education) and capital (investment). Markets, including labor markets, are viewed as self-regulating, natural systems that function best without government regulation and without interference from political interests, such as labor unions, environmental or consumer organizations, or human rights groups. Justice, and even democracy, to the extent they are possible, will follow naturally from the advancement and development of the natural market systems. Moreover, neoliberals are generally *globalists*, arguing that the economy is now irrevocably global and borderless, and therefore national competitiveness depends upon global competitiveness. Believing in the benefits of economic competitiveness and corporate, consumer culture, neoliberals believe that higher education, and education in general, should be subject to the same rules of efficient productivity as other corporate entities, and should be open to participation in the economy, either through the privatization of some aspects of higher education (for profit universities and corporate universities for example), joint ventures with corporations, and introduction into universities of cost-cutting and productivity enhancing technologies and management styles.

One of the concerns that drives this report is the worry that neoliberalism challenges and may undermine the democratic – social and political – mission of the university. Higher costs passed on to students and their families risk propelling education out of the reach of increasing numbers of poor and middle-class families, especially when coupled with reduced state funding, lower levels of student aid or the shift in student aid from grants to loans, which, studies show, disproportionately disadvantages poorer students. This is especially the case for public universities that cannot use endowments to offset rising costs with increased scholarship aid. Moreover, an economistic culture – a culture in which education is seen as little more than a commodity and students are seen as customers seeking the highest return for their investment in terms of a job – seems to be defining more and more of the participants in the university. Contradictions between the political and economic functionality of the university in modern democracies seem to be increasingly resolved in the neoliberal university in favor of the dominance of the economic. Educating critical citizens gives way to training students for an increasingly competitive and precarious job market, redirecting

resources away from those disciplines and departments that don't promise the delivery of good economic futures to their graduates.

Changes in the current condition of higher education harbor both dangers and opportunities. The political economy, culture, and internal politics of the university are changing. 'Corporatization' must be understood within this changing context. The growing reliance of researchers on private corporations, and of universities in general on corporate funding, is not in itself a death knell to free and critical inquiry. It does, nevertheless, suggest a need to contest the terms on which such moneys are made available, and we must ensure that a dependence which puts the private profit of corporations ahead of the public good does not set in.

Furthermore, to the extent globalization defines the new context of higher education it is equally contestable. Globalization makes possible both a nihilistic cosmopolitanism driven by the pursuit of profits and wealth wherever, and however, they can be found, as well as a reinvigorating of the public and democratizing mission of higher education, including the broadening of the understanding of the "public" to which the production of knowledge ought to respond. Often, as we will discuss below, that ‘public’ is now a global public, which calls on us to engage with the needs of the world’s poorest and most disadvantaged people, its victims of injustice and persecution both within and outside our territorial borders. It is no longer enough to say that the university serves 'the public' or 'the public good', for the identity of the ‘public’ can no longer be taken for granted.

The globalization of education holds promise of bringing the intellectual and scientific resources of advanced countries to bear on global issues such as health, poverty, illiteracy, and political oppression wherever they are found. Significantly, *The Chronicle of Higher Education* and other education journals regularly report on developments outside the United States, both in terms of the conditions and needs of higher education institutions and the work of American educators in improving higher education conditions abroad.[1] At the same time, however, as systematic connections develop between higher education institutions, including research and teaching faculties abroad, international and global distributions of higher education opportunities and knowledge become more relevant to both the conditions and ethics of our profession. In short, globalization and internationalization in higher education may deepen or mitigate global inequality. But what is becoming clear is that globalization increasingly implicates knowledge producers in larger patterns of global need, justice/injustice, and inequality. Many faculty, including many in SUNY, are rising to the challenge, developing research and teaching connections with fellows and fellow institutions abroad to research vaccines for malaria, or AIDS, or to further multilateral programs of human rights

[1] Also see the issue of *Academe* (May-June 2002) published by American Association of University Professors entitled "Globalization and the University".

or sustainable development. Education faculty is developing joint programs to improve education in poor countries, for example in Africa and Latin America. The point here is that globalization raises for higher education issues of responsibility to a 'public' world that is now broader than the local or the national. And the decisions we make as privileged academics have serious implications for the question of who will control knowledge and for what purposes it will be used. We are, of course, not the only voices, nor are ours the one's most listened to. But our responsibility and implication in these contestations are real and important.

In sum, the general conclusion of this report is that certain trends in recent years jeopardize the democratic mission of the late 20th century university at the beginning of the 21st century. Ironically, the danger arises a time when, given trends toward globalization, the democratic mission of higher education should be extended and deepened. The danger of corporatization is that it will resolve the tensions between the economic and political missions of the university in the direction of a form of capitalism that threatens the democratic mission. It threatens to reduce the independence of spirit within university communities, to over-code higher education with economistic values against values of social responsibility, critical inquiry and democratic commitment to political and social equality, and to privatize knowledge in ways that undermine public needs and that deepen global inequality and injustice. These results are neither inevitable nor necessary. New connections to corporations may make possible the application of research knowledge to public needs, if this knowledge is developed in self-conscious partnerships that aim at public goods. Globalization produces new opportunities to rethink the public uses of academic knowledge, both in teaching and research. It prompts an expansion and deepening of the sense of the public to which academic knowledge production must respond.

II. Conceptual issues: corporatization and globalization

The term 'corporatization' is both useful and unfortunate. It is useful because a clear element of the problematic of the 21st century university is the influence of corporations on many areas of university administration and on education itself. Further, the term 'corporatization' usefully suggests a broader participation of the university in the transformations toward a neo-liberal capitalism in which corporate priorities infiltrate nearly all levels of social life and individual consciousness. Surely, one element of the concept's critical and normative appeal is that it allows us to contest the increasing control over social and political life by private corporations and the neo-liberal ethos in which all of life is stage-managed to fulfill the needs of corporate capital accumulation. Moreover, the term corporatization is useful in that it points us unquestionably toward globalization, for the major corporations influencing universities do so as participants in global

markets. For better or worse, corporations mediate relations between academia and the world in ways that states and governments used to do. But the term corporatization can also obscure as much as it reveals.

On the one hand, to talk of the 'corporatization' of the university as something new in the 1980s and 1990s is misleading, especially in the United States. Debates about corporate influence in the university go back to the 1870s at least.[2] By the early 20th century critics already described the university as a corporation that not only imported bureaucratic rationalities and managerial structures from corporate life, but also was becoming itself a disguised, or not so disguised, corporation.[3] This is not to suggest that nothing in the current situation is new; but the language 'corporatization' carries the connotation of a new development, thereby hiding from view the continuities with the past and with them important structural determinants of the contemporary American university. Much of what is now derided as 'corporatization' manifests structures embedded over a long period of time in the American university.

On the other hand, the term 'corporatization' cannot be separated from a context in which its opposite is implied, that a non-corporate university ever existed or could exist. Too often, this opposite of corporatization is an idealized vision of the university as some medieval cloister or 'ivory tower'. Especially given the history of American higher education, it is not at all clear what a 'non-corporatized' university would be. So, a false opposition recurs continually in debates – corporate university/non-corporate university – the former descriptive of the current situation, the latter a representation of a 'better' university. The latter is believed to have either existed in the past and been supplanted by the corporate university, or is deferred to a future yet to be created. This nostalgia for past and future, while having dubious historical grounding at best, more importantly obscures the complexity of the current situation, one in which elements of intrusive corporate influence, even insidious forms of corporate control of research and university policy, vie with continuing legacies of free inquiry and faculty governance, resistance to corporate control and influence, and new possibilities within the university itself.

This complexity is most often apparent for the research university, and it is a story with a well known, recent past. The story of the emergence of a group of universities whose aim is to provide useful knowledge, and to ensure an intellectual workforce capable of ensuring national competitiveness, is well known. But it must be remembered that the norms and values in these leading universities filter down throughout the rest of the higher education system. Research universities train graduate students who become university and college professors. Especially in the

[2] Christopher J. Lucas, *American Higher Education: A History* (New York: St. Martin's Griffin, 1994).
[3] The classic argument is Thorstein Veblen, *The Higher Learning in America*. (New Brunswick, NJ: Transaction Publishers, 1993); originally published by B. W. Huebsch, Inc. in 1918.

sciences, but similarly in some social sciences, graduates go on to work in leading corporate research departments or research institutes that establish new norms and directions in their fields. Significantly, the increasing number of PhDs produced by post World War II American research universities, together with the tight job markets beginning in the 1970s and continuing today, have spread highly qualified, research oriented faculty through the ranks of both colleges and universities. Moreover, research universities train graduate students in fields of knowledge, as they are constituted largely in these universities. While the construction of disciplines of knowledge is complex, faculties in leading research universities play leading roles in this construction, even if, with the spread of research faculty to smaller universities and teaching colleges which has occurred since the 1970s, these leading universities no longer monopolize the construction of disciplinary knowledge as they once did. This all suggests that the 'corporatization' of the university is not only a phenomenon of major research universities whose ties to government and corporate funding have been developing over a long period, but is characteristic more generally of the American higher education system as a whole.

We talk about 'corporatization' **and** 'globalization', and we need to be clear about why we do so. Corporatization and globalization are clearly interconnected, although they can be separated for analytical purposes. It is best to view them not as theories in themselves, for both comprise highly contested sets of practices, but as partial and interconnected perspectives. Each highlights different aspects of our current condition. However, they are not reducible one to the other. Globalization is certainly unimaginable without huge globe-spanning corporations taking the leading role in organizing economic life. Moreover, the immense size and scope of these corporations is a direct consequence of doing business in the context of global financial markets and intensified global competition. Further, the fiscal crises that plague the modern university, especially public universities, can also be attributed in part to globalization and its effects.

But globalization also refers us to a myriad of political and cultural transformations that are not reducible to the structures and strategies of neo-liberal globalization.[4] New digitized communications technologies and the increasing speed and volume, as well as the character, of population movements – two of the central features of globalization -- are creating cultural changes that often do, but do not necessarily, support neo-liberal forms of globalization. They may, in fact, provide opportunities to broaden and deepen the democratic project of higher education. Moreover, the profound effects of the decline of the nation-state, taking place on numerous levels simultaneously (that is, cultural, economic and political) are not limited to deregulation and the

[4] This distinction is usefully made by Manfred Steger, *Globalism: The New Market Ideology* (Rowman and Littlefield, 2003).

reinforcement of neoliberalism. For these reasons we differentiate the concepts of corporatization and globalization, while at the same time recognizing their mutual constitution and internal relations.

III. Corporatization

A. The problematic of funding

In order to understand the concept of corporatization we begin with the changes in how universities are funded. Much of what is referred to as 'corporatization' amounts to funding of university and college programs by private corporations and its consequences for the shaping of research and teaching, both in terms of pedagogy and content. The general result, as former Harvard president Derek Bok points out, is a commercialization of education.[5] This is most pronounced in the turn toward entrepreneurialism on the part of faculty, administrations and development offices. It also involves direct intervention by corporations in funding specific research institutes at universities, as well as programs and sometimes departments, especially in the sciences. This may also involve the private outsourcing of courses, one of the dangers of distance learning that mars its progressive possibilities. It can also take the form of joint ventures between universities and corporations, usually in order to produce profit, and to train students in fields of knowledge and skills currently in demand in the workforce. It may also involve the funding of specific courses and programs by corporations and private foundations that are aimed at ideological goals. One we might cite is the Olin foundation's funding of "Law and Economics" courses in major law schools, or their funding of Harvard's Institute for Strategic Studies. There are many other examples.[6] These walk a very thin line between objective research and the capturing of the university curriculum by particular corporate or privately funded political factions and economic interests. Finally, the crisis of funding and the turning to private, corporate sources is having the broader implication of promoting a culture of knowledge in universities and elsewhere in which all knowledge is privatized, its production and dissemination conceived as a form of commodity production and exchange. We will say more about this shortly.

It is often assumed that 'corporatization' of the university is a result of the decline in state funding for education, especially public education. This has indeed occurred, but it is not the entire story, nor has the decline in overall funding meant a disengagement of the state from higher education. Almost all state universities, including SUNY, have seen the percentage of costs funded by states decline. Also, indirect funding has declined, for example declines in funding levels for state

[5] Derek Bok, *Universities in the Marketplace: The Commercialization of Higher Education* (Princeton: Princeton University Press, 2003).
[6] Sheila Slaughter and Larry L. Leslie, *Academic Capitalism: Politics, Policies and the Entrepreneurial University* (Baltimore: Johns Hopkins: 1997) and Stanley Aronowitz, *The Knowledge Factory* (Boston: Beacon Press, 2000),

scholarship and aid programs such as Pell Grants. It is safe to say that with the expiration of the National Defense Education Act in the late 1970s, which provided significant moneys for student loans, this source of indirect funding by the state has declined. It should be noted that funding in loan programs were provided by private banks, guaranteed by the Federal or state governments who also paid interest while the students remained in school. Indirectly at least, public funding of higher education has been funneled through and has benefited private corporations, blurring the line between "public" and "private" in the political economy of higher education. Again, this blurring seems to have been the norm in the history of US higher education, marking off a contested terrain rather than a secure boundary. Also, indirect funding of the university through the practice of including administrative and operating costs in grants, funds used to fund general academic programs, has come under severe pressure recently – caps have been reduced and regulations tightened – although it has not been ended.

Overall, direct funding of research and teaching in areas considered important to national security has declined somewhat, although the new concern with 'homeland security' may lead to some increases in funding. Nevertheless, government funding in national security relevant areas remains significant, although the focus has shifted as national security is redefined. Prior to World War II there was little funding of universities for 'national security' purposes. World War II changed this, creating a large infrastructure and generating an interest in more sophisticated weapons, atomic and then nuclear weapons being the most familiar. Moreover, a climate of collaboration emerged in which university faculties and infrastructures came to be enlisted in national defense. This was the case in the natural sciences (physics and biology for example) as well as social sciences (creating interdisciplinary area studies programs for example, or drawing psychology, anthropology, political science and sociology into counter-insurgency studies) that drew on the scholars recruited into intelligence agencies during the Second World War.[7] The public role of academics in these fields was redefined, constituting new forms of knowledge and expertise of value to the state. The state also funded new science infrastructures in universities, and provided funding for teaching and research in areas deemed important to United States foreign policy during the Cold War. Significantly, most of this funding, especially in the natural sciences, was for basic research rather than strictly commercially viable projects in the short-term, as is most often the case now.[8] The cumulative effect of this new academic/state culture was a redefinition of public knowledge, and a commitment, material and ideological, to maintaining advancement in basic scientific research as an

[7] On the latter especially see Noam Chomsky et al., *The Cold War & the University* (New York: New Press, 1997), and its companion volume Christopher Simpson, editor, *Universities and Empire: Money and Politics in the Social Sciences During the Cold War* (New York: The New Press, 1998).

[8] See R. C. Lewontin, 'The Cold War and the Transformation of the Academy,' in Chomsky, et. al.

element of the public good, a structure and consensus that was an essential element of the national security state. In addition to the creation of technologically advanced weapons, this collaborative academic culture and state investment in universities came to be seen as an element of national prestige and an ideological justification for US leadership of the Western alliance, an element of what is now referred to as ‘soft power’ in international relations.

In the 1970s government funding levels began to fall, and universities turned more to private corporations and foundations to make up the shortfalls. It is important to remember that they had sought out corporate funding throughout the history of American higher education, but in the wake of the fiscal crises of the 1970s pressures to turn directly to private, corporate sources for funds intensified. During the 1980s and 1990s private foundations, often with particular ideological positions, began funding universities. New, broader definitions of 'national security' led to changes in government funding priorities and rationales. Securing and diversifying energy supplies, for example, took hold at least for a time after the oil embargo of the early 1970's.

Furthermore, a new rationale entered the mix of government and corporate funding of universities and higher education. This was the result of perceptions of weaknesses of the American economy born of recognition of the globalizing elements of the post-war economy. Integration of capital markets and finance, together with shifts in the global division of labor toward the creation of more globally integrated labor markets in manufacturing – led by the globalizing of auto manufacturing, electronics and durable goods -- produced concerns about the 'deindustrialization' of the American economy, which translated into concerns about the 'competitiveness' of the economy vis-à-vis other states, especially Japan and the so-called 'Asian Tigers' (Korea, Singapore, Taiwan). Debate about the causes of deindustrialization emerged, some blaming the rapaciousness of Multinational Corporations, some blaming the American industrial culture of top-down Taylorist management styles versus the Japanese culture of more collectivist forms of management in manufacturing industries. Significantly, whatever the causes – and these were surely complex and are still debated and contested – two points of consensus seemed to emerge in the late 1970's and 1980's that defined a debate with significant consequences for funding higher education. [9]

The 'competitiveness' of the American economy was declining, so it was argued, because of deepening economic interdependence and the failure of American education (at all levels, including higher education) to train workers adequately for the new economy. American students, it was argued, both lagged behind students in other countries, especially Japan, in basic skills, especially in math and science, and higher education had failed to adapt to the changing technologies and

[9] On deindustrialization see Barry Bluestone and Bennet Harrison, *The Deindustrialization of America*. (New York: Basic Books, 1990).

innovations of the emerging more competitive world economy. Significantly, the concern for national competitiveness provided a rationale for intensifying public and political scrutiny of higher education, both to remedy presumed failures of American education vis-à-vis foreign states and to redirect curricula toward more 'competitive' investments. It also provided an ideological and political rationale for greater corporate involvement in higher education. For many, the rhetoric of national competitiveness implied that the education system was not meeting the needs of the national economy, and that it should be retooled in order to do so.[10] Just as the Cold War funding of universities "created, reshaped, and redirected" entire disciplines, the funding of university research and courses by private corporations reoriented priorities of individual researchers and through them often academic departments and even entire disciplines.

The new turn to private funding has been furthered in the 1990's by the rise in health care costs and the decisions, and often non-decisions, to leave research primarily in the hands of private corporations. The latter have seen the value of collaborating with academics, and in general in enlisting university faculties and infrastructure in order to conduct research on new medical treatments, especially drug development. Moreover, the definition of the state's commitment to health care as a 'public-private partnership' rather than as a public good in its own right has further fed the shift away from funding for basic science (and, we should add, for teaching) and toward research aimed at more specific, short term profit. This is the case for both corporate and state funding for medical research.

So, by the 1980's several pieces of the new interface of university and the economy were in place: universities are simultaneously the problem and the solution to economic problems. Moreover, with regard to university education an alliance developed between neoliberal critics of the welfare state and neo-conservative cultural critics of the permissive counter-culture of the 1960's. The latter argued that the university had become a haven of leftist professors who denigrated American values of self-reliance and individualism, creating a cultural climate that undermined the values of American workers and economic innovation, while the former argued that state investments in universities were wasting money on unproductive faculty who taught too little and cared too much about meaningless research designed to further their own careers, and that public universities were inefficiently managed and not sufficiently entrepreneurial. Whatever the merits of these arguments, this coalition has succeeded in restructuring the debate about public higher education. The university is now called upon to provide for the innovation to make the economy

[10] Perhaps the first major statement was the Cuomo Commission Report: The Cuomo Commission on Trade and Competitiveness, *A New American Formula for a Strong Economy*. (New York: Simon and Schuster, 1988). This has continued up to the present. See "The Knowledge Economy: Is the United States Losing its Competitive Edge?" Report of The Task Force on the Future of American Innovation, February 16, 2005. See also Donna Fossum et al, *Vital Assets. Federal Investment in Research and Development at the Nation's Universities and Colleges*, RAND Corporation, 2004.

more globally competitive, which means being more directly responsive to the needs of students for jobs, and the economy for innovative technical developments that translate directly into profits for corporations; and they are to do this while enhancing their 'productivity', that is, the economic efficiencies of doing more with less. Liberal arts education, once a marker of a privileged class status, becomes a ‘service industry’ within the more general economy of preparing students for the job market. This ideological framework, if not the academic debate, frames the public debate about the role and future of the university and higher education. It frames the introduction of new administrative techniques and styles in the university (Section III. B) as well as inclines toward a general privatization of knowledge (Section III. C). In addition, it frames the appreciation of globalization in higher education, including new technologies of digitization and the deepening interdependence and interactions across national borders.

B. The problematic of administration

Several trends are, indeed, worrying, one of which is the ways corporatization is changing the internal structure of universities, and with it the goals and character of higher education. The commercialization of higher education has been accompanied by the introduction of norms and structures of management that adopt and otherwise mimic management techniques developed in corporate settings. Boards of trustees, administrators, and some faculty, have too often assumed that these strategies are compatible with and appropriate to the management of a university or teaching college. They often see them as necessary and helpful at streamlining costs given perpetual funding difficulties of universities. Further, they assume that these management techniques and styles can be adopted with little or no modification by universities and colleges in ways that are compatible with the academic mission of higher education institutions. Sometimes, of course, these are adopted in state universities, more insidiously, for ideological reasons, either in order to cut back the access of higher education to all but the best students and thereby cutting state expenditures, or in response to a caricatured vision of higher education faculty as ‘unproductive’ and privileged (which often hides an ideological distaste for critical research and teaching). However, even when these corporate managerial strategies are adopted with the best of intentions they often fail to examine the cumulative effect they have on academic institutions. A new, huge industry of consultancies, think tanks, publishing and research has emerged to rationalize the appropriation of post-industrial management by universities, and, often, resulting in the legitimation and authorization of the dominance of administrators over faculty in the running of modern universities.

Jeff Lustig describes this cumulative effect in the following way:

> “The model of organization now being pressed on higher education would rationalize it along the lines of a business corporation and conceives of it as a mechanical whole with interchangeable parts and modules…. It seeks to supersede the complex interplay of

> collective judgments with the standardized terms and criteria of a bureaucratic epistemology, shifting the form of commensurability in the process to one that relies on quantitative measurement and is externally applicable by managers who may not understand the teaching being done. It would, in a word, replace public reason with administrative rationality and enforce the latter on faculty and students. Instead of a whole that was more than the sum of its parts, it would produce one that was distinctly less, not a house or many mansions but an apartment of many closely monitored units."[11]

Specific elements of this instrumental rationalization of the university are familiar and have in themselves been well documented: a) increasing employment of part-time labor, especially for teaching faculty; b) challenging tenure in order to make the workforce more flexible (i.e. responsive to the demand of consumers) and to force faculty to be 'more productive' (i.e. teach more classes and students); c) outsourcing work to private corporations, including even the outsourcing of teaching; d) allocating resources according to short-term demand and a general redirecting of university resources away from 'less productive' uses (i.e. toward 'large-group instruction', canceling classes with small numbers of students no matter how valuable pedagogically, introducing vocational or semi-vocational majors into undergraduate programs and establishing graduate programs to satisfy the credentializing of new professions); e) introducing new quantitative forms of assessment; f) mechanizing of academic programs.

The result of these strategies is an administrative culture that mimics the corporate model of flexible labor and the service equivalent of on-time delivery of goods. Education is increasingly referred to as a 'service industry', making it appear possible to manage it according to the same models of accountability and efficiency that obtain in the early 21st century service corporation. [This is one of the areas in which it is important to contest the language in which higher education is described and delimited in public debates.] In this model, 'clients' are king, and 'efficient allocation of resources' rules. The model to which academic labor is to be assimilated is the entrepreneurial model of the modern service corporation. In research universities, and even increasingly in teaching colleges, faculty are expected to find their own funding, and even their promotion and sometimes appointment may depend on this rather than on the quality of their work. Even teaching succumbs to the corporate model. The complexities and vagaries of good teaching are increasingly reduced to quantitative measures of 'outcomes' (often measured by standardized tests sold by private corporations), or by other means of 'assessment' that absorb much faculty time, degrade traditional forms of faculty evaluation and judgment, and, especially in public universities, politicize teaching

[11] Jeff Lustig, "Liberal Learning Reconsidered: An Alternative to Corporatized Miseducation," Paper presented at UUP conference on The Globalization and Corporatization of the University: How is SUNY Affected and How Ought Faculty to Respond?, Albany, New York, October 2002.

as performance indicators become grist for the mill of electoral politics.[12] More important, this regime of academic accountability seeks to standardize the 'product', both in order to satisfy our customers/clients and to streamline the delivery of our services.

Such managerial strategies are embedded in a more general, economistic model of higher education. Treating the university as a corporation reduces the complexity of higher education's mission to an economic calculus, to a false model of education as a commodifiable 'service', and to a truncated vision of higher education as delivering a service defined for us by our individual 'clients'. Higher education must become flexible, it is said, in order to meet the diverse needs of our students, which has led to the introduction of a diverse array of new pre-professional and paraprofessional degrees and majors designed to funnel students into newly created fields. Flexibility also means bending to our other clients – potential employers of our students, or the corporations seeking useful knowledge from our researches. Responsiveness to the life prospects of our students, and to the public needs of the economy and society, is one of our responsibilities as higher education faculty. But the economistic model goes beyond a responsibility that balances the multiple functions and elements of teaching in a democratic society and privileges corporate economic priorities.

Tom Kriger and William Scheuerman have recently argued that this economistic model wrongly approaches higher education as an exchange value rather than in terms of its use.[13] Economist Fred Floss, in one of the preparatory studies for this report, critiques in detail the way such economistic models of higher education lead to untenable economic conclusions. He shows that the economistic model misunderstands not only the social nature of higher education, but the way in which higher education contributes to the economy as well. His conclusions are presented in an appendix to this report.

C. The privatization of the culture of knowledge

If we recognize the turn toward private corporate funding as part of a larger crisis in the funding of higher education, we can see it as reflective of a more general transformation of knowledge production and higher education. We can call this the privatization of knowledge. Here, the term 'corporatization' may obscure more than it reveals. The problematic here is the general culture of knowledge that the current form of corporate capitalism is producing. This has as much to do with new digital technologies and with globalization as it does with increasing corporate

[12] For a comprehensive critique see William Bruneau and Donald C. Savage, *Counting out the Scholars: The Case Against Performance Indicators in Higher Education* (Toronto: Lorimer, 2002).
[13] William Scheuerman and Thomas Kriger, " Introduction – The Concept of Corporatization: A Useful Tool or Feel-Good Slogan?" *American Academic*, Vol. 1, No. 1 (June 2004): 7-19.

influence over knowledge production, although the later is becoming a problem in a number or areas, such as the funding crises facing libraries and the impact of the consolidation of book and journal publishing as well as its increasing commercialization. The question is: what are the general implications of the developing knowledge-based economy for the meaning and norms of knowledge production and use? Of course, this is a large area in need of detailed studies and much further inquiry. Here, we only offer one outline of an interpretation. Especially as knowledge becomes the driving input in late modern economies, the pressures to transform all knowledge into commodities – because this knowledge is potentially profitable in global markets – is becoming pervasive.

Corporatization would not be the significant issue it has become if it were only or even primarily a matter of corporate donations and giving of research funds to universities, that is, if it were purely a matter of funding. More general trends seem to be at work inclining toward new norms about knowledge: its production and uses, including the choices about what should be produced, by whom, and for what purposes. In short, the culture of higher education seems to be changing along with the shifts in funding toward private economies toward a new 'common sense' in which knowledge is privatized. The change is not merely quantitative, but qualitative as well.

Higher education seems to be manifesting a convergence of public and private. This is manifest both economically and culturally. Kleinman and Vallas argue, for example, that "…a process of convergence is underway in which the codes and practices of industry are infiltrating the academy, even as academic norms are increasingly governing the work practices of selected knowledge workers in high technology firms and industries."[14] Canadian scholar Janice Newson, among others, has been arguing for some time that a commercial culture of commodification has come to dominate everyday attitudes within the university.[15] Others recognize the university as becoming more and more "entrepreneurial".[16]

This also involves the already mentioned changed attitudes of students and parents, who, expecting a material payoff from their educations, tend to view higher education as a commodity. The 'crisis mentality' that leads to the acceptance of corporate managerial strategies among university administrators and among some faculty also tends to reinforce a more general culture of knowledge as private, determined by the logic of private, individual benefits (either of students or sponsors of research), and conceived of as 'information' that can be 'owned' by individual producers and corporate distributors. Knowledge as information becomes subject more and more to legal

[14] Daniel Lee Kleinman and Steven P. Vallas, "Science, capitalism, and the rise of the "knowledge worker": The changing structure of knowledge production in the United States *Theory and Society* 30: 451-492, 2001.
[15] See her "The Corporate-Linked University: From Social Project to Market Force," *Canadian Journal of Communication* August 2005. and "Disrupting the 'Student as Consumer' Model: The New Emancipatory Project," *International Relations. Special Issue: Teaching IR: Critical Knowledge in the Corporate University*, edited by Stephen J. Rosow 18:2 (June 2004): 227-239.
[16] See Slaughter and Leslie, *Academic Capitalism*.

norms of contract and determined by market supply and demand rather than by the professional norms of academic communities and professional organizations. We must be careful not to overstate this, for there continues to be a mix of motives and aims among researchers and funders (whether corporate or state) just as we know that our students attend college and university for many different reasons. The process is uneven and often contradictory. The question here is whether a general attitude of commercialization has become pervasive and is becoming the "common sense" of knowledge in the university.

One area in which transformations are taking place is in the identity of the 'knowledge worker'. Arguing that an increasing convergence is taking place between the university and technology-intensive corporations, Kleinman and Vallas argue:

Thus we see knowledge production in the throes of a far-reaching and often contradictory transformation that promises to refashion the social position of employees providing scientific and technical expertise. (473)

While universities are becoming more like corporations, inducing administrators to think of faculty as corporate "workers," and some faculty to think of themselves as entrepreneurial 'knowledge workers," academic norms are coming to define the roles of workers in some corporations. The institutional convergences beginning to take place between higher education and corporate sectors incline toward more general cultural changes, both within the academy and within the state and society.[17] This double revaluation of knowledge workers is changing the role of universities as well as the ways in which knowledge workers and knowledge production are coming to be dominated by corporate priorities.

Significant issues are at stake here. One that seems to follow is the re-problematizing of the categories of "science" and "technology". This is reinforced by the reduced funding for "basic" science in universities in favor of practically applicable science with direct payoffs in profit-making or socially useful technologies. Again, this trend is uneven, affecting different individual faculty and different universities and colleges differently. The possible cumulative effects that are troublesome.[18] To the extent this trend becomes more pervasive, those social codes that distinguish science and technology break down in the everyday practices of scientific communities, as well as in the public at large. Faculty doing 'basic research' or those indeed in areas, such as the humanities and social sciences, in which research does not have a direct payoff in technological developments, will

[17] For a related issue see the Appendix to this report by UUPer Hamid Azari-Rad examining the effects and teaching of situating economics departments in Business schools rather than Liberal Arts" "Economics in American Colleges and Universities." Appendix IV.

[18] Most often, the reduced funding for basic scientific research is criticized as inhibiting American economic competitiveness. See here the Rand study, *Vital Assets: Federal Investment in Research and Development at the Nation's Universities and Colleges*, op. cit., and the study by the Task Force on the Future of American Innovation, *The Knowledge Economy: Is the United States Losing its Competitive Edge*?, op. cit..

not only find funding more difficult, but will increasingly be looked on as 'second class' members of faculties. Possibilities of critical knowledge will be weakened as prestige goes more to entrepreneurial faculty or to those engaged in directly applicable research. The liberal arts, already in crisis, will continue its slide into status as service industry, and new projects linking liberal arts to new technologies and new ways of thinking, which integrate digital and advanced science, will be limited to those with direct corporate payoffs. Little symbolic power will be available for the liberal arts to establish its own identity in the university, and they will likely become service components of an education geared toward commodity production and training workers for the new economy.

Focusing on the convergence of institutional structures in higher education and corporate organization, and the way they are beginning to induce ideological changes in the way knowledge is thought about and understood as a social product, is a better way to approach the changing culture of the university and higher education than through assumptions that corporations are newly intruding on the university and higher education. This approach recognizes, for one thing, that historically, the economy and the university, and state and university, have always been in mutually constitutive relations, as we stress throughout this report. The form of these relations is changing. We have just mentioned the changing relation of science and technology, and the way this is changing social codes and meanings in the university. Another area has to do with access to information.

Focusing on the changing culture of knowledge leads to another issue not often discussed under the rubric of the corporatization of the university: the impact of the global consolidation of publishing and the pressures this puts on access to information, as well as the ability of faculty to publish their work. This is another area that calls for detailed study and sustained inquiry. Catherine M. Dwyer and Sara D. Knapp provide a detailed account of the problem of access to scholarly sources currently being faced by university libraries in an appendix to this report. They detail the increasingly difficult cost-structures for access to scholarly journals that are resulting from the consolidation of academic publishing by larger and larger global media corporations, as well as the ways in which the policies of large academic publishers, the Dutch company Elsevier for example, de facto restrict access to scholarly information. As they put it:

The cost of producing and distributing information has put groups and countries lacking financial means at a considerable disadvantage. One danger is that treating information as a commodity results in the production almost exclusively of profitable forms and the pricing of information at levels, which optimize the profits of producers and distributors.[19]

[19] See Appendix 3: Catherine M. Dwyer and Sara D. Knapp, “Corporate Influence on Academic Library Information Sources” (2003).

In particular, the increasing reliance on digital media for dissemination of scholarly journals, and the corporate strategy of bundling journals (requiring libraries to buy an entire package of journals rather than individual ones) has actually raised the cost of journal acquisitions, both raising the prices of print versions of individual journals and requiring libraries to purchase a package of journals only some of which they actually think it is important to have. In addition, Dwyer and Knapp discuss how the demand for instant access to information has not only curtailed the review process, but also impairs the reader's ability to be critical of the information received. Note here especially what they write about access to government information:

Almost unnoticed but perhaps more dangerous than unaccredited privately produced information is what has been happening to government information. The federal government has always been looked to as a reliable source of factual information, but the myth of its neutrality and accuracy is unraveling. What was once considered one of the most responsible sources of information has been corroded in at least two important ways. Most obvious is the privatization of government information. A profit- hungry information industry has taken over the production and/or distribution of much information formerly provided by the federal government. The argument that this saves taxpayer dollars has been used successfully by information peddlers to convert public goods to private wares for sale to those who can pay market prices. It is an open question to what extent ownership of these information sources has affected their content.

More insidious is the blatant corporate influence on the availability and content or withholding of government information, made worse by the clouds of secrecy shrouding government information since 9/11. The result of these trends has been the loss of government accountability, the loss of statistics and other data, which the public needs, and the barely-disguised promotion of the current administration's positions and neoliberal agendas.

One related area that requires further study is the effect of the consolidation and globalization of academic publishing on the research choices of individual scholars, and the ways in which fields of knowledge are being affected. The Modern Language Association, for example, has discussed both the difficulties of publishing certain kinds of scholarly work (literature criticism on individual authors for example) and the way in which this is affecting the disciplines of literary studies.[20] Importantly, traditional academic publishers, university presses for example, are looking more toward likely sales figures in determining whether books will be published at all, or in determining the price of books. While continuing to publish less saleable books (although a number of publishers have stopped or cut back severely on books thought to be significant contributions to their fields but

[20] "The Future of Scholarly Publishing." Report of the Ad Hoc Committee on the Future of Scholarly Publishing of the Modern Language Association. Originally published in *Profession 2002* (New York: MLA, 2002) 172-86. Available on-line at www.mla.org/issues_scholarly_pub.

not saleable) publishers price these so high that only relatively few libraries can afford them. The important issue here, we want to stress, is the impact these changes are having and are likely to have on the choices that scholars make about their research. Just as corporatized teaching threatens to become "teaching to the test" one might question whether progress in some scholarly fields is becoming a form of "researching to the market". This needs more study, as does the converse: the way in which new digitized media make possible new forms of publishing, and entirely new forms of knowledge production (for example, digital art and multimedia formats for 'traditional' scholarly articles and publications). This more positive effect also needs more study.

IV. Globalization

There is considerable debate as to whether globalization is inevitable and irresistible. It is difficult to come to any general judgment, given that globalization involves numerous processes that do not all operate according to the same logic. In short, the advance of technologies, especially in communication, seems inevitable, and this means that the compression of time and space, even the overcoming of space by speed in transportation and communication, will most likely continue to make the world effectively smaller. With this, organizational capacity continues to grow as computer processors become faster and storage capacity expands, enabling the coordination of ever-more complex systems over larger distances.

However, these developments do not mean that a neoliberal system of global free trade in all goods and services is inevitable. Likewise, even if the continued development of globalizing technologies is inevitable, or at least exceedingly difficult to prevent or limit, this does not mean that globalization cannot be regulated, even reversed in important areas, by states, international organizations or even broader multilateral institutions including some combination of states, international organizations, social movements, advocacy organizations, and non-governmental organizations. The way in which globalization develops is subject to political decisions; it can be countered and influenced by political action.

Globalization is not a smooth, cohesive process. Rather, it involves contradictory developments. One is that while the space of economic and social interactions expands, downplaying the significance of physical boundaries, the effects of globally organized economic and social practices and systems affects local areas differently, thereby intensifying the significance of local, if not national differences. This is especially the case, as analysts such as Ulrich Beck has argued, in environmental fields and more generally in distributions of the risks and dangers of economic and

industrial processes.[21] Another important contradiction of globalization is that the primary political focus of most people remains national and statist while the systems of power and danger are increasingly organized globally. These contradictions generate important areas of contestation in which progressive organizations such as unions must be able to intervene. It is also being resisted and reinterpreted by numerous grass-roots development strategies.

The most important implication of this study for academic unions is that they need to become more involved in the politics of global higher education. They must find ways to intervene in debates in global forums and institutions seeking to regulate higher education and to liberalize trade in higher education as a 'service industry'. We also need to understand the new opportunities for connecting and reconnecting to the public world. Globalization generates new possibilities for using knowledge and education responsibly in a world in which public space no longer seems confined within the boundaries of the nation-state. Moreover, just as knowledge production has played a crucial role in constituting the nation-state, higher education will be playing an important role in constituting new, more deterritorialized public worlds.

It is important to distinguish between the *internationalization of higher education* and the *globalization of higher education*. The former refers us to the updating of curricula to include more international content, along with expanding access for students to study abroad and in general to experience other states, societies and cultures. Significantly, it refers to matriculation of foreign students in American universities, a major revenue source especially in some graduate programs. *Globalization* of higher education refers us to the general transformations of the conditions of knowledge production, distribution and use that transcend the territoriality of the nation-state. Both are important. As Gilles Breton of Laval University in Quebec says, while internationalization 'takes into account the state of exchanges and flows that occur between dispersed entities,' globalization involves a redefinition of 'the space of social action'.[22] While the former is often discussed and justified as teaching students to live in an interdependent and multicultural world, and to be better citizens and more productive workers because of these experiences, the latter implies shifting boundaries of the public world in which knowledge production, accumulation, and distribution are implicated.

[21] Ulrich Beck, *Risk Society*, translated by Mark Ritter, (London: Sage: 1992).
[22] Gilles Breton, 'Higher Education: From Internationalization to Globalization.' Paper presented at a conference, 'Globalisation: What Issues are at Stake for Universities?' Université Laval, Québec, Canada, September 2002.

V. Internationalization of higher education

Internationalization of higher education has proceeded at a rapid pace during the 1990's. All evidence points to its continued expansion. Moreover, it is a contradictory process. At an institutional level, and especially economically, internationalization inclines toward fragmentation among universities and colleges, especially on national or regional lines, while among participants, especially academically and culturally, important convergences take place that link local universities, students, and faculty in wider networks of social practice and public life. As higher education expands internationally, it comes to be looked at more and more as a "service industry" in which particular 'firms' (universities) compete with one another for increasing returns on investments. In this respect, American universities are facing greater competition from European and Australian universities, which are drawing students who had previously studied abroad in the United States. This trend seems likely to continue. On the other hand, new communications technologies and networking possibilities are creating new possibilities for collaborations between universities and colleges across borders. Joint degree programs and jointly taught classes are only two of these possibilities. Moreover, academic and intellectual collaborations, along with international knowledge communities – always a hallmark of modern science and knowledge in modernity – continue apace, now producing new conceptions of 'public space' and new public spheres unlimited by national borders.

American students are studying abroad in higher numbers than ever before; and, even after September 2001, non-American students have come to higher education institutions in the United States in greater numbers as well. In fact, The Organization for Economic Cooperation and Development (OECD) claims that 'the higher education market in its member countries is conservatively worth some $30 billion annually.[23] In the United States, education accounts for 3.2% of total exports of services, while in Australia it has become the eighth largest export industry.'[24] This trend, while beneficial in many respects, risks reinforcing the orientation of education as a commodity by raising the stakes for economies participating in the internationalization of higher education.

International students studying in the United States declined 2.4% in 2003/04 to a total of 572,509. This was the first real decline since 1971-2.[25] Most of the decline was in undergraduate education (5%). Numerous factors account for the decline. Most likely it is the result of post-2001 security policies. However, more general trends seem to be at work as well. The *New York Times*

[23] OECD, *Education Policy Analysis, 2002*, (OECD: Paris), 2002. P. 99.
[24] UNESCO press release, 'Exporting Higher Education: A Question of Quality'
[25] Institute for International Education, *Open Doors, 2004*.

(December 21, 2004) reports that the United States is facing increasing competition from Europe and Asia in attracting foreign students.[26] According to the *Open Doors, 2004* (Institute for International Education) report, "International students contribute approximately $12 billion dollars to the U.S. economy, through their expenditure on tuition and living expenses. Department of Commerce data describe U.S. higher education as the country's fifth largest service sector export." New York State is second only to California in attracting international students. SUNY Buffalo, the only SUNY school in the top 50 hosts of international students for the 2002-3 and 2003-4 academic years, ranked 15th (Stony Brook was next, ranked 60th). Conversely, American students are studying abroad in increasing numbers. According to *Open Doors, 2004* (published in November 2004) the number increased 8% during the 2002-3 academic year. They report a 145% increase in study abroad since 1991-2 academic year.

International education increasingly includes more than study abroad and faculty exchanges. More and more, universities in advanced states are becoming involved in higher education in less advanced states. In addition, private higher educational institutions, including for-profit corporate universities, are becoming more and more involved, and are operating on a multi-national basis. This has meant that higher education has become both a matter of international economic policy and a subject of international regulatory forums. Two areas seem most important: the development of transnational regulations on quality assurance, and the opening up of higher education to competition through the GATS (General Agreement on Trade in Services). While *Educational International* (EI), an international consortium of higher education unions, monitors these developments, UUP needs to keep a watchful eye on them as well.

So far, most states have resisted the formal commodification of higher education. While the GATS (General Agreement on Trade in Services) of the World Trade Organization (WTO) defines education as a service industry, most member states, with the major exception of New Zealand, have declared that their education sectors are not subject to free trade rules of GATS. General agreement remains that education is an important social and collective political good, and that fostering its autonomy is an important national priority. Higher education is widely recognized as central to healthy democratic societies as well as to economic well-being and development. But this understanding is under considerable pressure from free-trade advocates who insist on defining education as a service commodity, and opening it up to corporate competition.

There are, nevertheless, dangers here that academics, and especially academic unions, need be aware of. As the OECD notes, pressures are mounting in the GATS for the liberalization of trade in higher education in the medium and long term, if not in the immediate future. One rather obvious

[26] Sam Dillon, "U.S. Slips in Status as Hub of Higher Education," *New York Times*, December 21, 2004.

danger is ensuring that the economic benefits do not lead institutions of higher learning to trade off quality in the rush for revenue. The OECD has, in fact, done much to ensure quality in study abroad programs, as have several non-governmental organizations (NGOs) and accreditation agencies. However, as transnational higher education becomes big business pressures on maintaining quality will increase as institutions come to count on visiting students and on fees from processing study abroad programs, or grants from corporations and governments interested in narrowly trained graduates in specific fields. Moreover, internationalization of higher education is taking an increasing variety of forms, including the opening of branch campuses both by established universities and by new corporate and distance-learning only universities, as well as new joint degree programs, articulation agreements and other forms of cross-national partnership.

For poorer and developing countries the benefits and dangers of the internationalization of higher education are different and considerably greater than for rich countries with already well-established university systems. In general, as university knowledge becomes more and more important to economic well-being, the internationalization of higher education opens opportunities for technical training and for transfer of important technologies and knowledge. At the same time, internationalization of higher education risks reinforcing inequalities of the global knowledge economy. Developing countries rightly worry about draining away their most talented students who study in the United States and Europe and choose to remain there to avail themselves of economic opportunities in the host country. They are also rightly concerned that liberalization of trade in higher education may result in the effective take over of their higher education systems by private corporations or traditional Western universities. Both would leave the control of knowledge in the hands of foreign investors, raising political, economic and cultural difficulties. For academics in advanced economies the inequalities internationalization of higher education is likely to perpetuate surely raises ethical as well as economic and political questions. Faculty and faculty unions need to monitor and become more involved in ongoing international negotiations regarding the transnationalization of higher education.

VI. Globalization of higher education

Globalization of higher education raises related, yet somewhat different issues. The internationalization of higher education by and large leaves the territorial basis and logic of higher education in tact. Nation-states remain, theoretically at least, in control of their own systems of higher education, supplemented increasingly by agreements in international organizations. Nationally based institutions, accrediting organizations, and government agencies continue to govern international education. Even within international regulatory institutions (OECD, GATS) the

primary actors are states, although, arguably, the move to standardize higher education in Europe challenges the boundaries of national sovereignties. On the other hand, globalization refers us to challenges to the ontological and epistemological assumptions of nation-state based systems of knowledge. It reorients ways of thinking about the validity and uses of knowledge, and it is restructuring the governance mechanisms for the production and distribution of knowledge.

Globalization 'deterritorializes' knowledge. Political scientists and historians have been aware of how much knowledge in the modern world has been dependent upon nation-state territoriality. The history of newspapers and book publishing, for example, is intimately bound up with the history of particular nation-states.[27] Certainly, important systems of knowledge production, accumulation, and distribution remain national. Newspapers, for example, still appeal to localities whose identities are strongly tied to national institutions and identities. Book publishing is still limited by language, which, while not as tightly connected to nationality and the nation-state (by no means are the two identical, of course) as in much of modernity, remains important to differentiating knowledge communities.

However, new forms of knowledge production, accumulation, and distribution are developing in networks that are not organized around national communities. Some inhere in new forms of digital technologies (the internet and various intranets) whose speed and volume constitute communities in novel ways across wide spaces. Some are organized directly by globe-spanning corporations intent on integrating communications, news, and entertainment media both horizontally and vertically. Regulation of these networks by states, while continuing, is often of limited effectiveness. States participate in these networks, but rarely have their interventions succeeded in regulating but narrow aspects of the net. This has not prevented some states from expending considerable resources to restrict knowledge flows through regulations -- sometimes more effective than others. Some argue that the vastness, complexity, the rapidity of technological innovation, and the dispersal of technological expertise and know-how, will likely make even successful regulation short-lived. Significantly, globally organized information and communication networks are increasingly becoming sites not only of knowledge distribution, but also of accumulation and production. Significantly, as the news media, entertainment, and the internet all come under the control of globally organized corporations bent on horizontal and vertical integration of 'information' industries, the nation-state comes to be more a nodal point in networks they do not control. Physical space becomes a series of passage points, physical geography an encasement of information flows whose bits require spatial locations only as temporary resting points (in local

[27] See Lucien Febvre and Henri-Jean Martin, *The Coming of the Book: The Impact of Printing 1450-1800*, trans. by David Gerard, (London: New Left Books, 1976), Benedict Anderson, *Imagined Communities*, (London: Verso Press, 1983), and Ronald Diebert, *Parchment, Printing and Hypermedia* (New York: Columbia University Press, 1999).

computers) before continuing on their journeys.[28] This effectively redefines boundaries; note the Chinese attempt to rework its nodal identity on the web by forcing private corporate search engines to construct new cyber-boundaries in an attempt to rewrite its history and take control of the state's identity. Yet, the governmental rationality of space and time on the web – the ordering of information over vast spaces by means of technologies of speed -- may defeat this attempt (this, at lease, is the defense offered by several of the companies involved).

'Deterritorialization' refers, then, to a spatial reorientation of social relations and experience.[29] With regard to knowledge it refers to the abstracting of knowledge from local settings in order to enable its universal circulation across territorial, social, and linguistic borders. Political economists and geographers understand deterritorialization in terms of the compression of time and space, essentially, the overcoming of the constraints of space by the ease and speed of air travel, or of computerized information systems.[30] These make the world appear 'smaller' and increasingly, distance is measured by intervals of time rather than space. Importantly, as information travels more and more quickly, its character as knowledge seems to change. French critic Paul Virilio, for example, emphasizes how little information is subjected to careful review when a premium is put on the speed of circulation.[31] As educators, perhaps the most familiar example for us is the way the information on the Internet is considered by many of our students to be 'knowledge' without any critical review of the veracity of its sources. Speed in the delivery of information seems to blur a distinction, always imprecise yet no less significant, between information and knowledge.

Speed is not the only implication of the deterritorialization of knowledge. Another effect can be called de-nationalization. This is increasingly being discussed in terms of the globalization of culture. The symbolic and discursive resources of meaning are increasingly global. Note the universality of the Nike 'swoosh' or the use of pictographs rather than language in automobiles and electronics, global commodities par excellence. While such universal symbolizations may seem innocuous enough, and are certainly helpful to the streamlining of production of commodities for a single global market, they reinforce a growing trend toward the delinking of knowledge and written, vernacular language, one of the key features of the modern territorial boundedness of language.

In this global, knowledge-based economy, higher education obviously is of great importance. This is certainly one of the encouragements to corporate influence in the university and higher

---

[28] See here the last part in Diebert (note 15). On the consolidation of information industries as both global as well as intensive concentration see Edward S. Herman and Robert W. McChesney, *The Global Media: the new missionaries of corporate capitalism* (London and Washington: Cassell, 1997).

[29] A very useful discussion of the various approaches to the concept of deterritorialization is John Tomlinson, *Globalization and Culture* (Chicago: University of Chicago Press, 1999).

[30] David Harvey, *The Condition of Post-Modernity*, (Oxford: Basil Blackwell, 1989).

[31] Among other of his works see Paul Virilio, *Speed and Politics* (New York: Semiotext(e), 1986) and *The Information Bomb* (London: Verso Press, 2000).

education in general. Timely translation of knowledge into innovation – in both production and management systems -- is crucial to the profitability of global corporations. Significantly, the nature of knowledge is changing with deterritorialization along with its use. Technical knowledge and expertise circulate globally rather than nationally. While many professional organizations in established academic disciplines remain national or regional in organization, they are increasingly making connections to other organizations in other geographical regions and otherwise creating or participating more and more in globally organized circuits of knowledge distribution.

One implication of this with consequences for higher education is the increasing 'branding' of information, which encourages further the push toward the private ownership of all knowledge. In a sense, all knowledge is becoming data, bits of information assembled into products, i.e. useful messages. Where knowledge once presumed hermeneutic and theoretical inquiries – data becoming knowledge through the mediation of interpretation or theory construction – knowledge is more and more becoming the effective compilation of data, effective in the moment. Knowledge is becoming an event. ‘Branding’ can be seen as a new way of collectivizing knowledge, a new technique creating knowledge out of information moving rather seamlessly across and through borders geographical borders. This is the epistemology of 'branding' in which the difference in information comes not from theoretical or interpretive differentiations (as is the case, for example, in the differentiations of academic disciplines), but from its presence as a symbolic ordering of data (i.e. the materialization at the end of a stream of digitized bits).

An important effect of the territorialization of knowledge was to give it a public character linked to the political and social being of the nation-state. In early modernity, knowledge of various sorts was crucial to the territorial state. New technical forms of knowledge such as accounting and statistics or national literatures and news were central both materially and ideologically to the emerging nation-states. Both of these organized information into knowledge within communities organized largely within the borders of the territorial state. Information circulated in national circuits, and even in cosmopolitan fields, philosophy for example, national styles developed. Knowledge was considered an important public resource both in its necessity for the managing of state and national economic affairs, but also for creating the shared meanings and symbols that constituted the people as a community. Knowledge was in important ways public because it was demarcated within a territorial space which it helped to create and whose shared life it expressed. Knowledge was not owned, even if some forms of information were.

Delinked from vernacular languages and put to use in global production and marketing knowledge loses this national public character, making it appear reasonable and legitimate that every piece of knowledge be privately owned. This remains a contradictory process, for the globalization

of knowledge as information also creates new forms and possibilities of public life and new senses of publicness. The fragmentation of knowledge into bits of information rewrites as well the codes of meaning that constitute public life and community. Knowledge communities, in which academic knowledge and university teaching play significant parts, are forming not around or within national communities but through and with transnational organizations and social movements. Witness researches in some health fields for example. In part, the choice of research focus depends on the recognition that disease and epidemics are now global in scope and effect, due to frequencies and volumes of cross-border travel and population movements. A new sense of responsibility to address global environmental effects wherever they are most prevalent and devastating is also creating new global knowledge communities.

Significantly, this also means that national universities no longer have the near monopoly on the production of natural or social scientific knowledge they have more or less had in the last half of the twentieth century. More precisely, the triangle of universities, private (national and local) industries, and states, no longer monopolizes knowledge production. Patent law is rapidly becoming internationalized. Universities, and often individual faculty, must now compete with private corporations for 'ownership' of knowledge. Often, individual faculty enter into competition with their own universities for the control of their knowledge production. This further reduces the traditional national understanding of the public character of knowledge, as the sense of which universities serve in producing knowledge shifts from the government and public sectors of territorial states to private corporations and private individuals.

Globalization is prompting new connections and interchanges between people and ideas. The problematizing of national interpretations of public knowledge does not necessarily mean the privatization of knowledge. In many localities, especially but not only less developed areas, new imaginative forms of public knowledge are being created. Many of these bring to bear, as they recreate, ‘local’ knowledges, but the complex interactions between globally circulating expertise and the dispersal of academic and theoretical knowledge is creating hybrids with considerable possibilities for redefining the boundaries of what counts as a ‘public’ community.

‘Global’ does not merely describe a geographical space of expansion and contraction. It also implies a coming together of elements of the social world in new and more intimate ways. The space of the global implies both deeper connections to the world beyond one's community and nation-state, as well as a coming together and interpenetration of issues. Clearly, globalization links workers in a global division of labor with profound effects on the possibilities and conditions of work in rich and poor countries alike. But, can AIDS and new bacterial and viral pandemics really be seen as unrelated to the prospects for work and well being of workers? Can environmental damage and

global warming really be seen as separate from 'working conditions' in much of the world? Globalization does not merely mean new proximities across geographical expanses but a heightened awareness of the symbiosis of social conditions that make a meaningful and just work life possible.

This has potentially profound implications for higher education. Globalization both opens possibilities for academics, in their working lives, to participating in redefining the public world in which they participate, but at the same time implicates them in networks of knowledge production and distribution with significant political and ethical implications. On the one hand, it means that cross-border collaboration in both research and teaching becomes not only possible but also, in some fields, essential. This is necessary to take advantage of the latest developments in specific disciplines. On the one hand, this would seem valuable to the extent that it limits political competitiveness in scientific research. Moreover, it allows knowledge to be put to use wherever it may be needed by transnational communities driven by humanitarian or other aims rather than the power-political aims of territorial states (see, for example, the recent cooperation in response to SARS). Deepening interdependence in the current world has created global needs for the application of knowledge to problems -- environmental, medical, humanitarian -- that can best be confronted by organizations not committed to territorial states. Significantly, the application of knowledge in these areas results less from interventions by territorial states and more by international organizations and, increasingly, non-governmental organizations. Sometimes, the globally circulating knowledge is less an intervention by ‘outsiders’ and more an interpolation governed by indigenous strategies to solve particular problems and meet distinctive, local social needs.

This redefining of the operative space of effective knowledge raises questions with which academics must grapple: who is the public (or ‘publics’) we serve? What problematics ought to govern our choices of research areas? To what communities and needs ought the creation of academic disciplines respond? Different answers to these questions may well mean different implications for the internal structure of universities, as well as the overall structure of higher education, for example by creating new interdisciplinary programs and departments and by shifting resources to potentially internationalizing pedagogies (distance learning, on-line degree programs, etc…). Academic unions must understand the new cultures of knowledge for restructuring higher education, and intervene to ensure that they are not driven either by the drift of administrative rationalities, which seek to exploit them for economic gain for universities to the exclusion of academic concerns and employment issues, or by neoliberal calls for privatizing all knowledge and restructuring higher education to make it subservient to the demands of the global marketplace.

These questions are raised, for example, in the creation of new interdisciplinary inquiries. Interdependence and global problems intensify the interdisciplinarity of knowledge. The application

of knowledge globally must simultaneously negotiate not only scientific applications but also cultural, social and political differences as well, for example in medical applications. In practical terms, this globalization of knowledge communities and the real life problematics they are being called on to confront, create the need for interdisciplinary collaborations across borders, and they link higher education directly to global needs and problems, distancing them from strictly national needs. In this case, partnerships with private foundations and corporations may be effective and useful in putting knowledge to use in more 'globalized' and de-nationalized publics. At the same time that new opportunities are opened up by this new spatial organization of global higher education, its participants become implicated in political and ethical orders and dilemmas to which they have generally paid little attention. Just as we have insisted that the national university must be seen as part of the social, political, and economic world in which it subsists, so must the globalizing higher education networks be seen, along with those participants within them.

One implication of the deterritorialization of knowledge is especially troubling and can illustrate the dilemmas we face. The distribution of knowledge and knowledge communities is hardly equal. As economic development becomes more and more dependent on knowledge, education, including higher education, becomes more important to the prospects of developing countries, a linkage the World Bank has clearly recognized. Universities and faculty are increasingly implicated in the unequal distribution of knowledge production, what we might call a radically unequal geopolitics of knowledge. In the context of the global knowledge-based economy, this also means that faculty and researchers become implicated in more general forms of political, social and economic inequality. Is it the responsibility of faculty to close the gap between rich and poor countries with regard to knowledge and higher education? If so, how do we do that? By opening branch campuses of the rich countries in poor countries? By deepening collaborations between universities in poor countries and those in rich countries? By sharing faculty on more regular bases? By encouraging and aiding (as subordinate or equal partners?) local communities in developing new forms of effective knowledge? What role should states play, if any, in these interventions and interpolations of academic and expert knowledge, especially when they seek to use our expertise to rationalize human rights violations, or to enhance and legitimate the intensification of violence? Unions, including UUP, are increasingly working in solidarity with labor in developing countries. Perhaps the current global order of knowledge in which we operate demands of us a broader solidarity as well, becoming involved, even in modest ways, in developing educational opportunities in developing countries and finding ways to work with faculties in them.

What this means for higher education is difficult to say. The connection of universities and higher education to networks of identity and knowledge production, accumulation, and distribution

is complicated. While ties to nation-states and localities whose identities remain bound to the national remain strong in many respects, higher education and academic disciplines more generally are becoming more and more interconnected with more broadly constituted knowledge networks. Research faculties certainly remain tied to military-industrial complexes of states, as they remain tied to local and national political institutions (Harvard's Kennedy School of Government, for example, which runs programs for United States congressional leaders, as well as non-US legislators and executives). But increasingly, university faculties are creating institutional connections directly to international organizations and organizing transnational collaborative projects in areas once thought to be limited to nation-states (various citizenship projects in Eastern Europe by American universities, for example).

Higher education relates to important epistemological and ontological issues that cannot be ignored. Knowledge constitutes a public world in which it develops, exercises power, and is constrained and limited. Even the privatized knowledge of neoliberal global capitalism constitutes a public world, one in which relations of individual profit and well-being are prior to a public good, increasingly thought to be marginal to the good life, and hence made to be that way by political and social power. We have insisted throughout this study that higher education does not exist outside of the social and political world. Moreover, its relations within the social and political world are multiple and cannot be reduced to a single function or relation. Higher education plays important roles within the economy and the democratic polity. We need to resist hegemonic domination of the university and higher education by neoliberal corporatization. But we cannot do this by simply counterpoising to it an idealized university outside of the social and political world. Instead, we need to explore the possibilities for alternative public worlds implicit in globalization and the new conditions of knowledge accumulation and production we find ourselves within.

VII. Toward a conclusion

In conclusion, we agree that corporatization is an important concept in an understanding of the current condition of the university and higher education. Yet, we argue that it must be understood as part of a larger context of the current form of globalizing capitalism, including the changing nature of the state and the transformation of culture toward one governed by principles of mobility, speed, and digitized communication. There are opportunities and dangers here. Most important, the new situation cannot be ignored.

There are obvious dangers in the current situation, not the least of which is that such funding will freeze out critical research and in other ways unduly restrict research to short-term, corporate priorities. It risks as well creating a climate unsupportive of teaching that is critical of prevalent

institutions and dominant ways of thinking. This is not to say that knowledge produced in universities, and taught to students, should not be pragmatic and socially useful. As mentioned in the introduction above, we ought not to counterpoise the current condition of the university to an idealized ivory tower in which real world concerns are held at bay. Perhaps most important, the change in funding and the political rhetoric and justifications of it, creates an oversimplified public debate about higher education, and education in general, that privileges corporate and economic priorities. We might do well, for example, to rethink and revalue 'liberal arts' education in more democratic terms, as a condition of possibility that informs the identity of higher education in liberal democratic states, rather than a condition presumed to exist either as a marker of class privilege or as a mere service industry adjunct to the preparation of skills for the job market. Perhaps liberal arts have to become premier sites for the contestation over the possibilities and terms of knowledge and knowledge production rather than a given body of knowledge.

We need to engage with and contest the terms on which this funding of universities is obtained. We need to do this both within our universities and in the public discourse of higher education. We need to find ways to turn the political rhetoric and climate toward more complex and more democratic understandings of the role of higher education in public life. In fact, the new situation creates, in our view, a new condition for struggles, complete with risks and opportunities, to define and inflect the relevance of knowledge in an age of corporate globalization. This study is informed by the position that our guiding concern should be whether the knowledge produced in the university serves the public good, whether the normative choices and deployments of knowledge are determined democratically through public discussion and deliberation which includes but is not limited to our expertise and positions as academics, or by the dictates of powerful corporations either directly or in alliance with state officials.

VIII. Proposals

1. Develop and maintain one or more databases on corporate activity at SUNY. The purposes are: 1) to track corporate activity at SUNY and to provide a basis for assessing its consequences, positive and negative; 2) to provide a resource available to the Executive Board, various UUP committees whose concerns include issues related to corporatization, and to encourage joint work and collaboration across committees; 3) to provide easily accessible information of interest and importance to UUP and its members. A summary report should be issued yearly at the Fall DA.

While determining the specific data and categories of data to be collected should be the first task of a reconstituted Globalization and Corporatization Committee (or a Committee on Issues in

Higher Education?) in consultation with the Research Department of UUP and other committees, we suggest that the following might be included:

1. Breakdown of funds coming to SUNY campuses from various sources: state, federal government, corporate sector, etc… Should include breakdown of private sources of funds, whether corporations, non-governmental organizations, foundations, etc…
2. Contributions of the Research Foundation, including sources and amounts of funds;
3. Status of ongoing interactions between SUNY and private sector organizations, including corporations, not-for-profit groups, professional associations, etc… paying particular attention to issues affecting the larger SUNY community, such as access to research facilities, pressures on academic freedom, hiring practices, etc… This should include influences and contributions to both research and curriculum.
4. Major new joint ventures with private sector groups, specifying amounts, form (grants, licensing agreements, partnerships, etc…), including influences and contributions to both research and curriculum;
5. Major federal government funding, including specific sources and amounts;
6. Employment issues: job creation or loss as a result of corporate ventures; changes in employee status, etc…
7. Bring together data concerning part-time employees on campuses, with special attention to significant changes during the year, including the employment of graduate students;
8. Any contracting out or outsourcing, permitted or otherwise;
9. Introduction of new managerial techniques
10. Monitor of new legal and legislative developments regarding private sector connections to the university

2. UUP should **support research and educate members** on issues related to corporatization and globalization. These include: a) constraints on the university and opportunities presented by globalization and corporatization; b) the effects of privatization of knowledge on higher education; c) studies of democracy and higher education; d) studies of policy relevant topics such as unequal access to higher education, the ethics and responsibilities of research in higher education in the context of globalization; e) the effects of the new political economy of publishing on higher education; f) the impact of digitization on knowledge and teaching; g) the meaning of 'ownership' of research and knowledge in the digital media. This support should encourage our members to engage in scholarship and public debate about the changing conditions of the university and higher education. This may take the form of a publishing program (like the new Working Papers Series), grants to faculty for research on specific topics, soliciting research from members on specific topics,

contributing to outside higher education research organizations such as the new Research Institute, and organizing conferences on specific problems and issues.

3. UUP should **forcefully defend the public and democratic mission and values of higher education.** This involves engaging the public debate about the mission of the university through a concerted, on-going campaign that argues against the privatization of knowledge, rearticulates the public mission of the university, in political as well as economic terms, and makes the case for higher education as a crucial component of democratic politics and culture. UUP should be in the forefront of discussions of the changing public role of higher education and faculty, including the changing nature of public space and the globalization of the public sphere and what this means for higher education.

4. UUP should develop **a work group on Globalization and Higher Education**. This could be another function of a reconstituted Corporatization and Globalization Committee. The work group should monitor developments in GATS (General Agreement on Trade in Services), the OECD (Organization for Economic Cooperation and Development), and other international organizations working to regulate higher education across borders. The work group should report on these efforts and make recommendations for collaboration with other unions, international organizations, and non-governmental organizations when appropriate.

They should also survey and keep abreast of international programs at SUNY, including numbers of students and revenue flows, as well as survey institutional cross-national collaborations at SUNY, paying particular attention to the terms of employment within them (i.e. are faculty who teach for SUNY schools in other countries paid adequately and treated fairly). Finally, the work group might develop ways of connecting UUP's work to support democratic higher education in poor and developing states.

5. Recommend to the Legislation Committee that they consider legislation on fiscal transparency at SUNY and its campuses as part of UUP's legislative agenda.

Appendix I

ARCs, CATs and STARs:
Public-Private Research Partnerships and the Corporatization of the SUNY System

Thomas J. Kriger
Director of Research

Alison Grinnell
Research Assistant
UUP Research Department

This study examines New York State's role in the creation of joint university-corporate research partnerships at the State University of New York (SUNY). We argue that the sizable shift in public funding that has occurred at SUNY over the past decade – a shift in funding from campus operating budgets and undergraduate/graduate instruction to high technology research conducted by joint university-corporate partnerships – has in essence created a new model for SUNY. This new model is at odds with SUNY's historic mission of providing affordable, accessible, high-quality public higher education to the citizens of New York.

In order to illustrate the disparities in funding than have arisen between public-private research partnerships and basic undergraduate/graduate education at SUNY, we examine the history of public-private research initiatives at just one campus – the University at Albany (UAlbany). The case of UAlbany and Albany Nanotech point to a substantial shift in priorities at SUNY, one that has taken place without public debate, without a coherent financial strategy, and with a lack of financial transparency one might expect at a first-rate *public* university. The greater involvement of corporate interests and corporate money in these research partnerships also thrusts SUNY directly in the middle of the corporatization debate currently being waged across American higher education.[32]

Our research poses the following questions: Most importantly, who benefited from these often substantial state investments in high-tech research partnerships at SUNY? Second, what were the consequences of this shift in public funding at SUNY from campus operating budgets and undergraduate/graduate instruction to high-tech research partnerships? Third, who controlled how public money was appropriated/invested? Finally, were these the best choices for effective public higher education policy in New York State?

Industrial Policy and Corporate Funded Research

The current drive for greater corporate investment in higher education research began in the early 1980s, when both the federal and state governments sought solutions to the declining American manufacturing sector. As part of their search for a new, national industrial policy, members of Congress looked to increase investment in sectors that would serve as the foundations of a new (i.e., post-manufacturing) industrial economy such as high technology, biotechnology, and pharmaceuticals. In 1980, Congress – in the midst of a debate over the decline of *federal* funding for higher education – began to look for ways that American colleges and universities could serve as incubators for these new industries. As an added incentive, policymakers believed that if colleges

[32] See Diana G. Oblinger, and Anne-Lee Verville, *What Business Wants From Higher Education*, (Phoenix: The Oryx Press, 1998) and Jennifer Washburn, *University Inc.: The Corporate Corruption of Higher Education*, (New York: Basic Books, 2005).

and universities marketed this research, campuses could then generate their own resources, lessening the need for federal support.

In December 1980, Congress passed the Bayh-Dole Act, which gave public colleges and universities the right to market research discoveries funded by federal dollars. The goal was to attract corporate interest (i.e., funding) in what were heretofore government-owned patents. According to its critics, Bayh-Dole went beyond what was necessary for universities to market their research. They argued that Bayh-Dole would "facilitate the corporate takeover of the entire public investment in university research infrastructure and personnel. It would include the researchers, their labs, and their graduate students, together with the lion's share of the annual federal funding of research, which by 1995 exceeded $15 billion."[33]

In 1982, a little more than a year after Congress passed the Bayh-Dole act, the New York State Legislature provided modest funding for a series of joint university-corporate research partnerships at New York's higher education institutions. Known as the Centers for Advanced Technology (CATs) program, this legislation was designed to facilitate similar goals: university-industry collaboration in specific high technology areas. The program was modest at first, with four CATs located at different universities. The model for the CAT program was based upon traditional university research protocols. CAT research projects were peer reviewed, and the emphasis was on collaborative research. In subsequent years, however, the model for research at the CATs changed as the program was expanded. Peer review of individual projects was dropped in favor of a much different model that more closely resembled corporate research, with an emphasis on proprietary data, secrecy and narrowly targeted commercial applications.

Corporate Management Strategies at SUNY: One Approach to Declining State Funding

Following years of declining federal funding for higher education in the 1980s, state policy makers reduced public funding for SUNY's state-operated campuses in the early 1990s. This trend continued into the first decade of the 21st century. As we see below (Chart 1), state support as a percentage of total revenue at the state-operated campuses fell from 75 percent in 1990-91 to slightly more than 54 percent in 2005-06. As Chart 1 also demonstrates, policy makers raised tuition revenue to make up for part of the decline in public support.

[33] Leonard Minsky, "Dead Souls: The Aftermath of Bayh-Dole," in *Campus, Inc: Corporate Power in the Ivory Tower*, ed. Geoffry D. White and Flannery C. Hauck, (Amherst, New York: Prometheus Books, 2000), 95.

Chart 1

Revenue Sources at the SUNY State-operated Campuses, 1990-2006

Year	State Support (in thousands)	State Support % of Total Revenue	Tuition Revenue	Tuition Revenue % of Total Revenue	Total Revenue
1990-1991	$915,400.00	75.4%	$299,109.00	24.6%	$1,214,509.00
1991-1992	$896,300.00	71.4%	$359,465.00	28.6%	$1,255,765.00
1992-1993	$802,900.00	62.9%	$474,259.00	37.1%	$1,277,159.00
1993-1994	$855,200.00	64.9%	$462,000.00	35.1%	$1,317,200.00
1994-1995	$865,800.00	65.3%	$459,700.00	34.7%	$1,325,500.00
1995-1996	$688,900.00	54.5%	$576,100.00	45.5%	$1,265,000.00
1996-1997	$646,600.00	53.1%	$570,700.00	46.9%	$1,217,300.00
1997-1998	$734,600.00	53.6%	$572,100.00	41.7%	$1,371,338.60
1998-1999	$869,797.50	60.8%	$560,098.10	39.2%	$1,429,895.60
1999-2000	$909,408.60	61.5%	$570,085.10	38.5%	$1,479,493.70
2000-2001	$991,697.10	62.8%	$587,765.20	37.2%	$1,579,462.30
2001-2002	$1,056,081.40	63.3%	$612,379.90	36.7%	$1,668,461.30
2002-2003	$1,034,699.90	61.9%	$636,648.90	38.1%	$1,671,348.80
2003-2004	$851,646.30	51.0%	$816,884.40	49.0%	$1,668,530.70
2004-2005	$951,152.80	53.4%	$830,132.30	46.6%	$1,781,285.10
2005-2006	$1,006,622.00	54.1%	$854,425.40	45.9%	$1,861,047.40

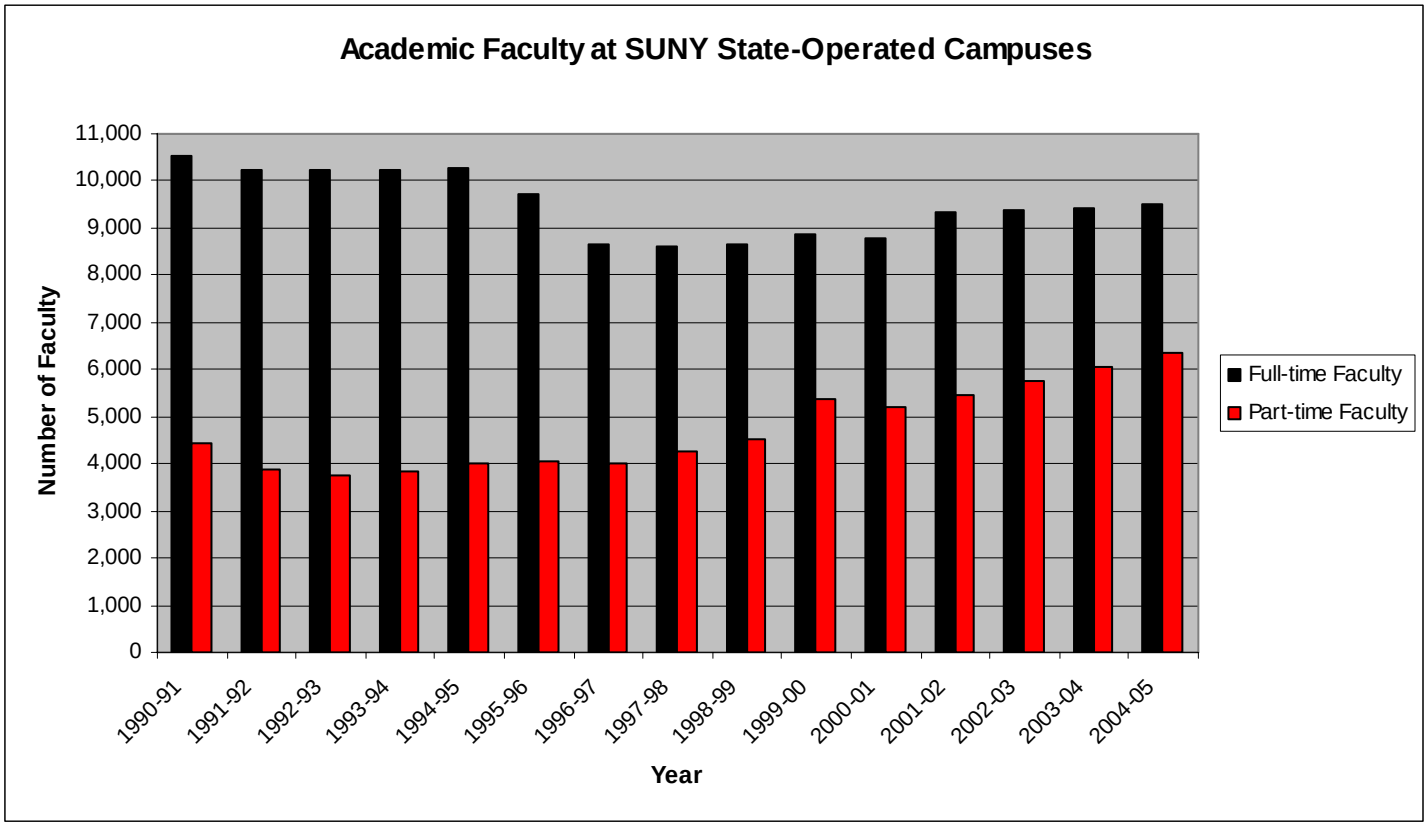
Source: NYSUT Higher Education Data Project

In search of additional responses to declining state funding, administrators at the state-operated campuses turned to the corporate sector for solutions. Following the lead of corporate personnel managers, many SUNY administrators cut their costs by declining to rehire faculty full-time positions that went vacant, preferring instead to hire part-time faculty earning vastly lower salaries to make up for holes in their operating budgets. Between 1990-91 and 2004-05, the full-time academic faculty at SUNY declined from 10,534 to 9,496, a decline of more than 1,000 full-time faculty lines or 10%, while the number adjuncts at SUNY grew from 4,433 to 6,374, an increase of almost 2,000 or 44% (Chart 2).[34]

[34] State University of New York, Institutional Research, *Statistical Release: Employees of the Institutions of the State University of New York, 1990-2005.*

Chart 2

Full-time and Part-time Academic Faculty
At the SUNY State-operated Campuses, 1990-2005



Source: SUNY Institutional Research

As state funding continued to decline, SUNY administrators again looked to the corporate sector for solutions. In 1995, newly elected Governor George Pataki appointed a new slate of SUNY Trustees, many of whom came from the business world with little or no experience in public higher education. The most concise statement of the new Trustees' corporate-leaning agenda is found in their 1995 report entitled *Rethinking SUNY*. As this report explains, "Consistent with the tradition of almost fifty years, the State University's major objective remains public access to high-quality education. To achieve that goal in a climate of constrained resources, it will be necessary to become more self-sufficient and entrepreneurial, more focused, and more creative. We will need greater management autonomy to do so." *Rethinking SUNY* called for greater faculty productivity by increasing the number of students in classes; for increased research output by adding 8,000 non-state

research jobs; and for increased campus entrepreneurialism by granting campus administrators greater control over revenues generated on campus and the promise of less state oversight. [35]

In 1998, the SUNY Trustees implemented a new system-wide budget allocation methodology (known by the acronym RAM) that emphasized campus entrepreneurialism. RAM was drawn from business strategies such as "total quality management" and "responsibility center budgeting." With RAM rewarding campuses for attracting externally funded research, campus leaders began to seek more research funding from the federal government and the corporate sector. SUNY historically – with its mandated mission of providing geographically and economically accessible, high-quality undergraduate/graduate instruction – had lagged behind other states as a recipient of either federal or corporate research money. In fiscal year 2003, for example, the State University of Buffalo (UB) ranked 60th in industry-financed research and development expenditures at major American research universities, based upon an analysis conducted by the National Science Foundation (NSF). In these same NSF rankings, SUNY Stony Brook ranked 111th and SUNY Albany ranked 186th nationally.[36] With the enactment of RAM, however, federal and corporate research funding increased at SUNY. Between 1995-96 and 1999-00, SUNY research grants increased from by more than $60 million. And they have continued to grow; their current value is $674,382,000, a 96 percent increase from 1995-96, and a 66 percent increase since 1999-00.[37]

Consistent with *Rethinking SUNY,* one of the Pataki Administration's goals was to expand funding for joint university-corporate research. One way this was accomplished was by expanding the CAT program (see Appendix 1). When the program was established in 1982, each CAT was dedicated to a specific high technology area, varying from biotechnology to electronic imaging systems. The CATs were university-industry research collaborations, created by combining a (public or private) higher education institution with a private-sector business such as Xerox or IBM. The goal of the CAT program was to increase the competitive edge for New York businesses and also to expand sponsored research at New York's colleges and universities.

The New York State Science and Technology Foundation approved individual CATs through a statewide competition in technology areas that were believed to be essential for the state's economy. Individual CATs were designated for 10 years, and had to reapply for further certification. The CAT program began with 4 facilities in 1983. When the Pataki Administration took office in 1995, there were 13 CAT facilities in New York State. By 2006, this number had increased to 16 (the New York University CAT in Digital Multimedia was not redesignated, however, leaving the

[35] *Rethinking SUNY*, The Board of Trustees, State University of New York., December 1, 1995.
[36] National Science Foundation. "Academic Research and Development Expenditures, Fiscal Year 2003"
[37] NYSUT Higher Ed Research Project.

state with a total of 15 CATs – see Appendix 2). Between 1995 and 2006 the state allocated $168 million to the CATs through the state budget.[38]

State leaders justified the appropriation of public money for these research partnerships because they would stimulate regional economies, especially in the hard hit upstate region.

The next most often-cited rationale for public investment in these partnerships was job creation. Between 1980 and 1990 employment in upstate New York grew 17.5 percent, from 3.1 million to 3.6 million. By contrast, employment grew by 22.1 percent for the United States as a whole. Furthermore, from 1990-2000, upstate New York's employment grew by less than half of what it did from 1980 to 1990, while the United States as a whole matched employment growth from the decade before.[39] More recently, New York State lost 273,000 jobs from the recession between March 2001 and May 2003. Since then it has gained only half of those jobs back. Job growth in New York since May of 2003 has been 1.5 percent, compared to the national average of 3.0 percent.[40]

Policy makers and their corporate allies argued that public investment in high tech R & D generated regional economic activity, especially when combined with matching investment from the private sector. Spending scarce state resources in this manner, they argued, was the best way to keep businesses – and with them profits and tax revenues – within New York State. This was especially important given the stagnant economic growth and job creation that has plagued upstate New York for the past twenty five years.

In response, the Pataki Administration devoted increased funding to a number of joint corporate-university research partnerships through the creation of the New York State Office of Science, Technology and Academic Research (NYSTAR) in 1999. NYSTAR's goals were to increase the number of high-tech jobs and the total amount of federal and private research money invested in these industries.

One initiative under the NYSTAR banner was the **Strategically Targeted Academic Research (STARs) Centers,** eight facilities located at public (such as the Center in Biomolecular Diagnostics and Therapeutics at Stony Brook) and private (such as the Genomic Technologies and Information Sciences Center at Cornell University) colleges designed to achieve breakthroughs in science and technology. From 1999 to 2006, the STAR centers received at least $80 million in start-up costs[41]. Another similar NYSTAR initiative was the **Advanced Research Centers (ARCs)** program, comprised of five jointly funded facilities designed to expand high-tech research and promote economic growth. The ARC program included the Center for Pharmacogenomics at Albany

[38] New York State Budgets 1995-2006
[39] Rolf Pendall, Matthew P. Drennan and Susan Christopherson. "Transition and Renewal: The Emergence of a Diverse Upstate Economy." *The Brookings Institution, Center on Metropolitan Policy*. January 2004, 3.
[40] Fiscal Policy Institute. "The State of Working New York 2005."
[41] http://www.nystar.state.ny.us/stars.htm

Medical College and the Center for Integrated Multilevel Analysis of Neuronal Plasticity at Mount Sinai School of Medicine.[42]

The **Centers of Excellence Program**, funded by New York State's economic development agency (the Empire State Development Corporation), was another NYSTAR program that had a great impact on the SUNY system. At the Centers, additional state funding was designed to support major upgrades of research facilities and other high technology and biotechnology capital projects at colleges and universities. With the primary goal of job creation in high tech fields, the $250 million in new state funding for the Centers was expected to leverage new private sector investment (in a three-to-one ratio) for a total of $1 billion in new investment for these projects. Examples of the **Centers of Excellence** included the Center of Excellence in Bioinformatics at Buffalo, a partnership between SUNY Buffalo's Center for Computational Research, Roswell Park, the Hauptman Woodward Medical Research Institute, and private life science firms; the Center of Excellence in Nanoelectronics at SUNY Albany (see below); the Center for Biomolecular Diagnostics and Therapeutics at SUNY Stony Brook; the Center of Excellence in Environmental and Energy Systems and, most recently, the Center of Excellence in Small Scale Systems Integration and Packaging Center at SUNY Binghamton.[43]

Reflecting New York State's divided state government, state legislative leaders also established their own joint university-corporate, high tech research projects. The reactivation in 2001 of the State Assembly's Task Force on University-Industry Cooperation was indicative of the recognition by legislative leaders of the potential impact of these partnerships on the state and its economy.[44] State Senate Majority Leader Joe Bruno championed a similar program known as Gen*NY*sis (Generating Employment through New York Science) in the field of life sciences research (Chart 5). In a 2004 report from the Senate's NextGen Task Force, comprised of members drawn from the chamber's Republican majority, they asserted that through Gen*NY*sis and the Centers of Excellence the state had allocated over $1 billion toward new high-technology and biotechnology capital projects. They further argued that with the right tax formulas, regulatory environment and financial climate, such investments could solve the state's problem of stagnant economic growth.[45]

The Gen*NY*sis program started in 2000 and New York currently has 17 Gen*NY*sis centers. The centers are funded through various sources from the state budget to member items to NYSTAR programs. The Senate Majority created the program to "maximize the research and

[42] http://www.nystar.state.ny.us/arcs.htm
[43] http://www.nystar.state.ny.us/coes.htm
[44] NYS Assembly University-Industry Cooperation website: Accessed: 1/24/06, 3:00p.m. http://www.assembly.state.ny.us/comm/UnivIndCoop/20020808/ .
[45] New York State Senate NextGen Task Force

development potential of the world-class life sciences research being conducted at New York State public, not-for-profit and private academic research institutions."[46] Each program, the Centers of Excellence, Gen*NY*sis and Rebuilding the Empire State Through Opportunities in Regional Economies (RESTORE) allows state money to fund partnerships between the state, academe and private companies. State leaders continue to invest in SUNY, but only through research and development, and to develop partnerships. Funding for enrollment growth, libraries and technology infrastructure has become secondary.

In recent years the Pataki Administration continued to devote increased state funding to these research partnerships. In the 2005 state budget, lawmakers created the New York State Foundation for Science, Technology and Innovation, which became a public authority in 2006, and will eventually take the place of NYSTAR.

Albany Nanotech: A Case Study of Public Money and Private Interests

A brief history of the funding of these public-private research initiatives at just one SUNY campus – the University at Albany (UAlbany) – illustrates the disparities in funding than have arisen between public-private research partnerships and basic undergraduate/graduate education. The result has been a substantial shift in priorities at SUNY, one that has taken place without public debate, without a coherent financial strategy, and with a lack of financial transparency that one might expect at a first-rate *public* university.

In 1993, New York State's Science and Technology Foundation, which administered the CAT program (in the days before NYSTAR), approved a facility located at the University at Albany, one of SUNY's four graduate university centers. The UAlbany CAT, which was known as the Center for Advanced Thin Film Technology, received a ten-year "designation" from the state as a research facility in the field of Nanotechnology and Semiconductors.

In 2001, Governor Pataki proposed, and the Legislature supported, the creation of an additional facility at UAlbany known as the Center of Excellence in Nanoelectronics.[47] This was part of an effort by policymakers to transform the upper Hudson Valley region into the equivalent of New York State's Silicon Valley, a cluster of universities and corporations in northern California that held nearly 500,000 high-tech jobs.[48] The new Center for Excellence stood beside the expanded Albany CAT, which, after its original research designation expired, was redesignated (with an expanded research program) as the Center for Advanced Technology in Nanomaterials and Nanoelectronics, in June, 2004.

---

[46] http:www.nystar.state.ny.us/gennysis.htm

[47] Richard A. D'Errico, "Creating critical mass: Albany Nanotech at 1,350 workers," The Business Review, 25-31 August 2006, 1-2.

[48] Steve Lohr, "New York Bets On High-Tech Aid to Upstate," *New York Times*, 28 October 2006, A1.

September 2001 also saw the construction of major research facilities at UAlbany that included a "clean room" for nanotechnology research, a workforce training facility, administrative office space, state-of-the-arts labs and a supercomputing center – all part of the expanding nanotech initiatives on the Albany campus. Governmental responsibility for these initiatives ultimately rested with the SUNY Research Foundation, one of New York State's many "public authorities," which were publicly-funded, privately organized entities created to administer many of the state's governmental functions. To administer these new research facilities on the Albany campus, the SUNY Research Foundation created a set of related organizations designed to carry out the public-private research partnerships discussed in this essay. As the Research Foundation's 2005 Annual Report explained, "The Foundation has established fourteen affiliated organizations to facilitate university-industry-governmental partnerships and accelerate the growth of sponsored programs and applied research opportunities at SUNY."[49] Among these fourteen entities were two specific to UAlbany. The first of these "affiliated organizations" was the Fuller Road Management Corporation, a private, not-for-profit corporation designed "to provide a vehicle for the construction of comprehensive research facilities that support a high-tech business incubator, workforce development, research and development and technology acceleration." The second was Nano Tech Resources, Inc., a private, not-for-profit corporation created by the Research Foundation "to work with the University at Albany to help meet its obligations in support of the Center of Excellence in Nanoelectronics by assisting in exploring and implementing corporate partnerships and securing external funding."[50]

At the campus level, administrative oversight was carried out by an entity called Albany Nanotech, which provided day-to-day support for these research partnerships. The offices of Albany Nanotech were located in Nanofab 300 South, a 138,000 square foot facility located on the western edge of the campus that opened in June of 2003. Albany Nanotech provided the administrative umbrella for five centers located at this seemingly ever-expanding section of the campus. These centers were the Center of Excellence in Nanoelectronics, the Center for Advanced Technology in Nanomaterials and Nanoelectronics, the Interconnect Focus Center, the Nanoscale Metrology and Imaging Center, and the Energy and Environmental Technology Applications Center.[51]

A second, larger research facility of 228,000 square feet, known as Nanofab 300 North, opened in late 2003. By this time, over one hundred corporations were involved in research partnerships at the nanotech facilities, including such well known names as Advanced Micro

[49] Research Foundation 2005 Annual Report, 31.
[50] 2005 Annual Report, 32.
[51] Testimony of Michael Fancher, Director of Economic Outreach, Associate Professor of Nanoeconomics, to the Research Subcommittee of the Committee on Science of the United State House of Representatives, United States Congress, Washington, DC, May 18, 2005, [Serial No. 109-15], 1.

Devices, Inc., Honeywell, Tokyo Electron Ltd., IBM, Semetech, CommerceHub and many others.[52] The Governor and the Legislature added the capstone to the nanotech initiative at UAlbany in 2004, when they created the College of Nanoscale Science and Engineering (CNSE) at the Nanotech complex, which opened with 35 faculty and 125 graduate students.[53] CNSE was the first academic institution in the country dedicated solely to the study of nanoelectronics. Dr. Alain Kaloyeros, President of Albany Nanotech, was named Vice President of the College and Chief Administrative Officer.[54] His base salary is $525,000, the highest of any state employee.[55]

By 2006, it was clear that Albany Nanotech represented a major investment both for the State of New York and its corporate partners. According to one estimate, the total value of investments in these facilities was $3 billion, comprised of $2.5 billion in private sector funds and $500 million in state funding over five years.[56] This total of $3 billion was greater than the entire operating budget (i.e., tuition and state funding) for all of the SUNY state-operated campuses that year. By August 2006, the number of employees at Albany Nanotech reached 1,350, of which 350 were employees of UAlbany. The total number of employees at Albany Nanotech was projected to reach 2,000 by 2008.[57] The facility was also attracting national attention. In June 2006, Small Times Magazine named CNSE the nation' top higher education institution in the field of micro and nanotechnology. The magazine's survey cited CNSE for the high quality of its education, facilities and industry outreach.[58]

Funding Albany Nanotech

The total value of both public and private investment in Albany Nanotech, as cited above, is estimated to be $3 billion, of which $500 million came directly from New York State.[59] Another estimate placed the total value of all state and local grants, tax breaks and subsidies at $1 billion over the five years these facilities had been in existence.[60] The problem in attempting to verify these estimates is that there is no central accounting for these appropriations in either the SUNY or New York State budget. In fact, funds for the nanotech research partnerships at SUNY Albany have come from an almost bewildering array of sources that reflect both New York's fragmented state government, and the lack of public dialog or detailed plan for these grants, appropriations, awards and other monies. The absence of individual budget lines in the state budget, which are reasonably

[52] D'Errico, 13.
[53] Larry Rulison, "UAlbany is named top U.S. nanotech college," *The Albany Times-Union*, 13 May 2006.
[54] See http://cnse.albany.edu
[55] Danny Hakim, "Best-Paid State Workers Aren't Necessarily the Ones You'd Expect," *The New York Times*, 15 January 2007, B3.
[56] Lohr, A1.
[57] D'Errico, 13.
[58] *Small Times*, Vol. 6, No. 3, May/June 2006, 11.
[59] Lohr, A1.
[60] Lohr, A1.

easy to track, stems from the fact that much of the operating and capital funds for the nanotech initiatives flows from New York's public authorities. Funding for these authorities – such as the SUNY Research Foundation – is reported in lump sums in the state budget; individual appropriations are done "off-line," which means they are not lined out or publicly accessible, because the authorities are supposedly private entities.

Trying to track the flow of state funds into Albany Nanotech in a given fiscal year, in other words, is akin to finding the proverbial appropriations needle in the budgetary haystack. One source of funding for Albany Nanotech, to cite one example, is NYSTAR, which awarded CNSE a CAT Development Program grant of nearly $2 million in October 2006 for research to be conducted with several New York-based alternative energy companies in the field of renewable energy.[61] NYSTAR also administers the Centers for Excellence program, which is funded through the Empire State Development Corporation (ESDC), another public authority that oversees much of the state's borrowing. In SFY 2006-07, ESDC funded each of the five Centers, which includes the Center of Excellence in Nanoelectronics, at $1.415 million.[62] Another source of funding for Albany Nanotech is the legislature, through individual legislative grants known as member items. Although these funds are also not typically lined out in the state budget, a recent Freedom of Information Law request by the *Syracuse Post-Standard* found that members of the New York State Senate allotted the following funds to various public and private entities under the umbrella of Albany Nanotech between 1997 and 2004: $60 million for Semetech North; $50 million for the Center of Excellence in Nanoelectronics; $33.88 million for Tokyo Electron; and an additional $32 million for Semetech North. The *Post-Standard* request found that members of the State Assembly also provided: $15 million for the Research Foundation, SUNY Albany; $12.5 million for Fuller Road Management Corporation; and $1.2 million for Arsenal Business and Technology Partnerships, Ltd., a local defense company affiliated with Albany Nanotech.[63]

Corporations have also invested heavily in Albany Nanotech, as we have seen, although the lack of financial transparency often blurs the lines between public and private funding. One example illustrates this. In September 2005, Albany Nanotech and IBM announced the creation of a major research and development project on the UAlbany campus, conducted by Nanotech, IBM and the semiconductor manufacturer Applied Materials, Inc. Funding for the project, which was projected to create 100 jobs at the facility, was pegged at $300 million. Yet Albany Nanotech president Alain

[61] Press Release, "UAlbany NanoCollege Receives Nearly $2 Million Award From NYSTAR for Renewable Energy Research," 16 October, 2006, http://cnse.albany.edu/News.
[62] Senator William Larkin and Assemblymember Robin Schimminger, Co-chairs, "SFY 2006-07, Subcommittee on Economic Development Report to the General Conference Committee, NYS Legislature, 23 March 2006, 2.
[63] Special Report, "New York's Slush Funds, *Syracuse Post-Standard*, October 2004; http://www.syracuse.com/ news/nys/slushfunds/"where the money went."

Kaloyeros, who announced the project along with local Congressman John Sweeney, refused to "say what percentage of the $300 million financial obligation each company, or the university, was shouldering."[64]

Is there a method, then, by which one can compare the state funding for the public-private research partnerships at Albany Nanotech with the state funding for undergraduate education at UAlbany? For the purposes of this analysis, the simplest method is to use the broad estimate of $100 million in state funding for Albany Nanotech for each of the years from 2001-02 to 2006-07. This is especially appropriate given the convoluted funding sources and lack of transparency involved. Here context is important. On one hand, the reputation of the nation's best research universities rests as much or more on their research facilities and level of research funding from all sources – public and private – as it does on the quality of its undergraduate/graduate education. And, to be clear, the level of state investment in SUNY's high tech research facilities certainly has been impressive, and represents a commitment by the state to raise SUNY's profile as a major research university.

As impressive as the state's investment in these research partnerships has been, however, it is important to remember that they occurred within the context of years of underfunding for undergraduate/graduate education at SUNY, which is also important to the state and its citizens. Such public largesse for public-private partnerships in the face of persistent underfunding of public higher education in general raises the question of whether these state funds would have been better allocated more broadly to the system's public campuses. Here they would have benefiting a broader range of interests and people, rather than select corporations in specialized industries. Between 2001-02 and 2006-07, the operating budget for UAlbany grew by almost $10.5 million (8 percent), or $2.1 million per year. During this time, enrollment at UAlbany grew by 348 students, while the undergraduate faculty-student ratio increased from 22.9 to 23.1. The number of full-time academic faculty at SUNY Albany increased by only 11 positions between 2001 and 2006.[65] The result, at least on the undergraduate side, was larger classes and more demand on student services over this period. This was true of most of the SUNY state-operated campuses; during these years restricted enrollment growth – even in the face of record numbers of applications – meant that most state-operated campuses hired few new faculty because of budgetary limitations.

Comparing public funding for Albany Nanotech and public funding for undergraduate/graduate education at UAlbany thus provides a fascinating illustration of how this one campus had been transformed, albeit in the absence of public debate over the impact on its mission as one of SUNY's four graduate research centers. By 2007, the west end of the Albany campus had

[64] Larry Rulison, "$300M partnership for Nanotech," The Albany *Times Union*, 27 September 2005.
[65] State University of New York, Institutional Research, *Statistical Release: Employees of the Institutions of the State University of New York, 1994-2005.*

grown by leaps and bounds with the development of the nanotech facilities. By contrast, the main campus had been characterized by limited growth, fewer full-time faculty per students, and greater demand for student services. The result was a new model of public higher education at SUNY, one quite different than SUNY's historic mission of providing accessible, affordable high-quality undergraduate/graduate education to the state's citizens. This new model instead placed a much higher value on private profits and proprietary research.

Who has benefited from the corporatization of SUNY? Is it SUNY's corporate partners? Or, has it been SUNY, as an institution of higher learning in general, that has benefited? These key questions should at least be considered by policy makers as they confront the future of public higher education in New York State. Certainly the job creation at the nanotech facilities in Albany have been impressive; with most of the 1,000 plus jobs on cite paying an average salary in the $80 thousand - $120 thousand range, and the overall economic impact of this research estimated at $2 billion on the regional economy. "But how much public money went into these jobs? The answer is not easily available. And, would these funds have been better spent on providing access to more undergraduates and graduate students – who tend to stay and work in New York State and earn higher salaries over their lifetimes? A related issue is that high tech jobs provide employment for only a select few; most upstate residents do not share in this benefit. As Richard Deitz, a senior economist at the Federal Reserve Bank of New York's Buffalo branch explained, high tech facilities such as those in and around Albany, "no matter how successful – [are] not going to create a lot of manufacturing jobs, and it is not going to be an answer for the problem we have in upstate New York of the shrinking job base in traditional blue-collar manufacturing."[66]

In order to better evaluate these questions, state policy makers should, at the least, consider two goals. The first, as we have pointed out in this essay, is the need for public debate on these important issues, especially as they envision the future of public higher education in New York State. The second is the need for greater financial transparency, which would allow policy makers and citizens to evaluate the merits of these substantial investments of state funds. As the New York State Assembly Task Force on University-Industry Cooperation correctly noted in its 2005 report:

> New York State has invested hundreds of millions of dollars in R&D at its colleges and universities in an effort to stimulate economic growth, ensure global competitiveness, and spur crucial discoveries that lead new technologies. Much of the State's investment has focused on institutions engaging in cooperative agreements with public and private entities to foster the development and eventual commercialization of products and processes. ***Assessment of the effectiveness of public investments in R&D has not been routinely incorporated in State policy tied to these investments, nor has a standard set of metrics been identified to evaluate their effectiveness***.[67]

[66] D'Errico, 13.
[67] Lohr, A1.

Appendix 1

Overview of Centers for Advanced Technology Program, 2001-2005

FY July-June	2001-2002	2002-2003	2003-2004	2004-2005
Small Companies Assisted*	82	88	64	118
Jobs created and retained at client companies	843**	608	513	711
Revenues generated, cost savings, and capital expenditures at client companies	$762 million**	$303 million	$254 million	$322 million
NYSTAR funds invested	$13.4 million	$13.6 million	$14.3 million	$12.6 million
Matching funds leveraged by CATs***	$20 million	$18 million	$25 million	$24 million
Number of companies providing financial support****	270	272	225	268

Source:

*Defined as company with a primary location within New York State that employs fewer than 250 employees including any parent corporation or subsidiaries.

**Included portion of extraordinary impact attributed to UAlbany CAT related to IBM's Fishkill, NY, chip fabrication plant (250 jobs and $500 million non-job impacts).

***Includes cash support and equipment donations.

****Number presented is minimum. Many CATs do short-term projects with dues-paying members and do not list individual projects or clients on financial reporting forms.

Appendix 2

The Centers for Advanced Technology Program 1983-2006

Centers for Advanced Technology	Location	URL	Mission
Life Sciences			
Center for Biotechnology 1983	Stony Brook U	www.biotech.sunysb.edu	Fostering the identification and translation of basic research discoveries into commercially valuable technologies.
Center for Biotechnology 1983	Cornell U	www.biotech.cornell.edu	To promote research, education and technology transfer for applications of biotechnology for the benefit of the environment, agriculture, engineering, and veterinary and human medicine.
CAT in Information Management & Medical Informatics* 1993	Columbia Presbyterian Medical Ctr	www.cat.columbia.edu	Medical informatics, computer science and computational biology.
CAT in Biomedical and Bioengineering Development 1996	U at Buffalo	http://www.stor.buffalo.edu/home_cat.shtml	Biomedical and bioengineering research that can lead to development of useful products with commercial potential.
Nanotechnology and Semiconductors			
Center for Advanced Technology in Nanomaterials and Nanotechnology 1993	U at Albany	http://www.albanynanotech.org/Programs/thin_film.cfm	To provide industry with critical research and development, business assistance, workforce training, and economic outreach within a technically aggressive and financially competitive environment.

Appendix II

The Economics of Globalization and Corporatization of Higher Education

Frederick Floss
UUP Vice President for Academics
Department of Economics and Finance
Buffalo State College

The Economics of Globalization and Corporatization of Higher Education

> There are some economic forces so powerful that they constantly break through all barriers erected for their suppression. Such, for example, are the forces of supply and demand which have resisted alike medieval efforts to abolish usury and contemporary attempts to control prices. In this paper I discuss what I believe to be another such mechanism which has colored the past and seems likely to stamp its character on the future. It helps us to understand the prospective role of a wide variety of economic services: municipal government, education, performing arts, restaurants and leisure activity. I will argue that inherent in the technological structure of each of these activities are forces working almost unavoidably for progressive and cumulative increases in the real costs incurred in supplying them. As a consequence, efforts to offset these cost increases, while they may succeed temporarily, in the long run are merely palliatives which can have no significant effect on the underlying trends.
>
> William Baumol
> American Economic Review, 1967

So starts an article almost forty years ago predicting the rise of Corporatization and its eventual failure to control increasing costs in Higher Education. In today's world were so many products, such as computers, are marked by declining costs it is assumed that all products must act in the same manner. If the "product" is not getting cheaper then there must be inefficiencies to be corrected. Corporate leaders well versed in reducing costs for their products believe they can use tested business models to reduce per unit costs and save Higher Education.

Globalization, Corporatization and Distance Education are all attempts to gain control of per unit costs which are growing faster than the economy as a whole. State governments hit by the recent recession look to business for ways to reduce expenditures as tax revenues drop. Baumol's elegant model suggests they have learned the wrong lessons and instead of helping are doing real harm as resources are wasted on palliatives.

WHY HIGHER EDUCATION COSTS RISE

Reviewing any University or College's budget, it becomes readily apparent that the largest cost component is labor reaching over 75% of total costs at most institutions. In economic parlance, higher education is labor intensive when compared with other products. This concept is crucial to understanding why costs rise faster than the general price level.

A second important concept is that wages equalize across industries for similar types of labor. If this were not true and wages were lower at universities, everyone would leave the university

and work in a different industry. Another name for this process is arbitrage and is the basis for the efficient market hypothesis, which insures for example that the stock market fairly represents the value of firms.

Putting these two concepts together insure that labor intensive industries' costs will rise faster than the general price level in equilibrium (i.e., even if universities are perfectly efficient). To see this look at the following two total unit cost functions (TC), the first for a labor intensive firm and the second for a capital intensive firm:

$$TC_L = w\,(aL) + r\,(bK) \qquad (1)$$
$$= \ 1(.75L) + 1(.25K)$$

and

$$TC_K = w(cL) + r\,(dK) \qquad (2)$$
$$= 1(.25L) + 1(.75K)$$

where a, b, c and d are determined by the technology.

For simplicity, wages (w) and interest (r) paid to labor and capital are set to 1. These equations represent the technology inherent in producing one unit of education or product. Education being labor intensive uses three times as much labor as capital to produce one unit, while the reverse is true in the capital intensive industry. For simplicity assume that capital costs remain constant over time.[68] Then in the labor intensive industry a one dollar rise in wages will cause per unit costs to rise by $.75, while in the capital intensive industry the cost will only rise by $.25.

Now, even if it is assumed that the labor intensive industry is perfectly competitive, making zero economic profit and is perfectly efficient, prices will rise faster than the average price level as wages rise over time simply because it is labor intensive. In our example, if society produces units of each good in equal proportions the average price level will grow by $.50.

No change in management styles will change this fact. No expansion of markets will slow the rising unit costs. Nothing is broken and there is nothing to be fixed. Yet knowing this fact does not make it easier for States to balance their budgets. Instead it is easier for politicians to suggest that no one will be hurt if budgets are cut because inefficiencies are the "real" problem. All that needs to be done is to implement a new strategic plan using a new corporate model and education costs will be brought back into line no matter what the technology or level of labor intensity.

---

[68] Assemblymember William B. Magnarelli, Chair, "A Special Report from the New York State Assembly Task Force on University-Industry Cooperation," New York State Legislature, Summer 2002, 5, emphasis added.

WHEN WILL COSTS STOP RISING

The price of a college education can continue to rise for real economic reasons. College students see a degree as a good investment at current tuition levels. A number of studies have shown that those with a college degree earn substantially more than those with a high school degree. Table 1 shows this differential for different age groups.[69]

Table 1

Total Money Income by Age and Education 2001

Age	Male			Female		
	High School	College	Difference	High School	College	Difference
18-24	$23,463	$34,811	$11,348	$19,400	$37,948	$18,548
25-34	$32,812	$55,286	$22,474	$26,107	$41,372	$15,265
35-44	$40,638	$80,255	$39,617	$27,899	$49,885	$21,986
45-54	$43,879	$81,231	$37,352	$30,157	$48,710	$18,553
55-64	$43,126	$79,164	$36,038	$28,438	$45,823	$17,385

The premium which students receive for going to college is substantial. Over an individual's lifetime, a male student will make more than $4.8 million more than if he did not go to college. Female students will make $2.1 million more if she works until age 67.[70] Families will continue in the future to pay ever larger tuition payments as long as these premiums continue to exist.

The rate of return on a private college education is over 11% for males and 10% for females. In other words, students will do better by investing in education unless they can find an investment that will pay more than 10%. Tuition and fees can continue to rise above the inflation level so long as the real rate of return to education stays above that which families can receive elsewhere. Tuition and fees would have to rise 9 fold, or to approximately $200,000, before the rate of return on

[69] Census, Current Population Survey P-60, "Total Money Earnings 2001 ...," March 2002. The data are for full time white employees.

[70] See Appendix A. The amounts are calculated using the average growth in earnings for the United States and do not include benefits which would increase this differential. Note that students are assumed to work until there full social security retirement age.

education would fall to 5% the long term government bond rate for males. At the average inflation premium for education above other prices of approximately 3% it would take over 75 years of increases before the rate of return is equalized with government bonds.

Globalization could have a dramatic effect on the rate of return to education. As more students graduate from college abroad the wage premium will drop in the United States. This in turn will lower the rate of return to education and therefore the rational for paying higher tuition. Over time colleges and universities will find themselves with lower enrollments.

CORPORATIZATION AND THE UNIVERSITY

There are three ways to control unit costs at the University in the corporate model. First, real wages of faculty and staff could drop. Second, new technologies can be implemented to spread labor costs across more students or third, the underlying technology can become more capital intensive. The corporate model of the university tries to implement all three of these controls.

Wage Costs:

The major way that faculty wage costs have been lowered is the substitution of full time faculty for part time faculty. Over the long run this movement cannot be sustained. To keep costs contained more and more full time faculty would have to be replaced. Once a new full time part time ratio is reached, aggregate wages will again grow at a higher rate than the general price level.

Over time as the total number of full time positions decrease, new potential faculty members will decide not to enter graduate school if they cannot make a wage that pays them to delay entering the labor market.[71] Markets adjusting to these new labor shortages will cause wages to increase faster than they otherwise would. This is already happening in fields like finance and engineering. Industries where specialized labor is not used and labor is abundant do not face these problems. Corporate intuition based on abundant labor will yield strategies that lead to higher not lower costs.

Lowering Unit Costs:

Globalization and distance education are attempts to lower unit labor costs. If each faculty member can teach more students per class then labor cost can be spread out. Opening United States institutions to other countries is an attempt to increase market share. A question on whether students in other countries will purchase this type of education is an open question. Can the needed technology be provided at reasonable costs to students around the world? Will the quality be high enough? Until it can be shown that students in these programs will receive a high enough rate of

---

[71] The expected wage is equal to the probability of full time employment times the full time wage plus the probability of part time employment times the part time wage. As the probability of part time employment rises the average or expected wage declines, even as full time wages rise.

return on their education investment it is likely that these programs will fail. At some point this technology will also reach its limit and labor costs will again increase because of the labor intensity.

Technology:

Another solution would be to turn education into a capital intensive industry by inventing new ways to provide higher education. This is the underlying concept behind computer aided education, distance education and internet courses. In each case the goal is to replace high cost labor by capital and to increase the total number of students per faculty member. Once this is accomplished then education would become more like other industries and the corporate model would be more effective.

This is a solution which has been tried in the past. In the 1950s film strips were going to revolutionize education. In the 1960s TV courses were tried with little success. Computers were going to replace teachers in the 1980s and the internet has been around since the early 1990s. In all cases they have not been able to replace labor. In some cases they have made education more labor intensive. The teaching of how to use computers is normally done in small classes, for example.

The internet and computers so far have not replaced labor but instead have complimented it. Papers are no longer typed but rather are sent by e-mail. The faculty member must still read and grade the paper. Students no longer have to go to the library to research a paper they can use the internet instead, but the underlying technology involved in learning has not changed.

While in the future technological change may transform higher education into a capital intensive industry, it cannot be planned by corporate managers. By running after each new trend, large sums are wasted as money is spent on new capital and then quickly discarded as it does not lower labor costs. How many distance education classrooms are sitting unused as their true costs become apparent?

CONCLUSION

The technology used to produce education is important and must be taken into account. Not to do so will lead to higher costs and lower quality education. Trying to force higher education into a standard corporate model is not the solution. Hiring business consultants to implement business models under whatever name will only raise costs, if they do not take the labor intensive nature of education into account.

But more is at stake for the United States than whether a faculty or corporate model is used to run the university. If changes to the system reduce the number of students who obtain college degrees or their quality, then the returns to education will decline and the standard of living in the United States will decline.

Appendix III

Economics in American Colleges and Universities

Hamid Azari-Rad

Department of Economics
State University of New York at New Paltz

1. Introduction

Most economics departments in American colleges and universities are administratively located in either the business schools, or the colleges of liberal arts & letters. A small number are located in other administrative units such as schools of public policy etc. Research has shown that the nature of economics departments is impacted by their administrative location (Siegfried and Bidani, 1992; Dean and Dolan, 2001). The economics major requirements of departments located in business schools are shown to be more confined and oriented toward practical sub-fields. This article extends the present research with new data for all American colleges and universities that offer an economics program during 2000-2001 academic year. It provides a profile of these institutions and explores the economics curriculum offered by its administrative location.

There are 835 colleges in the United States that either offer a bachelors degree or teach economics courses. Data is missing for 124 colleges, and in 112 colleges, the economics department is housed in administrative units that are neither business schools or liberal arts colleges. These cases have been eliminated, and for this study we consider the remaining 599 colleges that have economics programs that are clearly in either business schools or colleges of liberal arts. These programs are split with 311 of the programs administratively located in the colleges of liberal arts, and 288 in the business schools.[72]

2. The Profile of Economics Programs

Table 1 shows the administrative location of economics program by the university's Carnegie classification code. Siegfried and Bidani (1992) reported that economics departments were located in business schools mostly in the comprehensive universities. They report that overall 51.1% of economic departments were in the liberal art colleges in 1980, and 48.9% were in business schools. Although our data breaks down comprehensive universities into I and II classifications, nevertheless, it appears that overall, in the past two decades, there has been a migration of economics departments from liberal arts colleges to business schools within comprehensive universities. They are mostly in the liberal arts colleges in Baccalaureate I and II category by definition, and are mostly in liberal arts colleges in Doctoral and Research universities.

[72] The data for this study is assembled from information on department web sites in addition to Barron (1998); Bureau of Economic Analysis; Carnegie Foundation for the Advancement of Teaching Classification System (1994); Hasselback (1996); and *U.S. News and World Report.*

Table 1. Administrative Location of Economics Department by Carnegie Classification 1994

	Liberal arts college		Business school		
Carnegie Foundation Classification	**%**	**No.**	**%**	**No.**	**Total**
Research Universities I	72.2	57	27.8	22	79
Research Universities II	65.6	21	34.4	11	32
Doctoral Universities I	62.2	23	37.8	14	37
Doctoral Universities II	59.1	26	40.9	18	44
Master's (Comprehensive) Universities and Colleges I	37.3	90	62.7	151	241
Master's (Comprehensive) Universities and Colleges II	47.8	11	52.2	12	23
Baccalaureate (Liberal Arts) Colleges I	95.4	62	4.6	3	65
Baccalaureate (Liberal Arts) Colleges II	26.9	21	73.1	57	78
Total	51.9	311	48.1	288	599

Table 2 shows the administrative location of economics programs by geographic region. Economics programs reside mostly in business schools in the Southeast and Southwest regions. They are almost split in half for the Rocky Mountain and Plains regions. This strong bias for business schools in the former regions may be due to lack of liberal arts traditions in universities of these regions. Further examination of this distinct pattern could include indices for both political attitudes and business friendliness by region.

Table 2. Administrative Location of Economics Departments by Geographic Region

	Liberal arts college		Business school		
Region	**%**	**No.**	**%**	**No.**	**Total**
New England	79.3	46	20.7	12	58
Mid East	61.3	76	38.7	48	124
Great Lakes	61.7	58	38.3	36	94
Plains	52.8	28	47.2	25	53
Southeast	22.5	29	77.5	100	129
Southwest	30.2	16	69.8	37	53
Rocky Mountains	54.2	13	45.8	11	24
Far West	70.3	45	29.7	19	64
Total	51.9	311	48.1	288	599

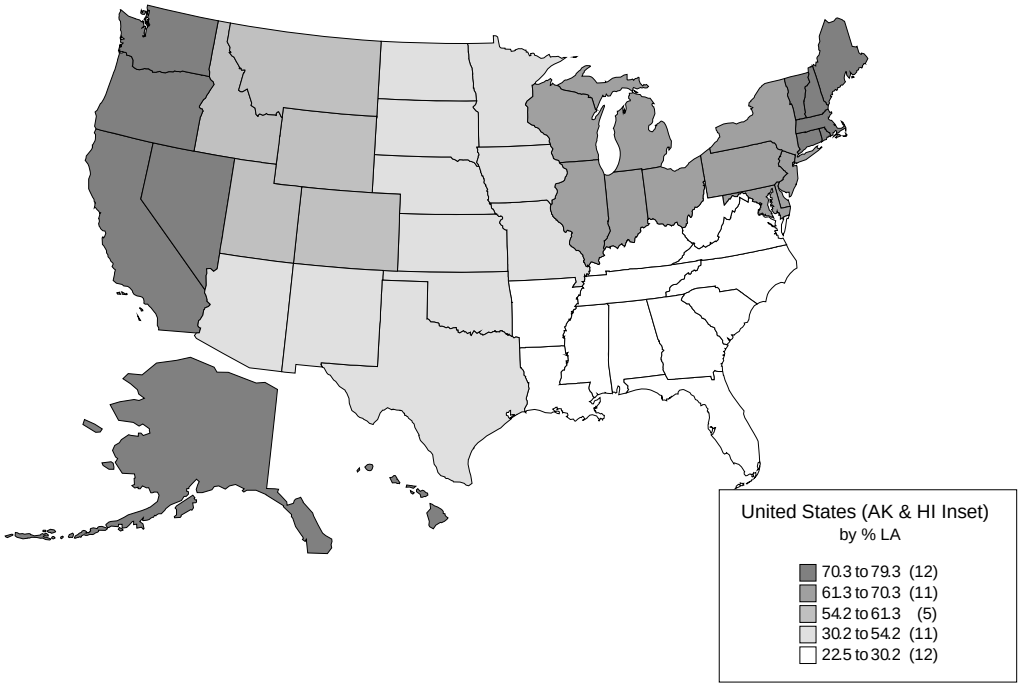


Figure 1. Administrative Location of Economics Departments by Geographic Region

Table 3 shows the administrative location of economics programs by student and university quality. Quality is measured by Barron's (1998) categories and emphasizes student quality (admissions standards etc.). Ranking is based on *U.S. News and World Report's* ranking of American colleges and universities. Adjusting for the number of colleges for each case, both measures show that there is a direct relationship between quality and ranking of an institution and economics department's location in the liberal arts colleges.

Table 3. Administrative Location of Economics Programs by University Quality and Ranking

Source: For "Quality" *Barron's* classification of colleges and universities is used which emphasizes student quality (admission requirements) as well as institutional attributes. *U.S. News and World Report* Ranking of Colleges and Universities are used for "Rank" which focuses more on institutional attributes.

Quality	**Liberal arts college %**	**Business school %**
Most Competitive	95	5
Highly Competitive	81.8	18.2
Very Competitive	57.4	42.6
Competitive	47.6	52.4
Less Competitive	24.4	75.6
Noncompetitive	34.5	65.5
Special	50	50

Ranking	**Liberal arts college %**	**Business school %**
Top 25	91.3	8.7
Top 50	87	13
Top 75	80	20
Top 100	78.4	21.6
Top 150	72	28
Top 200	66.5	33.5

Table 4 shows that economics departments are more frequently located in the college of liberal arts in private colleges. This may be due to high number of "Baccalaureate I & II" colleges being private. Siegfried and Bidani (1992) had reported that in 1980 about 75% of programs in private colleges resided in liberal arts colleges. A decline to 58.4% shows a migration out of liberal arts. This may be due to pressures felt by private colleges to offer professional business programs. This migration is pronounced for private schools that are lower in rankings. This may be due to students' demand in these colleges for practical training and the institutions' sensitivity to enrolments in these programs. In top U.S. private and public universities, Economics is among the most highly demanded majors. Many of these universities don't have an undergraduate program in business.

Table 4. Administrative Location of Economics Programs by Type of Institution

	Liberal arts college		Business school		
Type of Institution	**%**	**No.**	**%**	**No.**	**Total**
Public	46.5	151	53.5	174	325
Private non-profit	58.4	160	41.6	114	274
Total	51.9	311	48.1	288	599

3. Economic Curriculum

Having explored the economic program's location by institutional characteristics, an important question is whether the administrative location of the economics department impacts its curriculum. Both Siegfried and Bidani (1992), and Dean and Dolan (2001) have concluded affirmatively. Here, we follow Siegfried and Bidani's example and report courses offered by economics programs in the liberal arts colleges and business schools, ranked by percent programs offering the course. Table 5 shows the course offerings of programs by their administrative location. Introductory and principles courses are offered by 98% of the programs regardless of their administrative location. A decomposition of introductory/issues courses (for non-majors) with principle courses shows that 43.1% of business schools offer an introductory/issues course, and 95.5% offer principles courses, and 94.1% offer a two-course principles sequence. 42.4% of

programs in liberal arts colleges offer an introductory/issues course, and 94.5% offering principles courses, but only 88.1% offer a two-course sequence of principles.[73]

The most striking change in course offering is for international economics. Siegfried and Bidani (1992) reported that about 2.8-6.6% of programs offered international economics in 1980, while 84-93% of programs offer this course in 2001. This may be due to recent focus on global issues. It is also apparent that upper-division course offerings by programs in liberal arts have greater variation. The menu of courses also supports Siegfried and Bidani's assertion that curriculums offered by programs in business schools are more "confined and oriented toward practical sub-fields." The philosophy of professional school education, set by American Assembly of Collegiate Schools of Business (AACSB), differs from the usual liberal arts philosophy of education, which emphasizes breadth and individual student choice, encourages students to think clearly and critically about a wide variety of issues, and to make connections across disciplines.

Siegfried and Bidani (1992), pick twelve courses to explore, some of which are "practical" in nature (such as public finance, and statistics) and are more frequently offered by programs in business schools, and some of which are "humanistic" which are more frequently offered by liberal arts programs. If this dichotomy is to be made, which courses from table 6 should go into which category? We will examine the frequency of offering Senior Seminar or honors courses by location.

[73] Data on courses offered by each department was acquired from the department's web site in 2001.

Business School			**Liberal Arts**	
	n = 288			*n = 311*
INTRODUCTORY/PPRINCIPLES	97.9%		INTRODUCTORY/PPRINCIPLES	98.7%
INTERNATIONAL ECONOMICS	84.0%		INTERNATIONAL ECONOMICS	93.2%
INTERMEDIATE MACRO	79.5%		INTERMEDIATE MACRO	91.3%
INTERMEDIATE MICRO	77.4%		INTERMEDIATE MICRO	90.7%
MONEY&BANKING	68.4%		DEVELOPMENT ECONOMICS	81.0%
LABOR ECON/IINDUSTRIAL REL	63.5%		LABOR ECON/IINDUSTRIAL REL	76.2%
DEVELOPMENT ECONOMICS	52.8%		ECONOMETRICS	72.0%
HISTORY OF THOUGHT	52.4%		MONEY&BANKING	71.4%
PUBLIC FINANCE	52.1%		RESOURCE & ENVIRONMENTAL ECON	71.4%
MANAGERIAL ECONOMICS	50.0%		HISTORY OF THOUGHT	65.9%
SPECIAL TOPICS IN ECON	48.6%		PUBLIC FINANCE	63.7%
INDEPENDENT/DIRECTED STUDY	48.3%		INDUSTRIAL. ORGANIZATION	63.7%
COMPARATIVE ECONOMIC SYSTEMS	47.9%		SENIOR SEMINAR/HONOR	59.8%
SENIOR SEMINAR/HONOR	44.4%		INDEPENDENT/DIRECTED STUDY	55.9%
ECONOMETRICS	43.8%		ECONOMIC HISTORY	54.7%
RESOURCE & ENVIRONMENTAL ECON	40.6%		COMPARATIVE ECONOMIC SYSTEMS	52.4%
ECONOMIC HISTORY	39.2%		STATISTICS	48.2%
INDUSTRIAL. ORGANIZATION	38.5%		MATHEMATICAL ECON	47.3%
INTERNSHIP	35.1%		URBAN & REGIONAL ECON	46.9%
URBAN & REGIONAL ECON	32.6%		SPECIAL TOPICS IN ECON	44.7%
MATHEMATICAL ECON	25.7%		MANAGERIAL ECONOMICS	36.3%
STATISTICS	24.7%		HEALTH ECONOMICS	34.7%
MONETARY THEORY/ECON	21.9%		INTERNSHIP	33.8%
GOVERNMENT & BUSINESS	17.7%		LAW & ECON	33.8%
HEALTH ECONOMICS	17.4%		RACE & GENDER ECON	29.9%
BUSINESS CYCLES	16.7%		MONETARY THEORY/ECON	29.3%
LAW & ECON	16.0%		POLITICAL ECONOMY	28.0%
ECON RESEARCH	13.5%		ECON RESEARCH	24.4%
PUBLIC POLICY	12.5%		PUBLIC ECONOMICS	23.2%
QUANTITATIVE ECON	12.2%		POVERTY & INEQUALITY	21.2%
FINANCIAL INSTITUTIONS AND MARKETS	10.1%		PUBLIC POLICY	20.9%
RACE & GENDER ECON	9.7%		BUSINESS CYCLES	19.6%
POLITICAL ECONOMY	9.4%		GAME THEORY	18.6%
PUBLIC ECONOMICS	9.4%		GOVERNMENT & BUSINESS	18.3%
REGIONAL ECONOMICS	9.4%		QUANTITATIVE ECON	18.0%
POVERTY & INEQUALITY	9.0%		TOPICS ADVANCED	16.1%
TOPICS ADVANCED	9.0%		FINANCIAL INSTITUTIONS AND MARKETS	15.4%
ECONOMIC ANALYSIS	8.3%		TRANSITIONAL ECONOMICS	15.4%
FORCASTING	8.3%		REGIONAL ECONOMICS	13.5%
TRANSPORTATION ECON	6.9%		Z-CORPORATE FINANCE	13.2%
TRANSITIONAL ECONOMICS	6.6%		Z-ACCOUNTING-PRINCIPLES OF	11.3%
ENERGY ECONOMICS	5.9%		ENERGY ECONOMICS	10.0%
Z-FINANCIAL MANAGEMENT	5.9%		CONSUMER ECON	10.0%
ECONOMICS OF EDUCATION	5.6%		FINANCIAL ECONOMICS	9.6%
Z-CORPORATE FINANCE	5.6%		FORCASTING	9.3%
Z-FINANCE	5.6%		Z-HUMAN RESOURCE MANAGEMENT	9.3%
Z-INVESTMENTS-PRINCIPLES OF	5.6%		Z-INVESTMENTS-PRINCIPLES OF	9.0%
CONSUMER ECON	5.2%		MARXIAN ECONOMICS	9.0%
GAME THEORY	4.9%		POPULATION ECON	8.7%
Z-HUMAN RESOURCE MANAGEMENT	4.5%		ECONOMIC ANALYSIS	8.0%
ECONOMIC GEOGRAPHY	3.8%		STATE &LOCAL PUBLIC FINANCE	8.0%
OPEN-ECONOMY MACRO	3.8%		PUBLIC CHOICE	8.0%
SPORTS ECON	3.8%		ECONOMICS OF CRIME	8.0%
Z-INTERNATIONAL BUSINESS	3.8%		Z-FINANCE	7.7%
Z-PERSONAL FINANCE	3.8%		DECISION MAKING	7.1%
DECISION MAKING	3.5%		ECONOMICS OF EDUCATION	6.8%
ECONOMIC COMPUTING	3.5%		Z-MARKETING-PRINCIPLES	6.4%
FINANCIAL ECONOMICS	3.5%		SPORTS ECON	6.1%
STATE &LOCAL PUBLIC FINANCE	3.5%		TECHNOLOGY & ECON	6.1%
TOPICS NOT ADVANCED	3.5%		GROWTH ECON	6.1%
AGRICULTURAL ECON	3.1%		Z-FINANCIAL MANAGEMENT	5.8%
ECONOMICS FOR EDUCATION MAJORS	3.1%		TOPICS NOT ADVANCED	5.8%
EXPERIMENTAL ECON	3.1%		EXPERIMENTAL ECON	5.8%
TECHNOLOGY & ECON	3.1%		COST-BENEFIT ANALYSIS	5.8%
PUBLIC CHOICE	2.8%		MODERN ECON	5.5%
Z-ACCOUNTING-PRINCIPLES OF	2.8%		ETHICS & ECON	5.5%
Z-MANAGEMENT	2.4%		AGRICULTURAL ECON	5.1%

4. References

Barron's Profiles of American Colleges, 23rd edition, New York: Barron's Educational Series Inc. (1998).

Bureau of Economic Analysis, *U.S. Regional Classification System.*
Carnegie Foundation for the Advancement of Teaching Classification System (1994).
Dean, David H. and Robert C. Dolan. "Liberal Arts or Business: Does the Location of the Economics Department Alter the Major?" *Journal of Economic Education*, 32 (1), Winter 2001, pp. 18-35.
Hasselback, James R. *The Guide to Economics Faculty,* New Jersey: Prentice Hall (1996).

Siegfried, John J. and Benu Bidani. "Differences Between Economics Programs Located in Liberal Arts Colleges and in Business Schools," *Journal of Economic Education*, 23 (2), Spring 1992, pp. 181-188.

U.S. News and World Report Ranking of Colleges and Universities
(http://www.usnews.com/usnews/edu/).

Appendix A

Carnegie Foundation Classification System

The classification system created by the Carnegie Foundation for the Advancement of Teaching (1994) delineates institutions by their academic mission. This classification, which dates back to 1970, currently includes approximately 3,600 colleges and universities in the United States that are degree-granting and accredited by an agency recognized by the Secretary, U.S. Department of Education. Institutions are classified according to their highest level of offering, the number of degrees conferred by discipline, and the amount of federal support for research received by the institution. Some categories also rely on the selectivity of the institution's admissions. “Specialized Institutions” (seminaries, art schools etc) are not relevant here and thus are not included.

1- RESEARCH UNIVERSITIES I

These institutions offer a full range of baccalaureate programs, are committed to graduate education through the doctorate, and give high priority to research. They award 50 or more doctoral degrees each year. In addition, they receive annually $40 million or more in federal support.

2- RESEARCH UNIVERSITIES II

These institutions offer a full range of baccalaureate programs, are committed to graduate education through the doctorate, and give high priority to research. They award 50 or more doctoral degrees each year. In addition, they receive annually between $15.5 million and $40 million in federal support.

3- DOCTORAL UNIVERSITIES I

These institutions offer a full range of baccalaureate programs and are committed to graduate education through the doctorate. They award at least 40 doctoral degrees annually in five or more disciplines.

4 - DOCTORAL UNIVERSITIES II

These institutions offer a full range of baccalaureate programs and are committed to graduate education through the doctorate. They award annually at least 10 doctoral degrees (in three or more disciplines), or 20 or more doctoral degrees in one or more disciplines.

5- MASTER'S (COMPREHENSIVE) UNIVERSITIES AND COLLEGES I

These institutions offer a full range of baccalaureate programs and are committed to graduate education through the master's degree. They award 40 or more master's degrees annually in three or more disciplines.

6- MASTER'S (COMPREHENSIVE) UNIVERSITIES AND COLLEGES II

These institutions offer a full range of baccalaureate programs and are committed to graduate education through the master's degree. They award 20 or more master's degrees annually in one or more disciplines.

7- BACCALAUREATE (LIBERAL ARTS) COLLEGES I

These institutions are primarily undergraduate colleges with major emphasis on baccalaureate degree programs. They award 40 percent or more of their baccalaureate degrees in liberal arts fields and are restrictive in admissions.

8- BACCALAUREATE COLLEGES II

These institutions are primarily undergraduate colleges with major emphasis on baccalaureate degree programs. They award less than 40 percent of their baccalaureate degrees in liberal arts fields or are less restrictive in admissions.

9- ASSOCIATE OF ARTS COLLEGES

These institutions offer associate of arts certificate or degree programs and, with few exceptions, offer no baccalaureate degrees.

Appendix B

Bureau of Economic Analysis U.S. Regional Classification

1- New England: CT ME MA NH RI VT

2- Mid East: DE DC MD NJ NY PA

3- Great Lakes: IL IN MI OH WI

4- Plains: IA KS MN MO NE ND SD

5- Southeast: AL AR FL GA KY LA MS NC SC TN VA WV

6- Southwest: AZ NM OK TX

7- Rocky Mountains: CO ID MT UT WY

8- Far West: AK CA HI NV OR WA

Appendix C

Barron's Classification of Quality

1. Most Competitive: Even superior students will encounter a great deal of competition for admission to the colleges in this category. In general, these colleges require high school rank in the top 10% to 20% and grade averages of A to B+. Median freshman test scores at these colleges are generally between 655 and 800 on SAT I and 29 and above on the ACT. In addition, many of these colleges admit only a small percentage of those who apply—usually fewer than one third.

2. Highly Competitive: Colleges in this group look for students with grade averages of B+ to B and accept most of their students from the top 20% to 35% of the high school class. Median freshman test scores at these colleges range from 620 to 654 on SAT I and 27 or 28 on the ACT. These schools generally accept between one third and one half of their applicants.

3. Very Competitive: The colleges in this category admit students whose averages are no less than B- and who rank in the top 35% to 50% of their graduating class. They report median freshman test scores in the 573 to 619 range on SAT I and from 24 to 26 on the ACT. These schools generally accept between one half and three quarters of their applicants.

4. **Competitive:** This category is a very broad one, covering colleges that generally have median freshman test scores between 500 and 572 on SAT I and between 21 and 23 on the ACT. Some of these colleges require that students have high school averages of B- or better, although others state a minimum of C+ or C. Generally, these colleges prefer students in the top 55% to 65% of the graduating class and accept between 75% and 85% of their applicants.

5. Less Competitive: Included in this category are colleges with median freshman test scores below 500 on SAT I and below 21 on the ACT; some colleges that require entrance examinations but do not report median scores; and colleges that admit students with averages below C who rank in the top 65% of their graduating class. These colleges usually admit 85% or more of their applicants.

6. Noncompetitive: The colleges in this category generally only require evidence of graduation from an accredited high school (although they may also require completion of a certain number of high school units). Some require that entrance examinations be taken for placement purposes only, or only by graduates of unaccredited high schools or only by out-of-state students. In some cases, insufficient capacity may compel a college in this category to limit the number of students that are accepted; generally, however, if a college accepts 98% or more of its applicants, it automatically falls in this category. Colleges are also rated Noncompetitive if they admit all state residents, but have some requirements for nonresidents.

7. Special: Listed here are colleges whose programs of study are specialized; professional schools or art, music, nursing, and other disciplines. In general, the admissions requirements are not based primarily on academic criteria, but on evidence of talent or special interest in the field. Many other colleges and universities offer special-interest programs *in addition* to regular academic curricula, but such limitations have been given a regular competitive rating based on academic criteria. Schools oriented toward working adults have also been assigned this rating.

Appendix IV

Corporatization and Research Information

Catherine Dwyer
Sara D. Knapp

State University of New York at Albany

> "*... librarians, … are trustees of knowledge with the responsibility of ensuring the availability of information and ideas, no matter how controversial, so that teachers may freely teach and students may freely learn."* (American Library Association. Intellectual Freedom Committee.)

Academic freedom, scholarship and research all depend on access to diverse views and to accurate, timely, reliable, comprehensive information. Access to government information is vital to informed societal participation and to holding business and government officials accountable. Librarians have a vital role in "*ensuring the availability of information and ideas, no matter how controversial..."* (American Library Association. Intellectual Freedom Committee.) Yet the librarian's ability to select information resources is increasingly constrained by the pricing and practices of information providers, both corporate and government producers and vendors. Librarians are joining forces with others to respond to this situation. In this paper we describe the effect of the dominance of corporate values on government information and on the commercial information marketplace, the problems it has created for academic libraries and several important responses by librarians and others.

I. Government Information

The federal government has always been looked to as a reliable source of factual information, but what was once considered one of the most responsible sources of information has been corroded in at least two important ways. Most obvious is the privatization of government information. A profit- hungry information industry has taken over the production and/or distribution of much information formerly provided by the federal government. The argument that this saves taxpayer dollars has been used successfully by information peddlers to convert public goods to private wares for sale to those who can pay market prices. It is an open question to what extent ownership of these information sources has affected their content.

More insidious is the corporate influence on the availability and content of government information, made worse by the clouds of secrecy shrouding government information since 9/11. The result of these trends has been the loss of government accountability, the loss of statistics and

other data which the public needs and the barely-disguised promotion of each administrations positions.

The United States government is often cited as one of the most prolific publishers in the world. But at the beginning of the 1980's the Reagan administration began to take a corporate approach to the publishing of federal government information. Based on the belief that government publishing had become overly large, duplicative and wasteful, the administration was vigorous in its implementation of the Paperwork Reduction Act of 1980. By 1982 over 2,000 federal publications had been eliminated. Publications that were not eliminated rapidly increased in cost. A subscription to the Federal Register went from seventy-five dollars to three hundred at the same time it decreased in size by almost a third. (Demac 33)

Each administration takes its own view on the availability and distribution of government information for individual agencies as well as the executive branch. George H.W. Bush used his experience and contacts within Congress to release or protect information as he saw fit. Clinton used executive privilege and other methods to suppress information taking “the broad view that all White House communications are presumptively privileged” (Rozell 124) George W. Bush has a history of valuing secrecy over the release of information (despite the requirements of the Texas Public Information Act, Bush boxed and sent his gubernatorial records to his father’s presidential library). He has continued that course as President of the United States, repeatedly invoking executive privilege or national security when asked to reveal information.

The Bush White House was pressed to reveal information when on April 19, 2001, Democratic Representatives Henry A. Waxman and John D. Dingell followed up on newspaper reports by requesting details on meetings between Bush campaign supporters and members of Vice President Cheneys National Energy Policy Development Group. In what some claim was an effort to “reassert eroded executive privilege” (Borger 24), Cheney refused to divulge names or details of the groups meetings. Expecting to be met with this type of resistance by the White House, the representatives had also asked the GAO, the investigative arm of Congress, to begin an inquiry. In February of 2002, the GAO filed federal suit in an attempt to force the Vice President to reveal which business executives met with members of the energy task force. But on December 9, 2002 Judge John D. Bates found that “the GAO had no legal standing to sue Vice President Cheney or any other executive branch official for information.” (Taylor 3638) The court battles continued until May 2005 when a ruling “upheld the administration’s decision to keep the task force proceedings and records closed to public view.” (Government Secrecy) Both sides of the argument have weighed in with opinions on the need for candor from executive advisors versus the need for public disclosure of government information. For the public and researchers, however, the result is an inability to

discern what part major industry players (notably Kenneth Lay and other executives from Enron) may have had in the creation of the nations energy policy.

Another example of possible corporate influence, involves the release of the "Draft Report on the Environment" on June 23, 2003 by Christie Whitman, administrator of the EPA. This report had been preceded by a series of news reports claiming that the White House had edited a "long section describing the risks from rising global temperatures…" (Revkin 1) Unnamed EPA officials released to the New York Times drafts of the report along with the changes that the White House had requested. Earlier findings on global warming by the National Research Council were removed by the White House, along with references to a sharp increase in global temperatures over the last five years. Also eliminated were "references to many studies concluding that warming is at least partly caused by rising concentrations of smokestack and tail-pipe emissions and could threaten health and ecosystems." (Revkin 1) These findings were replaced with information from a study, partially funded by the American Petroleum Institute, which refuted information on global warming. Once the EPA had adopted the changes requested by the White House, the agency felt that the report "no longer accurately represents scientific consensus on climate change" and rather then face accusations of "filtering science to suit policy" the entire section was pared down. (Revkin 1)

Manipulation of government information may also be reflected in the Bush administrations decision to quietly end a Bureau of Labor Statistics report which compiled data on mass layoffs by U.S. companies. This report had been eliminated once before, by George H.W. Bush, but was revived by the Clinton administration. As the current Bush administration came under attack for their handling of the economy, this visible accounting of the health of American business had the potential to become an embarrassment. Through a "bureaucratic quirk@ (Lazarus) responsibility for the report was shifted to the Labor Department=s Employment and Training Administration. As funding became tight, the ETA felt they could no longer finance a report which did not directly assist workers trying to re-enter the workforce. By December 2002 the report was gone and with it direct evidence of "which industries are in the greatest distress and which workers are bearing the brunt of the turmoil."(Lazarus) Claiming, "The administration must not be allowed to sweep bad economic news under the rug," ("Mass Layoff") Senator Kennedy restored funding to the report through an amendment to the Omnibus Appropriations Act (H.J. Res. 2, 108th Congress, 1st Session). The President signed the bill and the report was restored.

CONTRACTING OUT

Even more insidious is the loss of information through the privatization of work traditionally done by government. As state and federal government contract out many of their roles to the private sector, both government and the citizenry lose control and access to the information gathered and maintained by these private institutions.

Librarians and researchers are not the only victims of the loss or sale of government information. In an astonishing situation, the National Weather Service uses taxpayer dollars to collect vital data which it then sells to private vendors. Despite having paid once, through taxes, the general public must pay again to gain access to this information through a private vendor. And when the National Weather Service needs to access its own data, they too must pay the vendor. (Grossklaus)

As more aspects of government are privatized will information collected, compiled and analyzed by the private sector be made available to the public? Will the information even be shared with government? Or with other private institutions engaged in similar activities? If taxpayer monies fund the contracting out of government business shouldn't the taxpayers have a right to know?

The federal government and each of the states have some version of a freedom of information law. The general public can request access to certain types of government information by filing a freedom of information request. But these laws do not extend to the information or records of the private sector. Government agencies are usually described as being supported in whole or part by public funds. Therefore, even when government is contracting out its traditional roles, private institutions "are unlikely to be considered federal agencies for FOIA purposes." (Bunker 464)

In a very few cases, a public request for information held by the private sector has made it into the courts. Each case has been decided on its own merits resulting in a "lack of coherent judicial doctrine concerning privatized governmental records." (Bunker 464) As the privatization of government functions escalates, both the public and government face the possibility of being shut off from crucial information.

One ominous result is the loss of oversight. Since 1946, with the enactment of the Legislative Reorganization Act, Congress has had an oversight responsibility to insure that laws under congressional jurisdiction are carried out by administrative agencies. Congress exercises this responsibility through hearings, investigations, legislative veto, etc. In addition they can request GAO audits and investigations of agencies or programs. (Wormser 460) Oversight, like democracy

itself is based in information. When information is withheld or deliberately suppressed the oversight role of Congress is impeded.

Government is accountable to itself and the citizenry through a series of checks and balances. Governmental roles turned over to the private sector put that accountability in jeopardy. To whom will these private institutions report? What will be the reporting mechanisms and how will they be enforced? If there is no disclosure of information how can there be oversight?

FOIA

As we have seen, much information produced about and by government is not routinely released to its citizens. Citizens can attempt to gain access to this information through the Freedom of Information Act or FOIA.

For each president, the Attorney General of the United States provides a statement on that administration's policy concerning FOIA. While the Clinton White House was very protective of its own information the administration took a more open view on the disclosure of agency information. Under Clinton, Attorney General Janet Reno issued a memorandum instructing agencies to make a presumption of disclosure, releasing information unless it was "reasonably foreseeable that disclosure would be harmful." (Snyder 79) Under George W. Bush, John Ashcroft also issued a memorandum to agencies, but it set a very different tone. The new policy in effect was "when in doubt don't give it out." According to Ashcroft, any agency with a sound legal basis for withholding information would be defended by the Justice Department. (Kirtley 62) By July of 2005 Alberto Gonzales had replaced Ashcroft and agreed to consider reversing the Ashcroft memorandum. (Sanchez)

Federal watchdog groups, civil rights organizations, journalists, and researchers are some of the groups who regularly file Freedom of Information requests to access information. As the number of FOIA requests rises agencies are falling behind in their ability to keep up with requests. "In 2004, the public made over 4 million requests for information from government agencies…" (OpenThe Government.Org) and "Of the roughly 90 agencies surveyed by the Department of Justice only 14 were able to keep up…" (OpenTheGovernment.Org)

Frustration over the lack of governmental response to FOIA requests has resulted in a number of lawsuits. Larry Klayman, chairman of Judicial Watch, a conservative watchdog group, filed three of the suits. He sought access to information on the White House Energy Task Force. The court found for Klayman and the White House did release thousands of pages of records. But according to Klayman, "The records are heavily redacted" and "at least 25,000 pages are missing." (Maier)

The latest blow to FOIA is Senator Richard Burr's (R-N.C.) introduction of the BARDA bill. Burr proposes the creation of a Biomedical Advanced Research and Development Agency (BARDA) which would "manage the government's anti-bioterrorism research and encourage private companies to bring more drugs and vaccines to market quicker." (Tapscott) The bill also includes language that would exempt the agency from FOIA compliance. Not even the CIA has such an exemption. BARDA has the potential to spend billions of dollars with pharmaceutical companies but will be free of public oversight.

GOVERNMENT INDEXES AND PERIODICALS

The private sector also weighs in with views on the production of government information. Decisions on which publications will stay and which will go are subject to industry preferences. The Car Book: A Consumer's Guide to Car Buying, produced by the National Highway Transportation Safety Administration, contained information on crash safety records. Pressure from the auto industry overwhelmed consumer support for the publication and it was eliminated. In the case of Cotton Dust: Worker Health Alert, the cover photo of a crop worker suffering from lung disease was viewed as inflammatory and the entire publication was eliminated. (Demac 33)

The loss of PubSCIENCE provides a recent example. A web database created in 1999 to provide access to citations and abstracts of journal literature in the physical sciences, PubSCIENCE was a partnership between the Department of Energy, the Government Printing Office and a number of scholarly publishers. It provided free access to abstracts from 1,200 journals and provided hyperlinks to the full-text of articles, for a fee. When it launched PubSCIENCE, DOE noted that the "federal government funds 80 to 90 percent of scientific research and development." (Ojala) But clearly the private sector did not take the same view. SIIA (Software & Information Industry Association) testified before the Senate that they found PubSCIENCE to be a case of unfair competition and "an ongoing example of the inappropriate role of government in providing access to non-government information." (Ojala) In the fall of 2002 a notice appeared on the DOE web site announcing the discontinuing of PubSCIENCE in light of comparable services offered by private sector companies such as Scirus and Infotrieve. PubSCIENCE was discontinued shortly after the announcement. Even with this victory, SIIA is planning to continue to the fight. As David DeLuc, public policy director for the association said in Federal Computer Week, "We are delighted with the decision [to shut down PubSCIENCE]" and "We are looking into a couple of other databases and agencies." (Matthews)

Federally produced journal and periodicals are also being lost to corporations. Beginning in 1996 the Journal of the National Cancer Institute became a publication of Oxford University Press

with a subscription price of $552 per year. This publication had previously been available free through the federal depository library program. The National Cancer Center Monographs were included in the package. In another example Schizophrenia Bulletin which had been published since 1969 also is moving to Oxford University Press and was available through the federal depository library program only until the end of 2005. Environmental Health Perspectives, is currently being considered for privatization by its publisher, the National Institute of Environmental Health Sciences

PRIVATIZATION OF DISTRIBUTION OF GOVERNMENT INFORMATION

In May of 2003 the federal Office of Management and Budget issued Memorandum M-02-07 "Procurement of Printing and Duplicating through the Government Printing Office." With this memo, OMB proposed amendments to the Federal Acquisition Regulations which would allow federal agencies to seek private sources of printing. OMB estimates that the changes would save the federal government upwards of $50 million. (Yachnin)

Title 44 of the United States Code requires that all printing for Congress, the Executive Branch, independent agencies, and the Judiciary, with the exception of the Supreme Court, is the responsibility of GPO. In addition, the GPO is responsible for the operation of the Federal Depository Library Program, including the acquisition and distribution of copies of federal government publications to libraries around the country that participate in the depository program. Librarians and researchers are familiar with the numerous government publications which are fugitive from the depository library system. Government publications fail to enter the FDLP due to ignorance of the program on the part of agencies, a reluctance to spend the extra money required to print depository copies, and occasionally, a refusal to comply. The implementation of M-02-07 would decentralize printing further and exacerbate the problem of fugitive documents.

Earlier attempts to circumvent GPO, in 1987 and 1994, failed when Congress and the public continued to support the need for access to government information. But the Bush administration agreed with their predecessors and continued to pursue decentralized printing. Congress made its statement in September 2002 by ordering executive agencies to continue to use GPO for printing. The White House retaliated, claiming that executive agencies could choose to ignore the Congressional order. Congress next chose to use its strongest weapon, appropriations. Between October and early November of 2002, Congress passed 5 joint resolutions forbidding the use of any appropriated funds for printing outside of GPO (see various House Joint Resolutions, 107th Congress, 2nd Session, including H.J.Res. 121 and 122). (Helfer)

Despite GAO and popular opinion to the contrary, the Justice Department continued to maintain that requiring executive agencies to use the services of GPO was a violation of the

separation of powers. The new Public Printer Bruce James and Mitchell Daniels of the OMB met in December 2002. It was clear that the OMB was trying to enact the Bush administration ideal that the government become more like the private sector, or in this case, rely upon the private sector. By June of 2003, a compromise had been reached. (McDermott)

GPO agreed to manage the outsourcing of print jobs to private printers as appropriate and cost effective. Copies of government documents will continue to be purchased and distributed to depository libraries using appropriated funds. Agencies that do not use GPO for printing contracts will continue to be required to make copies available for depository distribution at their own expense. The new requirement that "one electronic version of every document ordered under the contract in a format acceptable to GPO..." (McDermott) may actually be an improvement.

Researchers may well heave a sigh of relief at the compromise that was reached by GPO and OMB but the reality is that more and more federal government information is not produced in a tangible format at all and there is no item to distribute to depository libraries. As more and more federal information migrates to the Internet, much is available to the public in a more direct and timely manner then ever before. However, the lack of a systematic archiving process for this information results in inconsistent access.

Evidence of corporate influence on government information can be seen in the kinds of information government does provide, the loss of some types of government information and a lack of accountability at the expense of the public interest. The free press is supposed to serve as a watchdog over government and, indeed, we would not know about the problems with government information we have described here were it not for that press. At the same time, government is supposed to regulate some aspects of the media, but questions should also be raised about private sector sources of information. Who owns and controls the media? And, closer to academia, who owns and controls the publishers, producers and distributors of the information which faculty and students use in education and research? And what are the trends in this industry?

II. The Information Environment – Commercial and Non-Profit Suppliers

The information environment has changed radically in the last three decades because of: the digitization of information; the explosive growth of information; exploding demand for information; profitability of information; and the corporatization and globalization of suppliers resulting in larger, multinational companies.

The phenomenal growth of the information industry is illustrated by the growth in size and number of databases and database producers. Williams reports that the number of databases grew from 301 in 1975 to over 13,000 in 2004 and the number of database producers went from 200

in 1977 to 3,416 in 2004. Government databases decreased as a percentage of all databases from 56% in 1977 to 6% in 2002, while commercial databases which accounted for only 22% of the market in 1977 claimed 77% of it in 2004 (Williams)

Database vendors and some producers distribute information, usually offering search systems and other "value-added" services such as abstracting and indexing. Some are now large multinational businesses who gobbled up their competitors (Munroe). For example, in 2004 among the companies owned by Reed Elsevier were: LexisNexis, Martindale Hubbell, Butterworth, Harcourt, Holt, Rinehart & Winston, Cahners, JAI Press, Chilton, CIS, Academic Press, BioMed Net, Engineering Information, Pergamon Press, Beilstein, Cell Press, Mosby, Churchill Livingstone, Saunders, and Elsevier Science (Information Access Alliance). On its website Reed Elsevier states that it is "a world leading publisher of information …" The corporation "…. employs approximately 36,000 people in over 200 locations worldwide." In February 2005, Reed Elsevier reported revenues for 2004 of just under "£5billion…" (Reed Elsevier). Another example is the Thomson Corporation which calls itself "a leading global provider" of information to more than 20 million business and professional customers. Thomson has 40,000 employees with operations in 45 countries. Its 2004 revenues were $8.1 billion (9% over prior year) (Thomson).

Does size matter? In a study commissioned by the Information Access Alliance, Mark McCabe found that: "[P]rices are indeed positively related to firm portfolio size, and . . . mergers result in significant price increases." (McCabe). Between 1991 and 2000, the prices of library subscriptions to scientific, technical, medical (STM) publications increased 158 percent, over six times the inflation rate, while legal serial publications increased 103 percent, over four times the inflation rate. (Susman, Thomas , Carter, Ropes & Gray). Profits appear to be the cause of steep price increases since increases by commercial publishers of STM journals and legal serials are significantly higher than those of nonprofit publishers. Between 1988 and 1998, the price of commercial biomedical titles increased 224 percent while the price of the nonprofit titles increased 129 percent (McCabe).

PROBLEMS FOR LIBRARIES

Democratic values began to clash with commercial values when the digitization and volume of information made the industry big business. Gradually eroded were direct relations between librarians and traditional publishers or jobbers who sought only modest profits. Because of the enormous volume of information, the selection of much library material had to shift from direct selection by librarians to pre-selection by corporate providers, who need profits to compete for capital to continue to grow in a global market.

"Aggregator" databases are online collections of citations and full-text articles offered as a package to libraries with price increases for a number of years specified in a contract. These databases offer easy-to- use interfaces to hundreds of online journals, and contracting with a single vendor is easier for libraries, but there are disadvantages. The journals included how they are indexed and even their content may be selected using criteria unknown to librarians and users. Although an aggregator database may purport to cover specific titles, all the articles in those journals may not be included. "Bundling" publications forces libraries to pay for titles they don't need in order to obtain the titles they do need. Subscribing to several aggregator databases may result in duplication of popular sources, leaving no money to buy other needed titles. Having cancelled print subscriptions, libraries become dependent upon these online sources and vulnerable to publishers who then have the power to add or drop titles and to dictate prices (Frazier). In some cases, embargoes have been imposed by suppliers of online information in response to publisher concern that online access to titles through aggregated databases might lead to cancellations of print versions. To prevent that, the publishers impose an embargo on the online full text content of the most recent issues, (six months or a year).

The globalization of information may also mean excluding those who cannot afford that price which optimizes profits in a worldwide market. The higher the price, the fewer items will be sold and conversely, the lower the price the more will be purchased. The highest profits will be returned when the price is set so that the number of items multiplied by the optimum price maximizes the return. This means there will always be libraries priced out of the market. Many scientific journals costing thousands of dollars are priced out of reach for all but the most affluent corporate and research libraries.

This is not new and might not be quite so bad if items could be borrowed through cooperative interlibrary loan networks. Traditionally, libraries have depended on interlibrary loans since the cost and proliferation of information make it impossible for each library to purchase everything required to meet the needs of all its users. But now, the contracts for some databases expressly forbid libraries to use electronic content for document delivery to outside clients (Frazier). The profit motive of information suppliers has trampled the public's right to information.

Information is unlike other commodities. Subscriptions represent ongoing commitments and the information contained in one journal cannot be substituted for another. Sources are not interchangeable, titles cannot be substituted for each other and competition does not have the same effect as it would when a cheaper model of one product can be substituted for an expensive one. Academic users often want access to all journals in a field so libraries must try to get access to as

many journals as possible. Thus competition is not the brake on overpricing that it would be with other products.

Undeniably, the overwhelming amount of information now available would not have occurred without development motivated by profit. Nor could it be managed by anything less than the level of technology which produced and distributed it. Value-added services such as indexes, abstracts and sophisticated programs for retrieval and data management are needed but indexing, abstracting and software development can be labor-intensive and expensive. But now, the vendors and producers who developed many of these resources threaten to limit us to only the most profitable ones.

The "invisible hand" of the marketplace is now endangering the marketplace of ideas. Societal needs may not necessarily be reflected in buying power nor measurable by market surveys.

Academic users expect to be able to limit searches to peer-reviewed journals for scholarly research and reliable information. Patrons expect libraries to provide trustworthy information sources. Librarians try to select materials using reputable sources and reliable publishers. Individual publications are renowned for scholarship, lack of bias, or for openly representing certain perspectives. Googles and Yahoos are useful in retrieving enormous amounts of valuable information from the Internet but not at the level or quality required for serious research and scholarship. Advertising, whether online banners, pop-ups or printed ads, affects the objectivity of information and, by disrupting the reader's attention, trivializes it. Misleading unverified information abounds on the web.

CHALLENGING CORPORATE CONTROL OF INFORMATION

Librarians and others concerned about these problems are beginning to take action to challenge the market dominance by behemoth corporations and marketing practices, such as bundling and exorbitant pricing. Shared concern about "unconstrained publisher mergers, the increasing concentration of the scientific and legal journal content in the hands of a few publishers, and the effects of bundling and price escalation on universities and libraries" led to a symposium cosponsored by the Information Access Alliance (IAA) and the American Antitrust Institute (AAI), at the Georgetown Law School in February, 2005, to explore issues surrounding the scholarly and legal publishing industry ("Antitrust issues in scholarly and legal publishing").

Some publisher mergers were challenged at the Department of Justice (DOJ) by the Association of Research Libraries (ARL) and IAA. Because DOJ tends to focus on narrow definitions of market overlap, "it often addresses antitrust concerns by requiring the merging companies to divest certain assets, like journals that have similar content." Unfortunately the

divestiture resulted in the titles being picked up by other high-priced publishers, only exacerbating the problem. Data linking mergers to journal price increases failed to convince the antitrust regulators. More data is needed to prove the connection between mergers and price escalation at the level required by antitrust law. Participants compiled a lengthy list of strategies for future action and closed with a pledge from the moderator that the group's work was just beginning ("Antitrust issues in scholarly and legal publishing").

The consolidation of information suppliers into huge multi-national conglomerates creates disparities of size and bargaining power between small consumers and mega-corporate suppliers. To offset this disadvantage, libraries often join coalitions to bargain as a group for more favorable contract terms, and are collaborating in other areas such as encouraging non-profit publishers and promoting "open access publishing". Two such collaborative groups are briefly described below.

The Scholarly Publishing and Academic Resources Coalition (SPARC®) is an alliance of universities, research libraries, and organizations. An initiative of ARL it was formed in 1997 to respond to market dysfunctions in the scholarly communication system. "These dysfunctions have reduced dissemination of scholarship and crippled libraries. SPARC serves as a catalyst for action, helping to create systems that expand information dissemination and use in a networked digital environment while responding to the needs of academe…" SPARC's objective is to "enhance broad and cost-effective access to peer-reviewed scholarship… through three strategic thrusts:

1) "Incubation: SPARC creates and develops competitive alternatives to current high-priced commercial journals and digital aggregations… SPARC's goal is to stimulate expansion of the non-profit sector's share of overall scholarly publishing activity.

2) "Advocacy: SPARC promotes fundamental changes in the system and the culture of scholarly communication. … leverages the impact of SPARC's publishing partnerships, providing broad awareness of the possibilities for change and emboldening scholars to act.

3) "Education: SPARC aims to enhance awareness of scholarly communication issues and support expanded institutional and community participation in and control over the scholarly communication process" (SPARC).

SPARC reports that, since its inception, it has advanced this agenda by:
demonstrating that new journals can successfully compete for authors and quickly establish quality; effectively driving down the cost of journals; creating an environment in which editors and editorial board members claim more prominent roles in the business aspects of their journals; stimulating the development of increased publishing capacity in the not-for-profit sector and encouraging new

players to enter the market; providing help and guidance to scientists and librarians interested in creating change; carrying the methods and message of change to international stakeholders. (SPARC).

A collaboration significant for SUNY is the New York State Higher Education Initiative (NYSHEI), a collaboration of New York's public and private academic institutions and their libraries, which sees its mission as developing, enhancing and preserving their research and educational services, collections and resources for the benefit of faculty, students, and the larger research community, and the promotion of new methods of scholarly communication. NSHEI's "Vision" is to extend equitable access to the larger research community, thus enhancing information services and resources at each institution. (The New York State Higher Education Initiative).

NYSHEI's goals are to:

1) Leverage our considerable individual investments in public and private academic libraries through collaborative action and resource development, cooperative acquisition of materials, shared programs and coordinated services.

2) Promote innovation through the design and development of new models of collaboration that can be adapted to the individual needs of academic libraries, as well as the larger academic community.

3) Establish an interface with other organizations and agencies that impact or might assist in the development of information resources for the academic community.

4) Enhance teaching and research at each institution through the collaborative acquisition of scholarly information resources and services, and facilitate timely access to collective resources.

5) Coordinate the preservation of print collections and the archiving of electronic collections for academic libraries in New York State.

6) Work with all elements of the higher education community to address new methods of scholarly communication and assess the issues and opportunities that result from these new methods.

7) Reduce duplication of research materials, where feasible, for the development of more comprehensive selected collections for the greater research community.

(The New York State Higher Education Initiative).

Open-access publishing has been described as "a legitimate market remedy that promises to reduce the pricing power of publishers, remove unnecessary barriers to access, and introduce efficiencies by unbundling the functions associated with scholarly publishing ("Antitrust issues in scholarly and legal publishing").

What is open-access publishing? Noting that open-access is a property of individual works, not necessarily of journals or publishers, the Public Library of Science (PLoS) has endorsed the following definition. An Open Access Publication meets the following two conditions:

1. "The author(s) and copyright holder(s) grant(s) to all users a free, irrevocable, worldwide, perpetual right of access to, and a license to copy, use, distribute, transmit and display the work publicly and to make and distribute derivative works, in any digital medium for any responsible purpose, subject to proper attribution of authorship, as well as the right to make small numbers of printed copies for their personal use. [Community standards, rather than copyright law, will continue to provide the mechanism for enforcement of proper attribution and responsible use of the published work, as they do now.]"

2. "A complete version of the work and all supplemental materials, including a copy of the permission as stated above, in a suitable standard electronic format is deposited immediately upon initial publication in at least one online repository that is supported by an academic institution, scholarly society, government agency, or other well-established organization that seeks to enable open access, unrestricted distribution, interoperability, and long-term archiving (for the biomedical sciences, PubMed Central is such a repository) ". (Bethesda Meeting).

Nonprofit journals are reputedly more efficient at publishing research. According to economist Mark McCabe "they are better in terms of quality, they are better in terms of the number of papers published, and, since their prices are lower and [therefore] attract many more readers, they are more efficient (Poynder, 56)

The hard work is only beginning. Today, when privatization, profit and the "bottom line" are revered and librarians have been called "radical and militant" by the FBI for defending intellectual freedom, privacy, and civil liberties (American Library Association. Office for Intellectual Freedom, 2006) success will not be easy. It will require the cooperation of all concerned and so we offer the following recommendations.

III. Recommendations

A. For everyone

1. Become knowledgeable about current issues in scholarly communication and alternative models of academic publishing that support the broadest possible dissemination of peer-reviewed scholarship.

2. Use and teach critical thinking about information sources.

B. For libraries and librarians

1. Work cooperatively with consortia and other groups to demand access to needed sources of information.

2. Support and promote open access publications, local repositories and new methods of scholarly communication.

3. Demand more access to government information. All levels of government should be accountable for data collected or explain the reasons behind non-collection. Organizations assuming government roles must also be made accountable.

4. Press suppliers to accept recommendations by libraries and users for titles to include in databases, to make public their selection criteria, and to be flexible about bundling.

C. For faculty and professionals

1. Encourage professional societies to explore alternatives to contracting or selling their publications to commercial publishers and encourage them to maintain reasonable prices and broad access. Professional societies have a social responsibility to disseminate research.

2. Work with librarians to insure that materials from minor or less profitable subject fields are included in library collections and online offerings.

3. Empower and support your libraries in their efforts to obtain the broadest range of appropriate research materials through purchase, license and loan at affordable prices.

4. Examine carefully the pricing, copyright, and subscription licensing agreements of journals you contribute to as an author, reviewer, or editor, and decline to serve on journals that are antithetical to a healthy scholarly communication environment.

5. Scholarly communication issues and proposals for change should be discussed in departments, schools and colleges.

6. Support new publishing models that are committed to maintain access to high-quality, peer-reviewed research at a manageable cost.

7. Negotiate copyright agreements with publishers. Do not sign away your rights to use your own work when you sign copyright agreements with publishers. Negotiate the right to use your own work for teaching and research, as well as for posting your research on publicly available web sites and archives. For more information See “Intellectual Property, software and distance learning: SUNY Policy and UUP Recommendations”
< http://www.uupinfo.org/qanda.pdf >

D. For unions and other non-profit organizations

1. Unions and other non-profit organizations should be active in producing information, and presenting their perspectives. Unions should publicize their websites and publications.

2. Professional organizations, NGOs and unions should put pressure on publishers, database producers and especially on government agencies to collect and disseminate socially needed information.

Works Cited

"Access to Government Information Post September 11." OMB Watch. (19 January 2005): 25 August 2003 <http://www.ombwatch.org/article/articleview/213/1/1/agency>.

"Albany Faculty Action Needed to Secure Access to Journals at an Affordable Price for SUNY Faculty and Students" March 22, 2004. University at Albany. University Senate.

"Antitrust issues in scholarly and legal publishing." American Library Association. 2005. http://www.ala.org/ala/acrl/acrlpubs/crlnews/backissues2005/May05/antitrust.htm (Accessed 14 Jan, 2006)

American Library Association. Intellectual Freedom Committee. Preface to the Joint Statement on Faculty Status of College and University Librarians, AAUP: Policy Documents and Reports, 1995 edition. "Intellectual Freedom for Academic Libraries: An Interpretation of the Library Bill of Rights." 1999.

American Library Association. Office for Intellectual Freedom. January 17, 2006. "ALA introduces 'Radical, Militant Librarian' button." <http://www.ala.org/ala/pressreleases2006/january2006/radicalmilitantbutton.htm

Bethesda Meeting, 2003. < http://www.earlham.edu/~peters/fos/bethesda.htm > (Accessed 15 Jan, 2006)

Borger, Gloria. "Practicing the Art of Secrecy." U.S. News & World Report. 132.8 (2002): 24. Academic Search Premier. EbscoHost. University at Albany Library, Albany, 18 Nov. 2002.

Bunker, Matthew D. and Charles N. Davis. "Privatized Government Functions and Freedom of Information: Public Accountability in an Age of Private Governance." Journalism and Mass Communication Quarterly. 75.3 (1998). ABI/INFORM. Proquest. University at Albany Library, Albany, 13 May 2003.

Collins Dictionary of Economics (2000). xreferplus. http://www.xreferplus.com/entry/1411047. (Accessed 13 January 2006)

Demac, Donna. Keeping America Uninformed. New York, N.Y.: Pilgrim Press, 1984.

Frazier, Kenneth. "The Librarians' Dilemma, Contemplating the Costs of the "Big Deal." D-Lib Magazine. 7.3 (2001): <http://www.dlib.org/dlib/march01/frazier/03frazier.html > (Accessed 6 Dec. 2002)

"Government Secrecy." CQ Researcher. 15.42(2005).

Grossklaus, D. "Byting the Hand that Feeds Them." Washington Monthly. 23.11 (1991). Academic Search Premier. EbscoHost. University at Albany Library, Albany, 16 May 2003.

Helfer, Doris Small. “The Government Battle Over Printing: OMB versus GPO and Why it Matters to Libraries and the Public.” Searcher. 11.3 (2003): Academic Search Premier. EbscoHost. University at Albany Library, Albany, 16 June 2003.

"Information Access Alliance." American Library Association. 2004. http://www.ala.org/ala/acrl/acrlpubs/crlnews/backissues2004/june04/iaa.htm (Accessed 14 Jan, 2006)

Kirtley, Jane. “Hiding Behind National Security.” American Journalism Review. 24.1 (2002): 62. Academic Search Premier. EbscoHost. University at Albany Library, Albany, 18 Nov. 2002.

Lazarus, David. “Shooting the Messenger: Report on Layoffs Killed.” San Francisco Chronicle. 3 January 2003. <http://sfgate.com/cgibin/article.cgi?file=/c/a/2003/01/03/MN120712.DTL>. (Accessed 7 Jan, 2003)

Maier, Timothy. “Bush Team Thumbs its Nose at FOIA.” Freedom of Information Center. 8 April 2002. http://foi.missouri.edu/bushinfopolicies/bushthumbsnose.html (Accessed 19 Jan. 2006)

McCabe, Mark cited in “Information Access Alliance." American Library Association. 2004. http://www.ala.org/ala/acrl/acrlpubs/crlnews/backissues2004/june04/iaa.htm (Accessed 15 Jan, 2006)

McCabe, Mark The Impact of Publisher Mergers on Journal Prices: An Update, ARL, no. 207. Dec. 1999, at 5. cited in Susman, Thomas M., David J. Carter, Ropes & Gray LLP. Publisher Mergers: A Consumer-Based Approach To Antitrust Analysis. Washington, D.C.: The Information Access Alliance. June 2003. <http://www.informationaccess.org/WhitePaperV2Final.pdf>(Accessed 15 Jan, 2006)

Merriam-Webster's Collegiate(R) Dictionary (2004) xreferplus http://www.xreferplus.com/entry/5225909 (Accessed 13 Jan. 2006)

“Mass Layoff Tracking Restored After Public Outcry.” (31 March 2003): 20 August 2003<http://www.laborday.aflcio.org>.

Matthews, William. “More Sites Targeted for Shutdown.” Federal Computer Week. (13 November 2002): 16 June 2003<http://www.fcw.com>.

Munroe, Mary H. “The Academic Publishing Industry: A Story of Merger and Acquisition.” Association of Research Libraries and the Information Access Alliance. < http://www.niulib.niu.edu/publishers/ > (Accessed 15 Jan, 2006)

McDermott, Patricia. “New GPO-OMB Pilot for Government Printing Announced.” E-Mail to GOVDOC-L. 7 June 2003.

The New York State Higher Education Initiative (2004). < http://www.nyshei.org/mission.htm > (Accessed 15 Jan. 2006)

Ojala, Marydee. “PubSCIENCE Joins the Endangered Species List.” Information Today. (19 August 2002): 18 Nov. 2002<www.infotoday.com/newsbreaks/nb020819-2.htm>.

OpenTheGovernment.Org. Secrecy Report Card 2005: Qualitative Indicators of Secrecy in the Federal Government. <www.openthegovernment.org> (Accessed 6 Jan. 2006)

Poynder, Richard. "A True Market Failure." Information Today. 19.11 (2002): 56

Public Library of Science. < http://www.plos.org/about/openaccess.html#definition> (Accessed 15 Jan, 2006)

Reed Elsevier "About us."< http://www.reed-elsevier.com/index.cfm?articleid=62 > (Accessed 15 Jan, 2006)

Revkin, Andrew C. and Katharine Q. Seelye. "Report by E.P.A. Leaves Out Data on Climate Change." New York Times. 19 June 2003, sec. A: 1. Academic. Lexis-Nexis. University at Albany Library, Albany, 30 June 2003.

Rozell, Mark J. Executive Privilege: Presidential Power, Secrecy and Accountability. University Press of Kansas, 2002.

Sanchez, Julian. "It's Better FOIA." Reason. 37.6 (2005):14. Academic Search Premier. EbscoHost. University at Albany Library, Albany, 19 Jan. 2006.

Scholarly Publishing and Academic Resources Coalition (SPARC®) updated Feb 23, 2005. < http://www.arl.org/sparc/about/index.html > (Accessed 15 Jan, 2006)

Snyder, Martin D. "Academic Research and Access to Information." Academe. 88.3 (2002): 79. Academic Search Premier. EbscoHost. University at Albany Library, Albany, 19 Nov. 2002.

Susman, Thomas M., David J. Carter, Ropes & Gray LLP... "Publisher Mergers: A Consumer-Based Approach To Antitrust Analysis" Washington, D.C.: The Information Access Alliance. June 2003. http://www.informationaccess.org/WhitePaperV2Final.pdf (Accessed 15 Jan, 2006)

Tapscott, Mark. "An Anti-disease Agency Without Public Oversight." November 11, 2005 www.heritage.org (Accessed 7 Jan. 2006)

Taylor, Stuart Jr. "Cheney's Win Over the GAO Threatens Congressional Oversight." National Journal. 34.50 (2002): 3638-3639. Academic Search Premier. EbscoHost. University at Albany Library, Albany, 7 April 2003.

Thomson. "About us." < http://www.thomson.com/corp/about/ab_home.jsp > (Accessed 14 Jan, 2006)

Williams, Martha E. "The State of Databases Today." Gale Directory of Databases. V.2, Part 1. Jacqueline K. Mueckenheim , ED. Detroit: Thomson, Gale, 2005. xv-xxv.

Wormser, Michael, ed. Congressional Quarterly's Guide to Congress. 3rd ed. Washington, D.C.: Congressional Quarterly, Inc. 1982.

Yachnin, Jennifer and Kelly Field. "GPO Won't Challenge Printing Rules." (9 May 2002) 19 September 2002<http://www.rollcall.com/pages/news/00/2002/05/news0509f.html>.

Appendix V

A Corporatization and Globalization of Higher Education Bibliography: an ongoing project

The Corporatization of Higher Education Bibliography

General Works:

Aronowitz, Stanley, The Knowledge Factory: Dismantling the Corporate University and Creating True Higher Learning, Boston: Beacon Press, 2000.

Barrow, Clyde, "The New Economy and Restructuring Higher Education," *Thought and Action*, Vol. XVI, Number 2, Fall 2000.

Barrow, Clyde W., Universities and the Capitalist State: Corporate Liberalism and the Reconstruction of American Higher Education, 1894-1928, Madison: The University of Wisconsin Press, 1990.

Bergson, Lisa, "Why Academia and Business Don't Always Mix," *BusinessWeek Online*, 30 June 2000.

Bok, Derek, Universities in the Marketplace: The Commercialization of Higher Education, NJ: Princeton University Press, 2003.

Bromell, Nick, "Summa Cum Avaritia: Plucking a Profit From the Groves of Academe," *Harper's Magazine*, February 2002.

Engel, Michael, The Struggle for the Control of Public Education: Market Ideology vs. Democratic Values, Philadelphia: Temple University Press, 2000.

Levine, Arthur, "The Soul of a New University," *New York Times*, 13 March 2000.

Martin, Randy ed., Chalk Lines: The Politics of Work in the Managed University, Durham: Duke University Press, 1998.

Newfield, Christopher, Ivy and Industry: Business and the Making of the American University, 1880-1980, Durham: Duke University Press, 2003.

New York Times, "Investors See Room for Profit In the Demand for Education," 4 November 1999.

Oblinger, Diana G. and Anne-Lee Verville, What Business Wants From Higher Education, Phoenix: The Oryx Press, 1998.

Rhoades, Gary, Managed Professionals, Albany: State University of New York Press, 1998.

Shaw, George C., "Debunking the Myth of Academe," *Thought and Action* Vol. XVI, No. 2, Fall 2000.

Shumar, Wesley, College for Sale: A Critique of the Commodification of Higher Education, Washington, DC: The Falmer Press, 1997.

Slaughter, Sheila and Larry L. Leslie, Academic Capitalism: Politics, Policies, and the Entrepreneurial University, Baltimore: Johns Hopkins University Press, 1997.

Stein, Donald G., ed., Buying In or Selling Out? The Commercialization of the American Research University, New Brunswick, NJ: Rutgers University Press, 2004.

White, Geoffry D. with Flannery C. Hauck, eds., Campus, Inc.: Corporate Power in the Ivory Tower, Amherst, New York: Prometheus Books, 2000.

Distance Education:

Armstrong, Lloyd, "Distance Learning: An Academic Leader's Perspective on a Disruptive Product," *Change*, November/December 2000.

Carnevale, Dan, "Legislative Audit Criticizes Western Governors University," *The Chronicle of Higher Education*, 6 October 2000.

Carr, Sarah, "A Day in the Life of a New Type of Professor," *The Chronicle of Higher Education*, 15 December 2000.

Carr, Sarah, "For-Profit Venture to Market Distance Education Courses Stirs Concern at Temple U.," *The Chronicle of Higher Education*, 9 December 1999.

Carr, Sarah, "Is Anyone Making Money on Distance Education?" *The Chronicle of Higher Education*, 16 February 2001.

Carr, Sarah, "Western Governors U. Officials Say They're Content with Modest Pace of Enrollment," *The Chronicle of Higher Education*, 17 December 1999.

Carr, Sarah and Andrea L. Foster, "State Struggle to Regulate Online Colleges That Lack Accreditation," *The Chronicle of Higher Education*, 23 March 2001.

Coopers and Lybrand Learning Partnership Roundtable, *The Transformation of Higher Education in the Digital Age*, July 1997.

Eklund, Bridget, "Street Talk: Wall Street Examines e-Learning," *Red Herrring.com*, 26 January 2001.

Eyal Press and Jennifer Washburn, "Digital Diplomas," *Mother Jones*, January-February 2001.

Finkelstein, Martin J., Carol Frances, Frank I. Jewett, and Bernhard W. Scholz, ed., Dollars, Distance and Online Education: The New Economics of College Teaching and Learning, Phoenix: Oryx Press, 2000.

Grimes, Ann, "A Matter of Degree," *The Wall Street Journal*, 17 July 2000.

Gunn, Eileen P., "Ivy League Wants A Piece of Online Education," *Upside Today*, 25 November 2000.

Leatherman, Courtney, "U. of Phoenix's Faculty Members Insist They Offer High-Quality Education," *The Chronicle of Higher Education*, 16 October 1998. <http://www.chronicle.com/weekly/v45/i08/08a01401.htm>

Lindquist, Christopher, "Virtual Diploma," *Upside Today*, 6 April 2000.

Margolis, Jason, "A Questionable Pedigree: Online Colleges Proliferate; Are They Worthwhile?" *CBS Marketwatch*, 17 October 2000.

Massy, William F. and Robert Zemsky, "Using Information Technology to Enhance Academic Productivity," From *Educom National Learning Infrastructure Initiative White Paper Series*, 1995. <http://www.educause.edu/nlii/keydocs/massy.html>

Mendels, Pamela, "Online Education Gets a Credibility Boost," *New York Times*, 13 March 1999.

The National Learning Infrastructure Initiative. <http://www.educause.edu/nlii/>

Noble, David F., Digital Diploma Mills: The Automation of Higher Education, NY: Monthly Review Press, 2002.

Noble, David F., "Digital Diploma Mills, Part I – IV," November 1999. <http://www.communication.ucsd.edu/dl/>

O'Neill, James M., "For-Profit Temple Spin-Off Will Offer Online Courses," *The Philadelphia Inquirer*, 4 November 1999.

Rewick, Jennifer, "Off Campus," The Wall Street Journal, 12 March 2001.

Schiller, Dan, Digital Capitalism: Networking the Global Market System, Cambridge: MIT Press, 1999.

Stross, Randall E., "The New Mailbox U.," *US News.com*, 15 January 2000.

Svetcov, Danielle, "The Virtual Classroom Vs. The Real One," *Forbes Global*, 18 September 2000.

Traub, James, "Drive thru U, *The New Yorker*, 20 and 27 October 1997.

Traub, James, "This Campus Is Being Simulated," *The New York Times Magazine*, 19 November 2000.

Twigg, Carol A., "Improving Learning and Reducing Costs: Redesigning Large Enrollment Courses," The Pew Learning and Technology Program, 1999.

Twigg, Carol A., "The Need for a National Learning Infrastructure," From National Learning Infrastructure Initiative Monograph originally published in *Educom Review* Vol. 29, No. 4, 5, 6. <http://www.educause.edu/nlii/keydocs/monograph.html>

Twigg, Carol A. and Diana G. Oblinger, "The Virtual University," From *A Report from a Joint Educom/IBM Roundtable, Washington D.C., November 5-6, 1996*. <http://www.educause.edu/nlii/VU.html>

University of Illinois Faculty Seminar, "Teaching at an Internet Distance: the Pedagogy of Online Teaching and Learning." <http://www.vpaa.uillinois.edu/tid/report/tid_report.html>

Young, Jeffrey R., "Harvard Considers Limits on Teaching Online Courses for Other Institutions," *The Chronicle of Higher Education*, 25 April 2000.

Resource Allocation:

Dubeck, Leroy W., "Beware Higher Ed's Newest Budget Twist," *Thought and Action* (Spring 1997).

West, J. Anthony et al., "RCM as a Catalyst: Study Examines the Use of Responsibility Center Management on Campus," *Business Officer* (August 1997).

Whalen, Edward L., Responsibility Center Budgeting: An Approach to Decentralized Management for Institutions of Higher Education, Bloomington: Indiana University Press, 1991.

Corporate Management Practices:

Currie, Jan and Leslie Vidovich, "The Ascent Toward Corporate Managerialism in American and Australian Universities," in Chalk Lines: The Politics of Work in the Managed University, ed. Randy Martin, Durham: Duke University Press, 1998.

Schmidt, Jeff Disciplined Minds: A Critical Look at Salaried Professionals and the Soul-Battering System That Shapes Their Lives, New York: Rowman and Littlefield Publishers, Inc., 2000.

Sponsored Research:

Eyal Press and Jennifer Washburn, "The Kept University," *The Atlantic Monthly*, March 2000.

Minsky, Leonard "Dead Souls: The Aftermath of Bayh-Dole," in Campus, Inc: Corporate Power in the Ivory Tower, ed. Geoffry D. White and Flannery C. Hauck, Amherst, New York: Prometheus Books, 2000.

Minsky, Leonard "Greed in the Groves: Part II," *Thought and Action* Vol. XVI, Number 2,Fall 2000.

Noble, David "Science for Sale," *Thought and Action* Vol. XVI, Number 2, Fall 2000.

Students as Consumers:

Levine, Arthur and Jeanette S. Cureton, When Hope and Fear Collide: A Portrait of Today's College Student, New York: Jossey-Bass, 1998, excerpted in "The Privatization of Higher Education: Who is the Competition," PBS/The College Board, 1998.

Corporate Universities:

DeVeaux, Paul, "Life at Corporate U.," *E-Learning Magazine*, February 2001. <http://www.elarrningmag.com/issues/feb01/life.htm>

Gould, Eric, The University in a Corporate Culture, New Haven: Yale University Press, 2003.

Ince, John F., "Training Choices and E-Learning," *Upside Today*, 25 November 2000.

Johnson, Benjamin, Patrick Kavanagh, and Kevin Mattson, ed., Steal This University: The Rise of the Corporate University and the Academic Labor Movement, NY: Routledge, 2003.

Meister, Jeanne C., "The Brave World of Corporate Education," *The Chronicle of Higher Education*, 9 February 2001.

Soley, Lawrence C., Leasing the Ivory Tower: The Corporate Takeover of Academia, Boston, MA: South End Press, 1995.

Tracey, William R., "Accreditation of Corporate Colleges and Universities," *Corporate University Review*, January/February 1997. <http://www.traininguniversity.com/magazine/jan_feb97/accred.html>

Washburn, Jennifer, University Inc.: The Corporate Corruption of Higher Education, NY: Basic Books, 2005.

For-profit Colleges and Universities:

Strosnider, Kim, "For-Profit University Challenges Traditional Colleges," *The Chronicle of Higher Education*, 6 June 1997. <http://www.chronicle.com/che-data/…t-43.dir/issue-39.dir/39a03201.htm>

Wolfe, Alan, "How a For-Profit University Can Be Invaluable to the Traditional Liberal Arts," *The Chronicle of Higher Education*, 4 December 1998.