

Crossing Boundaries: Mass Higher Education in Multiple Perspectives

Sir Peter Scott

University of London

The theme of 'crossing boundaries' is addressed in terms of both personal biography and shifts in the nature of higher education institutions and systems. The author has moved over the past two decades from being the editor of a higher education weekly to becoming a professor and then vice-chancellor of a university in the United Kingdom (and now back as a professor), although his focus has remained throughout on the study of higher education. Over a longer time-scale the tectonic plates of higher education have also shifted, initially from elite to mass (and universal) systems in terms of access and more recently from 'public' to 'market' systems. The article attempts to weave together these two stories, the personal and the systemic, in the hope that one will illuminate the other.

Crossing Boundaries: Mass Higher Education in Multiple Perspectives

Academic writing shies away from the personal. Despite the urging to act and think reflexively, and the body of writing that suggests new knowledge is not exclusively produced through empirical research (Gibbons et al., 1994; Nowotny et al., 2001), most journal articles when reporting ‘findings’ seek safety in concept and theory, abstraction and generalization. Our individual responses are buried under layers of objectification. Certainly this is the case in the social sciences, even though the reproducibility of findings in these disciplines is inherently problematic. Context with its proliferating factors, too many to take account of in the design of most research projects, is one obstacle. Another is the personal dimension, because we are the objects of our own research whether as individual actors or as social agents. But personal response, although at the root of much of the scholarship in the humanities, is severely discouraged.

The approach taken in this article, therefore, is risky. It is an attempt to weave together a personal memoir – as a student, journalist, professor and higher education administrator – with an account of what has been happening to higher education over the same period (many of my examples, inevitably, are taken from the United Kingdom but my focus is much wider). The main reason for my choice is that both stories, my (tiny) personal experience and the (grand) experience of higher education over the past half century, have involved ‘crossing boundaries’, the theme of this issue of *Higher Education in Review*. And my confidence, however limited, that it might just work is based on the fact that I have done it before. Shortly after moving to the University of Leeds as a professor in the 1990s I was invited to contribute to a *festschrift* to honour my predecessor in the chair. I chose to write a double-narrative, of the rise of mass higher education in the UK (an uncomfortable and disjointed experience, for reasons that will be discussed later) and the decline-and-fall of ‘Fleet Street’ (in other words, of the traditional newspaper industry in the UK with its clanking Linotype machines and social behaviors deeply rooted back in Dr. Johnson’s ‘Grub Street’ in the 18th century) (Scott, 1995). Both stories were ones of radical transformation; both stories were of common phenomena across the rest of Europe, North America and many other world regions; both stories remain incomplete.

Europe and America

It is hardly an exaggeration to say that I discovered ‘higher education’ when I was a Harkness Fellow at the School of Public Policy at the

University of California Berkeley in the mid-1970s. I have to add the qualifier of ‘hardly’ because the concept of higher education, as opposed just to universities, had been familiar in the UK since the publication of the Robbins report in 1963 (but not earlier); and before I went to Berkeley I worked as a journalist on what was then a newly established weekly newspaper, *The Times Higher Education Supplement (The THES)* (roughly equivalent to *The Chronicle of Higher Education*). But the full force of what ‘higher education’ did, and could, represent had not hit me before I went to California.

I enjoyed a ringside seat. There was no room for me at the School of Public Policy, so I was found a desk instead at the then Carnegie Council for Studies in Higher Education, successor to the Carnegie Commission on Higher Education and still headed by Clark Kerr, ejected eight years before as President of the University of California by Governor Ronald Reagan. Despite, or because of, this he had gone on to become the great advocate of the multiversity, symbolizing in his own person the expansive hopes that Americans have always placed in the “college” experience. He took me under his wing, and so it came to pass that a 27-year-old journalist – and a “Brit” at that – was invited to meet the presidents of a good cross section of the major U.S. state universities as they dropped by to have lunch with Clark.

Two things, in particular, I learned in Berkeley. The first was that higher education was a ‘system’ – in two different senses: first, the articulations between different types of institution, and their networks and connections, were at least as important as the individual institutions themselves; and, secondly, the whole enterprise was imbued with a strong sense of public purpose. Of course, in California in the early days of the Master Plan, the idea of a higher education ‘system’ was at its most explicit (and confident); the intervening years of restrictions on state budgets, higher tuition fees and general enthusiasm for the market have tended to mess up ‘systems’ in the United States. But in the U.K. and the rest of Europe, we are still struggling to recognize ‘systems’ in the first place (I will say more about this later). The second thing I learned was that access and excellence are not, or need not to be, a zero-sum game. The world’s best higher education system was also the world’s most open system – and nowhere was this more clearly demonstrated than on the Pacific coast. Like many Europeans my instinct, although not my intellect or belief, had been that a choice had to be made; if you wanted a more open system, excellence would suffer or, if you wanted to preserve the excellence of your university system, you had to accept that a heavy price would need to be paid in terms of social equity and justice. Many people in the U.K., deep down, especially in the citadels of academic power such as

Oxford and Cambridge, still feel like this.

Years later when I had become the Editor of *The THES* these lessons were confirmed when, shortly before he died, I interviewed Lord Robbins, author of the 1960s report that recommended expansion (and from which I, as a student, had benefited). Robbins, I should explain, was a traditional economist who believed in markets and sound money and instinctively distrusted the fiscal profligacy of his older contemporary, John Maynard Keynes. Not an individual, in other words, who would have been expected naturally to warm to the idea of mass access to higher education – especially when influential opinion, cheer-led by *The Times*, had lined up behind the slogan of ‘more means worse’. So naturally I asked him why he, a natural conservative, had supported a progressive, even radical, line when it came to higher education. His reply has always stuck in my mind. He said that he had been most influenced by a remark made by his London School of Economics colleague, R. H. Tawney, a man of the left (who incidentally had been wounded, and left for dead, on the first day of the battle of the Somme). Tawney had spent the years of the Second World War attached to the British Embassy in Washington, and had told Robbins: “You should never underestimate how much America has been improved by the fact that so many of her people have had at least the smell of a higher education.”

Later still, after I had become a Vice-Chancellor, my non-U.K. experience focused more on the rest of Europe. I remember being present on that summer day in Bologna in 1998 when governments across Europe signed the declaration that created the European Higher Education Area (EHEA) and triggered the so-called ‘Bologna process’ which has now acquired a dynamic life of its own. Active in the European University Association (EUA), I often spoke at or acted as the general rapporteur for their conferences. I was also for seven years President of the Academic Cooperation Association (ACA), an organization that brought together European organizations concerned with international education such as the British Council and the German Academic Exchange Service. So I was able to observe close-up the efforts to establish – first, national “systems” (because most European countries did not really have higher education systems and had continued to make a sharp distinction between universities, classical and technical, and the rest); then, a European “quasi-system” under the impetus of Bologna; and, finally, to describe what was essentially “European” about those systems and that system. This last task involved working through an intriguing dialectic between the innate conservatism, and elitism, of most European universities and the deep-rooted inclination to maintain “welfare states” on the part of most European governments (even

those led by conservative political parties). The result was a formula that reached back into European history for validation of the identity of universities but at the same time emphasizing the “social dimension” of higher education.

So much for the personal. In the past half-century both U.S. and European higher education systems have crossed the boundary from elite to mass higher education, the former between 1945 and 1960 and the latter from the 1960s onwards. The standard account of this transformation was that of Martin Trow (1973) who defined elite higher education systems (in practice, university dominated systems) as those that enrolled up to 10 percent of the relevant age group; mass systems as those enrolling between 10 and 40 percent; and universal systems with enrollment rates of more than 40 percent. Two things were notable about that account – first, it was linear (one stage succeeded another in an apparently inevitable sequence); and secondly, it was expressed in quantitative terms (enrolment rates). There was also at least a hint, or implication, that the whole process was steered by a guiding intelligence, whether state governments or (more probably) a broader coalition between federal and state governments, institutional leaders and civil society organizations. Master plans hovered on, or just off, stage.

This account, or versions of it, remained dominant until the end of the 20th century, and still commands scholarly respect. Other accounts of the development of higher education, while not directly addressing this quantitative model, were largely complicit with it. For example, the work of Burton Clark (2008), extending over half a century, offered equally functionalist explanations. A few attempts were made to offer more nuanced, pluralist and contingent accounts, including my own which emphasizes the “meanings,” firmly in the plural, of mass higher education (Scott, 1995).

Today the implied universal applicability of Trow’s (and Clark’s) accounts has been eroded – in both temporal and spatial terms. In terms of time, the *zeitgeist* of the early 21st century is unsympathetic to notions of linearity and quantification. Angularity, risk and “difference” are now the dominant motifs. In the U.S., master plans have been hollowed out as state budgets have shrunk. The private sector has bounced back, most raucously in the form of for-profit institutions such as the Apollo-owned University of Phoenix. Participation has stalled. National, let alone state, higher education systems have been swallowed up by the global knowledge industry. More broadly the guiding intelligence of the state has been replaced by the ‘hidden hand’ of the market.

The spatial differences are just as significant, as a comparison with Europe suggests. In Trow’s terms, nearly every European system is

trembling on the brink from being mass to becoming universal in terms of enrolment and participation (EUA, 2010). But it feels more complicated than that. In most other respects these systems are unlike the U.S. prototypes of the 1960s – and not simply, or mainly, in terms of structural differences (such as the almost total absence of liberal arts colleges and the lack of a defined category of research universities in Europe). The most significant difference perhaps is the persistence of elite characteristics, whether very low wastage, or attrition, (as in the U.K.) or the lack of actual, as opposed to formal, articulation between universities and other higher (or tertiary or post-secondary) education institutions. Another is a guilty recognition of the regressive alongside the progressive effects of mass expansion, as a new “graduate class” consolidates its economic and cultural capital consigning non-graduates to increasing marginal positions in the labor market. A third, also observable in the U.S., is the shadowy emergence of a new “binary” system, composed of a “closed” sector of traditional institutions well resourced still and offering high returns and an “open” sector of mass institutions characterized by intermittent study and high wastage and often offering low returns in terms of future earnings.

The key to understanding mass higher education, therefore, appears to be recognition of contingency. Grand theoretical *schemas* have their limits. Rather than seeking regularity in terms of quantitative indicators or (broad-brush) structural descriptors, a better path to understanding modern higher education systems may be to embrace difference and particularity. Of course, it is not enough to produce discrete and incommensurable accounts of higher education developments in different countries – and leave it at that. There is a need to harness these cumulative accounts into a broader understanding. The bounce-back of private providers in the US (at the mass rather than elite end of the ‘market’), the efforts to integrate European higher education through the Bologna process, the rise of trans-national higher education on the global plane – all three are aspects of a more general developmental trajectory that higher education is following as the 21st century unfolds. Rich-in-detail accounts of these phenomena, and others, can be built up to develop that broader understanding and identify that developmental trajectory. A new account of mass higher education is needed that reflects 21st-century fluidities rather than 20th-century linearities, that is more global and less “American” (or maybe Californian), that is more qualitative than quantitative, and that recognizes its regressive as well as its progressive effects. We owe it to Martin Trow, Burton Clark, and their contemporaries.

Policy, Management, and Organization

The boundaries I have crossed are not confined to passage of the Atlantic, and then the American continent. Equally important are the switches from being a journalist at *The THES* to becoming a professor at Leeds, and then from being a professor to becoming a higher education administrator (first at Leeds as a Pro-Vice-Chancellor – roughly the equivalent of a Vice-President, but still a part-time post combined with academic duties; and then as Vice-Chancellor – President and Provost rolled into one – at Kingston University in the southwest suburbs of London). Later I served for six years (2000-2006) as a member of the board of the Higher Education Funding Council for England (HEFCE), the successor body to the University Grants Committee that is supposed to act as a buffer between universities and the State and distributes public grants to all England's universities. Now I am back being a professor at the Institute of Education in the University of London, although I also serve as the chair of the council of the University of Gloucestershire, one of a small number of church-linked universities, although most U.K. universities are ruthlessly secular.

Despite this multiple crossing of boundaries – from journalism, to university research and teaching, to university management, to national policy-making, back to research and teaching (and a governance role) – the object of my attention has remained fixed throughout. Its focus was, and is, the evolution of the U.K. higher education system, in the context of national policy and of institutional management and governance. And not just the U.K. system, because during that period (the last two decades) not only did the wider European dimension become increasingly significant, but the globalization of higher education switched from a theory to day-to-day practice in most universities. When I was a journalist I wrote about policy; I still do today as a professor (although less succinctly). As a professor, university manager, and chair of council, my focus is on institutional strategy and also the much slower evolution of organizational cultures. But, although the topic(s) have remained the same, my perspectives have shifted dramatically. If it had been an action research project, the opportunities I would have had to triangulate (and more) my “findings” would have been almost unparalleled.

Two overwhelming impressions remain with me. The first is the remorseless advance of the State – a bewildering paradox at a time when the State is supposed to be shrinking to be replaced by a triumphant “market”. Let me illustrate this with two personal anecdotes. In 1981, in the early years of Margaret Thatcher's government, public expenditure across government

was savagely cut back. Universities were not exempt. But the detailed distribution of these cuts was the responsibility of the UGC, and politicians were kept at arm's length. The UGC was the 'buffer', celebrated as a unique mechanism for reconciling State funding with institutional autonomy (Berdahl, 1959). As a journalist with an urgent deadline, I was given all the details by Edward Parkes, then the UGC chairman, a full two days before the Secretary of State for Education, Mark Carlisle, how the cuts would fall – controversially, as it turned out, because some universities had their budgets cut by 40 percent, while others actually had budget increases. That was then; now is now. Two years ago at Kingston we hosted a mid-level civil servant on a brief secondment, or "immersion" course, designed to familiarize civil servants with the grit of institutional life. A few weeks later, her line manager wrote to thank me. His letter contained an all-too-revealing phrase about how much she had enjoyed spending time in a "delivery organization". In less than 25 years, U.K. universities have travelled a long way – from being regarded as necessarily protected from day-to-day political pressures to becoming delivery organizations for political agendas. My experience of the rest of Europe and the U.S. suggests they are not alone.

My second impression is of the irresistible rise of university management, the administration in American terms. My first Head of Department referred to administrators as the 'clerks' (a step-up from the 'pond life' label later used by a good friend, and very distinguished clinician and professor, to describe hospital administrators!). Although such views may well still be widespread, they are now more discreetly expressed. When I was a Pro-Vice-Chancellor at Leeds, this was my "day job"; I was still expected to take classes in the evening and bid successfully for external funding to maintain my research team. Today most senior management roles down to and including Deans, have become full-time executive posts. Only faint echoes of the old order of university management remain. For example, many U.K. Vice-Chancellors would still bridle at the suggestion that they were part of the "administration"; their formal standing as academics – or faculty members – is still an important element in their personal identities. Recent research in the U.K. even suggests that there is a direct causal relationship between the research performance of universities and the scholarly eminence of their vice-chancellors (Goodall, 2009). I felt exactly like that when I was a Vice-Chancellor, unfairly playing subversive games aimed at my colleagues in the administration to assuage my guilt about "changing sides" (another version perhaps of crossing boundaries).

Once again, enough of the personal. It is one of the paradoxes of the development of modern higher education systems that, so often, privatization

has gone hand-in-hand with politicization. In the U.K. universities receive a dwindling proportion of their income from the State (and will receive even less when tuition fees are tripled in September 2012). But they have never been more subject to regulation – on academic quality and standards, through regular institutional audits conducted by the Quality Assurance Agency (in theory co-owned by the universities but in practice a creature of the State); on financial viability, through legally binding ‘financial memoranda’ with HEFCE; on student satisfaction, through an annual State-imposed national survey; on freedom-of-information legislation, from which private corporations are exempt. The list can readily be extended. The same phenomenon can be observed across Europe. As universities cease to be embedded in state bureaucracies and are granted new (operational) autonomy, they are subject to new and often intrusive accountability regimes.

There are a number of explanations of this apparent paradox. One is that the 20th-century welfare state was a provider of public services (and the bulk of funding for higher education); the 21st-century regulatory state is a regulator of services, privately provided or newly privatized and increasingly dependent on user payments. At a more theoretical level this shift can be linked to new representations of risk and new capacities for audit (Beck, 1992; Power, 1999). An important change is the growth of the “third sector” – not the rightly celebrated “civil society” of civic and voluntary organizations; but the borderland between the State and the market occupied by public services that have been privatized and private-sector activities that are ever more heavily regulated. Increasingly universities are part of this (new-style) third sector – at the same time marketized and politicized.

A second explanation is that in the rapidly developing global knowledge economy universities, as leading producers of higher professional skills and advanced research, are on the front line. Major research universities are regarded as global players, powerhouses of science and technology (and also perhaps as “trophy” institutions in terms of national prestige). Other higher education institutions are regarded as key components of “clever cities” where innovation and enterprise flourish (Florida, 2002). The explosive growth of global league tables is further evidence of the importance of higher education in the eyes of nation states. In Europe a range of initiatives have been taken to strengthen nations’ competitive position. In the U.K. research funding has concentrated on fewer and fewer universities, principally the so-called “golden-triangle” of Oxford, Cambridge and London; in France networks of university *pôles* have been established; in Germany the *Excellenz* initiative has been launched; in Romania a tripartite stratification

of universities has been imposed (reminiscent of U.S. state master plans).

The rise in most higher education systems of what is often pejoratively labeled “managerialism” also appears to be an irresistible trend (Deem, 2008). In descriptive terms, the story is straightforward enough.

Governance

Europe has been playing “catch-up” with the U.S. In the U.S., lay governance of universities is routine with boards of regents and trustees accepting primary responsibility. In Europe the picture has been more complicated. In the U.K., with the important exceptions of Oxford and Cambridge where academic government still prevails, universities are governed by councils with majorities of lay members. However, it is probably fair to say that only recently have these councils taken on more active and strategic roles as opposed to the more passive and essentially fiduciary responsibilities that were once the norm. In many other European countries large, unwieldy and often politicized councils (many of which were established in the wake of the *événements* of the 1960s to promote academic democracy) have often been replaced by much smaller quasi-executive boards on the U.S. and U.K. model. A key issue is how presidents, rectors or vice-chancellors are appointed – by boards following an executive search process, by much wider university communities through some form of election or by Ministries (although, in practice, Ministers have rarely attempted to reverse universities’ own choices).

Management

Traditional forms of collegial decision-making have gradually been replaced by (or subordinated to) new forms of executive management. In the U.S. it has long been accepted that presidents, vice-presidents and deans should be full-time executive posts; the issue has generally been the extent to which they are to be held accountable to the wider academic community. In Europe the government “of academics, by academics and for academics” is strongly defended (and, in practice, was strengthened rather than weakened by the “subordination” of universities to state bureaucracies). The more recent adoption of more executive forms of management is related to region – more common in the U.K., Scandinavia, and the Netherlands; and less common in southern Europe – and to type of institution – most common in recently established universities, those with a strong professional focus and in other higher education institutions; and least common in traditional universities. But even in regions and institutions where managerialism has been strongly resisted the direction-of-travel is clear. Most leadership roles

have been turned into full-time executive posts (effectively if not legally); more, and more influential, professional managers have been appointed (for example, in finance and human resources); and the influence of senates, academic boards, and councils has been diminished.

However, in analytical terms, two different explanations of the rise of managerialism are available. The first emphasizes structural reasons – for example, the scale and complexity of modern universities, the proliferation of stakeholders, or the heterogeneity of their teaching and research programs. In these circumstances what Burton Clark called a “strengthened steering core” is clearly needed (Clark, 2000). The days when Clark Kerr could describe, even in jest, the university as a set of “faculty entrepreneurs held together by a common grievance over car-parking” are long gone (Kerr, 1966). According to this first explanation managerialism is essentially a response to the evolution of the university and its internal dynamics. In contrast, the second explanation sees the rise of managerialism as a normative shift, largely in response to external dynamics. This shift has two main strands – the waning of a sense of the “public” as the organizing principle of mass higher education systems and its replacement by the principle of the “market”; and the increasing popularity of “knowledge society” discourse which emphasizes the role of higher education and research systems as primary producers of wealth (and, with less emphasis, social well-being). Both strands suggest that universities must be managed as “knowledge corporations”, operating in a global marketplace. Whichever explanation is preferred, the structural or the ideological, universities are crossing, or have crossed, boundaries in their governance and (especially) management – and there is no way back to the old ways, despite the quiet despair of many senior professors. But patterns of governance and management will continue to evolve.

Dissolving boundaries?

Moving from being a journalist to become a professor (and later a higher education administrator) seems to be a clear example of crossing boundaries. It certainly felt like that. In retrospect I have begun to wonder – for two reasons, some relatively trivial and the other more fundamental.

The trivial reason is that looking back I now realize that the sense of alienation I experienced when I moved from *The THES* to the University of Leeds arose as much from differences of social habitats as from more deep-rooted causes. For example, newspaper time and academic time are very different. As I found, meeting iron deadlines is easier than managing

extended research projects with indicative time-lines. Also command structures in the media are clear and explicit; in universities they are fuzzy and often tacit. At Leeds I had to “crack the code” to understand the social norms of academic life and behave accordingly – not easy for a refugee from Times Newspapers then (and still) owned by Rupert Murdoch’s New Group, a black-and-white world in which you either decided things or they were decided for you. On reflection, this reason is not entirely trivial. Our *habitus*, in Jürgen Habermas’s word, frames our existence in powerful ways.

The more fundamental reason is that higher education has been sucked into a wider world of media. Universities arguably are just one of a range of communicative institutions, no longer special. This is expressed in many ways. One is the attention that nearly all universities pay to developing their “brands”, especially in the global marketplace but also to stimulate alumni giving (Drori, 2011). A second is the media penetration of learning and teaching in higher education. Initially large-scale web-based learning management systems were developed to aid asynchronous study and to encourage interactivity; now more emphasis is placed on social networking. A third example is the increasing pressure on universities to demonstrate the “impact” of their research – to satisfy the requirements of funders or to feed their own marketing needs. A fourth, and perhaps more questionable, example is the growth of interdisciplinary programs focused on “issues” rather than bodies of knowledge, and of new modes of learning focused on “problems” (and their solutions). Both issues and problems are likely to be defined within a socio-economic environment deeply influenced by media representations. A fifth example is the transformed role of “public intellectuals” once firmly located in higher education and the upper reaches of the traditional media, but now distributed promiscuously across the academy, think-tanks, management consultants, and politics.

Assessing the significance of this “mediatization” of higher education is not easy. In terms of personal experience, I have observed its spread. When I was a Pro-Vice-Chancellor at Leeds one of my responsibilities was “external affairs”, at that time restricted to marketing to support student recruitment, press and publicity, and relations with partners, local and international. My component of the University’s administration was a kind of Foreign Office or Department of State. Now mediatization has become a more pervasive phenomenon – managing not just reputation but identity; transforming student learning; guiding research priorities and even practices. Enthusiasts for post-modernism, of course, would have no difficulty in offering their analysis. Not only has higher education been sucked into mediatized culture characterized by fluidity, reflexivity, spontaneity and “difference”; it has also

been a major component of that mediatization. On the other hand, more solid accounts of knowledge society would suggest that higher education and research systems have become fully incorporated in this new form of society – not only as producers of skills and knowledge; but also as key agents of communication and connectivity.

Crossing boundaries is the theme of this issue. As has already been discussed, standard accounts of the development of contemporary higher education are cast in precisely these terms – a series of frontiers which higher education has crossed in the course of its development. In most cases these frontiers are defined in quantitative terms – enrolment ratios or participation indices (or class sizes, drop-out rates, citation counts and so on). Occasionally these frontiers have been expressed in more qualitative terms. One example is speculation about the growth of a new graduate class to replace older identifiers based on social class, ethnicity or gender. But the metaphor of forward movement, of crossing boundaries, remains intact. In particular, the bounded character of higher education and research systems, and the integrity of the university (or college) as a values-defined and functionally determined institution, remain intact despite the mass expansion of the past half century and the shift “beyond modernity” in the economy, society and culture.

However, the time may have come to interrogate these foundational assumptions – that the higher education and research systems can be categorically distinguished from other systems (most notably, the global knowledge-based economy); that the university continues to be a unique institution (despite its internal transformations in terms of student base, learning culture, and research practice); and, in particular, that clear frontiers remain that must be crossed. Perhaps a new kind of language and new metaphors are needed that emphasize the fuzziness, even transgression, of systemic categories and the dissolution of boundaries, an awkward, but not impossible, thought.

References

- Beck, U. (1992). *Risk society: Towards a new modernity*. London, England: Sage.
- Berdahl, R. (1959). *British universities and the state*. Cambridge, England: Cambridge University Press.
- Clark, B. (2008). *Creating entrepreneurial universities: Pathways of transformation*. Oxford, UK: Pergamon.
- Clark, B. (2008). *On higher education: Selected writings 1956-2006*. Baltimore, MD: Johns Hopkins University Press.
- Deem, R., Hillyard, S., & Reed, M. (2007). *Knowledge, higher education and managerialism: The changing management of UK Universities*. Oxford, England: Oxford University Press.
- Drori, G., Delmestri, G., & Oberg, A. (2012). Branding the university: Relational strategy and identity construction in a competitive field. In L. Engwall & P. Scott (Eds.), *Trust in higher education*. London, England: Portland Press.
- Florida, R. (2002). *The rise of the creative class*. New York, NY: Basic Books.
- Gibbons, M., Limoges, C., Nowotny, H., Schwartzman, S., Scott, P., & Trow, M. (1994). *The new production of knowledge: The dynamics of science and research in contemporary societies*. London, England: Sage.
- Goodall, A. (2009). *Socrates in the board room: Why research universities should be led by top scholars*. Princeton, NJ: Princeton University Press.
- Kerr, C. (1966). *The uses of the university*. Cambridge, MA: Harvard University Press.
- Nowotny, H., Scott, P., & Gibbons, M. (2001). *Re-thinking science: Knowledge and the public in an age of uncertainty*. Cambridge, England: Polity Press.
- Power, M. (1999). *Audit society: Rituals of verification*. Oxford, England: Oxford University Press.
- Scott, P. (1995). *The meanings of mass higher education*. Buckingham, England: Open University Press.
- Scott, P. (1995). Reporting academics: A memoir of The Times Higher Education Supplement. In E. Jenkins (Ed.), *Festschrift for Professor Peter Gosden*. Leeds, England: University of Leeds Press.
- Scott, P. (2012). Going beyond Bologna: Issues and themes. In A. Curaj (Ed.), *European higher education at the crossroads: Between the Bologna process and national reforms*. Bucharest, Romania: Springer.
- Trow, M. (1973). *Problems in the transition from elite to mass higher education*. Berkeley, CA: Carnegie Commission on Higher Education.

The Higher Education System: Academic Organization in Cross-National. Perspective, by Burton R. Clark, Berkeley and Los Angeles, University of California. Press, 1983. John Brennan*. Centre for Higher Education Research and Information, Open University, London and Milton Keynes, UK. systems and institutions, one can note a weakening of boundaries both within higher. education institutions and between them and other institutions of society. Arguably, there has. Mathematics education Technology Instrumentation Semiotic mediation Theoretical perspectives in technology-related research in mathematics education. This is a preview of subscription content, log in to check access. References. Characterizing the use of mathematical knowledge in boundary-crossing situations at work, Mind, Culture, and Activity, 14(1&2), 64-82. Google Scholar. Kidron, I., & Dana-Picard, T. (2006). The discrete continuous interplay. Research on technology in mathematics education: A perspective of constructs. In F.K. Lester Jr., (Ed.), Second Handbook of Research on Mathematics Teaching and Learning (pp. 1169-1207). Charlotte, NC: NCTM and Information Age Publishing. Google Scholar. One of those industries is higher education. The traditional model, including in-person lectures and learning, physical participation in college activities, and on-campus social engagement, has been a mainstay for most higher education institutions for hundreds of years. Then, a pandemic hit. Campuses closed. As these new models based on hybrid learning take root, how can higher education institutions maintain existing academic standards, deliver degree and research programs, increase revenue, and transform their funding models in a post-pandemic world? Reducing Costs While Maximizing Experiences. Administrators around the world are asking: "How can I provide the best student and faculty experience, while adjusting budgets within my institution?"