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ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT

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- to facilitate a wider dissemination of practical management methods and approaches.



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Prof. Michael Shattock
Higher Education Management and Policy
OECD/IMHE
2, rue André-Pascal
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The Dynamics of Massification and Differentiation: a Comparative Look at Higher Education Systems in the United Kingdom and California[1]

by
John Aubrey Douglass
UC Berkeley, United States

US higher education and distinct state systems such as in California offer comparative models for UK higher education. This essay provides a comparative analysis of US and UK higher education, followed by a description of the development, and contemporary structure of California's system. California offers a broadly accessible network of colleges and universities that are highly differentiated, and that collectively offers multiple routes to a higher education program and degree. It has also proven highly efficient in costs to taxpayers and students. This model provides a lens for an evaluation of the strengths and weaknesses of UK higher education, and in particular the highly decentralised systems in England and Wales. But in looking to California for possible inspiration, a few words of caution are offered. California may provide ideas about differentiation, governance, access and cost containment. It does not, however, offer much in regard to the difficult process and politics of reorganising or modifying significantly developed higher education systems like that in the United Kingdom.

Nation systems of higher education need sufficiently stable organisational structure levels of funding to support and sustain high quality academic programs. Yet these systems must also have organisational flexibility to meet new and expanding societal demands, and to on occasion anticipate them. One might argue that the contemporary proliferation of higher education reforms by nation-states seeks this equilibrium, conditioned by their historical mix of tertiary institutions, their contemporary political culture, and, increasingly, international models.

In the following, California's higher education (HE) system is used as a comparative resource for an analysis of HE in the United Kingdom, and with implications for other OECD countries. In this analysis I offer a general review of participation rates and the structure of American higher education. California's system then provides a source for investigating the contrasts and similarities with the UK system. Arguably, no other state in the Union has such differentiated and affordable network of public colleges and universities, many of which are of world-class quality.

California may not provide a direct model applicable to the circumstance and culture of UK higher education, or to other members of the OECD. But it does offer a platform for discussing issues relevant to policymakers, including financing, fees, governance, mission differentiation, costs containment, and the mutual challenge of expanding enrolment capacity and programs. While there are many differences between national systems of higher education, there also is a growing number of similarities in the problems related to managing mass HE and seeking methods for funding their growth. The following focuses on the structure, dynamics, and problems of California's system, and then offers a series of observations on HE in England.

Contrasts in US and UK mass systems

In the following exploration of the US system, I focus on patterns of student enrolment as indicators of demand and supply. However, as a prologue three important differences in the UK and American systems are briefly explored. There are major differences within the United Kingdom, in particular in regard to Scotland and Northern Ireland. Most of the following discussion is focused on England and Wales which, combined, enrol 89% of student in the United Kingdom.

A holistic versus bifurcated view on what constitutes higher education

What exactly constitutes higher education in the UK and American systems? There are a number of important structural mismatches that qualify such an analysis. In the United States, post-secondary education is deemed as beginning at age 18, and normally following graduation from high school. Tertiary education in all its forms is historically viewed as part of the higher education system. One might label this a *holistic* view, lumping a great variety of post-secondary institutions and programs under the label of higher education – what is more generally known in the European Union as tertiary education.

This is in part reinforced by the highly mobile nature of students: they may start in a community college, but end up a university student. The result is a strong sense of mutual interests among tertiary institutions, shared accreditation processes, professional associations, lobbying efforts, and a reasonably coherent approach to data collection and analysis of higher education systems.

Certainly there exist different academic statuses for each type of institution and their faculty. No sensible structure of higher education can forgo some sense of a caste structure. Within the American market, the *zeitgeist* proclaims that different institutions can excel in their own particular and publicly appointed niche. Among academics and generally among Americans, this notion mitigates and qualifies the general sense of a hierarchical structure of institutions.

In the United Kingdom, higher education also begins at 18. But there is a *bifurcated* view that clearly marks the difference between university education and the vocational orientation of the Further Education (FE) sector – in culture, in data collection and analysis, and in parallel networks of faculty and administrators. This is in part influenced by a more rigorous idea of higher education. Universities are engaged in advanced learning and research, and FE colleges are not. There are students who are university bound, and also a large portion whose education begins and ends in the FE sector.

But an equally important factor in the segregation of FE is the sector's significant role in educating students in the 16 to 18 year old cohort – the age equivalent of the last two years of secondary schooling in the United States. Some 90% of students who complete compulsory schooling that ends at age 16 in the United Kingdom go on to some form of education or training, many into the FE sector. Some observers equate the academic experience of UK students in the sixth form as equal in academic rigor to the first two years of college (post-secondary) education in the United States.

This FE hybrid (an institution providing both formal secondary schooling, vocational programs, and higher education courses, henceforth defined as

tertiary education beginning at age 18) simply does not exist in the United States. A Labour government initiative plans to significantly expand the role of the FE sector in providing post-secondary and advanced courses and degrees. (NCIHE, 1997) Of the total of 3.1 million students in the FE sector, only 241 000 (7%) were enrolled in courses leading to higher education qualifications in the 2000-2001 academic year. Most colleges continue to focus on vocational education and to a much less extent preparation for the AS and A2 Levels for university admissions. (HESA, 2002; DfES, 2002)

Government finance and enrolment plans suggest that well over half of enrolment growth in England should come in the FE sector. Much of this growth will include students enrolled in relatively new "Foundation Degrees" – a post-secondary, vocational or professional 2-year program offered by FE but awarded by partner UK universities. (DFES, 2001) Current HEFCE funding schemes provide financial incentives for expanding these partnerships and, it is hoped, expanding access and enrolment numbers. But thus far the interest of universities and most FE in these types of relationships is relatively small. Just as important the demand for FE higher education programs in general appears weak.

Differing opportunities for matriculation

The differing paths open to students in their transition from secondary to tertiary education offer another important contrast. In simple terms, there are large differences in the timing of decision-making by students and their choice of institutions.

The US system tends to be more flexible and pushes decision-making by students later in their lives. There is a relatively uniform secondary education program that ends at age 18 – although there exists, as in the United Kingdom, wide discrepancies in the quality of secondary education. At this point, students decide whether to apply and possibly enter a tertiary institution. They potentially have multiple points of entry to different types of institutions – some liberal arts, some vocational, some with a mix of programs, and often with the option to transfer mid-stream in their tertiary career.

Beyond the age of 18, there are other multiple opportunities to enrol in not just vocational programs but courses that lead to a bachelor's degree. In the United States, for example, there is a vast network of community colleges that offer a two-year post-secondary program. This includes vocational courses leading to credentials – not unlike the Foundation Degree. Other academic programs lead to an Associate of Arts (AA) Degree. This qualifies a student to enter a college or university at the junior year (3rd) of a four year program leading to the Bachelor's.

Many post-secondary graduates go into community colleges and then matriculate. But there are also a large number of students who enter the job market, and then return to a community college or a state university to complete their bachelors. Some of these students then matriculate to a graduate education.

In contrast, in the United Kingdom, in particular England and Wales, a university or vocational track is a decision made at the age of 16 for the vast majority of students. Once made, there are few options. Recent figures by the OECD point to the significant problems in the UK educational ladder. Through the age of 16, the United Kingdom has an extremely high average number of years of formal education. Arguably the new national curriculum provides a solid base for encouraging students to continue their education. While many students go on to a FE institution, the overall drop out rate at age 17 is extremely high, placing the United Kingdom 20th among the OECD countries.

At age 18, the United Kingdom rates a poor 22nd against its OECD competitors in the number of students still engaged in formal education – whether it be vocational or university bound. The result is a much smaller pool of potential higher education students in the United Kingdom when compared to the United States. The percentage of the entire population that attains a secondary education at age 18 provides one indicator of this dynamic: in the United States it is 88%, while in the United Kingdom it is only 63% – close to the OECD average (OECD, 2002)

Differing undergraduate education structures

A third and related difference is the structure of academic degree programs offered by the respective tertiary systems. In the United States, colleges and university courses leading to a bachelor's degree are almost exclusively four-year program. Those who enter a liberal arts program generally do not know what area they will specialise in, and most will not decide until their junior (3rd) year. They generally apply to liberal arts institutions based on their academic accomplishments in a wide area of required courses, and standardised test scores focused on general knowledge and skills.

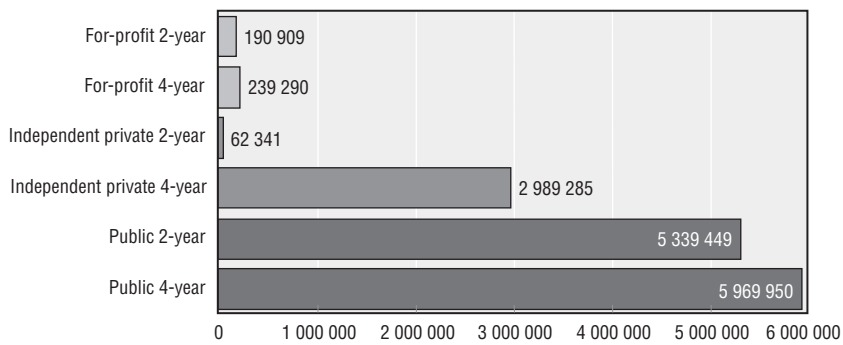
In the United Kingdom the bachelor's degree is usually a three-year program with a number of important exceptions. Most science courses, such as Physics and Chemistry, and engineering are four-year programs. The entire university program is highly specialised in a specific field of study. The UK's focus on a more select college tracked program between the ages of 16 and 18 allows for the historical paradigm of students taking subject specific exams, and applying for entrance to discipline specific courses. Figure 1 provides an outline of the comparative structure of US and English HE.

Table 1. **A comparative view of United States and England/Wales higher education structures**

	United States	England/Wales
Pipeline: Secondary Systems	Largely Public/Significant Private Sector Institutional Types: 4 Year Public/State High Schools 4 Year Private/Independent High Schools	Largely Public/Significant Private Sector Institutional Types (England, Wales, NI): State Comprehensive/Special (to age 16) State Comprehensive (to age 18) Further Education Colleges (Ages 16-17) Independent Schools and Colleges
Access/Undergraduate Admissions	Open Access Age 18>: Community Colleges Selective Colleges and Universities: High School Diploma (Age 18) plus Standardized Test Scores (Age 17-18)	Open Access Age 16>: Further Education Selective Universities: GCSEs Exam (Age 16) plus A-Level Exams (Age 17-18)
HE Institution and Systems	Largely Public/Significant Private Sector Institutional Types: 2-Year Community Colleges Teaching Colleges and Universities Research Universities	Public/No Major Private Sector Institutional Types: Further Education Research Universities
Academic Programs	2 Year AA degree (Liberal Arts) & Vocational 4 Year BA/BS Professional Degrees Masters and Ph.D.	Further Education/Vocational 3/4 Year BA/BS Professional Degrees Masters and Ph.D.

Source: author

Figure 1. **US Higher Education Enrolment by Sector Accredited Degree Granting Institutions: 1999**



Source: U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System, 2002

US and UK patterns of participation and enrolment

The United State and the United Kingdom, and most of Europe, share a great national interest in developing and sustaining widely accessible higher education systems. The United Kingdom and many European countries are now approaching and in some cases surpassing higher education participation rates found in the United States, particularly in the traditional age cohort. The United Kingdom has around 30% of the 18 to 24 year olds in some form of higher education. In the United States the number is around 36%, and states like California have around 38%.

But there are some important differences in participation and degree completion. In the United States, the surge of post-World War II enrolment growth began with large scale increases in the traditional college age cohort. More recent trends, however, show moderate increases in participation among students under 24 years of age. This age cohort remains the largest single market in American higher education.

But between 1970 and 2000, the most rapid increase in participation has been among part-time students over the age of 30 years – an indicator of the essential role of life-long learning in post-modern economies. (USDE, 2002) In the United Kingdom, most growth over the last decade has been among the 18 to 24 year old cohort, and most as full-time students. Between 1989 and 2001, participation in the United Kingdom by this cohort has increased from approximately 15% to 33%. This is a dramatic increase in such a short period of time.

But can this pace be continued? There is a sense among many higher education analysts that demand has stabilised. While there is the question of how adequate resources can be generated to continue the New Labour drive toward higher participation rates among 18 to 30 year olds, there are some critics who sense that market demand is nearly quenched. Why?

Pundits postulate a number of factors. One conjecture is that savvy consumers (students and their families) see the limits of a higher education as a vehicle for employment in the current economy, and weigh the loss of income in pursuing full-time further education and university degrees. The push for wider participation by New Labour is, in the view of critics like Alison Wolf, a myopic and politically driven policy full of clichés regarding the "knowledge economy" – an unknowing oversell of the relevance of higher education degree in the current and future job market. (Wolf, 2002)

Yet one might argue that the larger reason why the market demand for higher education in the United Kingdom may have stabilised is more related to the structure of UK higher education which, thus far, affords few options beyond a formal three to four year residential university education.

There are great differences in the organisation of the higher education systems in the United Kingdom and the United States. It is widely understood that the US system offers a mix of public and private institutions, and a greater variety of institutional missions, while the United Kingdom has a binary public model of FE institutions and universities, with the added element of the distance-learning model of the Open University.

Figure 1 provides a summary of enrolment within all 50 states by the undergraduate degree program – two year institutions or four year institutions, most of which also provide graduate programs – and by their status: for-profit, independent or private, and public. This glimpse of the market demonstrates the dominance of the public sector in providing both two year college and four year university programs. Approximately 76% are in the public sector. The independent sector, accredited institutions such as Stanford and Harvard and a vast array of small colleges, is focused almost exclusively on the four-year sector and enrols approximately 20% of all students in the United States.

For-profit institutions with accreditation, like the University of Phoenix, are a growing sector, yet they remain relatively small in the overall enrolment when compared to the public and independent sectors. They account for only 4% of all enrolment in degree granting institutions. These institutions are also largely focused on niche markets of vocational and professional programs that are relatively low cost to operate, and for which moderate to high fees can be charged. Thus far, these providers have not significantly influenced the market for public institutions, in part because the market for educational services is growing rapidly.

California's system: institutions, access, and costs

California offers an interesting model for massification for three major reasons:

- its early innovation of a coherent public higher education system;
- an aggressive effort to expand access while also building generally high quality academic programs;
- political dynamics of continued population growth and rising demand for higher education programs, research, and public services.

A long-term commitment to broad access and the productivity of California's higher education has bolstered socio-economic mobility, and is an integral reason for California's emergence as the sixth largest single economy in the world.

Differentiation of missions

As early as 1920, the state developed three distinct and geographically dispersed and multi-campus public segments, each linked by matriculation agreements. In most other states, the proliferation of public and private institutions failed to generate a broader vision regarding how these institutions would relate to one another or collectively serve the social and economic needs of their people.

By most measures and when combined with a relatively small but high quality group of private colleges and universities, California's higher education system is a dramatic success. Over much of the past century, the state often led the nation in the number of students who graduated from high school and then enrolled in postsecondary education. The public tripartite structure also proved tremendously cost efficient. The cost to taxpayers has historically been around the national average, even as the system has undergone a series of major expansions in enrolment, new campuses, and program growth.

Equally important, the tripartite system consists of some of the highest quality public institutions in the nation, indeed the world. Today, this public structure includes:

- The University of California (UC): a semi-autonomous and constitutionally protected "public trust" (not unlike UK universities), governed by the Board of Regents, with nine campuses and a tenth under development. UC is *state-wide* in its mission, providing a broad range of undergraduate programmes and advanced graduate and professional education degrees, and is the state's primary research and public service institution.
- The California State University (CSU): a set of twenty-four primarily *regional* campuses under a Board of Trustees, CSU also provides undergraduate education leading to bachelor's degrees, and has primary responsibility for instruction up to master's level and for teacher training.
- The California Community Colleges (CCC): With 107 campuses, these "open door colleges" serve *local communities*, providing primarily two-year, lower-division undergraduate liberal arts degrees for students planning to matriculate to UC and CSU, plus a broad array of vocational and adult and workforce-related courses and certificate programmes.

Each segment also has its own governance structure, with differing degrees of autonomy, and differing admissions policies – with UC being the most selective, CSU less so, and the Community Colleges open to all who can benefit from its programs. This division of labour has provided flexibility in meeting the varied and changing needs of California, allowing each segment to grow and focus on its mission, and thereby avoiding the trap of an institution attempting to be all things to all people.

Under this structure, the local Community Colleges with overall the lowest operating costs service the vast majority of students in public higher education; the CSU system, with its regional mission, is the next largest in enrolment. UC has the smallest number of students – about 8% of the total public enrolment. Only UC has a significant residential component. This has important implications for both public taxpayer costs, and the affordability of higher education for students and their families.

In contrast to the United Kingdom, California has also invested in a relatively small number of public research universities, a total of nine University of California campuses plus a tenth planned in the Central Valley. This relatively small caste enrols only 8% of the total public higher education enrolment. In England, universities which have a claim on research funding enrol nearly 78% of all students – although their is a decipherable differentiation in the level of research activity among these institutions. (Parry, 1997)

In California, CSU is not excluded from research, and indeed many of its 24 campuses are highly productive centres of research activity. But the state does not provide significant funding for facilities, and purposely requires a relatively high teaching load for CSU faculty: around 9 courses a year versus about 4.5 for UC faculty. They are free to compete for federal and other extramural research funds, but without the advantages of state funding found in the UC system.

To emphasise the primary role of undergraduate teaching at CSU, courses taught by faculty in this segment have relatively small numbers of students (often 25), while UC tends to have much larger courses taught in a lecture format. Campuses of both UC and CSU also tend to be, on average, much larger in their enrolment than the vast network of UK universities. The investment pattern has been to concentrate these campuses in major population centres of the state, and to then widely disperse the Community Colleges.

Student matriculation agreements

Among the most important features of California's system is the formal relationship between the various public institutions. Depending on ability and interest, students can enter one institution (*e.g.*, a community college in Sacramento) and then matriculate to a professional or graduate program (*e.g.*, UC Davis). The meritocratic aspect of this so-called "transfer function" gives students, at least in theory, access to any academic degree available in the system on the basis of scholastic achievement. This is a powerful idea that, in essence, makes California's tripartite system greater than the sum of its individual parts. California widely perceive their higher education system as broadly accessible. (Douglass, 1999)

The scale of California's higher education enterprise is huge, boasting the largest single-state network of such institutions and enrolling over 2.7 million students in accredited colleges and universities – twice the size of the next largest states, Texas and New York. Out of that total, some 2.4 million are in the public sector. Approximately 11% are in private institutions. (CPEC, 2000)

California's community colleges are the largest single network of 2-year institutions in the nation. The heavy dependence on public institutions – in particular the Community Colleges – became more pronounced in the post-World War II era, and as part of a dramatic effort by the state to expand educational opportunity. Similarly, the California State University is the largest 4-year higher education system in the country, and the University of California is the largest research university.

The public and private mix

While California's higher education system is heavily dependent on the public sector in enrolment, it is important to stress the vital role of private institutions. Accredited independent/private colleges and universities include not only campuses such as USC, Cal Tech, Stanford, and Pomona, but also a variety of relatively new institutions such as the University of Phoenix. As market demand has escalated, these institutions have increased in importance. While representing less than 9% of all undergraduate enrolment in the state, private institutions produce 21.1% of the state's B.A. degrees. (CPEC, 2001)

These institutions also produce the second largest number of master's degrees and doctorates. The high number of master's and professional and other degree programs reflect a substantial service in the areas of adult education. The majority of these programs are in areas such as business. In large part because of the private/independent segment and the state's community colleges, the number of 25- to 44 -year-old students in California enrolled in some form of higher education is among the highest in the nation: some 4.3%, ranking tenth among the states.

Participation rates and efficiencies

UC became the first multi-campus state university in the nation with the inclusion of a "southern branch" in Los Angeles in 1919 – what became UCLA. The original campus in Berkeley (established in 1868) already surpassed the University of Michigan in enrolment in 1910 to become America's largest university. By 1950, the system had grown to four campuses with plans for further expansion. However, the path for large scale increases in access to tertiary education in California came through the innovation of the community college.

California was the first state to develop the public community college, passing legislation in 1907 for their creation as an extension of public high schools. From 1910 until 1970, these open enrolment institutions grew by almost two new colleges a year. Today, three out of four students in the public higher education system are enrolled in the Community Colleges.

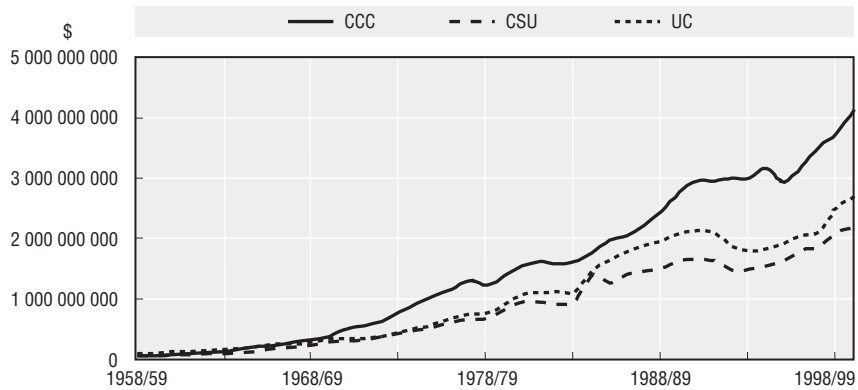
The CSU system was slower in growth pattern. Not until the 1950s, and following a significant period of public debate over their role as regional institutions and the appropriate breadth of their degree programs, did this segment grow substantially in enrolment. After gaining authority to offer the master's degree in 1948, and with new undergraduate education in fields such as engineering, the CSU system rapidly grew. In 1953, this segment surpassed UC in total enrolment.

Operational and capital investment

The idea of the tripartite structure was, in part, to create efficiencies and a robust higher education system that California's state and local government could afford. California policymakers recognised that there should be lower costs for operating a junior college, higher unit costs for regional colleges, and higher costs yet for UC with its broad mission (*i.e.*, an equal focus on teaching and research and an important service role for local economies).

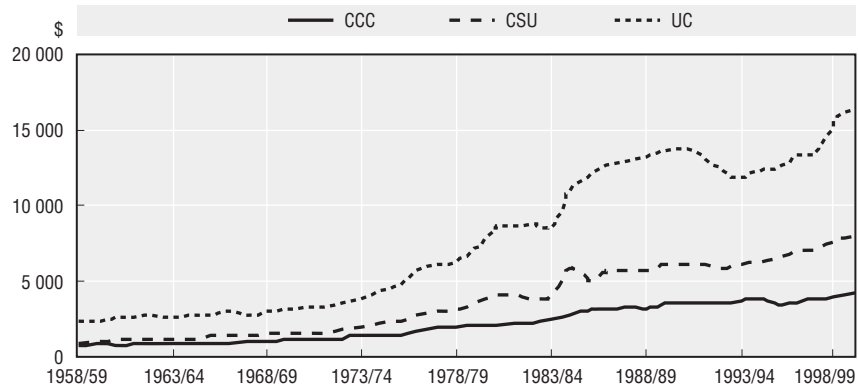
Figures 2 and 3 provide the cost to California taxpayers by segment from 1958 to 2000. Fluctuating funding levels reflect shifts in California's economy, related changes in taxation and revenue, and the shifting priorities of

Figure 2. **California Public Higher Education: Total State and Local Funding Provided for Each Segment: 1958-2000**



Source: William Pickens (1995), "Financing the Plan", California Higher Education Policy Center; CPEC, Fiscal Profiles 2000

Figure 3. **California Public Higher Education: State and Local Funding Per FTE Student, 1958-2000**



Source: William Pickens (1995), "Financing the Plan", California Higher Education Policy Center; CPEC, Fiscal Profiles 2000

lawmakers in making allocations. Evident in Figure 2 is a sharp decline in funding to UC and CSU in the early 1990s. The community colleges had some protection in their funding levels due to state legislation that recognized the pivotal role of the colleges for providing access. (Douglass, 2000)

Although funding cuts in the midst of continued growth in enrolment demand were evident for all three public segments, UC and CSU coped with this decline in their state budgets in different ways. UC historically has had a stronger diversity of funding sources and financial options. In reaction to an approximately 20% decline in state funding between 1990 and 1994, this segment initiated a series of early retirement programs and sought other sources of funding, including raising student fees. CSU had fewer choices because of its high dependence on state funding.

Even though CSU also increased fees, this segment was forced, like the community colleges, to dramatically increase the number of part-time lecturers. And for the first time, CSU implemented limits on enrolment increases. The objective was to constrain costs and to mitigate inevitable increases in student-to-faculty ratios. The result, however, was an erosion in educational opportunity in the state – a trade-off that lawmakers and CSU leaders were willing to accept on a short-term basis and after much debate.

Shifts in fee policy

One major consequence of budget cutting in the early 1990s was the first official sanction by lawmakers and the public segments of tuition for California residents (*i.e.,* fees for core instruction and research costs, including

faculty salaries). Previously, "fees" were charged but were slated almost exclusively for student services and subsidising financial aid programs. The purpose of avoiding tuition was to reduce economic barriers to access. The severe budget crunch of the early 1990s ended that long-standing egalitarian policy. It died with little fanfare, strategic thinking, or discussion regarding its implications.

When adjusted for inflation, fees grew most rapidly at UC with the major increase coming in the early 1990s. Even with this shift overall fees today for both undergraduate and graduate courses within the tripartite system are well below those at other comparable public colleges and universities in the United States. Yearly tuition at the undergraduate level in the University of California for state residents for 2003-04 are approximately USD 5 000; at CSU USD 2 050, and only USD 330 per student at the California Community Colleges. (CPEC, 2002) However, fees will be likely going up dramatically in the next fiscal years.

In each case, comparative institutions in the United States charge approximately 50% more on average at the undergraduate level. Highly selective public institutions such as the University of Michigan and the University of Wisconsin have tuition fees of approximately USD 8 000. And all public universities, as noted previously, charge additional fees for out-of-state students (both domestic US and foreign).

California's experience with raising fees in the early 1990s did not result in a reduction in demand, or in a discernible decline in access by lower income groups. (UCOP, 2000) In part, this is because for each dollar raised through fees, 35 cents was placed into an expanded financial aid program. (The average among US universities is about 25 cents for each dollar of fees). A second wave of fairly substantial fee increases over the last three years has also appeared to have a marginal impact on lower income groups.

The experience in California relates to the elasticity of pricing. Research on costs and access to higher education indicates that there is a range in which fees can be charged with marginal impacts on access, and if actual costs for students from lower income groups are limited – the cohort most affected by the net cost of attending a HEI. (Kane, 2001; Connor, 2001; McPherson and Schapiro, 1999).

Much more research on the impact of fees and access is needed. However, there are a few general observations that have emerged. For one, the key variables seem to relate to the funding levels and transparency of financial aid programs, and the relative real costs of higher education (fees and where applicable room and board) to family income. (Johnstone and Shroff-Mehta, 2001)

If priced correctly and by income and socio-economic background, the real and perceived socio-economic gains of a higher education, particularly by high quality providers, makes such an investment appear reasonable and affordable to students and their families. For example, a UK survey in 2000 of students who either qualified or could potentially qualify for entrance into a UK university, the major reasons for not entering was the prospect of a delay in income, and not the specific cost of the newly imposed fees. (Conner, 2001)

Creating a logical fee and financial aid structure, however, also requires a phased policy approach that is consistent and avoids wild fluctuations in the rules. Contemporary research on access and higher education fees indicates that changes in fees prices and student aid programs need to be done gradually, and with significant investment in academic advising. An increase of USD 1 000 in tuition in a single year, for example, may result in a 5% or more reduction in enrolment by lower income students according to recent studies on US public higher education. (Kane, 2001; Johnstone and Shroff-Mehta, 2000)

The experience in the United Kingdom appears to confirm this. The introduction in 1989 of fees had an initial if marginal impact on access and on overall enrolment demand – even though the net cost to lower income groups was covered by government grants. The shock of the new price and need to learn the new financial aid rules took a toll. Since then, and under the revised financial aid program, socio-economic diversity has increased and application rates are again growing. (CVCP, 1999; HESA, 2002)

Another critical factor is the availability of alternative enrolment paths for students, and choices in the costs they will bear. In California, for example, the ubiquitous community colleges provide a lower costs option from that of UC or CSU, and a method to later matriculate to these higher cost institutions. This diversity of institutions and costs, in essence, offers a way to mitigate increases in fees at the university level. This is a dynamic that generally does not yet exist in the United Kingdom.

California as a model?

The power of the *California Idea* is the distinct role of each of the three public "segments," their formal links, and the collective understanding of their role in a massive higher education system. California has not only led the movement toward mass higher education. It has done so while growing in enrolment at an unprecedented rate, in part simply to keep up with the spectacular population growth. (Douglass, 2000)

Differentiation, a relatively stable policy environment, and a long-term commitment of public funding, and not coincidentally a vibrant economy in part fuelled by the higher education system, have made all the difference in the world. But equally important, the public tripartite structure is generally

well understood by Californians, and by lawmakers. The system is relatively transparent and exudes the values of America's middle and professional classes.

Because of its rationality, and the structure of segmental governance and leadership, state government has shown little interest thus far in elaborate quality assessment schemes or financial models to shape the behaviour of institutions. Indeed, it should be noted that no state system higher education in the United States is both as decentralised and burdened by centrally imposed assessment exercises as in the United Kingdom – an assessment protocol that lumps a wide number and variety of institutions into a single framework. One might argue that the "evaluative state" that has risen so prominently in the United Kingdom relates in part the lack of coherent organisation and governance of higher education institutions – a theme I will return to. (Henkel and Little, 1994; Neave, 1998)

Process of policymaking and comparative models

But in looking to California for possible inspiration, a few words of caution are offered. California may provide ideas about differentiation, access and cost containment. It does not, however, offer much in regard to the difficult process and politics of reorganising or modifying significantly developed higher education systems – like that in the United Kingdom and in OECD countries in general.

California's system grew out of major policy decisions taken during the first two decades of the twentieth century. The early invention of the tripartite structure very much reflects an earlier era of innovative political reform steeped in a faith in public institutions as engines of social progress and Taylorite visions of specialisation and efficiencies. From this seminal era, the system grew in the number of campuses in each segment.

These points to one of the most significant problems facing nation-states: Not only is there the difficult question of what is a logical network of institutions, public and private, that, for example, fits the needs of British society. There are the logistics of imagining a political process that navigates the treacherous waters to make it a reality. In the UK environment of relative non-differentiation and equality (which has advantages), there are powerful forces against any new notions of differentiation. And there is no natural constituency for relatively new institutions, like a community college network.

Attrition rates and low degree productivity

While there is much beauty in California's system, it also has major problems, some of which reflects general trends in the United States.

California suffers the usual condition of declining public funding, rising enrolment demand, and the difficulties of imagining alternative resources (*e.g.,* a logical system of moderate fees and high financial aid remains out of reach for the moment in California as well).

California is good at high access. While no longer in a leadership position among the some fifty higher education systems in the United States, California ranks tenth among the states in the number of 18 to 24 year olds who are also undergraduates students: over 38%, compared to a US national average of 34.3%. Before large shifts in demographics, California boasted a participation rate closer to 43%. (Douglass, 2002).[2] The United States used to be the leader in participation rates of the traditional age cohort, and California was long the leader in the United States. But marginal declines in the US in participation, and significant increases among OECD countries, now puts the United States close to the average (OECD, 2003).

Unlike UK's system, degree completion rates are extremely low. US Department of Education statistic show that the number of bachelors degrees awarded per 1 000 students enrolled in undergraduate programs in the state is a dismal 68.8, placing California nearly dead last among the states. (USDE, 2001)

California also lags substantially in the BA production and in encouraging students to attain the BS degree, despite the high demand for labour in technology fields. (CCSE, 2002) Projections by the U.S. Department of Labor (1998) state that by 2006, nearly 70% of all the new jobs generated by the economy will require some form of postsecondary education, and that approximately 50% will require a bachelor's degree.(UCDL, 2000)

This poor performance relates in part to California's perhaps over dependence on funnelling students to the lowest cost institutions, the community colleges where, as noted, attrition rates are unacceptably high. If the UK higher education system is perhaps overly selective, funnelling a self-selected group of high achievers through university programs who then graduate, the system in California may be on the other extreme: broad access without demanding appropriate academic preparation.

The issue of student diversity

Student diversity is another major issue in California, as in the United Kingdom. In terms of the economic background of students, California's public system is highly inclusive and seemingly much more so than in the United Kingdom. General patterns of family income among the California population are reflected not only in Community Colleges. One sees a relatively healthy proportional representation also in the CSU system, and to a lesser but still

significant degree in the most selective segment: the University of California – the segment with the highest student fees.

Families with incomes below USD 30 000 represent 36% of the California population. Over 30% of the first year student entering the UC system in 1995 were from this cohort. In total, over 75% of the students at UC are from middle and lower income families – mostly earning USD 60 000 or less (Flacks, Thomson, Douglass, 2004; UCOP, 1997). Among US research universities, both Berkeley and UCLA, the two largest campuses, have the highest rate of students with federal Pell Grants (federal grants for lower income students) in the nation, public or private.

In the area of racial diversity, the story is very mixed and troublesome. The public tripartite system as a whole reflects the general ethnic diversity of the state. But at UC, again the most selective, there is a significant under-representation of Chicano-Latinos – the fasted growing minority group in California and representing nearly 30% of the state's population. At the undergraduate level Chicago/Latino's represent only 18% of the student population. African Americans are also a significant "underrepresented group".

But nothing is simple in attempting to look at issues of diversity. At a campus like Berkeley, the most selective of the eight undergraduate UC campuses, there are more minority students than Euro-Americans enrolled – mostly but not exclusively Asian-Americans. And indicative of a substantial and on-going demographic shift in the state, there is a significant participation level by multi-ethnic students, and by immigrants and their immediate offspring.

A recent survey on undergraduates and their educational experience indicated that some 55% of all undergraduates in the UC system have at least one parent who is foreign-born. On the Berkeley, Irvine, Los Angeles, and Riverside campuses this figure exceeds 60 percent. (Flacks, Thomson, Douglass, Caspary, 2004).

A few preliminary observations on the UK system

In looking at the highly structured approach of California, and the post-Bologna Agreement shifts in much of Europe, does the United Kingdom offer a unique "third way" – essentially a decentralised market and network of universities and FE colleges, shaped by government incentives? (Palfreyman, 2002).

One sees great strengths and a vibrancy in the vast number of universities and the network of further education colleges. Access rates have grown tremendously and university based research has fuelled the second largest concentration of biotechnology firms in the world (Brown, 2002). Yet there are also serious maladies, including:

- declining government budgets relative to enrolment;
- vague New Labour goals regarding access and substantial enrolment increases;
- an ambiguous role for Further Education in the higher education market – institutions that are arguably already burdened with multiple missions and unclear priorities;
- a funding and regulatory path that encourages institutional isomorphism, yet maintains a rhetorical goal of fostering a diverse set of universities;
- confusion regarding potential financial models;
- an increasing labyrinth of national quality assessment mechanisms related to teaching and the funding of research.

Beyond these specific problems lies a crucial question previously noted in this essay: is the UK system fit for the purpose of additional large scale increases in access? In part because of its coherent organisation and the general political consensus regarding its viability, California appears to be positioned relatively well to meet future enrolment growth over the next decade in its general structure. There is need for organisational reform at the margin. The biggest challenge is how to fund the system as it grows dramatically and how to avoid further erosion in quality.

In the United Kingdom, however, one might argue that substantial organisational changes and shifts in policy and behaviours will be required – prerequisites to both expand access, and for orchestrating and fund large increases in the overall enrolment capacity of the system.

A California lens – Is UK higher education less than the sum of its parts?

Assessing the contemporary UK system through the lens of the California system, and its success and failures, a few observations are offered. First, the organisation of higher education in the United Kingdom, and particularly in England and Wales, is remarkably decentralised. The autonomy of institutions as chartered corporations stands in sharp contrast to the segmental organisation in California. This has important implications for the future of the HE sector in England, essentially creating a power vacuum that can be filled only by government.

In the United Kingdom, there are no formal or informal leaders or an effective forum for generating systemwide initiatives, or for negotiating with the government. University UK attempts to provide this forum and is effective in generating thoughtful analysis – often with one major recommendation, the need for increased funding for HE in England equally distributed among its members. Yet even here, and symbolic of a voluntary body composed of a great variety of institutional types, there appears to be no collective idea of

purpose of higher education. Why should there be in light of the legal status of each university, and a national policy framework that encourages the milieu of over one hundred independent operators?

Taken as a whole, the UK system seems much less than the sum of its parts – in its bifurcated and decentralised organisation of FE and independently chartered universities, in the lack of a collective sense of purpose, and in its rather weak political clout.

Further, and after much progress, access and the organisation of academic programs remain heavily class bound. The secondary education system and the early tracking bias of students into vocational and higher education subjects, in comparison with the American model, appear as a legacy of England's class riddled school system. Append to this the rigid divide between FE and universities, and the corresponding lack of multiple matriculation paths. The result is a structure that impedes further expansion of access to higher education, and stifles socio-economic mobility.

This implies the need for significant structural change. Yet the ability to make such changes appear limited. There are the structural biases of the secondary system, and the cultural divide between the two main providers of higher education, the FE sector and the universities. There is also a lack of cohesion in the university sector.

What went wrong in the march to mass higher education? Many cite the collapse of the binary structure in the United Kingdom in the early 1990s when a set of polytechnics gained university status and the market force predilection of contemporary government as a major turning point. The result is a vast network of over 110 institutions that claim the title of a research university – a costly proposition. They compete for resources seemingly as independent enterprises, sharing little or no vision of their purpose within the larger UK higher education system. (Kogan and Hanney, 2000) It is no small wonder that debate on a particular reform issue is normally neglectful of its implication on the entire tertiary system.

The issue of top-up fees, and the Labour Government's seemingly successful proposed reforms for financing higher education in England, may prove an important change – I say may, as the process of Parliamentary review and heated public debate is still on-going at the time of this writing.

A 2003 White Paper entitled *The Future of Higher Education* outlined a number of bold proposals. (SSES, 2003) In the midst of pitched debate, in late 2003 Prime Minister Tony Blair won a narrow vote in the House of Commons that endorsed the plan to restructure fees in English universities. If all goes well with the current government's plan, by 2006 institutions will be allowed to independently set their fees up to GBP 3 000 at the undergraduate level, and

require a majority of students to pay their fees after they graduate, and after they attain a minimal salary. This model is a favourite among economists.

Labour has promised not to yank away promised government increasing in HE funding when new fees are introduced – the experience in Australia. In combination with the government's promise to increase state subsidisation of tertiary education, the increased fee income may help reverse a precipitous decline over the fifteen years in funding on a per student basis. Oxbridge and other members of the Russell Group of universities worry that the fee cap is to low; other universities in England worry about the disparities in the what institutions can charge and difficulties of pricing their programs.

Because universities are free to set their own fees, the new top-fees regime will encourage greater differentiation in available resources, and one assumes this will influence program differentiation as well. Those with the best market position and prestige will be most able to charge the full amount allowable.

On the one hand, this fee proposal appears an important step creating greater financial stability for the HE sector – once they get through the difficulties of setting fee levels. One might argue that such stability is prerequisite for both expanding access and encouraging innovation and collaborations. As I have indicated in this essay, increasing the fees students and their families pay is probably an inevitable part of any sound plan to return financial health to both American and UK public higher education. And research in the US indicates that, when combined with robust financial aid programs, access to lower income groups can be achieved. But to mitigate the impact on these groups, fees need to go up gradually and not in large jumps – I fear a likely outcome of the Labour government's current proposal.

On the other hand, the Labour government's White Paper studiously avoids the difficult goal of seeking overt mission differentiation--arguably the key for focusing institutional activity, improving quality, and containing costs. In typical English fashion, differentiation is the acknowledged possible outcome of the government's top-up fee structure, but it is not the professed focus of reforms. Differentiation will be furthered at the margins, and not through direct edicts by the ministry, which would likely fail. This scheme may help England maintain a high quality and selective elite class of universities, while encouraging access. But it does not help terribly in creating greater coherency in England amalgamation of HE institutions.

How to generate greater coherency? Whitehall has increasingly relied on two levers to meet national goals: incentive funding and an ever-expanding cadre of regulatory tools. While the language of current and recent governments espouses the ideals of market models, it is in fact highly interventionist – at least in contrast to the model offered in a state like

California where institutional and segmental mission provides a buffer to regulatory constructs. The legal autonomy of HE institutions in England seems relatively meaningless under the weight of waves of regulator rules.

First there were national efforts to monitor teaching and research quality – the latter determining research funding for departments and universities. And now something new. The proposal of new Labour outline in the White Paper is to not only provide for increases in student fees, and a promise of additional government funding. That offer is seemingly an inducement to gain support for yet another new regulatory agency, the Office of Fair Access (OFFA).

If it comes into existence, OFFA's role is to induce institutions (possibly by threatening of financial penalties) to expand enrolment of lower income and possibly other targeted groups. How else to push English HE toward meeting nation-wide needs? At present, OFFA is the major tool imagined by the ministry to help herd the individual institutions toward the government's access goals. Yet what actual powers OFFA will have and the regulatory machinery that it will invent remains unclear.

Unless the OFFA scheme destructs in the political bargaining process, the regulatory structure will continue to grow in England. Indeed, the lack of differentiation and focused mission, and the seeming impossibility of multi-campus governance structures, invite more elaborate and subversive government schemes. As higher education grows in importance in determining economic competitiveness and influencing socio-economic mobility, one can imagine increasing efforts by government to shape and intervene in the activities of UK HEI's.

The author:
Dr. John A. Douglass
Senior Research Fellow – Public Policy and Higher Education
Center for Studies in Higher Education – UC Berkeley
United States
E-mail: *douglass@uclink.berkeley.edu*

Notes

1. This essay reflects a presentation made at the conference "New Government, New Labour, New Direction: Is UK HE a Viable Third Way?" Oxford Center for Higher Education Policy Studies, New College, University of Oxford, September 2002.
2. Note that UK participation data tends to look at the 18 to 21 year old age cohort.

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Assessing the Impact of Higher Education on Regional Development: Using a Realist Approach for Policy Enhancement[1]

by
Sarah Batterbury and Steve Hill
University of Glamorgan, United Kingdom

Higher Education is widely seen as a crucial ingredient in the regional economic development mix, and as fundamental to the development of the knowledge economy (Barclays, 2002). Indeed the Higher Education Funding Council for England has issued broad guidelines for benchmarking good practice in assessing regional development contribution of a higher education institution (HEFCE, 2002). However, there is a dichotomy between the view of higher education as an investment in regional development, and the common evaluative practice of simply assessing the cash-flow consequences of individual institutions. In contrast to the volume of standard impact assessments, there has been relatively little work that seeks to systematically evaluate the effect of higher education on regional development, or indeed to estimate either its net public purse impacts or its export value. This article draws on recent studies to seek to develop a realist evaluation framework that can provide the evidence-base to enhance both the higher education/regional development relationship, and policy making initiatives for the sector.

Introduction

The article discusses ways of utilising realist evaluation techniques to evaluate the impact and the effects of higher education. This approach is useful in providing an effective evidence base about what works in particular contexts. This should ideally enable enhanced policy making for this sector as the result of a better understanding of the systemic interrelationships between higher education and regional socio-economic development. The approach involves taking a context-mechanism-outcome view of higher education in particular regions, with a view to understanding the underlying relationships that provoke effective performance and outcomes from the sector.

In what follows reasons will be outlined as to why higher education is able to contribute to regional prosperity through its catalyzing role in the emergence of the knowledge economy. The development of knowledge economies in particular locales has become linked with economic practice that ensures competitive advantage and the creation of additional value from effective knowledge utilisation. As a policy strategy, actions to support the emergence and better exploitation of elements of the knowledge economy offers innovative and low cost solutions to economic growth and development, often with reduced externalities in terms of environmental costs, subsidies, and city-level unemployment. Higher education has also been shown to provide a significant economic contribution at a regional level through the contribution of employment, additional expenditure in a region and the attraction of revenue from outside the region from students and visitors (Barclays 2002, Charles & Benneworth, 2002; Florax, 1992a, 1992b; Hill, 2004).

The knowledge economy can be defined in a variety of ways, the simplest being the addition of value through the application of ideas and information. More complex definitions include "an economy that makes knowledge portable, collective and accredited" (Motorola University, 1999), or one in which "the generation and exploitation of knowledge plays the predominant part in the creation of wealth" (DTI, 1998). Meanwhile Leadbetter (1999) points to processes of developing intellectual capital in a knowledge economy driven by "new factors of production and sources of competitive advantage – innovation, design, branding, know how – which are at work in all industries". Whatever the definition, and there are common

threads between them, the university plays a central role in the development, dissemination and application of knowledge.

Higher education is easily misconceived by central government as being a net drain on resources. In fact a full resource analysis (Hill *et al.*, 1999; Hill, 2004) shows that its net cost is much less than policy makers generally believe and that higher education is best viewed as medium to long term investment. There is some disparity between current government policies for higher education, certainly in the United Kingdom, and the evidence about the added value brought by higher education in particular localities. This article argues that this disparity needs addressing through the production of an effective realist evidence base that links context, mechanism and outcome (*i.e.* what works in particular circumstances and why).

The third section discusses the utility of impact assessment as a way of increasing understanding about the systemic linkages between higher education and the related sectors with which it interacts. The methodology for undertaking impact assessment is explained and some of the limitations of impact assessment used on its own without additional evaluation techniques discussed. The impact approach tends to yield useful data about economic relationships and outcomes, but is inevitably less informative about immeasurable softer outcomes at the societal and individual level.

The fourth section an alternative approach to evaluating the contribution of higher education is proposed. The paper advocates a realist approach to ensure that particular outcomes are linked to causal explanations about why things happen in particular circumstances. This approach is well suited to providing insights into what works and why, for systems such as that represented by higher education. Recent work by Pawson and Tilley (1997) and Pawson (2002b) also demonstrates how this can provide the basis for an effective evidence base that can better inform policy formulation. Existing policies in higher education provide a demonstrable lack of information about how, why, and what works in higher education, resulting in perverse routines and dysfunctional outcomes (Van Thiel and Leeuw, 2002).

The fifth section offers a brief analysis of an impact assessment for higher education in one particular European region; Wales. This shows that the jobs, incomes and spending associated with higher education in Wales contributed an estimated GBP 290 million to the public purse, including income taxes, VAT and national insurance contributions. This research highlights a significant disparity between higher education policy and its economic contribution. For this reason it can be argued that there is a striking need to increase knowledge about what works and why, so that higher education and economic development policies can be better informed by more effective realist evidence.

Higher education as a driver for regional development

Recent work has shown that higher education is a net contributor to the prosperity of a modern economy (Barclays, 2002; Charles & Benneworth, 2002; Florax, 1992a, 1992b; Hill, 2004). It achieves this through a number of mechanisms, including providing employment, attracting revenue and expenditure from students and visitors, but above all through its crucial role in the development of the "knowledge economy". This is widely seen as increasingly important in determining prosperity in the future. If the knowledge economy is defined as one in which value is added through the application of ideas and information, then the role of higher education in contemporary economic development is self-evident. This role is manifested through the creation, refinement and application of knowledge, especially through research and development, in the expanding output of people with higher level knowledge and skills, and in the dissemination of knowledge through innovation networks (Hill and Webb, 2001).

According to the World Bank (World Bank Institute, 2001) there are at least four critical success factors in enabling the knowledge economy:

- an economic regime that provides incentives for the creation and efficient use of knowledge;
- an education and training system that provides educated and skilled people, able to create and use knowledge;
- an innovation system that comprises networks of firms, research centres, universities and other organisations able to adapt global knowledge to local needs and opportunities;
- a dynamic information infrastructure that enables effective information sharing.

The knowledge economy has then become linked to notions of an active system-wide economic practice that secures competitive advantage and the creation of value from effective deployment and utilisation of knowledge. The achievement of competitive advantage through intelligent knowledge utilisation has considerable synergy with a number of strategic policy goals of central governments around the world. The phenomenon of the knowledge economy therefore has all the hallmarks of a desirable mechanism for policy makers who, in principle, will aim to put in place a supportive and favourable policy environment.

However, the knowledge economy can also create a number of less fortunate outputs. In particular, its prevalence in large cities aggravates the existing rural–urban split in terms of GDP/capita, and can therefore contribute to an increased propensity for unbalanced economies characterised by spatial disparities, rural-urban migration and knowledge poverty in the peripheral

and rural areas (Cooke 2002). Sá *et al*. (2003) have written about the pull factors and spatial dimensions of the prospective students' university choices in the Netherlands. Inevitably the spatial question has implications for the distribution of resources throughout a region and for the likelihood of particular universities prospering or not. This spatial impact is also played out within the knowledge economy more generally and is some cause for some concern.

In spite of this, the competitive advantage of states and regions with active knowledge economies nevertheless signifies an enticing prospect for the different policy makers of the world. It offers an innovative and low cost solution to economic growth, often with reduced externalities in terms of environmental costs, subsidies, city-level unemployment etc. The knowledge economy therefore presents itself as an attractive and viable strategy that is founded on systemic generative growth, potentially capable of reproduction and innovation to ensure the development and maintenance of competitive advantage globally.

The primary purpose of higher education is, of course, to raise the education and skills levels of its students, thereby increasing their productive capacity and potential, and driving the knowledge economy. As such, spending on higher education is an investment rather than consumption activity, yielding future returns. Work by Hill on the impact of higher education in Wales (2004) shows that, higher education yields current as well as future economic benefit, and that the true cost of this investment is significantly lower than may first appear. This point is of particular significance, as it reveals a disparity between current government thinking and policies for higher education and evidence about the performance and added value brought by higher education in particular localities. This point will be returned to later: however the current policy approach (of shifting the cost of investment in higher education from the public sector to the individual) flies in the face of the evidence that demonstrates a lesser overall cost than is generally measured.

A recent report for the Higher Education Funding Council for England (Charles and Benneworth, 2002), set out seven different dimensions of the Higher Education Institution's (HEIS) interaction with the regional economy:

- Enhancing regional framework conditions (*e.g.* infrastructure quality).
- Human capital development processes (student access, response to local labour markets, etc.).
- Business development processes (promoting/supporting enterprise, etc.).
- Interactive learning and social development processes (*e.g.* analysis of regional futures).

- Re-distributive processes (*e.g.* support for community regeneration).
- Cultural development (*e.g.* cultural facilities, attraction of visitors, etc.).
- Promoting sustainability.

Similarly, a recent study of success factors in prosperous regional economies across the world cited higher and further education as having "a central role in economic regeneration" (Barclays, 2002, p. 36). Hence higher education has an economic significance to future prosperity that is widely recognised as crucial, and which has, with government encouragement, led universities to embrace these "third mission" activities (to enhance impact on the local and national economy), alongside the more traditional ones of quality teaching and research.

At the same time higher education is also big business. A number of studies have assessed the economic significance of higher education as a trading activity, employing significant numbers of staff and attracting large numbers of students and visitors to the local economy. In Wales, the principal higher education impact study was Hill *et al.* (1997), which used an extensive survey approach to confirm that higher education was a major industry in Wales. According to this report, higher education institutions in Wales collectively spent over half a billion pounds per year, including over GBP 280 million in wages and more than GBP 100 million on the goods and services produced by other sectors of the Welsh economy. Adding in the extra spending of students and visitors, and the estimated multiplier consequences of all this spending, made higher education a billion pound business, creating or supporting over 23 000 full time equivalent jobs in Wales. That report noted that:

> "..while the current impact of HEIS on the Welsh economy is considerable, this impact **could well be multiplied by the adoption of appropriate strategies to allow the maximisation of the local economic potential of HEIs**, not only widening the local funding opportunities available to HEIs but adding substantially to local economic development. It is the complementarity between the two that offers the prospect of a new paradigm in the relationship between higher education and the local economy." (Hill *et al.*, 1997, p. 1) [emphasis added].

Since this study (mainly carried out in 1996) both the scale and context of higher education in the United Kingdom have changed considerably. These changes include the UK government and nation-regions pressing ahead with expansion (the widening access agenda), and the introduction of tuition fees, marking a fundamental shift in the nature of provision (no longer free at the point of delivery). In the United Kingdom devolved governance has also had an impact. In Wales, for example, there has been the introduction of a Welsh Assembly Government with responsibility for funding higher education.

Already differences are beginning to appear in the nature of higher education provision and funding in UK nation-regions, illustrated for example by student funding in Scotland and by the distribution of Research Assessment Exercise-related resources in Wales.

The Welsh case will be considered in more detail in the fifth section.

Why evaluate impact?

The evaluation of impact on its own is only part of what is needed for effectively informing policy strategy. Impact assessment can however reveal a great deal about the systemic linkages between higher education and the sectors with which it interacts with. As such the approach provides a useful tool in mapping how revenue and business can be attracted to a region, and how the complex linkages with the economy are worked out in practice. Hence impact assessment can provide vital clues into what works in particular contexts.

Higher education is fundamental to future prosperity because its primary purpose is to expand the creative and productive potential of people. Hence its primary outputs are *essentially immeasurable*. If higher education is defined as an investment then the necessity of assigning value to these immeasurable outputs can be side-stepped. The methodology of impact assessment necessarily treats higher education as a consumption activity. Similarly the typical impact-assessment approach cannot provide estimates of the impact of higher education on the development of human capital, or the attraction of inward investment, or even the creation of new businesses or the growth of existing ones. Yet higher education, working well, can impact positively on each of these. Rather, the general methodology of impact assessment for non-traded services relies on the effects of input purchases (goods and services bought locally, including labour) and, in the case of higher education, on the attraction of students and visitors, thereby adding to local incomes and spending. This local spending generates further local incomes and spending, constrained only by leakages from the local economy (imports, taxes, savings, etc.).

The estimation of this type of economic impact of an activity requires two basic sorts of information. The first is the measurement of the direct consequences of the activity, such as so much spending (and where) and so many jobs. These are the direct impacts of the activity. The second is some model or mechanism for translating these direct spending impacts into indirect or multiplier consequences, taking account of the trading relationships within the designated economy and beyond.

The impact assessment methodology of Hill (2004) estimated these multiplier consequences by using Input-Output Tables for Wales produced by Cardiff Business School as part of a long term research project to map the

Welsh economy. Essentially the input-output impact methodology starts by assessing the direct spending by the activity on the outputs and services of other sectors in the locality, and then estimates the local inputs necessary to produce those outputs in order to assess the supplier effects of the activity. At the same time the activity generates jobs and incomes itself, as well as amongst its suppliers, their suppliers, and so on. These are the induced-income effects of the activity, which when added to the supplier effects and the direct impacts allows the total impact of the activity to be estimated.

However while regional input-output analysis "offers the most detailed, comprehensive and consistent modelling framework for impact estimation" (McNicoll, 1996), the approach brings its own assumptions and constraints. These include linearity in the relationship between inputs and outputs[2] and the absence of any capacity constraints (so that the effect of any change is felt through outputs rather than prices), alongside the presumption that principal impacts can be addressed in terms of immediate cash-flows and jobs.

Limitations of impact assessment

While the evaluation of impact yields some important insights into the economic contribution of higher education in particular localities, the approach can only go so far. Impact assessment is poorly equipped to reveal much about the *soft* (immeasurable) impacts in terms of quality of life experienced by participants at all levels in the higher education system. For this alternative approaches are needed, ranging from surveys to focus groups, to understand the varied nature of impact in people's lives and directions taken. One important element could be the longitudinal tracking of individuals through time as they make life-altering decisions about employment, where to live, and other non-economic activities they will pursue. A full understanding of the impact of higher education then requires analysis at a number of levels. These include the analysis of impacts on:

- the individual: life choices, increase in self confidence and direction, increase in quality of life through greater educational achievement, etc.;
- society: higher levels of politicisation, increase in critical questioning of and within the public sector, greater degree of labour force mobility impacting on the demographic composition of communities, and so on;
- the economy: increase in expenditure in a region and intra-regional distribution of wealth and prosperity through the economic pull of areas with higher education attracting external revenues and expenditure, etc.

Given the difficulties in accessing the necessary data to measure impact across all these variables (cost of large-scale surveys, unfeasibility of tracking individuals and difficulties in measuring subjective outcomes at societal level), it is perhaps unsurprising that it is unusual for any impact assessment to focus

on all these elements. Studies necessarily present only partial pictures of impact by analysing economic outcomes only. However at a systemic level, impact assessment focusing on economic impact is often the main source of information available to interpret the broad impact of higher education to a region's economic infrastructure (Florax, 1992a 1992b; Hill, 2004). Campbell (1999) has set out a tool-kit for HEIs, demonstrating way in which they can increase their role in regional development, but this is focused on the role that can be played by HEIs rather than on the need for effective policy responses.

Individual departments and universities normally carry out smaller-scale studies focusing on the individual's experience. However, a broader picture of this for the system as a whole is generally elusive. In some instances work has been carried out to assess the nature of bifurcation between university and its local environs but this research tends to remain a question of local single institution research rather than something which yields aggregate data for all HEIs at the region-wide level.

Alternative evaluation approaches informing policy development

As indicated earlier, this article advocates the use of theory-based, realist approaches for research about the impact of higher education. The Realist Evaluation approach has particular utility as it focuses on causality i.e. what it is about a particular contexts that determines the outcomes achieved of particular policy mechanisms or interventions (Pawson and Tilley 1997). In plain English this may be summarised as what works in what circumstances and why The focus of realist evaluation on the theory behind the particular activities of HEIs not only informs us about the interaction between context, the activities of HEIs (mechanisms), and the outcomes thus providing an explanation of what works and why but also has the immediate benefit of assisting with policy development in the light of this analysis.

Realism was first discussed in some depth in the 1970s and 1980s as a broad approach within social science epistemology. Its adaptation to policy relevant research and evaluation came much later into the 1990s, with the seminal work of Pawson and Tilley (1997), showing how realist approaches could shape evaluative techniques. Their research was focused on the area of criminology, although there have been limited attempts to adapt this approach to regional development by authors such as Ying Ho (1999).

Initially proposed by Bhaskar (1975, 1986) work expounding critical realist philosophies in geography is now associated with Keat and Urry (1981) and Sayer (1984). This entails recognition of the open systems character of research in the social sciences generally. Peet and Thrift comment on realism that it is:

> "a philosophy of science based on the use of abstraction as a means of identifying the causal powers of particular social structures, powers which are released only under specific conditions" (1989, p. 16-17).

For Sayer (1984), realism provided a way of working out why things happen, linking theoretical abstraction and empirical research. This is better fitted to social science research where multiple variables intersect, producing open systems where control of variables is impossible. This necessitates a shift from research which focuses on identifying trends and points in common, to what Sayer and Morgan (1985), call *intensive research* programmes focusing on the intersection between context mechanism and outcome.

While critical realists tend to focus on philosophical and ontological abstractions, realist evaluators have been more concerned with applying realist ideas to the practicalities of programme assessment. Realist evaluation was first utilised in the context of studies of programme interventions in the area of crime reduction (Pawson & Tilley, 1997). The authors set out a manifesto for utilising realist approaches to evaluation of programmes. They argue that every programme has an intrinsic theory such as, for example, a policy theory that the installation of CCTV (a mechanism) will reduce the thefts of cars from car parks (outcome) because potential thieves will wish to avoid being caught on camera (theory). They suggest that it is not enough simply to understand the theory behind particular mechanisms however, but that designing a realist evaluation also requires a strong theoretical base. For Pawson and Tilley this theoretical base entails determining the links between the context, mechanisms, and outcomes of a policy or programme – hence the theoretical basis of an evaluation "must be framed in terms of propositions about how mechanisms are fired in contexts to produce outcomes" (1997, pp. 84-85).). Their definition of context is one which focuses only on those elements of the implementation environment that interact with a programme mechanism.

A number of other writers have advocated similar approaches to the realist approach espoused by Pawson and Tilley (1997), including: theory-based evaluation (Weiss, 1995), theory-driven evaluation (Chen, 1994) and the theory of change approach (Connell *et al.,* 1995). All these approaches share a common intention to seek out the underlying programme rationale as part of the evaluation process.

Theory of change analysis in evaluation is a relatively new and innovative approach to structuring evaluation designs (Connell *et al.,* 1995; Connell, & Kubisch, 1998). It places a greater emphasis on the *time dimension* associated with theory based evaluation, while realist evaluation focuses more on the intersection between *context, mechanism and outcome*. This time dimension is important and can supplement the realist design. The theory of change approach involves a mapping of expected change throughout the programme

by evaluators, in consultation with key stakeholders including programme participants. This mapping process aims to clarify and plot the connections between programme actions and outcomes, enabling their subsequent capture and measurement throughout the programme's lifecycle. Thus a theory of change approach:

> "determines the degree to which the trajectory of change unfolds as projected, while it also links the strategies to the final effects produced" (Milligan *et al.,* 1998, p. 55; Diez *et al.,* 2002, p. 5).

While this is useful at the programme level it is harder to implement when dealing with system-wide policy evaluation, and the evaluation of added value for a sector such as higher education. In this instance it is useful to consider the time dimension in assessing why particular activities produce particular outcomes. However the realist evaluation approach is more likely to inform policy thinking through its emphasis on what works in specific contexts in the case of policy making for higher education.

Applying this thinking to the evaluating the contribution of the Higher Education sector in particular locales suggests that a variety of methodological approaches (including impact assessment) can be employed to understanding the net contribution made by higher education. This works across a number of distinct levels ranging from impact on individuals to socio-economic impact for regions as a whole. Essentially eclectic, the realist approach seeks to move away from what may be now rather sterile epistemological debates surrounding scientific versus pluralistic and constructivist paradigms, using all methodologies as appropriate within the realist framework. The approach facilitates the interrogation of empirical data with a view to identifying the nature of specific structural influences on outcomes. It also accepts that some outcomes and experiences are socially constructed, thereby providing space for the analysis of the impact of human agency in shaping particular outcomes.

In any evaluation of phenomena at a systemic level there is a need to draw evidence from a variety of sources to ensure integrated evaluative learning. This meta-evaluation process entails moving beyond any single evaluation to a position where lessons are drawn cumulatively across successive programmes and between different policies. Pawson and Tilley (1997) describe this process as *realist cumulation*.

In addition to drawing on existing evaluation sources, the method behind the realist epistemology seeks to add value by teasing out the rationale behind what works and why. The approach provides an evidence base which can be of considerable use for policy formulation and policy development (Pawson 2002a, 2002b). This approach also highlights some of the more problematic policy decisions currently being implemented across higher education in the

United Kingdom. This is, by itself, evidence of a weak policy understanding of the way in which higher education performs and adds value.

Examples of inadequate policy theory in the sector may include the UK government's decision to introduce tuition fees to students in the United Kingdom. This decision appears to have been based on the assertion that it was necessary to bring the public and private rates of return on the investment in higher education closer together by increasing the private costs of higher education and decreasing public ones. However, as Hill *et al.* (1999) have shown, the activities of higher education generate significant contemporary public revenues already, thereby substantially reducing the effective level of public subsidy. In 1997 Hill *et al.* called for "the adoption of appropriate strategies to allow the maximisation of the local economic potential of HEIs" (Hill *et al.*, 1997, p. 1). Existing policies such as introduction of fees do not achieve this, merely shifting the distribution of resources and skewing equal access to all.

The Research Assessment Exercise (RAE) is a further example of this kind of partially-informed policy making for higher education, following a particular understanding of why particular research centres did "better" than others. The resultant policy, heavily structured around performance targets, has inevitably induced some dysfunctional outcomes within higher education in the United Kingdom. Lack of support for essential long-term studies that cannot yield results with the RAE timeframe are a good example. Perverse routines, such as focusing only on publication of journal articles at the expense of books, or the purchasing of research-active staff by competitor universities are well known examples of this. As Van Thiel and Leeuw have noted:

> "This increase of output measurement in the public sector can lead to several unintended consequences that may not only invalidate conclusions on public sector performance but can also negatively influence that performance" (Van Thiel and Leeuw, 2002, p. 267).

These authors list a number of dysfunctional outcomes from performance assessment, including:

- failure to improve teaching in an effort to ape prestigious institutions;
- wastage of time spent on quality assurance procedures that are inflexible and overly focused on administrative procedures – an absence of adequate definition of what is actually being assured;
- a loss of effectiveness as performance targets are met;
- the emergence of an audit culture;
- installation of symbolic monitoring systems that are not implemented; and
- "ossification, a lack of innovation, tunnel vision and suboptimization" (Van Thiel and Leeuw, 2002, p. 270).

More recently the Wales Funders Forum has expressed its concern over the increasing emphasis on "outcomes".

> "The driving force behind the outcomes movement in funding is an ideological one. It is the drive towards performance management" (Wales Funders Forum, 2004).

More effective evaluation evidence is needed to bring about workable policy solutions. This implies the replacement of existing policymaking by one founded on a realist evidence base. Placing the intersection between context, mechanism, and outcomes provides a useful analytical tool. This is often done using matrix approaches to facilitate comparison between these elements while standard methodological approaches such as impact assessment, stakeholder interviewing etc are utilised to provide data about outcomes and context. A difficulty lies in the ex-post nature of this device – it is easier to identify the linkages between context mechanism and outcome retrospectively than in advance of policy design. However as part of a realist cumulation, findings can be aggregated to better understand the reasons why a range of different outcomes are achieved in different contexts. The realist approach is not a panacea, but in seeking to establish theoretical causality between context, mechanism and outcome the underlying theory of change is revealed: a more useful form of evidence for effective decision-making.

These examples serve as an illustration for the need to undertake evaluations of the activities of higher education in a way which produces evidence that can be understood by policy makers, ensuring better policies based on accurate evidence and workable theory. For this reason the work of impact assessment is an essential (but partial) contribution to understanding the contribution and added value of higher education. It needs to be utilised, however, as part of an evaluative process which underlines the collection of evidence about what works in particular contexts and which informs policy logic ensuring that policy formulation is grounded in effective evidence.

Pawson (2002b) defines this approach as the *realist synthesis*. The approach is focused on the identification of the core rationale of different programmes, and providing evidence which explains the "underlying reasons or resources…that generate change" (Pawson, 2002b, p. 342). In the case of a system or a sector this still applies – evidence can be sought about what it is that induces change, as well as trying to measure and specify the nature of that change. The approach facilitates answers to the "why" questions as well as the "what and how much" questions. The approach is thus a valuable tool for policy formulation in providing explanation and an essential component of ensuring that the higher education sector is able to function optimally rather than be subject to the whim of politics instead of evidence-based policies.

The authors have argued elsewhere (Batterbury and Hill, 2004) that one of the underlying purposes of evaluation is to enable more effective policy formulation:

> "The process of evaluation can be defined as the process of systematically and carefully assessing the value of an action, policy or programme, and of capturing policy learning in a format that has an intrinsic utility for subsequent policy formulation" (Batterbury and Hill, 2004, p. 1).

In the case of broad system-wide policy making, such as that of higher education, it is imperative that effective evaluation techniques are used with a view to informing the formulation (and re-formulation) of policies in this domain.

Wales: a case study of impact and policy response

In a Welsh economy that continues to lag behind the UK average in terms of prosperity, but where the Welsh Assembly Government has set ambitious targets for closing the gap, higher education must play an important role in economic development. Referring to the success factors associated with developing the knowledge economy, (see above), the current debate about university funding can be interpreted as one aspect of the nature of incentives for knowledge development and transfer, whilst the Assembly's widening participation and inclusion agenda is also about increasing the provision of skilled and educated people. The increasing importance of university "Third Mission" activities, or their explicit role in national and regional economic development alongside the traditional missions of teaching and research, recognises the knowledge transfer role of higher education, whilst universities are beginning to develop and share their quality information infrastructures. Within this framework higher education in Wales becomes an investment for the future, and a crucial ingredient in the economic development mix.

Like any investment, the activities of higher education in Wales have costs and yield returns, and must compete with other priorities for individual and public resources. In essence higher education is then an asset, requiring maintenance and development, and subsequently generating returns into the future. The nature of these returns are many and varied, with successive governments recognising their importance – hence the continuing expansion of higher education in the United Kingdom, and the governmental commitment to increasing the proportion of the UK population with NVQ level 4+ qualifications.

According to Hill (2004), in 2000/01, Higher Education Institutions in Wales had over 106 000 students, including nearly 39 000 studying part-time. The industry had an estimated employment of 14 546 full-time equivalent jobs that included over 6 000 academic staff. These figures make higher education more than twice as important to Wales, in employment terms, as

the Energy, Water Supply, Mining and Quarrying industries put together, with a total number of jobs that is comparable to the whole of Welsh Agriculture, Forestry and Fishing. HEIs spent more than GBP 637 million in 2000/01, including GBP 370 million on wages and other labour costs in Wales as well as a further GBP 155 million on Welsh goods and services. Students contributed more than GBP 143 million in additional spending on Welsh goods and services, augmented by GBP 3.8 million of local spending associated with the many business and vacation visitors to Welsh higher education. Total direct spending on Welsh goods, labour and services by Higher Education Institutions, their students and visitors exceeded GBP 670 million in 2000/01.

This direct spending on the outputs of Welsh goods and services industries generated multiplier effects through their local supplier and income effects. The estimated multiplier consequences of this HEI-related spending added a further GBP 203 million to total spending in Wales, creating or supporting an additional 9 600 jobs, spread across all sectors but concentrated on Distribution as well as Transport and Communications. Hence the direct and indirect effects of the spending associated with higher education, students and visitors supported an estimated 24 100 jobs in Wales. Adding together the spending of Welsh HEIs to the multiplier effects of their expenditure, plus that of students and visitors, makes higher education in Wales a business generating some GBP 1.1 billion of gross expenditure each year. For every GBP 100 in Welsh HEI expenditure, a further GBP 79 was added to spending in Wales as a result of HEIs, their students and visitors, and associated supplier and income effects. The jobs, incomes and spending associated with higher education in Wales contributed an estimated GBP 290 million to the public purse, including income taxes, VAT and national insurance contributions. Hence, even in limited cash-flow terms, higher education is big business in Wales.

Looking forward

Ternouth (2002) noted that higher education performs a distinctive role in knowledge transfer that is different from that applying to the private sector. He observes that:

> "while it might be argued that a company would be ill advised to develop products for which there is no external need, it would be quite wrong to apply this by analogy to the generation of knowledge in universities" (2002).

Because HEIs perform multiple tasks (research development, knowledge transfer, education of students, basic research, interaction with local communities, vocational education, equipping individuals with the intellectual skills to contribute to community life, to question policies, etc.),

the evaluation of their contribution needs to be capable of addressing these multi-purposes and multiple levels of impact. Current HE policies fail to address the diversity of contexts within which HEIs operate, failing to adequately acknowledge or respond to their role as a net contributor to regional economies and the public purse. It is precisely because of this lack of detailed understanding about the role and activities of the HEI sector that alternative approaches to assessing their contribution are needed. The realist approach takes us further than other available methodologies as it focuses on explaining why things work in particular circumstances rather than simply cataloguing outputs or listing outcomes without any attendance to analysis of causality. This article has proposed the use of a realist methodology that can also provide an effective evidence base to enable better policy making.

This approach is important because it breaks away from the "one size-fits all" blanket approach to policy making to recognise the importance of context in shaping outcomes. This then recognises the distinctive role of higher education in different environments where different activities and functions may take a lead depending on particular contextual circumstances. The realist approach provides a form of analytical and causal evidence that explains why particular approaches have observed outcomes.

This is important for regional development because once "conviction policies" (Nutley, 2002) cease to predominate, HEIs may be better able to flourish and prosper. More effective policy may even see an increase in the production of better research output enabling greater input to the emergence of knowledge economies in which HEIs play an active role. As noted earlier, HEIs can play a pivotal role in the development of a high-wage, high value-adding knowledge economy. Despite the impressive figures achieved in Wales in terms of the throughput of students and the substantial cash-flows associated with higher education as a business, the paucity of knowledge-driven wealth creation in Wales (Hill and Webb, 2001) is de facto evidence that higher education has yet to fulfil this role in Wales.

The authors:

Dr S.C.E. Batterbury
Evaluation Institute /
Sefydliad Gwerthuso
University of Glamorgan /
Prifysgol Morgannwg
Pontypridd CF37 1DL, Wales
United Kingdom
E-mail: *sbatterbury@glam.ac.uk*

Prof. S. Hill
Evaluation Institute /
Sefydliad Gwerthuso
University of Glamorgan/Prifysgol Morgannwg
Pontypridd CF37 1DL
Wales
United Kingdom
E-mail: *shill1@glam.ac.uk*

Notes

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Universities and Innovation in the Knowledge Economy: Cases from English Regions

by
Fumi Kitagawa
Hitotsubashi University, Japan

The last decade has seen a growing increase in policy discourse in many countries on entrepreneurship and innovation with a prominent emphasis on the role to be played by universities. However, it is far from clear to what extent institutional behaviours are influenced by this enterprising policy discourse based on the broad assumption that "knowledge" is the most precious asset for economic growth in the knowledge economy. This article examines the links developing between the universities and innovation processes especially at the regional level as observed in the United Kingdom, highlighting interactions between public policy and institutional behaviour in a multi-level governance (MLG) structure of knowledge production. Different strategic processes of networking between universities and the links universities are developing with Regional Development Agencies (RDAs) and other partners in nine English regions are illustrated in light of recent government policies which influence the resources and strategies of universities. Universities need to be analysed as critical actors in regional development processes, and their wide range of activities and strategies at different geographical levels need to be strategically co-ordinated as part of a territorial development process within the globalising knowledge economy.

Introduction*

Recently, policy communities in many countries have come to view universities as the knowledge base at the heart of the knowledge economy (*e.g.* OECD, 1996; for the United Kingdom, see DTI, 1998; DTI/DfES, 2001; DfES, 2003; Porter and Ketels, 2003). Many national governments have recognised the crucial role played by universities in the economy as powerful drivers of innovation and economic change. These discussions are taking place against the backdrop that knowledge production and the contribution of higher education to the economies, prestige and standing of nations are rapidly transforming the once benign higher education system into a competitive market place. Combined with public ambivalence towards public expenditure and pressures to widen access, governments are asking if the existing structure and funding of higher educational systems is appropriate or sustainable (Hazelkorn, 2003). Questions are raised: Should research funding be spread equitably across many institutions, or should only a few concentrate on research while others focus on teaching and training? The "heart of the matter", as Clark (2001, p. 8) states, is how universities are responding to and shaping the many forces that play upon them. For some universities, the current emphasis on the economic role may provide opportunities to build up "accumulative advantage" with chancing institutional logics and organisational arrangements (Owen-Smith, 2003, p. 1082). Concepts such as "entrepreneurial" and "innovative" universities are taken to describe the characteristics of universities that are thriving in this new environment with increasing expectations about their economic role (Clark, 1998; 2001).

Universities are seen to play a crucial role in the development of hi-tech districts, through the generation of knowledge, the training of labour, and the spinning-off of new business ventures (Castells and Hall, 1994). Governments exhort universities to be entrepreneurial and commercialise their knowledge. Estkowitz and Leydesdorff (1997) termed this as "a triple helix model" of university-industry-government relations. It is argued, in the UK policy context, that the purpose of universities' research was consolidated around a

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heavily instrumentalist economic discourse, with the sole rationale of raising national competitiveness through improving the science base (Henkel and Little, 1999). While there has been considerable "evidence" showing the outcome of recent policy initiatives (e.g. HE-Business Interaction Survey), apart from clear-cut output evidence such as number of start-ups or licensing, it is far from clear to what extent institutional behaviours are influenced by this enterprising policy discourse.

This article sheds light particularly on the geographical dimension of these enterprising policies. Policy initiatives and theoretical investigations increasingly focus upon universities as elements of regional development processes providing regionally specific assets within the globalising knowledge economy. Much of the literature on innovation and technological change assumes that universities are part of the regional innovation infrastructure. In "successful regions", universities allegedly play a big role in facilitating the innovation and learning processes. For example, policymakers worldwide have noticed the rapid growth of the sub-regional economies in the United States, in Santa Clara County in California (Silicon Valley) associated with the contribution of Stanford University, and in and around Boston (Route 128) with that of Massachusetts Institute of Technology (MIT)(see Saxennian, 1994). The impact of universities on the development of successful localities such as Cambridge in the United Kingdom is also widely recognised (SQW, 1985; 2000).

However, questions are raised as to whether or not the models based on MIT and a few other successful cases can be applied to wholly different institutional contexts with varying national "industry-science relationships" (ISRs) (OECD, 2002). For example, Gunasekara (2004), who examined in detail the validity of the triple helix model in Australia, found the model worked poorly for average universities and regions (cited from Cooke, 2004). In practice, universities are often seen to be difficult to integrate into a regional strategy (Lagendijk and Rutten, 2000). There seems to be a gap between the expected role of universities in the models of regional development and the actual engagement of universities in the processes of innovation. Key questions to be investigated are: What are the barriers to universities playing a more active role in the development of their regions? Are there different institutional pathways for universities in constructing an advantage within their own region? What are the effective support mechanisms involving universities for regional development? This article situates these questions against current policy and institutional landscapes in the United Kingdom, particularly in nine English regions with some international comparative perspectives.[1]

This article consists of four parts. Following the introduction, the second part provides an overview of the literature on universities and regional

development, and develops a conceptual framework in relation to recent discussion on the territorial dimension of research and so called "third stream" activities of universities. The third part provides an empirical analysis of nine English regions focusing on recent public policies and the actual institutional processes of different collaborative approaches at regional level.[2] Finally, the paper concludes that for both universities and policy makers, in order to activate global/national/regional strategic relations in practice, a robust set of institutionally appropriate strategies, policy instruments and indicators is needed. A comparative framework focusing on institutional processes may highlight the complex spatial processes involved in re-articulating the global economy not only at the national and international levels, but also at the trans-regional level. Political instruments at various levels, namely, local, regional, national and some European programmes influencing universities need to be capitalised upon in constructing institutional as well as territorial advantages.

Knowledge, universities and regions

The importance of innovation as a stimulus to economic growth and wealth is now widely accepted. In light of this, there has been a shift in the attitudes of governments towards the role of universities and their contribution to economic development in particular. Governments look for new models of economic competitiveness, and have come to expect universities to play a major role in promoting innovation and learning in the knowledge economy. In order to receive public support, in turn, universities need to be responsive to the needs of society in general, and to their local and regional communities' needs in particular (Shattock, 1997). Universities are also looking for new ways to remain as primary actors in the knowledge economy and see industry as an alternative source of funding, helping to replace some of the budget lost with public research cuts. As companies begin to describe themselves in terms of knowledge creation (Nonaka and Takeuchi, 1995), so universities respond by positioning themselves as part of the knowledge economy (Etzkowitz and Leydesdorff, 1997). In terms of policy, the process of exploiting "knowledge capital" for economic competitiveness seems to be of special importance.

An examination of the geographical dimension of universities' (re-) positioning in relation to other stakeholders within the knowledge economy is both timely and interesting. Although regional issues have existed for universities since at least the 1960s, an understanding of these was not broadly shared amongst many of the established universities.[3] Since the mid-1990s, several authors (*e.g.*, de Gaudemar, 1997) have drawn attention to issues specifically involving the university as "regional actor", with some international projects having been conducted in this area (CRE, 1998; IMHE,

1999; Boucher *et al.*, 2003). More recently, there is increasing evidence of a pro-active approach being undertaken by academic institutions. This involves adopting an entrepreneurial role in collaborating with industry, for example, through research contracts, consultancy, licensing of patents, the creation of spin-off companies[4] and so on (Charles and Conway, 2001).

Nowadays, in both policy and academic literature a great deal of effort is devoted to create closer links between a university and its region. In the age of globalisation and the knowledge economy, the production of knowledge, particularly localised tacit knowledge, is viewed as a valuable regional asset (OECD, 2001). Universities and other public organisations are seen to play a central role in some localised learning and innovation systems because they can carry out R&D and can function as a pool of locally developed knowledge (Lorenzen, 2001). To investigate this further, the current "territorialisation process" (Lawton Smith and de Bernardy, 2001, p. 7) seems to change the spatial boundaries of knowledge. In the current political climate in higher education, it appears that universities "can no longer have a territorially neutral philosophy" (Lawton Smith and de Bernardy 2001, p. 6). Universities as knowledge infrastructures affect the knowledge flows between themselves and other institutions and actors at different geographical scales. Three schematic types of university-based Industry-Science Relationships (ISRs) as useful categories (OECD 2002; see also Kitagawa, 2004):

- Relations involving multinational enterprise and "world class" universities;
- Relations between universities and small high-technology firms; and
- Relations developing in a regional context between firms and the local university.

The internationalisation of university-industry relations (Drilhon, 1993, p. 97) has been rapidly developing. Universities fulfil a useful role in blurring the line between these different levels by "regionalising" world class and high technology small firm relationships and by making knowledge available to actors whose innovative locus is much more regional in character.

The experiences of a few exemplary regions during the 1970s and early 1980s, and examples of regional development from "entrepreneurial/ innovative universities" (Clark, 1998; Schutte and van der Sijde (Eds.), 2000) during the 1990s led to a flurry of initiatives, such as science parks and technology transfer offices, albeit with considerable variation in success rates and across nations (Charles, 2003, p. 22). However, it has been pointed out that the successes of regional technology policies promoting innovation from R&D at universities are surprisingly limited in many European regions, with a few notable exceptions such as Baden-Württemberg in Germany.[5] At the heart of the argument lies the notion that universities should pay more attention to transferring their technologies, know-how and their skills into local

economies. However, there remain difficulties for universities to overcome if they are to interact successfully with firms and other organisations in their regions. According to Shattock (2003, p. 117):

> "It is almost axiomatic that any collaboration with a local or regional authority will be more time consuming, more frustrating and more complicated than dealing with a research council or a large company, because local and regional politics will play a part in the final decision".

Universities face pressures to reconcile institutional risk, self interest and local and regional aspirations, and have to find the appropriate decision making machinery.

In order to reveal how universities work with their regions, one must re-consider the diversity of activities and mission within higher education, as well as policy instruments within multi-level governance structures influencing the strategies of each institution. The regions increasingly seem to be becoming strategic *spaces* where individual as well as collective institutional actors engage in strategic learning processes; the question of whether and to what extent knowledge transfer and learning occur at regional and other (national and global) levels, however, remains empirical (see Leydesdorff *et al.,* 2002). From an institutional management point of view, a central concern for universities is where funding comes from, and what activities can and should be supported from existing budgets. Only a few studies (e.g., Jones-Evans, *et al.,* 1999) have examined the strategies and policies of university departments to increase the processes of interaction between academia and businesses, especially in relation to the roles of internal mechanisms such as Industrial Liaison Offices (ILOs) or Technology Licensing Offices (TLOs).

Many of the existing models of university-industry interaction emphasising high-technology knowledge transfer and academic entrepreneurship activities seem to underestimate the importance of universities in interactive learning, creating social rather than technological networks and trust (Morgan, 2002). Universities' technological support services or technology transfer infrastructure (e.g. intermediary structures between universities, public research institutions and Small and Medium Enterprises (SMEs) such as ILOs/TLOs, consultants or technology centres) need not serve only as technology providers in the narrow sense. They may also further the processes of learning and communication, creating networks of institutions and building up *social capital* (Putnam, 1995) through collective learning processes, often linking institutions to resources available outside the locality. Another important process for the localisation of knowledge is in the form of the development of *human capital* (Van der Meer, 1996, as cited in Charles, 2003). Universities have traditionally produced graduates for national

labour markets dominated by large employers with little concern for SMEs or graduate retention in local labour markets. This model has begun to break down in response to changing patterns of employer demands, such as the decentralisation of large corporations into clusters of smaller business units and the greater role of smaller businesses as sub-contractors, suppliers and franchisees (Charles, 2003). The impact of the universities is thus not restricted to the technological sphere but may spread into wider social and economic effects on their localities and region.[6]

Further studies are needed which focus on the ability of different universities to deliver areas of expertise through various internal allocations of resources for teaching, research and commercialising their research. The inter-organisational links being developed between universities in recognition of the complementarity of institutions in a regional framework in relation to recent government policy initiatives warrant close attention. Understanding the mechanisms and processes for inter-organisational network management between universities and other innovation support organisations seems to be key in constructing accumulative advantages within regions.

Universities and regional development processes

The European and UK policy contexts

In the European context, the local, regional, national and supranational policy levels are strongly interdependent and interwoven. In the policy environment of the European Union, the prime objective seems to have remained the agenda of the "competitiveness of Europe versus the rest of the world" (Lawton Smith, 2003 a, p. 2). This is because in numerous analyses of the EU's weakness vis-à-vis its competitors, namely the United States and Japan, innovation has been highlighted as "a crucial deficit in both business competitiveness and the quest for wider prosperity, cohesion and integration within the Union" (CEC, 1995, as cited in Cooke, 2002, p. 60). More recently, the important role that regions can play in mobilising research and innovation efforts for bringing Europe into the knowledge based economy has been emphasised (CEC, 2001). The role of universities in knowledge transfer has been raised by the European Commission in a recent consultation paper (CEC, 2003, p. 7). The Table 1 below summarises the relevant policy documents published by the Commission within the last decade.

In the UK/English national contexts, a series of White Papers assumed the important role of knowledge and innovation, and there have been a series of policy initiatives emphasising the role of universities in these areas (as summarised in Table 2).

The 1998 and 2000 white papers stipulated the importance of science and technology in an increasingly competitive world in which the role of Higher

Table 1. **Competitiveness, Innovation and Knowledge Agenda in the EU**

The European Commission	
1994	White paper on *Growth, Competitiveness and Employment*
1995	Green Paper on *Innovation*
2000	European Research Area (ERA)
2000	*Innovation in a knowledge-driven economy*
2001	*The Regional Dimension of ERA*
2003	Green Paper on *Entrepreneurship*
2003	The role of the universities in the Europe of knowledge

Education Institutions (HEIs) in the economy as powerful drivers of innovation and change was emphasised. This coincided with a period of the territorialisation of higher education linked to wider politics of devolution and the processes of regionalisation of knowledge economies.[7] The emergence and development of local authorities working jointly at the regional level was seen as one potential basis for developing a more accountable democratic regional structure. English Regional Development Agencies (RDAs) were set up in 1999 and 2000 to regenerate the regions and to build infrastructure. The UK White Paper on Enterprise, Skills and Innovation, *Opportunity for All in a World of Change* (2001) emphasised the importance of "building strong region", "investment for innovation", "fostering enterprise growth", and "strengthening European and global connections".

The contribution that universities can make to regional development was recognized by the National Committee of Inquiry into Higher Education (the

Table 2. **The UK government White Paper; Policy initiatives (in bold) and Reviews affecting Third stream activities of universities**

The UK government and HEFCE	
1993	Science and Technology White Paper, *Realising our Potential: A Strategy for Science, Engineering and Technology*." (DTI).
1997	National Committee of Inquiry into Higher Education (the Dearing Report)
1998	The Competitiveness White Paper, *Building the Knowledge-driven Economy*. (DTI).
1998	**University Challenge Fund** (UK wide)
1999	**Higher Education Reachout to Business and Community Fund (HEROBC)** (England only)
	Science and Enterprise Challenge Fund (UK wide)
2000	The Science and Innovation White Paper, *Excellence and Opportunity*. (OST).
2001	**Higher Education Innovation Fund (HEIF)** (England only)
2001	The Enterprise, Skills and Innovation White Paper, *Opportunity for All in a World of Change*. (DTI/DfEE).
2002	HEFCE, Higher Education-Business Interaction Survey (England only)
2003	White Paper on the future of higher education. (DfES).
2003	*Lambert Review* (on university-industry links and university governance)

Dearing Report) (NCIHE, 1997). The *White Paper on the Future of Higher Education* (DfES) published in January 2003 states that the involvement of universities and colleges in regional, social and economic development is critical; stronger partnerships are encouraged between universities in each region and the RDA and other agencies charged with promoting economic development (DfES, 2003). In 1999, the Higher Education Funding Council for England (HEFCE), in partnership with other bodies, initiated a new "third-stream" of funding, complementing the Council's existing grant for teaching and research. The objective was to reward and encourage universities to enhance their interaction with business, industry and public services and in so doing contribute to economic growth and competitiveness, especially in the universities' home regions.

It is important to note that in the first round of these funding schemes, each institutional need was considered relatively, meaning that amounts of money allocated to institutions varying significantly, which resulted in different levels of institutional resources and their impact on the regions. In the later rounds of HEROBC/HEIF and Science and Enterprise Challenge Fund,[8] and as encouraged by the funding council, more regional or inter-regional collaborative bids were made, making substantial contributions to the creation of regional collaborative mechanisms of higher education. At least at the policy level, the "joined-up thinking" (Goddard and Chatterton, 1999, p. 685) between higher education policy and territorial development issues have been receiving increasing encouragement by the central government. Emerging geographical groupings of universities have coincided with a growing number of regional partnership arrangements.[9]

The government's concerns are with the issue of effectiveness, both in terms of the use of resources within universities, and in terms of enhancing the effectiveness of its contribution to the economic well being of local, regional, and national economies.[10] The new White Paper on the future of higher education published in January 2003 announced the expansion of Higher Education Innovation Fund (HEIF), with funding from Office of Science and Technology (OST) to stimulate enterprise from research across the regions (DfES, 2003).[11] This new, expanded HEIF, on which OST and HEFCE will be working together, will have two main aims: First, to build on the success to which all universities have contributed in knowledge transfer; second, to further broaden the reach of these activities particularly through support for "less research-intensive" university departments. The White Paper proposes to create a network of around 20 Knowledge Exchanges as a new strand of HEIF, which will be exemplars of good practice in interactions between "less research-intensive institutions and business and underline the distinctive mission of these" (DfES, 2003, p. 39). In the 2003 White Paper, new classification and terminology such as "research intensive universities" and "less research

intensive universities" are expressed, strengthening the recognition that there is a hierarchy, both explicit and implicit in the higher education system.

The government has encouraged institutions to "choose the role which best suits their strengths, with public funding encouraging such choice, by providing incentives for institutions to become more entrepreneurial" (OST, 2002). The contribution that the *new* universities can make to regional economies has been identified as "access to local students", "supporting small and medium sized enterprises (SMEs)" and "meeting regional skill requirements", while the *old* universities have regarded their main roles as "attracting non-local students", or "engaging in research collaboration with industry and technology transfer" (Waters and Lawton Smith, 2002, p. 636). Nevertheless, such a simple dichotomy may not necessarily meet the real needs of business and industry, and effective measures are required to encourage the business sector, especially SMEs, to engage with different types of universities (see *Lambert Review*, 2003). This paper now turns to an examination of how this joined-up thinking is implemented at the regional level, whether or not universities-based regional development processes are indeed emerging, and how these developments influence the institutional behaviour of individual universities.

Linking higher education and innovation policies in English regions

Three further points are to be made in relation to spatiality, policies and evaluation in comparing different regional structures. Firstly, while almost all universities consider it part of their mission and in their own interests (Universities UK/HEFCE, 2001, p. 24), regional considerations do not generally have major a direct impact on research strategies as a whole.[12] Instead, many universities consider that the regional impact of their research will be maximised through an outward looking (*i.e.*, both national and global) approach rather than a "regionalistic university orientation" (Hagen, 2002, p. 206). Where universities have adopted an explicitly local focus, it is often at the sub-regional level rather than at the regional level.[13]

Secondly, although the regional boundary is relatively new for higher education, the region is rapidly becoming one of the strategic spaces for universities. The growth of third-stream funding and the advent of RDAs (discussed above) has pushed the "regionality" agenda of universities further, presenting different opportunities, constraints and requiring various institutional strategies. Regional issues also need to be addressed in regard to fundamental inequalities in the space-economies in the UK Government proposals to shift research funding to a fewer number of departments are likely to lead to a major distribution of research activities and to bring about

highly differential effects, not only on institutional research profits but also on regional research capacity and diversity (Universities UK, 2003, p. 7).

Thirdly, some conceptual distinctions are needed in terms of evaluating the impact of third-stream activities in relation to the regions (see Molas-Gallart *et al.*, 2002). University outreach activities to industry and the community promoted by the so-called "third-stream funding" seem to have enormous potential for universities, the economy and society. In the light of this, it is important to make a distinction between the *outreach* activities of universities and *outcome* of these activities.[14] To restate, the principal aim of the present investigation is to illustrate the different forms of *outreach* activities of universities emerging collaboratively in nine English regions in relation to changing institutional strategies and behaviour in response to European, national and regional policy structures. This provides a foundation to examine interlinks between higher education policy initiatives and territorial agendas set within multi-level governance structures. With these three points in mind, the following section identifies different types of collaborative mechanisms of universities within their regions, and examines different pathways for universities in constructing their accumulative institutional advantage within and across regions.

Typology and comparison of university-region interactions

Regional mechanisms of collaboration have been set up by the higher education sector with the support of HEFCE, the EU, Government Offices (GOs), and RDAs. Broadly speaking, there are two kinds of higher education collaborative mechanisms which have been developing in English regions since the late 1990s. The first category is Higher Education Regional Associations (HERAs). HEFCE encouraged the creation of regional university associations to provide means of co-operating on research, teaching, and access at a regional scale.[15] This is also seen as a creation of a unified voice for the sector in each region, in response to the creation of RDAs and other regional governance bodies. Other forms of HE collaborative mechanisms emerging in the regional scene include more *ad hoc* regional HE partnerships, created for joint bidding for funding to deliver projects. "Third-stream" funding, such as HEROBC, University Challenge, Science Enterprise Challenge and HEIF, and the European funding such as ERDF and ESF encouraged the formation of such consortia.

Regional higher education collaborative mechanisms have taken very different forms in each region. These differences are found in terms of history, resources and form of networks, as well as there are substantial differences in terms of international and European links.[16] Table 3 in the Annex lists RDAs, HERAs and principal regional higher education collaborative mechanisms recently funded by the national third stream initiatives in England. These collaborative programmes can be seen as networks of universities as *spatial*

strategic alliances in response to recent government funding initiatives. As partially shown in the table, networks vary in terms of the number of member institutions involved, their purpose, duration, financial resources and spatial scope. Relationships developing between RDAs and universities in each region are of critical importance in constructing the regional architecture of knowledge economies. RDAs are encouraged by government to forge links between business and universities (see above), and in all English regions, Regional Economic Strategies (RES) prepared by the RDAs seem to be emphasising the role of higher education in regional development. Clearly, there is a general consensus among many RDAs that technology and knowledge transfer from universities to regional companies will benefit the regional economy. It seems there is a belief that the level and effectiveness of R&D among regional private sector companies can be raised by links to the relevant research departments of regional universities. In some regions, HERAs and other consortia often have close links with RDAs, while in other regions, these bodies and programmes may not be as well connected. For example, the North East Region, with the longest history of regional higher education collaboration, has developed a system of knowledge brokerage between SMEs and universities (*Knowledge House*), and Unis4ne, the HERA in the region, has had a very close link with One North East (ONE), the RDA.

In the West Midlands Region, the last 4 years have witnessed a rapid development of inter-organisational collaborative programmes between HEIs. One regional collaborative programme is particularly worth noting here in terms of building relationships between different types of universities within a region. Mercia Spinner is a project aimed at increasing the number of university spin-off companies.[17] The scheme, funded by HEFCE and the RDA, involves eight universities within the region sharing different expertise and resources of two leading international "research" universities with established technology activities. The programme has worked as a catalyst providing consultancy to the other six universities, and is seen as one of the most successful examples of collaboration between the RDA and HE sectors, constructing advantage for both universities and the region as a whole by connecting knowledge generation and exploitation and linking "research intensive" and "less research intensive" institutions. In other regions, a consortium with a similar purpose has been formed, but in many cases, membership includes only research intensive universities.

The recent development of "Regional Science/Research Councils" in some English regions serve as examples of wider strategic regional networking processes involving universities as one of the main actors. Notably, in the North West Region in England, the economic priorities of the universities and the region coincided as the RDA and the Manchester Universities worked closely together to try to keep Diamond Radiation Synchrotron facilities in the North West.

Furthermore, the prospective merger between Manchester University and UMIST has received substantial financial support from the RDA in order to create a "world class university" in the region set against the wider space-economy of the UK knowledge economies.[18] The "Regional Science Council" concept reflects the central need to bring together at a strategic level the key stakeholders influencing R&D in each respective region. The North West and the North East, two regions in England with relatively low levels of R&D, have business leaders, Vice-Chancellors of universities and other public organisations such as NHS as senior membership, with RDAs providing secretariat services. Lord Sainsbury acknowledged that the RDAs working with Regional Science and Industry Councils have "already done much to improve links between universities and regional economies".[19] In response to the encouragement, in February 2003, the South East Science and Technology Advisory Council was formed chaired by the Vice Chancellor of one of the universities in the region. However, concern has been raised over varying levels of expertise and skills on RDAs in other parts of England, which could limit the growth of university collaboration with business on scientific research (see Roberts, as cited in *THES*, 2003; also Lambert, cited in *Financial Times*, 2004).

There has been a rapid development in terms of relationship building between RDAs and universities in the regions, either individually or collectively, promoted by recent government initiatives. For each university, while there is a general consensus regarding the growing importance of an inter-organisational collective approach, in practice, universities are in fierce competition for resources and markets preparing their strategies for income generation under the new system of top-up fees. Value attached to each collaborative programme varies depending on the nature of membership, sources of funding, institutional leadership and, above all, the strategic nature of each collaborative scheme for each institution. It is still too early to judge whether or not these relationships construct real advantages in the regions, but universities surely form part of the architecture of regional knowledge economies.

Universities and strategic network formation

It has been demonstrated that new measures in higher education policy emphasise innovation and entrepreneurship, and that recent collaborative mechanisms are developing between universities and their regional partners. Regional consortia of universities, providing different expertise, resources, and experiences of institutions, can be a very effective way of accelerating progress of regional collaboration in knowledge creation, exploitation and innovation. Universities' engagement with regional development processes, if strategically combined with devolution of research, training and education policies, may serve to promote real regional and social prosperity by integrating *knowledge* and *social* and *human capital* development. However,

even if a localised learning system is highly dynamic, local knowledge is simply not enough to create a truly innovative "learning region". There are growing interactions between the local and the global, blurring the boundaries between local and non-local actors. Universities play an important role by "regionalising" global knowledge flows. It is vital that knowledge flows from universities into business and society linking global and local players. Those relationships growing between universities and their regions are an important strategic and policy issue for universities, industry, communities and for governments alike in order to construct "advantage" within the multi-level governance structure of knowledge economies.

Tensions involved in the above processes must be recognised and reconciled. Institutions have made collaborative bids and established regional/inter-regional consortia in order to meet the needs of specific funding schemes. However, many of the collaborative initiatives have to survive themselves, and, especially when public funding comes to an end, can be in fierce and inefficient competition with each other. The right balance of competition and collaboration needs to be achieved within the diversity and stratification of the higher education system. Overall, the national system of higher education in the United Kingdom has made institutions compete, rather than collaborate. It is difficult for universities to collaborate regionally or inter-regionally while competing for student numbers, widening access, research grants, and for provision for businesses.

Furthermore, there are wider tensions between the interests of national and regional governance systems (Charles and Benneworth, 2001). Serious issues are particularly apparent in "less favoured regions" with low resource levels for increasing innovative potential. Entrepreneurial activities of universities in these less favoured regions are even more significant to innovative processes and outcomes. Regional strategic collaborative mechanisms among universities and their partners are developing but are not sufficiently robust to help underperforming regions thrive in the knowledge economy. The degree of autonomy allowed to individual universities to adopt a territorially active role is a critical factor in this process (Lawton Smith, 2003 b). The degree of national science research concentration and the patterns of research funding allocation have also had major impacts.

Network formation and development need to be examined in relation to the particular conditions of *space* and *time*. There are different types of networks forged between universities and their partners. Policy instruments linked to particular funding opportunities mostly work as incentives to form regional networks. Partnerships are sometimes imposed by funding conditions (*e.g.* Structural Funds programmes of the EU). Networks and partnerships are forged, sometimes triggered, by the wish to strengthen the bidding power of participating organisations. Sources of funding may be a combination of different

organisations functioning at various geographical levels (*e.g.* the European Commission, the national research councils, higher education funding councils, the local authorities, and the RDAs). *Connectivity* among different institutions mentioned above will provide not only appropriately match funding opportunities but also "communicative competencies" (Leydesdorff and Etzkowitz, 2001), leading to better delivery mechanisms and hence more sustainable structures of localised learning across and within regions.

There need to emerge new social relationships for knowledge production within the multi-level governance structure. Networks grow in the multi-level structure of knowledge production. Regional networks and sub-regional partnerships have to be strategically communicated to each other and co-ordinated, with national and even trans-national bodies when necessary, in relation to the long-term public fund availability and (inter-) organisational capability of project implementation. The involvement of the RDAs in this process is an important factor, while concerns have been raised if this may lead to another layer of bureaucracy. The presence of institutional "nodal points", such as ILOs and physical and communicative proximity of actors seems to be key to make networks further develop. As argued elsewhere (Kitagawa, 2003), under the third-stream funding initiatives, new posts have been created in expectation of functioning as "boundary spinners" or "animateurs" within/between different university departments, institutions and sectors. These functions have had to be fully integrated into the organisational culture of universities with an appropriate incentive mechanism.

Concluding remarks

This paper set out to examine the interplay of higher education, science and technology as well as industry and other policies at the national and trans-national levels, and illustrated various geographical outcomes in different regional contexts. In the UK policy context, the recent articulation of a regional role of universities came in the late 1990s with a number of new funding schemes which have enabled institutions to forge stronger links with regional agencies and promoted the services which universities can offer to meet business needs. Co-ordination of universities and collaboration with their partners at the regional level have taken different directions in nine English regions. The research discussed in this paper shows a range and level of regional engagement of universities influenced by policy instruments within multi-level governance structures.

The question is whether universities can be encouraged to realise their full potential in the multidimensional and complex social processes of knowledge creation in the globalising knowledge economy. Policy makers must foster a policy environment which allows both individuals and

institutions to have considerable autonomy because this helps them to be entrepreneurial, strategic and able to move fast enough in international competition. University management has to acknowledge bottom-up initiative and recognise the importance of co-ordination and prioritising at the centre (Shattock, 2003). Homogenising, unifying policy instruments that prevent institutions and individuals from experimentation and risk taking activities tend to drive overloaded and under-funded universities into being even more conservative and reactionary. Greater restrictions on researchers may lead to a brain drain (Lawton Smith, 2003b). The aspiration towards being "world class" (Kanter, 1995) abounds in both the higher education sector and among local/regional authorities. There are different paths to reaching this goal through re-articulation of the global economy, and by recognising the wide range of resources and of institutional mechanisms required.

From a policy and institutional point of view, attention is drawn to the following concluding points. First, higher education policies, those which have territorial dimensions, need to be an integral part of the wider systemic policy framework. Such a framework would include not only innovation, science and technology policies but also social policies. Second, entrepreneurial activities of universities need to be an integral part of:

a) the core activities and management culture of universities;

b) the regional and local mechanisms of institutional collaboration and resource allocation; and

c) global knowledge flows within the knowledge economy/society.

Finally, researchers, university administrators and policy makers need to be more aware of the range and levels of regional engagement by universities and the factors that influence those forms of engagement (Boucher et al., 2003). Universities, along with their partners, have to develop strategies and instruments appropriate to their own context, by capitalising on resources available within the globalising knowledge economy.

The author:
Dr. Fumi Kitagawa
Researcher/Project Co-ordinator
Research and Development Centre for Higher Education
Hitotsubashi University
2-1 Naka, Kunitachi-shi
186-8601 Tokyo
Japan
E-mail: *fkitagawa@rdche.hit-u.ac.jp*

Notes

1. It has to be noted that within the UK devolution process, the situations in Scotland, Wales, Northern Ireland and England are very different with separate funding councils and higher education policies. In Scotland, a new Intermediary Technology Institute was set up in 2003 to create a strong relationship between the universities and Scottish Enterprise, the development agency. This article focuses on "regionalisation" process within England while the UK national policies are discussed where appropriate.

2. Empirical data on collaborative mechanisms between universities and their regional partners was collected between October 2000 and June 2003 while the author was registered as a PhD student at The Centre for Urban and Regional Studies, School of Public Policy, University of Birmingham. In this article, within the framework of British higher education system, the words 'universities' and 'HEIs' (Higher Education Institutions) are used loosely synonymous unless otherwise stated.

3. A range of states such as Norway, Australia, Finland, the US, the UK, and, to some extent, Japan, have long used universities as a means of delivering regional policies. Often, the aim is to maintain equitable provision of services across territories, but as a by product of this, these provisions have provided a much more equal distribution of research and development activity than in the business and government sectors (Benneworth and Charles, 2004). Until quite recently, much of the literature regarding universities' practical contribution to economic competitiveness has been concerned with two rather narrow issues – either "econometric analysis of the multiplier associated with university staff and student spending in the local economy", or with the role of universities in "technological transfer" between universities' technical departments and users in industry and elsewhere. The latter often refers to the creation of spin-off companies and the establishment of science parks.

4. University spin offs are now big business: Association of University Technology Managers (AUTM) figures suggest that US universities created around 500 new firms in 2001 (AUTM, 2003). In 2000, 199 spin-offs were formed in the UK (HEFCE, 2001). In Australia, 47 were made (ARC, 2000). [0]Cited from Benneworth and Charles, 2004.

5. For example, the services provided by the Steinbeis Foundation in Baden-Württemberg in Germany demonstrate good practice (Hassink, 1996 cited in Lorenzen, 2001:177). Large firms make good use of Fraunhofer and industrial research institutes for technology applications work, the Max Planck basic research institutes and universities are given commissions. For SMEs, the technology-transfer activities of the Steinbeis Foundation, chambers of industry and commerce, and consultants are widely accessed to solve innovation problems.

6. However, the broader significance of labour-market processes for the technological and organisational dynamism including that of higher education has yet to be examined. The significance of local labour-market processes goes beyond transactional efficiencies in the matching of labour supply and demand. The movement of workers and students is a central pathway for the transfer of knowledge and experience. These links between labour-market structure and processes of innovation and technological change remain unexplored (Angel, 2000:127-8).

7. Since coming to office, New Labour's devolution and regionalisation programme has led to a fundamental reshaping of UK territorial politics, public policy and administration.

8. A recent national initiative promoting entrepreneurship that has regional implications is "Science Enterprise Challenge", launched in February 1999 by the Department of Trade and Industry (DTI) to encourage the transfer of science and technology innovation in higher education to the business sector. Several Science Enterprise Centres (SECs) form consortia of regional universities with support from RDAs, providing various provisions including university-based entrepreneurship education.

9. The Dearing Report on higher education stressed the importance of regional collaboration as a means of making universities more efficient and more responsive to regional needs. Since late 1997, HEFCE has employed a Regional Consultant in each of the English regions whose remit includes to liaise with RDAs and Government Offices.

10. Lord Dearing, the HEPI inaugural annual lecture, 18 February 2003, *http://www.hepi.ac.uk/lecture/text.doc* access date 24/02/03

11. The OST is going to put the money for science enterprise centres and university challenge into a single HEIF, with investment rising to £90 million per year by 2005-6.

12. In terms of research activities, it is important to note that with the partial exception of European Regional Development Funds (ERDF) there have been virtually no regionally-based research funds available in England. Universities have expressed concerns about the prospect of funding stream for business-relevant research to be allocated through the RDAs for distribution due to their lack of capacity and experience.

13. There are a number of sub-regional partnerships involving universities as main actors across the country. For example, in the West Midlands Region in England, there are a number of notable sub-regional higher education partnerships. Warwick University and Coventry University have developed collaborative relationships over the years with the local authorities, and they are members of the Coventry, Solihull and Warwickshire Partnerships (CSWP). The other example is between Keele University and Staffordshire University working together in the North Staffordshire regeneration and local economic development.

14. A distinction also has to be made between *outcomes* and *outputs* (e.g. number of spin outs, number of licensing).

15. HEFCE has been promoting the formation of regional associations with small pump-priming funds around during 1999 and 2000, and all English regions established these associations. The Associations in Yorkshire and the Humber and the North East Regions predate 1999. The number of HEIs in English regions varies from 6 in the North East to more than 40 in Greater London. See Annex.

16. Multinational corporations (MNCs) are often seen as important sources of knowledge inflow to regions. The European Union has been one of the main "animateurs" through inter-governmental co-operation of research, regional innovation policies and education and training policies, by benchmarking, raising awareness, promoting the exchange of good practices and so forth. Several regions in England have established their offices in Brussels which aim to secure resources at European level, which influence funds available for HEIs and their partners both regionally and trans-regionally. In terms of international business links, the South

East Region is characterised by positioning itself in the global knowledge economy by international benchmarking and its links with multinational firms.

17. Under HEIF, Spinner is a project with eight universities in the region, supported by GBP 7.5 million of funds from HEFCE and from Advantage West Midlands, the RDA. Spinner aims at increasing the number of university spin-off companies in the West Midlands from 10 per year to 27 per year by 2005. Of the eight universities in the region, Warwick and Birmingham have substantial technology transfer experience, and had spun off 19 companies before 2002. The other six universities, however, had only one spin-off company between them. The Project is creating a network of 16 new business development managers across the eight regional universities, with Birmingham and Warwick providing training and support in the latest methods of technology transfer and company creation. So far, 50 "proto-companies" have successfully applied for. All eight universities, including several that were previously inactive in company formation, have contributed to this total. See Ederyn Williams – "Spinner Project" *http://www.unisdirect.com/conference/programme/abstracts/ederyn_williams.html* access date 05/02/03

18. In terms of government R&D funding, in 2000, London and the South East receive 49% of direct government funding; 47% of R&D funding through higher education goes to London and the South East.

19. "I believe that these councils can play a major role in bringing together universities and industry in the regions and providing the best environment for local clusters, and we are now encouraging other regions to set up similar organizations" (Lord Sainsbury, 2003). *http://www.unisdirect.com/conference/programme/presentations/Lord_Sainsbury.pdf* access date 06/02/03

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ANNEX

Table 3. **List of English Regions with RDAs and HE initiatives**

Regions	*RDAs*	*HERAs*	*Number of HEIs*	*Regional HEROBC, HEIF programmes*	*Science Enterprise Centres (SECs)*	*Number of HEIs involved in SECs*
North East	ONE	Universities for North East	6	Knowledge House Knowledge North East	North East Centre for Scientific Enterprise	5 out of 6
North West	NWDA	NWHEA	16	Knowledge North West	Manchester Science Enterprise Centre	4 out of 16
Yorkshire and Humber	Yorkshire Forward	Yorkshire Universities	12	Yorkshire Innovations	White Rose Centre for Enterprise	3 out of 12
West Midlands	AWM	WMHEA	13	CONTACT Mercia Spinner MEDICI (with EM)	Mercia Institute of Enterprise	13 out of 13
East Midlands	EMDA	EMUA	10	East Midlands Incubation Network MEDICI (with WM)	Nottingham Institute for Enterprise and Innovation	10 out of 10
East of England	EEDA	EEUA	11	Regional Infrastructure for Innovation	Cambridge Entrepreneurial Centre	1 out of 11
London	LDA	London Higher Education Consortium	41	Knowledge Bridge Knowledge Technology Networks	4 SECs	11 out of 41
South East	SEEDA	HESE	25	Hatcheries South England Technology Triangle (SET2) (with SW)	Oxford Science Enterprise Centre	1 out of 25
South West	SWRDA	HERDA-SW	14	Falcon SET2 (with SE)	Bristol Enterprise Centre	1 out of 14

Source: author, based on information as of December 2003

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The University, Knowledge Spillovers and Local Development: The Experience of a New University

by
Marylène Mille
Université du Littoral Côte d'Opale, France

Universities make an economic contribution to their host territory in two ways. Firstly, there is the direct impact of the initial investment and the effects of students and staff spending and universities' operating expenditure on the surrounding economy. Secondly, universities are also public institutions that carry out missions of higher education, training and knowledge dissemination that contribute to the local accumulation of human capital, as well as missions of research and knowledge creation that promote technological progress in the host territory. However, this contribution has often been neglected in impact studies. The aim of this article will therefore be to investigate the impact that the creation of new universities has in terms of knowledge spillovers on the economic development of their host territory.

In order for higher education no longer to be restricted to an elite, but to become a means of access to professional and social advancement open to the broadest possible public, the governments of most European countries have sought to ensure that their higher education and research system is equitably distributed over their entire territory.

In France, the 1982 Decentralisation Act and the role given to regions in the field of economic development and education have opened the way to new forms of institutional action. The 2000 University Plan, which officially gave local governments a role in higher education, has promoted closer ties between university activities and local economic development. Universities are no longer necessarily built only in the most important regions and metropolitan areas, but also in regions facing economic difficulties where levels of qualification and innovation are often insufficient. This means that the university is no longer seen solely as a locally based service that must be distributed throughout the country, but also as a key factor for local development.

Universities make an economic contribution to their host territory in two ways. Firstly, there is the direct impact of the initial investment and the effects of students and staff spending and universities operating expenditure on the surrounding economy. However, universities are also public institutions that carry out missions of higher education, training and knowledge dissemination that contribute to the local accumulation of human capital, as well as missions of research and knowledge creation that promote technological progress in the host territory.

The economic contribution of academic knowledge has often been neglected in impact studies. The aim of this article will therefore be to investigate the impact that the creation of new universities has in terms of knowledge spillovers on the economic development of their host territory.

In an initial section, we shall show how the effects of academic knowledge can be incorporated into studies on the regional impact of universities and we shall emphasis in particular the roles that a university is expected to play in its local environment. In a second section, we shall focus on the local dimension of these knowledge spillovers and their contribution to local development. We shall study the case of the *Université du Littoral*, which was established in 1991 on the *Côte d'Opale* (the "Opal Coast"), the coastal area of the *Nord-Pas-de-Calais* region.

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Incorporating the effects of academic knowledge into studies on the local impact of universities

The impact that universities have on their host territory is of two types: the impact of expenditures and the impact of academic knowledge. The first refers to the impact that the consumer spending of students and administrative, technical and academic staff and the universities' expenditure on capital goods have on income and employment in the region or urban area being considered. The second refers to the benefits derived from university activities, and more specifically the impact of the university's production and dissemination of knowledge – including human capital – on the local economic environment.

From the impact of expenditure to the impact of academic knowledge

Various methods have been developed to evaluate the regional impact of a university's expenditure. Caffrey and Isaacs (1971) were the first to develop a specific accounting model to study its impact on regional income and employment. Alongside these specific tools, more general methods have been used, such as the economic base method, input-output models and the Keynesian multiplier (Dion, 1987).

Harris (1997) sought to evaluate the effects – direct, indirect and induced – of the University of Portsmouth on the local economy by using input-output analysis. He calculated that the multiplier effect of the university on employment ranged between 1.55 and 1.79 and the multiplier effect on income between 1.24 et 1.73. This study was not based on data collected through traditional surveys, but on direct data on sales, imports and exports. In terms of jobs, between 1 029 and 1 940 jobs were directly dependent on the university, above and beyond the 1 885 people directly employed by the University of Portsmouth. Without the university, it was estimated that the economy would employ approximately 3375 fewer people.

More recently, in France, Baslé and Le Boulch (1996 and 1999) have used the economic base model to assess the impact of education and public research on the urban area of Rennes. Both authors made a survey of direct and induced jobs generated by the sector of higher education and public research at the local level. According to this model, these activities were considered as being the source of a process of effects on other sectors (including business, leisure activities, health care, government, banks, etc.). This study confirmed that this type of investment has a local impact in terms of economic activity and employment. In all, higher education and public research generated over 19 000 direct and induced jobs in the employment area of Rennes.

However, few studies have addressed the economic impact of the knowledge spillovers generated by the higher education and research activities of universities.

In a study on the impact of Chicago's universities on the metropolitan area's economy, Felsenstein (1996) makes a distinction between the "backward" and the "forward linkages" that these universities have with the outside local world. Backward linkages refer to the effects that spending by university staff and students and by universities themselves have on the income and employment of the metropolitan area. Forward linkages refer to the outputs of university activities, such as the production and dissemination of knowledge within the local economy, the employment of young graduates and partnership relations involving consultancy and research.

Felsenstein distinguishes between three types of backward linkage: to households, to local government and to the local economy. Universities' impact on local households is seen through the direct and induced effects on income and employment. The effects on local government may be different: the presence of a university may increase tax revenues, but it can also lead to an increase in demand for public services. Lastly, local firms may benefit from the demand for goods and services from a university, but the university may also compete with local firms on the labour or real estate market, leading to displacement effects.

Felsenstein also identifies three types of forward linkages in the form of a change to the level of human capital, to the knowledge pool and to the attractiveness of the local area to households and firms. The university increases the level of human capital of the local economy, but only if young graduates remain near their host university. The university improves the stock of knowledge available locally through a series of university-enterprise linkages. Universities may also contribute to the attractiveness of an area by creating positive externalities regarding qualify of life.

The author raises interesting issues of theory and method that can be used in carrying out regional economic impact studies, but does not resolve them entirely. The terms "backward and forward" tend to disguise the basis on which the effects can be identified and evaluated. The backward linkages are more static in nature, and are estimated from a point in time with parameters estimated from current data. This also implies that the effects are time reversible rather than cumulative and path dependent. This is also true of the human capital effects that Felsenstein lists among forward linkages. The other linkages are knowledge effects, advice and knowledge acquisition through continuing education and training. The knowledge effects are gradual and cumulative and are by nature forward linkages.

Another possible classification adopted by Battu *et al.* (1998) is to use the distinction made by Marshall between the short and long run to classify the university's different linkages with the outside world. In Marshall's long run, "economies that may result from substantive new inventions are excluded", but "those which may be expected to arise naturally out of adaptations of existing ideas" are included, thereby maintaining "a position of balance between forces of progress and decay" (p. 460). In the short run "the supply of specialized skill and ability, of suitable machinery and other material capital, and the appropriate industrial organization has not time to be fully adapted to demand; but the producers have to adjust their supply to demand as best they can with the appliances already at their disposal" (p. 360).

Learning and adaptation of knowledge, possibly including knowledge acquired by the outside world through university services, is excluded from investigations in the short run, just as changing knowledge is excluded from economic impact assessments using Keynesian multiplier or input-output analysis. The development of knowledge within universities and through relations between universities and the economic world is a Marshallian long-run process. Analysis of local and regional economic impacts in the short run and in the long run therefore seem complementary. Short-run analysis chiefly addresses forward issues, *i.e.* economic base and multiplier models and input-output analysis are well suited to short-run analysis. Long-run analysis is more problematic and relies on detailed case studies of gradual accumulations of knowledge and its assimilation into a local economy.

These considerations raise two questions: how can the knowledge generated by universities add value to the local economy?, and how is this knowledge disseminated?

University activities and the potential local impact of academic knowledge

Many studies in education sciences have focused on universities' social and cultural role, which contributes to improving the well-being and the ideological, social and cultural values of any society, but these studies often neglect universities' economic role. It must not be forgotten that universities create a network of knowledge that is important to economic activity and growth. In this regard, we can identify two ways in which universities contribute to the economy:

- firstly, education and training activities improve the level of human capital of the individuals attending universities and of society as a whole;
- and, secondly, universities' basic and applied research activities, whether contractual or not, contribute to improving the economy's stock of scientific and technological knowledge.

Although forging a relationship with the local community by no means the primary vocation of universities, they can make a contribution to training this community's labour force, contribute to its industrial research and development process and act as a pole of attraction for households and firms who wish to benefit from this environment.

The fact is that universities play a key role in creating human capital, in particular through the teaching and training provided to future scientists and engineers. In a knowledge-based economy, knowledge acquisition is an important factor that determines the future of individuals and companies, but also of the economy of an entire country. Individuals' ability to acquire and apply new skills is now indispensable for them to assimilate and use new technologies (OCDE, 1996). This being the case, universities occupy a central position since they are virtually the only institutions able to train future researchers and they are also asked to provide general education, i.e. to train highly skilled and specialised individuals for the sectors of industry, trade, government and professional occupations.

Consequently, the presence of a university in a local economy can not only have quantitative, but also qualitative effects. Even if some graduates emigrate to other regions or countries, the university, through its education and training functions, can contribute to increasing the labour pool of the local employment market, and can provide local companies with highly qualified and skilled labour that has great productivity potential. Furthermore, as Weibrod has written (1962):

> "The education of one worker can have favourable spillovers on the productivity of others. When production involves the co-operative efforts of workers, one worker's flexibility and adaptability will benefit others. The productivity of each member of the group influences the productivity of each other member."

The presence of highly skilled people will therefore have the effect of raising the productivity of other individuals in the local economy since, in accordance with Lucas' model (1988), individuals' efficiency increases proportionately to the extent that they are surrounded by skilled people.

This impact will be all the greater if the university has decided or been instructed to focus less on educating students for national and international employment markets and more on local markets by developing specialisations that are directly linked to the local economy.

The basic and applied research activities carried out by universities contribute to improving the stock of scientific and technical knowledge. Basic research has an international dimension that places it out of the reach of local firms. However, this may not necessarily be the case for applied research if we look beyond the traditional indicator of patents and registered licences. The

life of a research laboratory is dependent on financial networks that may be public, but can also be private. In a region where pace-setting and innovative firms are few in number, the methodological dimension, expertise in the use of equipment and various research protocols may be an important factor for bringing together universities and local companies. What is more, the presence of these laboratories, which often belong to an extensive national and international research network, can play an important role as an intermediary and facilitate access to data that companies may seek. The presence of graduates of the university, local and guest university researchers, the ideas generated by university departments and the establishment of libraries would also facilitate the innovation process at the local level. Laboratories can also provide services because of their expertise in the use of experimental protocols and formal modelling and the measurement and calculation equipment that they possess.

The local dissemination of knowledge can also be promoted by organising symposia, seminars and open-house days. Informal discussions between university researchers and researchers and managers in the private sector can enable them to benefit from technically important knowledge at low cost. Economic actors often consider the most ordinary discussions to be an important aspect of their work and of great value in an economy characterised by rapid technological change and intense competition. In this regard, Senker (1995) points out those concrete relations are highly developed between universities and high-tech industries. The interest of these exchanges, often favoured by proximity, is to allow for the transfer of information on practical aspects of technology that cannot always be explained in professional journals. This information can concern the best way to implement a procedure, improve its quality and safety, choose and use equipment more effectively, interpret and apply certain legal provisions, assimilate management techniques, etc.

However, it should be borne in mind that, like technological research, research in human and social sciences is also important for local development. For example, even the humanities, which mainly target languages and culture, are largely an integral part of the official education system and can play an important cultural role by organising specific cultural events. The human and social sciences can contribute directly to local development both in the private and public sector. Although scientific research in the field of technology is primarily aimed at the industrial sector, research in the fields of law, management and economics can also directly concern economic actors, whether private or public, market or non-market. It would therefore be profoundly wrong to confine research activity to an approach based solely on the standard, interlocking components of science, applied science and innovation, and which would seek to couple university

research with a type of economic development limited to its technological dimension, in an excessively scientific and purely technological vision of society (Becart *et al.*, 1997, p. 76). Economics and geography play analogous roles in relation to the surrounding environment and can enrich the perspectives of decision-makers. These disciplines should address the questions that local governments have to confront regarding their practices and their future. These are fields in which the commissioned research will be almost completely monopsonic, coming almost entirely from public actors. Public law that concerns public policies is focused, like economics and geography, on the scope of public decision-making and this type of research naturally finds its sponsors in the institutional activity sectors of the non-market tertiary sector. As for the field of history, it stands midway between the social and cultural sciences. It plays a key role in raising awareness of the local identity and the changes taking place at the local level. The impact of history can be measured above all in activities targeting the public and symposium and publication activities that play a role of disseminating information to local elites.

Furthermore, the presence of a university is a factor that can make an area more attractive. It can be a key factor in the decision of skilled workers to migrate to an area, as they generally move to regions with a high concentration of human capital, and in the decisions of businessmen to establish firms in an area, as they can be influenced by the fact that it has a pool of highly skilled labour and research laboratories. Similarly, the presence of a university can promote the development of private research and attract other research laboratories.

Lastly, through its research and education activities, universities have effects on economic development that can be understood in terms of private consumption externalities – entering into a single production function at a time – and, to use Meade's expression (1952), in terms of atmosphere externalities – indiscriminately affecting a number of production functions simultaneously. However, it is necessary to make a statistical analysis of a university's relations with its local economic environment and to carry out a study of the geographical dimension of knowledge spillovers in order better to understand the endogenous mechanisms triggered by the creation of new universities in territories suffering from serious economic difficulties.

Academic knowledge spillovers and local development: the experience of the *Université du Littoral Côte d'Opale (ULCO)*

We shall focus on the case of the *Université du Littoral Côte d'Opale* to present the complex ways in which a university becomes economically integrated into a specific territory. In France, the decision as to where to

establish a university is still largely made outside the areas concerned, but the university's integration into the local economy and the many ties that it forges with local economic actors are primarily locally determined. This integration is a genuine process that involves development actors, which is highly dependent on the extent to which university provision meets local needs (2.1) and above all on the extent to which academic knowledge is disseminated locally (2.2).

It is difficult to find sound quantitative indicators that show the economic impact of the various functions of a university. There are few reliable statistics available and this type of data is not always easy to gather. However, a study of the channels through which academic knowledge is transmitted to the local economy can enable us to make certain hypotheses. We shall focus mainly on the mobility of young graduates of the *Université du Littoral Côte d'Opale* (ULCO) and the extent to which they are employed in the local market and on research contracts between university research laboratories and other economic actors. Consequently, our approach has been to carry out a large-scale task of quantitative data collection, and also to conduct in-depth interviews with the various university bodies in order to evaluate more accurately the quality of local relations and the extent to which university provision is adapted to the needs of the economy.

The Université du Littoral Côte d'Opale: its socio-economic environment and its education and research provision

The *Université du Littoral* was created in 1991, and began its first academic year in September 1992, with a mission aimed not only at strengthening the existing regional higher education system, but also at contributing, through its education and research activities, to the economic and social development of the coastal area in the light of its specific characteristics. One of the specific characteristics of this university is that it is not only multidisciplinary but also multipolar, as its facilities are dispersed in different centres located in the main cities of the *Côte d'Opale* coastal area.

We shall begin by presenting the socio-economic environment of the *Université du Littoral*, and then study its specific characteristics.

The socio-economic environment of the university: the "Côte d'Opale" coastal area

Firstly, we must begin by describing the territorial characteristics of the coastal area. With a population of 753 029 according to the 1999 census, the coastal area is divided into the 5 administrative districts ("*arrondissements*") of Dunkerque (263 018 inhabitants), Calais (114 725), Boulogne (163 159), Montreuil (99 288) and Saint-Omer (112 845), and is the size of a *département*

Table 1. **Level of qualification of the population of the coastal area in 1999**

Diplomas held	Dunkerque	Calais	Boulogne	Saint-Omer	Montreuil	**Total Coastal Area**	Nord-Pas-de-Calais region	France (thousands)
No diploma stated	42 994	26 092	30 217	18 458	17 202	**134 963**	644 952	8 512
Primary or lower secondary diploma	46 601	31 007	30 252	22 749	22 108	**152 717**	277 866	10 837
CAP, BEP (secondary vocational diplomas)	48 177	28 285	27 123	20 886	17 013	**141 484**	688 981	10 592
Bac (Upper secondary diploma)	20 837	11 805	12 665	7 993	7 485	**60 785**	303 163	5 201
Bac + 2 years higher education	12 914	7 231	27 818	5 502	5 937	**59 402**	208 392	3 633
Higher education degrees	9 662	4 651	5 955	3 638	3 334	**27 240**	173 034	3 869
Total	**181 185**	**109 071**	**134 030**	**79 226**	**73 079**	**576 591**	**2 766 388**	**42 644**

Source: INSEE, 1999 Census

(the main French local administrative unit, managed by the central government). The *Côte d'Opale* coastal area's share of regional population is increasing steadily. Thus, it grew from 17.6% in 1962 to roughly 18.84 % in 1999 and, according to the 1999 census, its population is characterised by its youth and relatively low level of qualification.

The coastal area is a region where levels of qualification are lower than those prevailing at the regional and national level. This naturally means that average incomes are significantly lower than the national average, which in turn has major repercussions on the behaviour of families with regard to higher education and particularly on their ability to finance higher education.

The study of the social structure of the labour force also reveals deep disparities in comparison with the regional and national average. Professional occupations and senior executives are significantly under-represented in the coastal area (6.61% as against 8.98% of the national labour force). There is also a 2.04 point discrepancy for intermediate professions. Consequently, the category of manual workers seems to be clearly over-represented, which is probably a legacy of region's long industrial past.

The coastal area remains strongly marked by its industrial past, with textile production based in Calais and metallurgy in Dunkerque, and the difficulties stemming from the restructuring of its industrial fabric after the strong growth of the three post-war decades came to an end.

There is a high concentration of intermediate goods industries in the coastal area thanks to the steel, metal casting and chemical industries, as well as the glass and paperboard industries. Consumer goods industries are also highly developed, in particular the agrifood industries (fish processing and

Table 2. **Social structure of the labour force in 1999**

Socio-professional category	Dunkerque	Calais	Boulogne sur Mer	Saint-Omer	Berck/ Montreuil	**Total coastal area**	N-P-C region	France (thousands)
Agriculture	1 441	1 081	1 264	1 412	1 740	**6 938**	21 992	671
Craftsmen – shopkeepers – businessmen	5 059	3 213	3 648	2 596	3 072	**17 588**	79 710	1 651
Professional occupations – senior executives	8 044	4 023	4 748	2 892	2 432	**22 139**	145 629	3 246
Intermediate professions	24 812	12 074	12 848	8 346	7 252	**65 332**	344 321	5 153
Non-manual workers	32 547	20 401	20 659	13 157	13 628	**165 724**	481 745	7 705
Manual workers	37 329	24 249	22 800	18 735	12 516	**115 629**	547 319	7 096

Source: INSEE, 1999 Census

preparation), which is dominant in the Boulogne area but is also found throughout the coastal area as a whole, and also the textile-clothing industry, which remains very important in the Calais area. On the other hand, capital goods industries only accounted for 5.1% of jobs in the coastal area at 1 January 2000. The drop in the number of workers employed in shipyards has only increased this weakness. However, there are industries in the mechanical, electric (Valeo in Etaples) and electronic (Alcatel in Calais) sectors in each of these areas that provide small clusters of jobs, but do not constitute a real industrial power.

The coastal area is highly agricultural and industrialised, which has meant the tertiary sector has remained less developed than elsewhere. Although it has been growing rapidly in recent years, the tertiary sector only accounts for less than 60% of jobs in the coastal area.

Being a coastal area, the transport sector is well represented, and even though it has undergone major reorganisation, port traffic remains significant.

Coastal tourism, both from France and abroad, is also a major activity. The *Côte d'Opale* coastal area with its beaches, capes and ocean centre (NAUSICAA) are destinations for bathing, sports and leisure tourism.

However, the business services sector is one of the weak points of the coastal area. It is true that the situation in this regard varies from one area to another. Dunkerque has a relatively broad range of services (45% of jobs in the entire coastal area in this sector), but Montreuil and Saint-Omer have relatively few. Boulogne and Calais occupy an intermediate position and provide traditional services such as legal, advertising and accounting services.

Table 3. **Breakdown of private sector job by sector of activity**
(Companies affiliated with the unemployment insurance system)

	Coastal area			Nord-Pas-de-Calais Region		
	Number of companies	Number of employees	% of wage-earning jobs in the private sector	Number of companies	Number of employees	% of wage-earning jobs in the private sector
Primary sector	**36**	**703**	**0.4%**	**79**	**962**	**0.1%**
Secondary sector	**3 286**	**72 350**	**40.5%**	**16 248**	**337 429**	**36.9%**
Of which						
Agricultural and food industries	692	7 980	4.5%	2 747	35 577	3.9%
Consumer goods industries	223	4 773	2.7%	1 528	31 997	3.5%
Automobile industry	14	543	0.3%	109	25 387	2.8%
Capital goods industries	363	9 133	5.1%	1 994	49 623	5.4%
Intermediate goods industries	489	35 022	19.6%	2 782	119 031	13.0%
Energy	18	1 143	0.6%	80	3 307	0.4%
Construction	1 487	13 756	7.7%	7 008	70 507	7.6%
Tertiary sector	**126 565**	**105 656**	**59.1%**	**58 431**	**575 948**	**63.0%**
Of which:						
Trade	4 461	32 647	18.3%	20 507	179 617	19.6%
Transport	604	9 901	5.45%	2 593	45 292	5.0%
Financial activities	513	3 244	1.8%	2 545	28 007	3.1%
Real estate activities	898	2 419	1.4%	3 279	12 030	1.3%
Business services	1 303	21 685	12.1%	7 757	135 502	14.8%
Personal services	2 586	12 540	7.0%	10 666	51 918	5.7%
Education, health, social programmes	1 820	18 606	10.4%	8 845	93 702	10.2%
Administration	380	4 614	2.6%	2 239	29 880	3.3%
Total	**15 887**	**178 709**	**100.0%**	**74 758**	**914 339**	**100.0%**

Source: ASSEDIC of Sambre-Escaut, Pas-de-Calais and Hauts de France (in Repères, 2001).

Lastly, although the port of Boulogne has been hard hit by the opening of the Channel Tunnel, this also seems to have promoted the emergence of service zones in the Calais area.

Consequently, we can conclude that despite major economic reorganisation, the coastal area still has certain specific characteristics today:

- a larger primary sector than other parts of the region,
- a strong industrial sector, particularly for intermediate goods industries and agrifood industries,

- a tertiary sector that, even though it has partially caught up, remains smaller than in the rest of the region. Financial activities and business and personal services remain under-represented in the coastal area.

The Université du Littoral Côte d'Opale and its specific characteristics

The *Université du Littoral*, like all traditional universities but unlike specialised institutions, is required to meet comprehensive educational needs, which give it a multidisciplinary vocation.

Two types of initial education programmes are provided, one of a general nature (economic sciences, humanities, history, law, mathematics, natural sciences, physics, chemistry, etc.), and the other more specialised and even vocationally oriented – MSG (master's degree in management sciences), DUT GEA (university diploma of technology in business and administrative management), DUT in Computer Science, ISCID (International Business School of Dunkirk), IUP GSI (vocationally-oriented university institute for industrial systems engineering), etc. Some of the latter programmes may be adapted to the specific characteristics of the local economic structure, ranging from two-year programmes (scientific and technical diploma [DEUST] of ocean and seashore technician), to three and four year programmes (MST scientific/technical master's degree in port management, IUP GSI degrees in fisheries industries and food processes and industrial maintenance), and lastly programmes lasting five years or more (specialised higher diploma [DESS] in coastal areas, diploma of advanced studies [DEA] in environmental law). The first types of programmes are aimed at raising the general level of education, while the second are intended to establish a relationship with professional and business circles.

The development of the *Université du Littoral* (ULCO) is based on a policy of promoting the widest possible access to higher education, while ensuring that students only travel minimum distances during the first cycle (undergraduate) and are only required to specialise starting with the second cycle (graduate). Consequently, the strategy of ULCO's management has been in an initial phase to establish a variety first-cycle programmes in all disciplines at all sites, and then, in a second phase, to have each site specialise in specific second and third-cycle graduate programmes.

The first phase has now been completed, and the second phase, which is already well under way, is continuing. The university's policy of contributing to the development of its host area, although it was already highly developed at the time of the university's creation, is being further reinforced and new and increasingly vocationally oriented programmes are being created that are adapted to local activities, which remain highly industrial. Vocationally-oriented *licences* (bachelor's degrees) in catering and hotel management and

an MST (master's degree in science and technology) in territorial development were established at the beginning of the 2000 academic year. Similarly, a DESS (diploma of higher specialised studies) in coastal area law, a DESS in integrated territorial development with a specialisation in an urban-port environment and a DESS in domestic and international distribution management have been added to the DESS in planning and tourism. There are also new programmes in the field of science and technology, such as a vocational *licence* in industrial sciences and technology and an MST in the field of expertise in pollution in a natural environment.

With regard to research, two broad headings were selected, one focusing on the theme of the "environment" and the other on the theme "man, society and coastal areas". The theme of the "environment" combines research in the sector of the exact sciences (mathematics, physics, chemistry, engineering sciences and natural and life sciences) and the associated human sciences (humanities, languages, history and geography, management, economics and law). The *Côte d'Opale* coastal area is particularly subject to natural and man-made disturbances (intensive agriculture, high industrialisation, a major hub of world trade, high urbanisation), which place great pressure on the sea, rivers, land and air and thus justify concentrating research activities on this theme.

The environmental theme can be broken down into coherent sub-groups, such as the natural and industrial environment, ocean and air pollution and industrial risks. Many research groups have been established around these groupings, each with its own individual specialisation, in biology, biochemistry, physics, microbiology, mathematics, ecotoxicology and health, thermal and energy geology, process engineering and computer science, but also in physical and human geography, management, law and economics.

In addition, since research is primarily focused on the industrial environment and the interface with the marine environment, we should mention a specific applied research centre, the CREID, a joint equipment and measurement centre equipped with heavy apparatus for use in the environmental research of the coastal area's laboratories.

More specifically, the CREID – the Centre for Industrial Ecology Resources of Dunkerque – is a tool providing technical, scientific and regulatory support that was established jointly by industry, local governments and scientists. The CREID was initially promoted by the Nord-Pas-de-Calais region, with the support of the Ministry for Higher Education and Research. Its research is mainly oriented towards the concerns of industry: waste management, the socio-economic aspects of the environment, ecotoxicology, etc. In the field of industrial ecology, the CREID provides information and services, organises days devoted to specific topics, advises companies and local governments

regarding financial assistance related to environmental protection, etc. The CREID allows industries to contact researchers and laboratories to carry out multidisciplinary studies, such as studies on the impact of industrial activities on the natural environment. The CREID also manages the Joint Measurement Centre (CCM) of the *Université du Littoral*, making state-of-the-art analytical resources available to researchers. Contracts may also be signed to provide diagnosis, analysis, advice and research.

As regards the heading of "man, society and coastal areas", its objective is to bring together researchers in the human sciences sector around fields of priority investigation that historically have usually only been addressed in a marginal way by each of the disciplines considered. The "Channel-North Sea" region defines a social area that is presented as the northern equivalent of the Mediterranean Basin. The size and coherence of this region make it possible to develop themes in the various disciplines that are potentially highly complementary, involving languages, humanities, history and geography, but also law, economics and management. The objective is to promote research that places special emphasis on analysing and studying the coastal area and North-Western Europe. However, even though there is a very real determination to refocus ongoing research work on this theme, the research activity in this sector nevertheless continues to be highly individual and dispersed.

In this section, we have tried to determine the extent to which the educational programmes of the *Université du Littoral Côte d'Opale* are adapted to the socio-economic structure of the area in which it is located. We have seen that there is a certain relationship between the industrialisation of the coastal area and the dominant structures of the scientific faculties. In the following section, we shall study and analyse the linkages that exist between the university and the local economy through an interaction that takes two forms, i.e. the employment of young graduates and research contracts.

The dissemination of academic knowledge

The employment of young graduates

In September 2000, a mail survey was conducted of all young graduates who had left ULCO in 1997 and 1998 and had not been enrolled in any ULCO programmes since then. In all, 2 695 young graduates were surveyed. Some 1 007 usable questionnaires were returned, for a net response rate of 36.95%. The questions concerned these graduates' job situation 26 months after they had left ULCO, i.e. at 1 September 1999 for graduates who had left in en 1997 and 1 September 2000 for those who had left in 1998.

The results showed a range of different situations. Some of the young graduates had found a job by 1 September 1999 or 1 September 2000. Others

were still enrolled as students in other higher education and vocational training institutions at these dates, while others were doing their military service or still looking for employment. Some young graduates had also found a job as soon as they left ULCO but were no longer employed at the given dates.

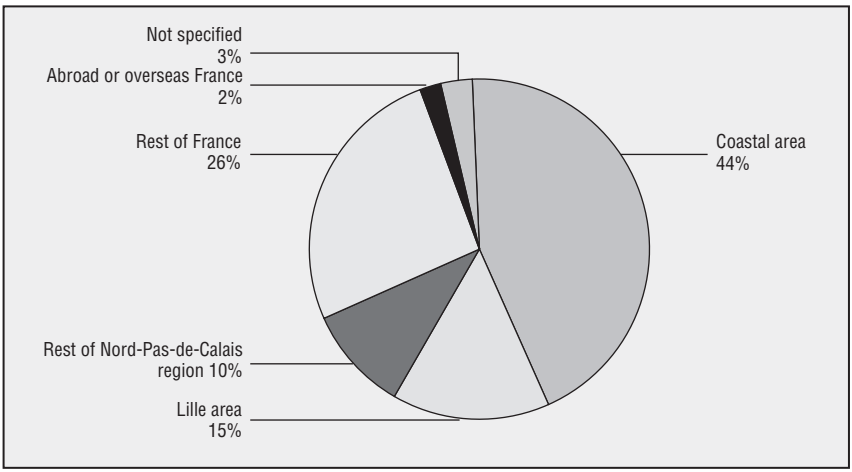
This study showed that over 44.60% of these young graduates had left the *Université du Littoral* to continue their studies in other higher education institutions, particularly in the Lille metropolitan area. There are many reasons for this high mobility, such as the attractiveness of a major city and its cultural life, the wish to attend business or engineering schools or to continue in university programmes not available at ULCO.

A total of 699 people were employed 26 months after leaving ULCO, i.e. 69.41% of respondents. The employed young graduates holding a second-cycle diploma (master's degree) accounted for nearly 47% of respondents, while 26.13% held a third-cycle (doctor's degree) and 26.87% held a first-cycle, i.e. undergraduate, degree (88% of whom held the non-bachelor level scientific, technical and technological DEUST and DUT diplomas).

These results raise a number of questions. How many of these graduates were employed in the coastal area? What was their level of education? Who employed them? In what sector of activity? What was their status?

How many of these graduates were employed in the coastal area?

Figure 1. **Geographic breakdown of jobs held by young graduates 26 months after leaving ULCO**



Some 306 young graduates who left the *Université du Littoral* in 1997 and 1998 held a job in the coastal area 26 months later. The coastal area's retention rate can therefore be estimated at 44%. However, this rate must be qualified depending on whether or not these graduates continue their studies outside ULCO. If we only consider graduates who did not continue their studies outside ULCO, the retention rate increases to approximately 48.87%. Few students who continued their studies in other institutions subsequently return to the coastal area.

What was their level of education?

Table 4. **Level of education of young ULCO graduates employees in the coastal area**

Types of diploma	Number	%
1st cycle (undergraduate)	92	30.06
2nd cycle (master's degree)	150	49.02
3rd cycle (post-master's, doctoral)	20	6.53
Primary school teaching diploma	38	12.43
Business school diploma	0	0
Engineering school diploma	2	0.65
Other	4	1.31
Total	**306**	**100**

Some 30% of the young graduates employed in the coastal area held a first-cycle university diploma, 49% a secondary-cycle diploma and only 7% a third-cycle diploma (Table 1).

Who employed them?

Some 39.87% of young graduates working in the coastal area were employed by the central government and local and regional governments, 4.57% by associations and 55.56% by companies. If we make a comparison in

Table 5. **Types of employers of young ULCO graduates**

	Coastal area		Rest of the NPC region			Rest of France and abroad		Not specified	**Total**
	Number	%	Number	%	Number in Lille metro politan area	Number	%	Number	**Number**
Companies	170	55.56	121	70.34	79	143	72.95	4	**438**
Government	122	39.87	43	25	19	47	23.98	18	**230**
Associations	14	4.57	8	4.66	4	6	3.06	0	**28**
Total	**306**	**100**	**172**	**100**	**102**	**196**	**100**	**22**	**696**

Table 6. **Breakdown of young ULCO graduates working in the coastal area by category of employer** (numbers)

	Types of local employers			
Types of diploma	Central, regional and local governments	Companies	Associations	**Total**
1st cycle (undergraduate)	27	62	3	**82**
2nd cycle (master's degree)	47	96	7	**160**
3rd cycle (post-master's, doctoral)	10	7	3	**20**
Primary school teaching diploma	37	0	1	**38**
Business school diploma	0	0	0	**0**
Engineering school diploma	0	2	0	**2**
Other	1	3	0	**4**
Total	**122**	**170**	**14**	**306**

relation to all jobs held by young ULCO graduates, we see that in the coastal area there is a relatively larger share of persons employed by the central government (Table 2). A more in-depth study shows that 65% of graduates with first and second cycle diplomas worked in a company, while the majority of third-cycle diploma-holders worked in government and associations (Table 3).

The local companies employing these young graduates were primarily SME-SMIs. Some 42.15% of these graduates worked in companies with fewer than 500 employees, and more specifically with 10 to 200 employees. Companies with fewer than 10 employees employed 16% of these young graduates in the coastal area, as against 11% at the national level, while only 23.7% were employed in large companies, as compared to 30% at the national level.

In what sector of activity?

Some 33.98% of young graduates employed in the coastal area were working in the market services sector, of which 11.44% were in the transport and telecommunications sector, 40.2% in the non-market services sector and 21.6% in industry (Table 4).

What was the status of these young graduates?

Only 10.46% of young graduates working in the coastal area held executive positions. Some 49.67% belonged to the socio-professional category of technicians and intermediate professions and 38.90% had jobs as non-manual and manual workers. These figures show great disparities in comparison to the status of young graduates as a whole, of whom 22.84% are executives and 28.60% hold positions of non-manual and manual workers.

Table 7. **The activity sectors that recruited the young ULCO graduates**

	Coastal area	Rest of the NPC region		Rest of France and abroad	Not specified	**Total**
		Total N-P-C region	Number in Lille metro politan area			
Activity sectors						
Agriculture	2	2	0	0	0	**4**
Industry	66	34	17	53	1	**154**
Construction and civil engineering	10	7	5	7	0	**24**
Trade	35	15	11	28	1	**79**
Transport and telecommunications	25	4	4	16	1	**46**
Banking	7	13	7	6	0	**26**
Other market services	37	44	35	35	1	**117**
Non-market services	123	48	20	49	18	**238**
Other	1	5	3	2	0	**8**
TOTAL	**306**	**172**	**102**	**196**	**22**	**696**

We can conclude from this survey that, even though the *Université du Littoral*'s recruitment area is primarily local, the coastal area's retention rate is 46%. This human capital "drain" takes place in two ways. Firstly, some graduates leave the *Université du Littoral* to continue their studies in other regional or national institutions and most of them do not return subsequently to work in the coastal area. This leads us to ask the following question: would the "drain" be as large if the university offered a broader range of programmes, particularly in the third cycle? Secondly, some graduates find jobs outside the coastal area after leaving ULCO.

Table 8. **The status of employed young ULCO graduate (numbers)**

Socio-professional category	Coastal area	Rest of the NPC region		Rest of France and abroad	Not specified	**Total**
		Entire N-P-C region	Lille metropolitan area			
Executives	32	46	39	78	2	**158**
Intermediate professions	91	48	20	33	15	**289**
Technicians	62	37	21	42	2	**143**
Manual workers	107	4	0	3	0	**19**
Non-manual workers	12	36	21	36	1	**180**
Other	2	1	1	4	2	**7**
Total	**306**	**172**	**102**	**196**	**22**	**696**

With regard to the professional situation of young graduates working in the coastal area, the largest employer remains the central government through its various public functions, especially teaching. The strictly private sector employs approximately 55% of graduates. The main professional sector for these graduates is industry, and very few find a job in the business services sector. Furthermore, few graduates working in the coastal area hold executive positions. Most hold jobs as technicians or manual workers or fall into the category of intermediate professions.

Consequently, even though the coastal area's retention capacity is on the whole significant, this result must be qualified. Little human capital seems to be channelled towards sectors with a promising future. Most young graduates often hold jobs below their level of qualifications, which reduces the dissemination of human capital and the related spillovers.

The contractual research of ULCO laboratories

The relations that university laboratories maintain with the outside economy are a second means of transmitting academic knowledge. A total of 392 research contracts signed between 1994 and 1999 have been enumerated, of which 59% were signed with local partners.

Local relations between university laboratories and the economy have been established with companies, local and regional institutions and several national public institutions and laboratories that carry out part of their activity in the coastal area. More precisely, 86% of these contracts were signed with companies (57.30% with SME-SMIs), 11.35% with local and regional institutions and only 2.62% national public institutions. Approximately 64.57% of these contracts were in the field of engineering sciences, technology and industrial ecology, 32.56% in biology and the natural environment and 39.13% in economics and urban planning.

However, over three-quarters of the contracts signed with local partners are in reality service provision contracts. Most of these contracts for service

Table 9. **Breakdown of contracts by type of local contracting entity**

	Knowledge transfer	Service provision	Not specified	**Total**
Companies	162	34	1	**197**
SME-SMIs	*11*	*94*	*0*	***105***
Large companies	*20*	*71*	*1*	***92***
National public institutions	1	4	1	**6**
Local and regional government institutions	12	12	2	**26**
Total	**478**	**47**	**4**	**229**

provision (92.70%) are signed with local companies. SME-SMIs remain very reluctant to sign real transfer contracts.

As regards the types of co-operation in research between the ULCO laboratories and outside entities, a clear conclusion can be drawn: even in the case of technological research, direct co-operation with local companies is relatively rare. The main type of outside co-operation consists of previously finalised major national and European research programmes, in which regional and national laboratories are led to co-operate. Government commissioned research predominates among research activities *per se* and research commissioned by industries, although it is increasing, remains marginal.

The situation is different with regard to basic requests for research placed with university laboratories to carry out tests or analyses that use the physical resources of research centres and provide financial and/or infrastructure resources for laboratories, but do not really use researchers' intellectual capacity. There are many service provision contracts, in particular with local industries, both large corporations and SME-SMIs. Large corporations with their own research laboratories do their own research, but for various technical and financial reasons occasionally decide to subcontract their needs for analysis, tests or measurement. As for SME-SMIs, their limited financial capacities do not allow them to invest in major research programmes. In addition, the lack of knowledge regarding the services offered by the university and problems of communication are major obstacles to good relations between the university and the surrounding economic world.

Ultimately, the analysis of the impact of the *Université du Littoral* has made it possible to draw a number of lessons about the local economic role of a new university. Its direct repercussions on the local economy by improving human capital and disseminating academic knowledge can be observed in relatively specific ways, as the surveys conducted have shown: the university meets a demand for labour, which is not necessarily highly skilled, and it provides occasional research services, which do not necessarily entail a high level of skills. As Pavitt (1993) has shown, companies seem ultimately to benefit from universities' basic research potential in ways that do not necessarily involve codified knowledge, but rather problem-solving skills.

Given the recent nature of the *Université du Littoral*, we are unable to study its long-term impact on the growth patterns of the local economy and must confine ourselves to evaluating the immediate impact. However, Gagnol and Héraud's study of Strasbourg University (2000) raises the question of whether the limited number of companies that forge close ties with the university is not representative of the future local economic structure in the new knowledge-based economy. Would this not lead to a situation of an underdevelopment trap, as described in growth models and in geographic economics? Might not the

establishment of publicly funded universities have a limited impact on long-term economic growth? In this case, would they not act more as mere service providers rather than as genuine factors for economic growth?

In conclusion, there has been much debate on the issue of the regional and local impact of university expenditures, including the investment expenditure made when the university is created, the university's own operating expenditure and the spending of its staff and students. The authors of these studies have obtained very different results depending on the universities analysed, the period considered and the methodology used. However, they have often neglected the impact of academic knowledge on local economic growth. The probable reason why few impact studies have included this factor is the fact that it is a dynamic growth process and it is impossible to include the long-term impact of academic knowledge in short-term economic impact estimates. Nevertheless, there is reason to believe that research and higher education activities might generate effects on universities' host territory:

- by providing local companies with the skilled labour that they need and improving the average level of human capital of the local economy;
- by assisting these companies with their research activities and promoting technological progress.

By analysing experience of the Université du Littoral, we have sought to estimate and understand, albeit partially, how a university contributes to the economic growth of its host territory. It would appear, however, that the extent to which a university can disseminate academic knowledge locally might be, depending on the situation, determined, limited or promoted by the initial economic endowments of the area in which the university is established. Nevertheless, the results obtained must be viewed cautiously because of the recent nature of ULCO. Furthermore, we have mainly analysed the direct relations between the university and the outside local world; this approach would have to be supplemented not only by a broader survey of local actors, such as the companies and local and regional institutions concerned, but also by a study of the other ways in which academic knowledge can be transferred, such as student trainee programmes and internships, symposia and seminars and continuing education and training.

The author:
Marylène Mille
Docteur es Sciences Economiques
1201 hameau de Longuerecques
62830 Samer
France
E-mail: *marylene.mille@wanadoo.fr*

List of Acronyms

- **BEP:** Brevet d'Etudes Professionnelles
- **CAP:** Certificat d'Aptitude Professionnel
- **CREID:** Centre de Recherche sur l'Environnement Industriel de Dunkerque
- **DEA:** Diplôme d'Etudes Appliquées
- **DESS:** Diplômes d'Etudes Supérieures Spécialisées
- **DEUST:** Diplôme d'Etudes Universitaires Scientifiques et Techniques
- **DUT GEA:** Diplôme Universitaire de Technologie – Gestion des Entreprises et des Administrations
- **DUT:** Diplôme Universitaire de Technologie
- **ISCID:** Institut Supérieur de Commerce International de Dunkerque
- **IUP GSI:** Institut Universitaire Professionnalisé- Génie des Systèmes Industriels
- **MSG:** Maîtrise des Sciences de Gestion
- **MST:** Maîtrise des Sciences et Technologies
- **ULCO:** Université du Littoral Côte d'Opale

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Integrating Research and Teaching Strategies: Implications for Institutional Management and Leadership in the United Kingdom

by
William Locke
Universities UK, United Kingdom

The relationship between research and teaching has become a highly contested issue perhaps because evidence of synergy between them is modest and inconclusive. It could be argued that the separation of research and teaching is itself the result of policy and operational decisions made over some time to distinguish the way these activities are funded, managed, assessed and rewarded. Even if this were proven to be the case, however, this would not necessarily excuse higher education institutions (HEIs) from an obligation to maximise the beneficial relations between the two. This article explores whether institutions should attempt to do this and, for those that do, how this might be possible for institutional leaders and managers. It considers why the research-teaching link is problematic, the factors affecting whether positive links can be fostered and the implications for management and leadership in institutions and in academic departments. It argues that research, teaching and the relations between them are matters for strategic choices about the nature and future of an HEI and, ultimately, that views and actions on these matters reflect differing beliefs about the nature and purposes of Higher Education.

Introduction

Research and teaching are the core business of universities, together attracting more than three quarters of the income of higher education institutions (HEIs) in the United Kingdom (Universities UK, 2002). More than 80% of the HE teachers surveyed as part of the Dearing Review claimed to undertake some research (NCIHE, 1997). The relationship between these two activities – in particular whether research is essential to teaching at higher education (HE) level, or whether competition for research funding has damaged the quality of teaching – has become a highly contested issue. The modest amount of evidence available on these matters is inconclusive, and yet it is being interpreted by the UK Government as supporting its policy in England to enable some HEIs without research degree awarding powers to adopt the "University" title. It could be argued that the separation of research and teaching is itself the result of policy and operational decisions made over some time to distinguish the way these activities are funded, managed, assessed and rewarded. Even if this were proven to be the case, however, this would not necessarily excuse HEIs from an obligation to maximise the beneficial relations and synergies between the two. This article explores whether institutions should attempt to do this and, for those that do, how this might be possible for institutional leaders and managers. It argues that research, teaching and the relations between them are matters for strategic choices about the nature and future of an institution and, ultimately, that views and actions on these matters reflect differing beliefs about the nature and purposes of higher education.

The four main sections of the article address:

- why the research-teaching link is problematic;
- factors affecting whether positive links can be fostered;
- implications for management and leadership in institutions;
- implications for management and leadership in departments.

Why is the research-teaching link problematic?

Despite the common Humboldtian assumption within HE of the inseparability of research and teaching, there is evidence to suggest that the link is problematic and, in some circumstances, actually harmful, particularly to teaching and student learning. It has been argued that research and

teaching can exist in a range of relationships with each other – positive or negative, integrated or independent – and that "these relationships are shaped by the value-orientations of academic staff and the management of available resources" (Coate *et al.*, 2001, p. 172). Quantitative evidence available (Hattie and Marsh, 1996) suggests they are currently independent constructs that are nearly uncorrelated, although these conclusions are hotly disputed by proponents of complementarity (*e.g.* Brew, 1999). Why might there be a separation of research and teaching in UK HEIs?

Since 1986 the quality assessment and funding mechanisms for research in the United Kingdom have been separate from those for teaching, and a differential reward mechanism has been established on a cyclical basis. Concurrently, there has been a reduction in the unit of resource for teaching and an increase in the administrative workload associated with quality assurance mechanisms (JM Consulting Ltd. *et al.*, 2000), which are distinct, do not emphasise relations with research (Brown, 2002) and do not have the capacity to generate significant additional funds. University success and prestige is still largely associated with research – even for those post-1992 universities wanting to prove their new credentials (Blake *et al.*, 1999) - and this is confirmed by the 2003 Government White Paper (DfES, 2003). But it is a particular type of research that is privileged by the Research Assessment Exercise (RAE), and to a lesser extent the Research Councils: medium and large scale original quantitative research that will yield short-term results publishable in high-status journals rather than smaller scale applied and discursive research, some of which is communicated to end-users in ways that students might also benefit from it (JM Consulting Ltd. *et al.*, 2000; Becher and Trowler, 2001).

Many of the academics surveyed about the RAE believe it has effectively broken the link (McNay, 1998). Good researchers spend less time teaching, especially first and second year undergraduates, which is increasingly undertaken by part-time staff and research students, and this has also led to the closure of some courses. Staff is designated according to whether they are research-active, recruitment and promotion practices reflect research rather than teaching strengths and separate research-only units are being formed (Coate *et al.*, 2001). This gradual structural separation of research from teaching may be partly a response to the RAE and could be inhibiting desires to manage more broadly based strategies for research development (McNay, 1998).

Harley's (2002) survey found a large minority of academics believing that the way research is assessed has had a *negative* impact on teaching because it has reinforced the conventional lack of parity of esteem. This echoes earlier studies in the United States on "the condition of the professoriate" (Carnegie Foundation, 1989). Others report of the competing claims on UK academics' time of RAE-related activity and teaching, which may have inhibited *innovation* in teaching, if not damaged teaching itself (JM Consulting Ltd. *et al.*, 2000). Yet,

Quality Assurance Agency Subject Overview reports often commend connections between staff research and high quality student learning, few highly rated research departments have received low ratings for teaching and there is some evidence that external quality assessment has strengthened the value attached to teaching, vis-à-vis research. The Funding Councils' fundamental review of research found evidence of a synergistic relationship but, despite this, still confirmed that teaching issues should not influence the allocation of funds for research (HEFCE, 2000).

Perhaps there are both positive and negative influences at work, and these largely cancel each other out – a possibility that Marsh and Hattie (2002) themselves acknowledge. Indeed, the attempt to establish a linear statistical correlation between measures of research productivity and teaching effectiveness may be flawed for a number of methodological reasons, but also partly because of the fact that honours study may require only a *threshold* level of research and scholarly activity (Universities UK, 2003). Also, RAE-supported research may lead to *distinctive* teaching, which is not necessarily more effective or higher quality than teaching geared to other legitimate concerns, such as the needs of the professions or social inclusion (Hounsell, 2002). The relationship between research and teaching has been the subject of a great deal of mythology – much of the "evidence" is based on academics' views - and is now so highly politicised that, paradoxically, it appears to be almost impossible to conduct a dispassionate and scholarly inquiry into the subject (Elton, 2001). The most cogent arguments for and against the link featured in the literature are listed in the Annex to this article.

The limitations of the existing evidence of the relationship between research and teaching and ways of maximising the beneficial relations and synergies between the two are unlikely to provide much guidance for institutional leaders and managers. The next section, therefore, considers some of the factors affecting whether positive links can be fostered.

Factors affecting whether positive links can be fostered

The published evidence on this is hardly more conclusive, but JM Consulting Ltd. *et al.'s* report for the Funding Councils' review of research identified a number of factors that might positively (or negatively) influence the interaction. What follows revises and develops their list (2000 p. 15) as a framework within which to review some of the main factors.

The mission and culture of the institution

It seems likely that certain types of institution and their stated purposes could make it easier or harder to create positive links, but it should not be assumed that a teaching and access-focused HEI will not be in a position to do

this. The nature of scholarly activity may be more applied and community based, but it can richly infuse a wide range of university activities, as at the University of Ballarat in Australia (Zubrick *et al.*, 2001). Research-led universities can also struggle if the primacy of original inquiry leads to its structural separation from pedagogic activities. Nevertheless, contextual factors such as an institution's origins, location and inherited facilities (Shattock, 2003) will interact with disciplinary differences and other personal, professional and cultural aspects to facilitate or inhibit change (Becher and Trowler, 2001). Institutional leadership and management will need to build on strengths and work with the grain of these local circumstances (Dearlove, 1998).

Conceptions of research and scholarship

The relationship between research and teaching - and other activities - and the status of teaching itself was given a boost in the early 1990s by Ernest Boyer's revitalisation of the concept of scholarship to include the four aspects of *inquiry*, *integration*, *application* and *teaching* (Boyer, 1990). The strength of this conception was that it emphasised the equivalences between the various aspects of academic practice, including interpretation and insight as well as applied problem solving, and linked these with changing roles and rewards within the academy (Rice, 1992). Subsequently, building on Burton Clark's Research-Teaching-Study nexus (Clark, 1995, 1997), the Boyer Commission has sought to explore ways in which undergraduate education in US research universities can incorporate "inquiry-based learning" (Boyer Commission, 1998, 2001), thus diluting some of the innovative force of Boyer's original conception.

The reconsideration of scholarship, it could be argued, is made all the more pertinent by global changes in the nature of knowledge production and, specifically, the shift from Mode 1 – traditional knowledge generated within a disciplinary, primarily theoretical, context largely governed by academic interests – to Mode 2 knowledge created in broader, transdisciplinary social and economic contexts in response to specific problems in order to meet a range of users' needs (Gibbons *et al.*, 1994). This is likely to raise the status and importance of the scholarship of application, integration and even teaching closer to that of "inquiry" and have major implications for the management of some kinds of research, university-business collaboration and professional and vocational education.

Disciplinary and subject differences

This highlights the differences between disciplines and subject communities in their views and conceptions of research, scholarship and teaching, which reflect different epistemological, cultural and pedagogical assumptions. Neumann *et al.* (2002) have explored different aspects of teaching and learning and highlighted contrasts between the four disciplinary

groupings originally identified by Becher (1989). Their findings suggest that a "hard pure" subject (*e.g.* physics) will emphasise cumulative knowledge acquisition rather than integration or application, and the separation of research from undergraduate teaching, which largely remains the transmission of codified knowledge. A "soft pure" subject like history, on the other hand, may prize integration over acquisition and application, incorporate independent research projects in the final undergraduate year of study and engage students in discussions about the contested nature of the discipline. A "hard applied" discipline (*e.g.* engineering), geared towards the application of techniques will incorporate problem solving in undergraduate teaching but within fixed empirical boundaries. Finally, a "soft applied" social science might focus on the application of knowledge, the relevance of professional and consultancy work and students' familiarity with specific protocols and procedures.

These are "ideal types", but they serve to illustrate the deep-rooted disciplinary differences in the way aspects of research and teaching are conceptualised, organised and communicated (Becher and Trowler, 2001) that institutional managers must be aware of. These differences may be overlaid by the influence of professional bodies and the extent to which the curriculum is externally accredited – potentially inhibiting the incorporation of staff research. We should also acknowledge the experience of increasing numbers studying subjects that do not have an established research base, or a tradition of strong research activity, such as nursing.

Conceptions of teaching and learning

Expansion of HE has led to a greater diversity of the student population, with more mature and part-time students, in particular, as well as those with non-traditional qualifications. Together with new forms of teaching – especially technology supported modes – this has begun to shift the emphasis towards student learning and away from traditional notions of teaching as the transmission of knowledge (JM Consulting Ltd. *et al*., 2000). This is essential to the mission of widening HE participation, as it requires teachers and curriculum designers to look beyond remedies for the supposed "academic deficiencies" of non-traditional students, in order to better understand their prior experience and motivations, enhance their educational experience and encourage "deep" rather than "surface" approaches to learning (Ramsden, 2003). Elton (2001) has even argued that student-centred teaching and learning processes are intrinsically favourable to a positive link between research and teaching. Perhaps *learning* – that is student *and* staff learning – is the common thread that weaves together teaching and research (Blackmore and Fraser, 2003). Shifts in the HE teacher's role to "a facilitator of learning", have led to the beginnings of a

scholarship of teaching and learning (Huber, 2003) and the application of pedagogical research by practising teachers (Yorke, 2003).

Experience and motivation of students

The JM Consulting Ltd. *et al.* study (2000) found that the experience and motivation of students appeared to be a significant factor influencing how some institutions interpreted the research–teaching nexus. They reported research-intensive universities' suggestions that their students' previous high academic attainment made research-based teaching feasible. Equally, however, it might be argued that students with prior vocational qualifications might particularly value problem- and practice-based curricula and modes of study informed by professional expertise and consultancy. Institutional academic managers will also need to be aware of the *level* of study at which research might be best utilised in different disciplines: for example, it may be less appropriate for academics in the humanities to teach their own research to postgraduate research students than to undergraduates in their final year, whereas in the sciences the reverse may be the case.

Rewards and incentives available to staff

Academic staff have a multitude of talents (Boyer, 1990) and are motivated by what interests and benefits them, yet – ultimately – this has to be managed (Ramsden, 1998a) otherwise staff will continue to work very long hours in order to meet their teaching and administrative obligations as well as undertake research and scholarship. But there is a history of failure: (i) of HEIs to use lecturer motivation in a rational or strategic way (Jenkins *et al.*, 2003), and (ii) of the academic profession, generally, to adapt to the shift to a mass HE system (Shattock, 2001). Institutional human resources management (HRM) has been very slow in developing the means to address these issues, although there are system-wide constraints in the United Kingdom, for example on pay structures.

The remaining factor identified by J. M. Consulting Ltd. *et al.* (2000) as influencing the link between research and teaching was "the effectiveness of institutional management in creating the circumstances for research to inform teaching" (p. 15), but they also recognised that "the linkages are subtle and not necessarily amenable to simple management action" (p. 18). The following two sections address the implications for leadership and management in developing the conditions under which positive relations might flourish within institutions and departments.

Implications for management and leadership in institutions

"In view of the central nature of research and teaching in HE, and the almost universal assumption that R(esearch) benefits T(eaching), and the

> importance of scholarship, it is perhaps surprising how relatively few institutions have specific policies in place to either *monitor, or to develop and maximise these beneficial synergies*." (JM Consulting, 2000, p. 16, my additions and emphasis)

It is clear from the foregoing that academic leaders and managers need to understand the conditions likely to facilitate links between research, (staff and student) learning and teaching and those that inhibit connections and serve to compartmentalise academic activities. As argued, the latter include accountability and funding mechanisms, competition for scarce resources and management responses that allocate academic staff time and roles to separate activities largely for convenience (Coate *et al.*, 2001). This compartmentalisation is reinforced by governments and funding councils requiring separate, detailed and highly technical planning documents that HEIs too often produce to order without sufficient internal agreement for their implementation (Shattock, 2000). One result is that few of the first wave of learning and teaching strategies submitted to the funding councils made explicit links with research strategies (HEFCE, 2001). Analysis of more recent submissions suggests that it is still unusual for them to mention any activity designed to maximise the benefit to undergraduates of research strengths (Gibbs, 2002). One can only speculate, of the HEIs that *have* research strategies, how many of these make explicit links with teaching, let alone in a strategic way? How might they?

> "If institutional teaching and research strategies are to be interlinked then this requires action from both sides: that is, through both the teaching and research strategies. Perhaps it requires (more fundamentally) strategies and planning processes that do not see teaching and research as "binary" categories" (Jenkins *et al.*, 2003, p. 105).

This is more likely within a more holistic, flexible and emergent approach to strategic management advocated by Shattock (2003), in which a strengthened steering core builds consensus through widespread discussion and collaboration around a few key goals with an emphasis on mutually enhancing processes. Rather than imposing a plan top-down, this approach ensures that strategic thinking and capacity are shared between the centre and academic units and encourages bottom-up initiatives that effectively realise these complementary goals. It allows a university to develop a steer, while also being open to new possibilities – avenues of research and consultancy or new curriculum offerings – as long as they can be accommodated within the overall agreed direction. This strategic management should be realised through operational plans, academic organisation, senior academic manager's roles, committee structures and so on, but it should also be animated by a collective vision.

Such a major initiative as integrating research, learning and teaching is likely to require leadership – defined as effecting or coping with change – as well as management, or the handling of organisational complexity (Kotter, 1990). But, rather than practised only in the centre, leadership needs to be distributed throughout the institution, within faculties, departments and course and research teams. Actions are required across the academic enterprise and different combinations of "transformational" and "transactional" styles of leadership will be necessary in the various parts of the institution, to build on what already exists and to overcome any barriers to integration (Middlehurst, 1993). Local leaders will need to foster motivational and strategic capacities, ensure effective communication and acquire the skills of "sense-making" (Gordon, 2003). Studies of implementing learning and teaching strategies confirm that continual consultation and listening and responding to concerns are crucial for widespread ownership (Newton, 2003). Successful strategies are likely to focus on enabling, recognising and developing colleagues as well as managing academic workloads (Ramsden, 1998b).

The role of the HEI, then, is essentially formative, to set a general framework, with key enactment being at the departmental level (Clark, 1993). This framework may vary between institutions and national systems: in countries other than the United Kingdom and in non-research intensive HEIs, the institution may be more – and increasingly – important. Striking the right balance between institutional and departmental strategies is critical. Departments may chose to elaborate on the institutional strategy in different ways, so the challenge for institutional management and leadership is to maintain overall coherence in the context of subsidiarity (Gibbs *et al*., 2000) in order to achieve consistency of purpose and an appropriate and distinctive institutional focus. Successful universities will wish to build on their corporate reputation and brand image. A research-intensive university, such as the University of Sydney for example, may seek to integrate inquiry-based learning and research experience into undergraduate courses and attract a different student population by providing more flexible learning opportunities (Ramsden, 2001). In an entrepreneurial university, in Burton Clark's (1998) terms, "a stimulated academic heartland" and "an expanded developmental periphery" may pursue new funding sources by identifying external needs for useful Mode 2 knowledge, which they can supply. This may be attractive to less research-intensive universities where the increasing concentration of Mode 1 type research in the United Kingdom is creating more teaching-only departments with the attendant risks to morale and performance (Duke, 2002). Finally, staff in a largely teaching-focused HEI, like King Alfred's College, might re-align their research activities more closely with what is taught, using

RAE and other research funds, and thereby enriching the curriculum and the student learning experience (Gibbs, 2003).

This last example highlights the importance of resource allocation models in influencing academic activity. Institutional leaders and managers will need to decide whether to simply reflect funding council calculations or build in incentives or weightings and ensure some degree of departmental financial autonomy to enable them to pursue broadly agreed priorities (JM Consulting Ltd. *et al.*, 2000). Proactive funding strategies, that could also include cross-subsidies from other earned income, may generate tensions, which have to be managed. A large scale, long term, shift to integrate research, teaching and other academic activities will require institution-wide investment in resources such as library and computing facilities, learning accommodation and staffing (Gibbs *et al.*, 2000). Their role and purposes may be transformed, especially with the introduction of resource-based and technology-supported learning, and this also has implications for staff development and recruitment, policies for rewarding and recognising individuals who successfully integrate hitherto separate academic practices, such as the introduction of fellowships, and support for pedagogical research. Some of these aspects will be addressed in more detail in the context of the department in the next section.

Implications for management and leadership in departments

Teaching and research identities develop over time and may not be easily shifted (Henkel, 2000), and they impact on many aspects of departmental culture: on concepts of the goals of education; orientation to research; approaches to teaching, assessment and students; propensity to improve teaching; students' approaches to learning; and, more generally, job satisfaction, career aspirations and motivation (Becher and Trowler, 2001). In this light, it may be helpful to regard a department as "a community of practice", conceived as a closely interacting group of practitioners within which professional learning is legitimised (Knight and Trowler, 2001). This highlights the centrality of the department and the disciplinary environment to the integration of research, learning and teaching and suggests that different management and leadership arrangements and procedures may be required in different disciplines (Braddock and Neave, 2002).

However, there may also be common principles for the successful integration of these academic practices. Studies of HE teachers suggest that, where their experience of departmental leadership is of the collaborative, transformational kind described in the last section, they are more likely to adopt approaches to teaching that are student-focused and orientated to achieving conceptual change which, in turn, are more likely to foster "deep"

learning (Martin *et al.*, 2003). Likewise, researchers in more co-operative environments have been shown to be more motivated, productive and higher quality performers. This indicates that:

> "Departmental contexts perceived to have clear goals, a climate of respect, and co-operative authority structures provide optimal conditions for professional activity and productivity... (and) are conducive to higher quality in both research and teaching." (Ramsden, 1998a, p. 72)

Further studies are required to establish whether such conditions are likely to facilitate the successful integration of these two activities. However, they do suggest that ownership by academics of the undertaking, their acceptance of the task as useful and intellectually valid and self-definition of the means to achieve it are minimum conditions to be met by departmental leaders and managers (Duke, 2002).

The aforementioned studies further suggest that leaders' and managers' own capacity to learn is essential (Ramsden, 1998b). Such learning might start with scanning the environment, within the department and inside and outside the institution. It could include auditing existing research-teaching links and ways of measuring their effectiveness, evaluating the development of the discipline as this might impact on the link, clarifying the priorities of potential funders, market research into new opportunities and so on. A review of how courses and teams promote the link could lead to revisions to course approval and research review processes, and the adoption of criteria that emphasise integration. Environmental scanning could help to develop a clear conception of scholarship and how it underpins teaching and, in HEIs or departments with low research activity, could inform staff development to promote it. Such efforts might assist academics to incorporate the findings of pedagogical research into their approaches to teaching, explore the links between research, teaching and collaboration with business and communities and develop partnerships with research departments in other universities (JM Consulting Ltd. *et al.*, 2000).

Environmental scanning should be a precursor to developing departmental strategies for integrating academic practices, within the overall direction agreed across the institution. This may be a longer-term process, and more fraught with tensions and conflicts, than funding councils – and even institutional leaders – might imagine. Bolton (2000) suggests departments should start from where they are; ensure the timescale for change is feasible; build on areas of strength; encourage collaboration within and with other departments attempting the same undertaking; use champions to promote change; motivate those who are redeployed; adapt to changed circumstances; build up sufficient momentum to deal with

disappointments and balance narrowness and overdependence with dissipation of effort and loss of focus.

Ultimately, though, the greater the change proposed, the more difficult it will be for departmental leaders and managers to persuade academic staff to do something different: to undertake different kinds of research, or to stop doing it altogether; to pursue opportunities for consultancy; to incorporate research findings, processes and tools into teaching; or to shift to student-centred methods, for example. It has led some commentators to suggest that, although some aspects of teaching may be managed (at least in terms of timetables, etc.), changes to research activity and, by association, curriculum development can only be *facilitated* (Dearlove, 1997). Hence, the importance of leadership in evaluating, developing and managing *for* staff performance – staff who must feel a sense of ownership of the strategy (Middlehurst and Kennie, 2003). Although semi-autonomous, departments are not likely to be alone in implementing difficult strategic changes of this nature, and should look to the institutional centre to engage in, what Shattock (2003) terms, a dialogue. This is particularly important if change involves redundancy, redeployment or the recruitment of new key personnel to rejuvenate a department in decline. Other central assistance might include staff and educational development services, a research contracts team and enterprise units. Particularly in teaching-focused HEIs, it may be important for some departments to establish research activity, in order to enhance the institution's reputation, take advantage of opportunities for additional external funding and attract high quality staff. Some teachers, however, may see this as a threat to teaching excellence and a challenge to their identities. However, innovative approaches that interpret research and scholarship more broadly may help to overcome such fears. Beardwell (2003), for example, describes the writing of a major textbook as the focal point for creating a local research culture in a post-1992 university department.

In reconsidering scholarship, Boyer (1990) proposed a more flexible career model than has been pursued to date. He suggested that individuals might spend some years focusing on one aspect of scholarship and shift to another area later on. For this to become feasible for the majority of academics, it can be argued that major changes in incentives, motivations and, indeed, identities will have to occur (Knight and Trowler, 2001). But this is the proper domain of HRM, only just beginning to emerge in HEIs, which elsewhere has established the link between high performance practices and organisational success. This is where we return to the connection between the centre and the departments, for the institution must provide the framework within which HRM operates – policies relating to job design, recruitment and selection, training and development, performance appraisal, feedback, reward and recognition, promotion, and so on. But it is within a department that human

resource strategies will ultimately engage with, and articulate the academic enterprise as agreed by a community of practice, and if the goal is to equalise and integrate the different aspects of scholarship, then HR practices must seek to facilitate this. Bushaway (2003) suggests the use of *personal development plans* for individuals to represent their research goals and career aspirations, which are then mapped on to their research group's plan and incorporated into the institutional strategy. This could be extended and adapted for the full range of academic activities, negotiated with line managers and balanced with collective goals. It could inform staff development, become the basis for professional enhancement strategies and thus move towards more diverse and flexible academic career models.

Conclusion

Given the countervailing forces described in the second section and the factors likely to influence the integration of research and teaching identified in the third section, the remainder of this article has sought to show that it is for institutional and departmental leaders and managers to make strategic decisions about whether and how to achieve some or all of the following:

- reducing the negative impacts of one (usually research) on the other (teaching);
- assimilating the *strategies* for research and teaching into a unified and holistic approach to bringing the activities together;
- maximising the synergies between research and teaching; and
- actually integrating research, teaching and other advanced scholarly activities (such as collaboration with business and community engagement).

A single model of academic excellence, which is dominated by a particular type of large-scale discovery-based research set alongside teaching that, almost by accident, benefits from a kind of symbiosis is less and less viable. For many HEIs, except for the most research-intensive, to strive to achieve this model will guarantee second-rate status (Marginson, 1997 referred to in Ramsden, 1998b). A diversity of models that value and reward the full spectrum of academic practices is needed if the United Kingdom is to avoid reinforcing the existing hierarchical stratification of HE institutions.

Ultimately, this will require national, and even international, leadership from institutional heads and the leaders of subject associations (*e.g.* Royal Society, 2003), in order to:

- influence Government policies on research concentration and "teaching only" universities;
- equalise the rewards for teaching and research; and

- argue for sustained, significant long-term funding streams for scholarship, applied and practice based research and collaboration with business and the community,

but that, as I suggested in my introduction, is a much wider discussion about the nature and purposes of higher education.

The author:
William Locke
Deputy Director, Policy Development
Universities UK
Woburn House
20 Tavistock Square
London WC1H 9HQ
United Kingdom
E-mail: *william.locke@universitiesUK.ac.uk*

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ANNEX

Arguments for and against the link between research and teaching

For the link:

- Students should be undertaking "discovery research" in order to prepare for work in the 'knowledge economy' (Clark, 1997; NCIHE, 1997; Scott, 2002), and to help them understand and cope with uncertainty and "supercomplexity" in a pluralist world (Barnett, 2000).
- It helps to develop "a culture of critical thought", an "attitude of enquiry" and independent learning that is distinctive to HE and good preparation for lifelong learning (Barnett, 1997; Blackmore and Fraser, 2003; Universities UK, 2003).
- Research is a central underpinning for professional practice (Jenkins *et al.*, 2003) and ensures an up-to-date and relevant curriculum featuring a range of specialist options.
- The link is based on learning and scholarship, which is common to both activities (Brew and Boud, 1995), and academics have difficulty in making sharp distinctions between their research and teaching activities and other work, such as consultancy, which impacts on both (Coate *et al.*, 2001; Rowland, 2002).
- For many academic staff their own motivation and authority as a teacher is linked to their involvement in discipline-based research and scholarship (Jenkins *et al.*, 2003).
- There is growing research evidence that staff research can aid student learning and motivate students (Jenkins *et al.*, 1998) and well-resourced library and research facilities support high quality teaching (JM Consulting Ltd. *et al.*, 2000).
- Teaching assists academics to clarify their understanding of their research interests, place their specialisms in a broader context and develop new

research areas (Marsh and Hattie, 2002); and undergraduate students can contribute to staff research projects (Coate *et al.*, 2001).

Against the link:

- The shift to mass HE suggests the need to break the link. Expansion and widening participation require HEIs to play to their strengths (HEFCE, 2003). Research should be concentrated in fewer universities in the United Kingdom to maintain world class status. Increasingly, even postgraduate courses are becoming more professionally- rather than research-orientated (Jenkins *et al.*, 2003). The US system, for example, reserves research-based education for the graduate level (Clark, 1993 and 1995).
- The under funding of *both* teaching and research in the United Kingdom exacerbates this separation. Governments are not willing to pay the high costs of research and research-based teaching and learning throughout a national system (Clark, 1997).
- There are simply not enough people competent in research to staff research activity throughout a mass HE system.
- Much "cutting-edge" (especially scientific) research is far too advanced and specialised for the undergraduate curriculum which, especially in the early years, needs to be broadly-based.
- There is little apparent substance to many claims of benefits to undergraduates of research strengths (Gibbs, 2003) and some evidence of students' mixed reaction to staff research (Zamorski, 2002).
- In some circumstances, an emphasis on research activity may damage teaching, especially at the individual level (Ramsden and Moses, 1992), by diverting resources and effort away from it.
- Different types of institution (*e.g.* research-intensive or access/community-based – *i.e.* each end of the spectrum) mean that a strong link is not always feasible. High quality teaching occurs in HEIs that undertake no research (Ramsden and Moses, 1992).

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Democracy and University Education in Nigeria: Some Constitutional Considerations

by
Olalekan Arikewuyo
Olabisi Onabanjo University, Nigeria

This paper examines the implications of the fourth republican constitution on university education in Nigeria. Specifically, the paper discusses the educational provisions of the new democratic constitution in Nigeria and how they are likely to affect the planning and administration of university education in the post military era. The paper contends that the nascent democracy in Nigeria makes a democratic governance of universities in the country imperative.

Introduction

Since independence in 1960, Nigeria has undergone many political changes. These changes have affected every facet of the nation's life including the planning and administration of universities. For instance, Arikewuyo (1996) reported that after independence in 1960, federal and regional governments established four more universities in addition to the University College, Ibadan, established by the colonial government in 1948. He also reported that during the military rule (1966 and 1979), more universities were established to bring the total to thirteen. During the Second Republic (1st October, 1979 – 31st December, 1983), when democratic rule was again restored in Nigeria, thirteen additional universities were established by both federal and state governments. When the military regime came back to the polity in December 1983, the number increased. Consequently, by 29th May, 1999, when the military returned to the barracks, there were 35 government owned universities in Nigeria, made up of 24 federal and 11 state universities. Three private universities were also licenced to take off.

No doubt, the constitution of a country refers to a document which has a special legal sanctity and which spells out the purpose or framework of government and the division of power between the various organs of government such as the legislature, executive and judiciary. A constitution is also a body of fundamental rules by which a country is governed. It establishes and regulates the structure, organization and functions of the government of a given state. Constitution is an essential machinery, that point of reference, from which the laws of the land can be interpreted. It is therefore a document embodying the rules and regulations by which the behaviour of the people is regulated. (Oluya, Olu-Braimoh and Okege, 1999).

The objective of this paper is therefore to critically examine some provisions of this latest constitution as it will affect the planning and administration of university education in Nigeria. This is being done with a view to examining what a post military regime portends for university education in Nigeria.

Educational objectives of Nigeria

Section 18, sub-section 1 – 3 of the 1999 constitution states *inter alia*:

1. Government shall direct its policy towards ensuring that there are equal and adequate educational opportunities at all levels;

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2. Government shall promote science and technology;
3. Government shall strive to eradicate illiteracy and to this end, government shall as and when practicable provide:

   a) Free, compulsory and universal primary education,

   b) Free secondary education.

The above objectives, if properly examined, have some implications for university education in Nigeria. First is the fact that there would be equal and adequate university education for the citizens. This implies that universities must be located very close to the people in such a way that people may not have to travel for a long distance before benefiting from University education. Okogie (2004) reported that as at 2004, there are 53 universities in Nigeria. Of this total, 25 are owned by the federal government, 20 by state governments, while 8 are private universities. He however contended that the number appears to be inadequate because out of over one million candidates that sat for University Matriculation Examination (UME) in 2004, the universities could only admit 154 000 (representing 15%). He also indicated that with an enrolment of 325 299 in 1999/2000, the opportunity for adequate university education in Nigeria is still not realizable. The point being stressed here is that although the universities appeared to be evenly distributed for easy accessibility, the number of spaces available to guarantee adequacy is still very low.

The constitution also enjoins that there should be equal university education for all citizens. This implies that there should be no discrimination on the ground of sex, tribe, religion or state of origin, in the admission of candidates into the universities. This therefore brings us to the issue of the admission policy to universities. Before the advent of the present democratic government, the admission of students into the universities was based on the following criteria:

- Merit – 40%
- Catchment area – 30%
- Educationally disadvantaged states – 20%
- Discretion – 10% (Obilade, 1992)

This policy has often been criticized by many Nigerians as being unfair. According to Obilade, the policy does not sympathize with the possibility that students from the disadvantaged states and catchment areas may not have applied to the particular university. Yet, all universities are expected to actively attempt to recruit students from these areas. This politicisation of admission has the effect of forcing integration and eroding the autonomy of the university system. Similarly, one of the fundamental objectives of this quota policy is to achieve a balanced development of the different sectors of the economy and the various geographical areas of the country. The quota system is also based on the

assumption that national unity, national awareness and national spirit could be forged and that citizens from all parts of country would persistently claim their fundamental human rights as entrenched in the constitution of the land when all the citizens in all the states are well educated (Bamisaiye, 1992).

For the purpose of clarity, catchment area refers to a geographical area, from which a particular university is expected to select its candidates. Educationally disadvantaged states are those states that are considered by the Government to be educationally backward and which should be assisted. In Nigeria, those states include: Sokoto, Taraba, Bauchi, Nasarawa, Gombe, Borno, and Yobe.

However the new democratic Government slightly amended this admission criterion. At the meeting of the Federal Executive Council, held on 22 September, 2000, the Government approved new admission guidelines into the universities as follows: Merit 45%; Catchment area 35% and educationally disadvantaged states 20%. Inevitably the 10% hitherto reserved as discretional was abolished. This shows that the Nigerian Government cannot possibly discard the politicisation of admission in the country. The principle of federal character has been entrenched in the constitution and so the quota system remains pronounced in all facets of life, including university admission. But this system, to say the least, is detrimental to the principles of justice and fairplay, because it denies many qualified candidates admission. It is in this respect that Ajayi (1989) suggested that each university, through the admission board, should be free to admit its own students on the criterion of merit without discrimination. According to him, a national policy for equal opportunity for higher education needs to be developed. This, he believed, would help to promote national unity, rather than the present quota policy which has helped to magnify the problem of national unity and integration by increasing the concentration of students in the universities in their locality.

Secondly, the objective of Nigerian education is to promote science and technology. This is in line with the provisions of the National Policy on Education (Revised) (1998), which states:

a) A greater proportion of expenditure on university education shall be devoted to science and technology;

b) Not less than 60% of places shall be allocated to science and science-related courses in the conventional universities and not less than 80% in the universities of technology. (Section 55, a – b).

However, the pattern of enrolment and graduation in some of our universities appears to be in sharp contrast to policy guidelines. For instance, at the Olabisi Onabanjo University (formerly Ogun State University, Ago-Iwoye), which is one of the third generation universities, out of the total students enrolment of 11 065 in 1999/2000 session, 3 193 (29%) are studying

science based courses, while 7 869 (71%) are enrolled for the liberal arts and social sciences. (Academic Affairs Office, Ago-Iwoye, 2000). Similarly, at the University of Ibadan, which is the oldest and biggest university in the country, the pattern of graduates being produced is still in favour of non-science based courses. At the University's convocation, held on 17 November, 2000, out of a total of 3 866 first degree graduands, 2 366 (61%) studied Arts and Social Sciences related courses, while 1 500 (39%) read science based courses. Also, the University graduated 2 975 higher degree holders during the same convocation. Out of this number 2 183 (73.3%) were in the humanities related courses, while 792 (27%) were in the sciences. (*Convocation document*, 2000).

This picture is very disturbing because it is an indication that since 1977, when the National Policy on Education first recommended a 60:40 ratio in favour of sciences, there have often been gaps between rhetoric and reality, promise and provision, investment and productivity in science education in the country (Balogun, 1982). This is particularly so because basic infrastructural facilities to teach science subjects are still lacking in our secondary schools; so are the required number of teachers, as well as technical support personnel (Ajeyalemi, 1986). Even the performance of students in the sciences at secondary school is worrisome. In 1996, out of 132 768 candidates who sat for Physics in the school certificate examination, only 16 929 (12.7%) obtained credits, while 75 446 (56.8%) failed outright. In the same year, 144 990 sat for chemistry, but only 68 514 (47.2%) passed at credit level. The performance in Mathematics is even worse, with only 10% making it at credit level (Popoola, 1997). The Federal Ministry of Education (2003) also reported that in 2000, in the November/December West African School Certificate Examination, only 10.4% made credit passes in Biology; 7.0% in Chemistry; 41.6% in Physics while 46.1% made credit passes in Mathematics. This poor performance was also recorded in 2001 with only 20.4% having credit passes in Biology; 24.7% in Chemistry; 48.4% in Physics, while 41.6% made credit passes in Mathematics.

Thus, as long as these problems persist in science teaching at the secondary level, the inputs into the university will continue to be in favour of the liberal arts. The implication of the above analysis is that although the constitution enjoins the Government to encourage the teaching of science and technology based courses in our educational institutions (including universities), the problems highlighted here need to be adequately addressed. Otherwise, the objective may be difficult to attain.

However, this constitutional provision must not be mis-represented to suggest that the humanities should be discouraged. Subjects like literature, history, fine arts, moral instruction, etc, are still relevant in the socio-political structure of the country. Lawal (1986) agreed that although the economy needs science and technology in order to keep pace with the rest of the world, these

could be fruitful only if placed within a cultural context. Therefore, the government must ensure that both the humanities and sciences are well catered for at the universities, in terms of teaching personnel and instructional facilities.

The educational objectives of the country are silent about free university education. Even for primary and secondary education, it is not free. By inserting the phrase, *as and when practicable*, the constitution has left the decision on when free education would become operational, to the government in power at any point in time. Thus, while a government may decide to practice free primary and secondary education, another government may call it non-practicable. Perhaps this is why the present government is restricting its Universal Basic Education (UBE) Programme to only primary and junior secondary schools.

University education on the concurrent list

Under the 1999 constitution, university education is on the concurrent legislative list. Section 28 of the Part II (Concurrent legislative list) states inter *alia*:

> "The power conferred on the National Assembly under paragraph 27 of this item shall include power to establish an institution for the purposes of university, post-primary, technology or professional education".

Similarly, section 30 states *inter alia*:

> "Nothing in the foregoing paragraph of this item shall be construed so as to limit the power of a House of Assembly to make laws (…)
>
> for the state with respect to technical, vocational, post-primary, primary or other forms of education, including the establishment of institutions for the pursuit of such education".

The implication of these provisions is that both federal and state governments are free to establish and run universities. Indeed, since May 1999, when democratic rule was restored in Nigeria, in exercise of the provisions some state governments have established universities of their own. Such universities include: Ebonyi State University, Abakaliki; Kogi State University, Ayingba; Adekunle Ajasin University, Akungba-Akoko; and Kano University of Technology (JAMB, 2001). This perhaps takes us back to the Second Republic (1979-1983), when thirteen universities were established by federal and state governments, within four years (Ajayi 1990). During that period, a State Governor, while addressing a meeting of the Committee of Vice Chancellors, was quoted to have said:

> "we are now in an age of proliferation of universities. Whether you like it or not, new universities are bound to be created for many reasons including political considerations" (Ogunsola, 1983).

With a new democratic government in place, are we now back to the era of proliferation of universities? This is a question for Nigerians and the Government to answer.

Private universities

During the democratic rule of the Second Republic, (1979-1983), attempts were made at establishing private universities in Nigeria. Ajayi (1990) reported that there were proposals by some individuals and corporate bodies to establish private universities in the country. Initially declared illegal by the then Government, private universities were given a legal backing by the Supreme Court judgement of 30 March 1983, in favour of the Imo Technical University, founded by Dr. Basil Ukaegbu. But when the military came back to power in December 1983, all private universities were proscribed. However, the same military regime later gave a legal backing to private universities with the promulgation of Education (National Minimum Standard and Establishment of Institutions Amendment) Decree No. 9 of 1993. Thus, on 10 May 1999, three private universities were licenced by the military government. They were: Babcock University, Igbinedion University and Madonna University. More private universities have since been approved by the federal Government. Indeed, private universities, have grown over the years in other parts of Africa, especially in Kenya and South Africa. Addison (1995) reported that in Kenya the number of private universities rose from one in 1980 to eleven in 1993. He also reported that students seek admission into private universities because of periodic strikes and closure, which often characterise government owned universities. It is in this respect that Obanya (1999) agreed that guidelines for the establishment of private universities in Nigeria should be relaxed, so that people who have ideas on university education will be encouraged to try them. He believed that perhaps one of these universities might produce tomorrow's wonder higher-education model for critics and law-givers to copy.

But desirable as the establishment of private universities is, a high level of caution must be ensured. The proliferation of these institutions should be strictly controlled and monitored. The National Universities Commission (NUC) must be strengthened to ensure that standards are maintained. Since the Supreme Court had earlier legalised private universities in 1983, there is the likelihood that, now that the country is back on democratic trail, private universities will grow in number.

This is why considerations must be given to issues concerning these private universities, which were earlier raised by the Academic Staff Union of Universities (ASUU). These include:

- the capacity of the NUC to enforce minimum academic standards in the universities;

- the ability of the universities to provide secured conditions of service;
- the ability and willingness of private proprietors to provide adequate funding for private universities;
- their readiness to commit themselves to academic freedom and university autonomy;
- the continued existence of these private universities which would be best assured, if corporate bodies, rather than private individual establish them (Arikewuyo, 2000).

These are some of the issues, which the federal government must consider before approving any private university in the country.

Towards a democratic governance of Universities in Nigeria

There is no doubt that the long period of military rule in Nigeria has adversely affected the psyche of the citizenry. The university system in Nigeria has actually been militarized. For instance, staff and student unions were banned and unbanned at various phases of military rule. The Academic Staff Union of Universities (ASUU) and the National Association of Nigerian Students (NANS) were the worst affected. Many academics have been dismissed, retired and even jailed unjustly by the past military junta. Many student leaders have also been arrested, detained or dismissed from universities without being subjected to laid down disciplinary procedures. A case in point now is the University of Ilorin, where forty-nine Lecturers have been dismissed for participating in a national strike action. If this could happen under a democratic government, then justice is still a far cry in the university system.

Moreover, many Vice-Chancellors have been removed for not complying with directives from the military Government. The effect of this is that Nigerian universities became mere tools in the hands of the military, to the extent that all the various organs of the university, such as Council and Senate were not allowed to perform their statutory functions. A Major General was even appointed as a sole administrator in a first generation university. Consequently, many Vice-Chancellors turned themselves into soldiers in gowns, giving immediate effect order to Deans and Heads of Departments without consultation. Faculties and departments were not even allowed to perform their duties, as some Lecturers were often reprimanded for "teaching what they were not paid to teach". Ajayi (1989) quoted Professor Oluwasanmi, a former Vice-Chancellor of a Nigerian University as asserting that "actual interference in university affairs started in 1975. There was no question at all of any, up to 1975, usurpring the powers of Council to dismiss staff... This problem which universities find themselves with started in 1975." (This was a period of military rule).

Olorode (2001) captured the picture of Nigerian Universities under the military in this way:

> "...Universities suffered from arbitrary governance...Rather than being a place where justice and truth are to be nurtured, the universities triumphed on mediocrity and untruths. Promotion was earned through sychophancy and the admission procedure became systematically bastardised as wives, children and cronies of Vice-Chancellors had their own admission quota without reference to the established procedure. University governance became unpredictable and university finances in shambles" (p. 32).

Therefore, with the emergence of full blown democracy in Nigeria, the orientation of university administrators on university governance must change for the better. Arikewuyo (1997) had earlier argued that all segments of the university, namely: academic staff, non-academic staff, students and the public at large must be involved in the administration of the system. This democratization implies an active involvement of these segments in the decision making processes. University administrators must be prepared to share their managerial authority with their subordinates. Such involvement, according to Ejiogu (1987) transcends involvement of the hand, but more importantly involves the mind, the heart and head.

Academic freedom and autonomy of the university must now be fully recognized. Fortunately, the National Policy on Education (Revised) (1998) has given a backing to this. Section 49 of the policy agrees that:

a) the internal organization and administration of each institution shall be its own responsibility;

b) the traditional areas of academic freedom for the institutions are:

i. select their students, except where the law prescribes otherwise;

ii. appoint their staff;

iii. teach, select areas of research; and

iv. determine the content of courses.

But there is a constrain here which says: "Government shall continue to respect this freedom as long as these areas are in consonance with national goals".

Previous military governments have often hidden behind this provision to encroach on academic freedom and autonomy of the university. The question is: "What constitutes non-consonance with national goals?" Any government may arbitrarily determine this. Indeed, even under this democratic government a bill entitled "University Autonomy Bill", which seeks to erode the statutory role of various organs of the university, is now

Year	Total Government budget NGN billion	Federal Allocation NGN billion	Allocation to education as % of total budget
1994	110.5	8.655	7.83
1995	98.2	12.729	12.96
1996	124.2	15.3	12.32
1997	188.0	21.8	11.59
1998	260.0	26.7	10.27%
1999	249.0	27.710	11.12%
2000	677.51	50.666	8.36%

Source: ASUU, 2001

before the National Assembly. Various bodies such as ASUU have opposed this bill. But the Government is bent on enforcing it by all means.

Perhaps the safest way out of this logjam is for the Government to allow universities to be run according to their statutes and acts. Universities should be seen as specialized institutions, which could not be pushed around anyhow. They must be run in line with acceptable democratic norms.

The discussion on democracy and university education in Nigeria will be incomplete if the issue of funding of the system is not discussed. This is a contentious area where ASUU and Government have clashed since the inception of democratic rule. Records have shown that government allocation to education has dwindled from 12% of the total government budget in 1995 to 7% in 2001.

Even in the year 2003 budget, of the total federal government budget of NGN 765 billion, only 13 billion, representing 1.81% was allocated to education (Obasanjo, 2003) Is this an indication that the democratic Government has no interest in education? Only time will tell.

Conclusion

No doubt, with the restoration of democratic rule in Nigeria, the administration of universities needs to change from the militarised model to constitutional governance. All forms of military habits must be removed from university administration. Universities must be run in accordance with the constitution of the country. University administrators need to be re-oriented in the art of university administration in a democratic setting. Academic freedom needs to be respected now in Nigeria not as it was under the military. Academic freedom entails the ability of the intellectual community to carry out its duties and responsibilities without unjustified interference. The notion of academic freedom bears an inherent sense of commitment and duty practically manifest in the quality of academic performance. So conceived, academic freedom is more of a necessity than a luxury in society. (Chidam'

modzi 1996). Modzi continued by emphasizing that with the freedom of intellectual development, one is able to attain the capacity for a critical perception and appreciation of existing realities and therefore capable of choosing and acting according to objectively right principles. Perhaps the CODESRIA declaration about academic freedom needs to be absorbed by the Nigerian government. According to that organization,

> "every person has the right to education and participation in the intellectual community…the state shall desist from exercising censorship over the works of the intellectual community and ensure that no official or any other organ under its control produces or puts into circulation disinformation or rumours calculated to intimidate, bring into disrepute or in anyway interfere with the legitimate pursuits of the intellectual community".

The implication of this is that the freedom of academics as intellectuals to teach and publish must be respected if the universities are to perform their functions.

Finally, proprietors of universities (whether government or private individuals) must respect fundamental human rights as enshrined in the constitution. Basic human rights, such as right to life; freedom of thought, conscience and religion; freedom from discrimination; fair hearing and freedom of expression must be respected.

It is hoped that if these constitutional provisions are respected and universities are run according to international standards, tension would be reduced at the universities, thus promoting teaching, research and services, for which the universities are established.

The author:
Dr. M.O. Arikewuyo
Institute of Education
Olabisi Onabanjo University
(Formely Ogun State University)
AGO-IWOYE, Ogun State
Nigeria
E-mail: *lekanarikewuyo@yahoo.com*

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Art schools for Tomorrow: Challenges and Opportunities

by
Ellen Hazelkorn
Dublin Institute of Technology, Ireland

Across the OECD, discussions are taking place amongst policymakers, educational managers and educationalists about the future of higher education. More and more is being demanded of higher education at a time when the funds available are shrinking and the costs are rising. Internationalisation and globalisation have transformed the once benign educational market place into a much more competitive environment today. These forces are influencing in a very directive way how individual institutions are organising and managing themselves.

Art Schools are not immune from either these developments or challenges. While many have their origin as (and remain) small, independent, publicly (or privately) funded schools, others are entering into formal (and informal) collaborative arrangements sometimes resulting in merger with universities, while others are building upon their enduring "membership" of an interdisciplinary university. Nevertheless, they all share the need to respond to a common set of characteristics and emerging trends of our age, inter alia globalisation and internationalisation; changing demographics and enrolment patterns; technological revolution; stricter regulatory environment; new educational sites and formats; changing nature of the workplace. As HEIs are reorganising and restructuring themselves to meet new economic, political and fiscal priorities, the academy has also come under pressure. Based on a Keynote Address to the IMHE conference, "Managing Art Schools Today" (August 2003), this paper presents an overview of some issues impacting on art schools today and asks how they are responding and trying to shape their future. It will focus on some key management issues, e.g. research, curriculum and organisational models, and suggest some strategic choices.

Introduction

> "Academic environments are designed to enable broad, deep and long-term creative explorations, but how they embrace change…varies considerably. Some generate new programs and embrace new areas readily, while others find programmatic and structural change more difficult, given the challenges and/or inertia in leadership, institutional culture, and the allocation of resources. Approaches…vary, depending on the institution's relative emphasis on research or teaching, the seniority and size of its faculty, and the faculty members' willingness and ability to collaborate"… (Committee on Information Technology and Creativity, p. 151)

Across the OECD, governments, policy makers and university and college managers are examining the future of higher education and higher educational institutions. These discussions are taking place against the backdrop that more is demanded of higher education in the belief that it can contribute significantly to the economy and the prestige and standing of nations. Students, seen variously as "citizens", "consumers" or "clients", are also asking questions and making demands in the belief that their future career and lifestyle depends very strongly on the quality of their education. Likewise, society – including the public and private sectors – are requesting that universities and colleges serve the community in which they are located, acting as catalysts and facilitators for knowledge and technology transfer and social, cultural and intellectual activities. Accordingly, universities and colleges are required to balance the needs and expectations of students, government and wider community.

These developments are impacting on and challenging the way art schools have hitherto been organised and operated. While they may vary considerably in their history and breadth of disciplines offered – often priding themselves on their independence and modest size – today, many are re-examining these features and their future options. Some are entering into collaborative arrangements or mergers with universities, while others are building upon perceived benefits that come from "membership" of an interdisciplinary multi-university. Like all HEIs, art schools are realising their need to respond to the issues of, inter alia, globalization and internationalization; changing demographics and enrolment patterns; technological revolution; stricter regulatory environment; new educational sites and formats; changing nature of the workplace and of academic work.

This paper[1] presents an overview of how some of these issues are impacting on art schools today and asks how they are responding and shaping the "many forces that play upon them" (Clark, 2001, p. 9). It will focus on four issues: the first part is a mapping exercise, suggesting a topology of art schools to help us understand their range and diversity; the second part looks briefly at the changing landscape in which art schools are now operating; the third part considers the issue of research which is particularly challenging for the arts; while the fourth part looks at the implications of current debates about higher education and some strategic choices for art schools.

Topology of Art Schools

Organizationally, art schools today can be categorized in at least eight different ways according to status, governance, funding, and discipline; some of these characteristics operate simultaneously within and across national boundaries.

1. *Independent, collaborative arrangements, integrated in university*. Many art schools and conservatories were initially established as independent or private "institutes" or "schools" sometimes founded around the reputation of an individual or group of artists/musicians. Some owed their foundation to Royal patronage and were attached to Academies of painting or sculpture. In the eighteenth and nineteenth centuries, there was a trend for provincial cities to fund local art schools (and sometimes academies) to prove their culture and wealth. Today institutional arrangements are more complex and diverse. Across Europe, the independent art school or conservatoire, often as municipal or regional schools and with relatively small student numbers, remains common but elsewhere, especially in the United States[2], Australia and the United Kingdom there has been a tendency to merge art schools/conservatoires with/into universities sometimes under the designation of "school for the arts" to bring together a variety of art forms. Under pressure from costs, changing accreditation and qualification regimes, and other societal/student demands, independent art institutions are entering into other collaborative relationships, often to ensure their independence is secured and perhaps as a first step towards merger. Status may also have implications on institutional authority to award qualifications; some art schools retain a semi-autonomous relationship to their respective university; managing their own day-to-day affairs but without degree awarding powers (see number 7 below).
2. *National, regional or community*. Art schools, as other HEIs, often distinguish themselves in terms of their mission and strategic focus. Some seek to establish a national remit, attracting students and staff from across the

country or indeed internationally, while others have a regional or community focus.

3. *Public or private funding*. The issue of funding can be a critical and defining one, impacting on other aspects of this topology. In some countries, art schools are funded primarily from public funds – often a combination of state (Ministry), region or town – while others depend more heavily on private funding. Whichever is the dominant form, even publicly funded institutions are required to source additional funds from external sources – benefactors/philanthropy, competitive grants, student fees, commercial activities, intellectual property, etc.
4. *Fee-paying or no tuition fees*. The issue of whether students are required to pay tuition fees differs from country to country. Today governments and, as a consequence, institutions are introducing tuition fees, often underpinned by a student loan scheme, to help fund higher education. Art schools are no different.
5. *Ministry of Culture or Ministry of Education*. The governance structure for art schools varies considerably across countries. Some operate within the remit of the Ministry of Culture (assuming there is one) while others treat art schools as part of higher education broadly via the Ministry of Education. Falling under one ministry or another may have significant implications for art institutions, and the way in which the government and/or the institution perceive a special "status" for such schools. Accordingly, some people believe there is more "security" and "resonance" within a Ministry of Culture.
6. *Range and combination of disciplines*. Art schools vary considerably in the disciplines that they include, which may also influence the title or name of the school, *e.g.* school of art and design, school of film, conservatoire, school of speech and drama. As to the completeness of the range of art forms included, there does not appear to be any rule; the one slight exception is classical music and dance (*e.g.* ballet), which are usually treated and housed separately although with the trend towards interdisciplinarity these boundaries are disappearing. Discipline specificity can also be reflected in the qualification; for example, a degree in painting rather than a degree in fine art or a degree in music performance rather than a degree in music. Sometimes the range or combination of disciplines and related activities is a factor of size and resources. Moreover, the emphasis on the craft of art or music making can sometimes be seen to be at odds with research. Art schools and artists/musicians tend to distinguish their activities from other HEIs and courses on the basis that "creativity" is a unique educational mission; this can cause tension within and across art schools between what is perceived as the vocational or practical and the academic. Other disciplinary issues cross-cut the issues raised here – see below.

7. *Diplomas, Degrees and Qualifications.* Historically, art schools gave local diplomas, but in the second half of the twentieth century they began to move more under centralized national control to give nationally awarded diplomas controlled by central bodies. Today, the trend is toward degrees, via a local university or self-accreditation with degree awarding rights (for the larger or integrated institutions). Though some countries maintain separate national diplomas (and some schools their own local one albeit recognised by a larger unit, there has been a significant shift from independent craft based diplomas to state recognized (and possibly internationally harmonised post-Bologna) academic qualifications. This is an uneven process, and there are still vocational qualifications (certificates, diplomas, BTEC[3] etc.) as well as a growing superstructure of postgraduate diplomas, MA, MFA[4], DFA, PhD, etc.
8. *Elected managers and boards, appointed managers and boards.* The internal governance structure for art schools varies as a result of the institution's relationship to the ministry, and whether it is public or private. Public institutions usually have a strong legislative requirement for boards with public representation, often appointed by the ministry, while private institutions are freer to choose their own board usually with an eye to appointing individuals with political, corporate and cultural links. Likewise, the position of rector, president, director or dean differs; some are appointed for a fixed term by the board, while some have permanent positions, and others are elected by the staff. Across Europe, there is growing trend for government to insist upon institutional managerial structures and contracts – which establish an agreed set of objectives and metrics that form the basis for institutional funding. US university presidents may find this "formal" government contract strange, but, in reality, they also are personally accountable to a board of governors that may dismiss him/her for failing to reach agreed outcomes. Effectively, only terminology distinguishes these two models. Hence, while the level of executive independence varies, demands on senior executives internationally are increasingly onerous and subject to increasing scrutiny.

In addition, this topology is further complicated by developments within and between art disciplines that are actively redefining the discipline. Traditionally, great distinctions were made between each art form, albeit in practice artists often crossed boundaries in their work. Today, not only is boundary crossing increasingly the norm but new disciplines are emerging. Hence, the various sub-disciplines or fields within fine art and design (such as painting, sculpture, printmaking, installation, fabric, illustration, graphics, performance art, etc.) are being combined intellectually and programmatically under the umbrella of visual arts. Film, television and photography are often described as the study of the still and moving image or increasingly as media

arts. Classical music and dance (especially ballet) continue to remain somewhat apart from these "mergers", albeit the term performing arts often groups music, drama/theatre, dance and mime. Architecture is sometimes included within art and design.

Developments in new technology have given birth to the new fields of multimedia, digital media, electronic arts and electronic music/computer music that in turn have significantly impacted on and transformed traditional boundaries between art disciplines. These new innovative fields are underpinned by novel alliances between hitherto discipline "enemies", such as computing, electronic and mechanical engineering and the arts. Side-by-side with these developments, visual culture has emerged as a new field of study which attempts to theorize the visual as part of a general theory of communication that applies across disciplines and social circumstances rather just a specialized form of expression or activity. Finally, changes in the labour market and the growth of the cultural industries have opened up new opportunities for arts graduates and also required arts graduates to be much more flexible and interdisciplinary. In response art schools and conservatoires are introducing new interdisciplinary programmes, which enable students to combine different art and musical forms and cross hitherto foreign boundaries.

Secondly, our understanding about the specificity or inter-relatedness of art forms has implications for physical organization. There are plenty of examples of individual art forms being housed in physically distinct and distant buildings within the same city, but there is also a growing tendency for different art forms to share facilities, even if within the same building they occupy different and distinct spaces. Economic factors and increasing appreciation of interdisciplinarity have encouraged collaboration across programmes, curriculum and facilities: within and across the arts, with other disciplines, and across regions and between countries. The realization that the arts/cultural products and services can be economically significant has fundamentally changed the way in which both art schools and industry interact with each other; across the globe, cultural districts are an increasingly important part of city and regional economic development strategies, providing shared/collaborative space for art schools, SMEs, incubator units or start up facilities, and cultural organizations (see Hazelkorn and Murphy, 2002)[5]

Thirdly, art schools are often distinguished according to the objectives of the curriculum. Traditionally, the emphasis was on training specialist artists and musicians, people who would earn their living by and through the art form – usually perceived as a solo career. Alongside this objective however was the harsh reality that earning a living can and is very difficult; for this reason, religious or state patronage of the arts goes back centuries. This financial precariousness has challenged traditional assumptions, encouraging and demanding arts graduates and the academy to take a broader view of

employment opportunities. While arts graduates have always supplemented earning-a-living-by-their-art with teaching, today many are employed as commercial and/or professional workers either within their discipline or within the wider cultural or creative industries. Many others, as per other disciplines, find work in other unrelated fields. It is not surprising to find art schools today advertising the fact that the arts provide a good foundation for whatever career path one eventually chooses. [0]Some offer courses or modules in professional practice, looking at how to survive economically, deal with funding bodies, get grants, manage studios, be self-employed or run a small business, etc.

Changing landscape of higher education

Without doubt, the emergence of a global knowledge or information society has had a tremendous impact on primary, secondary and tertiary education. Governments and institutional managers are responding to a new set of challenges (inter alia): institutional and systems structures and financing; globalization and internationalisation; demographics and enrolment patterns; technological revolution; stricter regulatory environment; new educational sites and formats; knowledge production and research management; and the changing nature of the workplace and academic work.

> "The forces at play suggest a sweeping shift in orientation toward even higher levels of participation at tertiary level, driven strongly by demands reflecting the diverse interests of clients rather than the supply-led, institution-directed expansion witnessed previously." (OECD, 1998, p. 3).

The response to these new forces and circumstances has had profound impact on and has implications for higher education. Art schools are operating within this changed environment, and as such, need to recognize both the significance and extent of these changes and challenges, and how they are likely to impact.

As public funding fails to keep pace with demand or need, there has been an increasing emphasis on market conditions, value for money and accountability. In response, HEIs have become more entrepreneurial and "corporatised" and see their students as discerning customers or clients competing for funds and students. New providers, including for-profit institutions, have emerged. At the same time, governments have cast themselves into the role of purchasers rather than providers of service. The global knowledge economy and thirst for knowledge has elevated the role and importance of research and development, and led to demands by individuals and enterprises for advanced qualifications; higher education is now perceived as compulsory education with greater emphasis on an internationally quality assured product. The European Bologna Agreement as a mechanism to

facilitate student and staff mobility and collaboration via comparability and readability across systems may, as a consequence, become an "unofficial" quality assurance system. As the distinction between teaching and research grows, straining the nexus between the two activities, institutional funding is becoming increasingly tied to measurable outcomes (performance indictors) – numbers of students graduating, research outputs, etc. Faculty are under increasing pressure, most notably to conduct research, but also to teach larger numbers of students in larger classrooms. These developments are arguably leading to the restructuring of higher educational systems.

In response, higher educational institutions are organizationally adopting various accoutrements traditionally associated with the business world in order to operate and survive in this more competitive and harsher climate. For some, the objective is strength through size (research output and student numbers) while for others the emphasis is strength through niche or mission. Strategic alliances – sharing physical resources, common administrative and IT platforms, and academic programmes – are no longer uncommon; indeed, governments and supranational organizations (e.g. EU, OECD) are openly encouraging such partnerships through funding and other policy instruments. More robust HEIs have taken on the role of suitor, acquiring less well-endowed institutions or competitors. Institutions are finding that co-habitation in some form is an essential criteria of survival. Through increased use of new technology, it is increasingly likely that the concept of higher education in one state will be displaced by global institutions operating as multi- and trans-national corporations.

These developments are also forcing changes within institutions. Increasing pressure for research outputs as a measurement of institutional success and as a source of external funding is driving a wedge between the twin activities of the academy – between teaching and research. The new binary, between and within institutions, is also creating tension within the traditional academic career. It may lead to the establishment of separate or parallel research and teaching promotional structures and centres of activity such as self-funding or income-generating units. At the same time, the typical student today is likely to be older and come from a more diverse socio-economic background; combining study with work has forced changes in pedagogy which in turn has been fuelled by the information revolution. Ubiquitous technology ensures that learning can occur over distance and in line with an individual's own time and life commitments.

Traditional sharp institutional boundaries – elite *vs.* mass; vocational *vs.* academic; technological *vs.* traditional academic; undergraduate *vs.* postgraduate – which marked the growth of higher education systems in the late 19th century are fading. To some extent, there has been a convergence between these different "extremes", with institutions adopting characteristics

of the other. For example, traditional academic universities have developed strong professional schools, with an emphasis on useful or employable skills, and many institutions now offer postgraduate qualifications as a normal progression route.

For art schools, the traditional organization structure is also changing. Many independent art schools have merged with larger universities, while others have formed alliances with other institutions or between themselves in order to share resources or facilities. Internationalization, a partner of globalization, is encouraging art schools to forge academic partnerships, to encourage student and staff mobility, to develop research activities and to share experiences. These partnerships are opening up new opportunities; European and Australian art schools are recognizing that "creativity" is a very marketable educational commodity especially for Asian students. In this regard, art schools are being aided by their international organizations, *e.g.* ELIA (European League of Institutes of the Arts) and ICFAD (International Council of Fine Art Deans).[6] At the beginning of the 21st century, art schools have realised that the once benign higher education system has been transformed into a competitive market place, in which there are winners but also losers.

Research

In recent years, research has become one of the defining characteristics of higher educational institutions. Governments and institutional managers have placed great emphasis on measuring the quality and quantity of research outcomes and potential for knowledge and technology transfer. Great debates have arisen in countries around the world about the appropriate evaluation criteria, funding mechanisms and the relationship between research and teaching. To a large extent, art schools have been absent from this debate – due in part to assumptions by all concerned that the issues were inappropriate. Today, debate about the role and definition of research within art schools is beginning to take centre stage. Drawing upon the responses of two art schools which participated in an international study for the OECD's Programme on Institutional Management of Higher Education on growing research in new HEIs (see Hazelkorn, 2004), this section explores some of the research issues for art schools.

The participating art schools each said research was essential to ensuring that they remained at the forefront of their field. Initially, art schools said this meant concentrating on skills, however, since the emergence of the knowledge economy, concentrating on skills had become inextricably linked to growing research capacity:

> "…to be at the forefront of learning, creativity and practice in the arts, communication and design…to achieve its mission…: to foster a lively

and innovative community in which professional practice, research and scholarship underpin teaching and learning".

"…social and technological developments are [happening] so fast today that a research based knowledge is necessary if the profession and education shall keep up with the developments – much less be abreast of developments. Maintenance and strengthening of the professional profile and the necessity of integration between teaching and research [are critical]".

Moreover, research activity/priorities were strongly linked to their competitive position. Research reputation and what flows from that is now so important that the art schools have each provided funds often contrary to government approval. Their aim was to transform their institution from "academy type" to a "research institution", and to "reorganise from vocational-based to education underpinned by research and innovation".

The large OECD study pointed to historic and organisational differentials between older or well-established HEIs and new and emerging institutions. These discrepancies are equally true for art schools; art disciplines do not have a recognized research tradition, and academic research has often been seen as alien, appropriate to the sciences but not the creative arts. In addition, academic staff were usually practicing artists or musicians, hired principally because of their creative and professional reputation (*e.g.* via exhibition, performance, design or architectural activity) which in turn was not usually audited as it was perceived as part of their personal (commercial) activity rather than part of their academic or research portfolio. As a consequence, arts institutions, which have relied on a high proportion of part-time and visiting faculty, have traditionally been under-resourced while academic staff has not had the appropriate research prerequisites such as a research postgraduate qualification.

Given art schools' focus on creative practice, defining research has often caused considerable tension within the discipline(s), within the academy, and between the academy and national evaluation schemes. Asked how they defined research, one institution distinguished between a "definition of research for official purpose" and a "pragmatic definition of research", while another distinguished between "simple maintenance of practice and research":

"…the current research notions of OECD but adjusted according to the character of research…[in] the ministry of cultural affairs:

- applied research;
- development work – including artistic development work;
- reflected data gathering".

"…original investigation undertaken in order to gain knowledge and understanding:

- invention of ideas, images, performances and artefacts where these lead to new or substantially improved insights or produce new or substantially improved materials, devices, products, etc.
- work of direct relevance to industry, commerce and the public sector."

In the process of trying to carve out a definition of research most appropriate to the arts, many academics are asking if arts research should follow the traditional research paradigm or is there an art specific paradigm? In this regard, some have embraced practice-based methodologies to develop a genuine interactive link between the creative (activity or performance) and the academic (textual or critical). The UK RAE (research assessment exercise) has sought to formally recognise creative activity as research when it meets certain conditions – when it genuinely contributes to new knowledge. Arguably these two "approaches" could have slightly different emphasis – the former focusing on the way images, performances or artefacts, including design, are employed to help generate new knowledge, hypotheses, and understandings while the latter focusing on the outcome of the activity that is art and design, music-making or composition, dramatic performance, filmmaking, photography, journalism, etc. – albeit both are coming within the "research" rubric. Another question however is the extent to which practice-based research is a new research paradigm particular to the creative arts or just another research methodology, on a par with quantitative or qualitative methodologies? In this regard, the arts can learn much from the experience of more 'established' disciplines, including science and engineering. Research for the latter incorporates the production of prototypes while the former has a well-developed and accepted model of inquiry. Rather than perceiving the creative process *vs.* scientific inquiry, it might be helpful to understand the creative process as scientific inquiry. Similarly, the arts can learn from other disciplines about the role of research students within the research or scholarly environment. Finally, asked to rank the key factors influencing their research priority setting, the views of art schools closely matched those of other new HEIs: 1) availability of competence and competitive advantage, including niche strengths, 2) compliance with national priorities, 3) external evaluation processes, and 4) funding opportunities.

Growing research is not without its difficulties or costs. Given increasing pressure to conduct research and measure research output, academic staff are suddenly confronted by a "new set of expectations…" (Jones and Lengkeek, 1997, pp. 228-229). These include ensuring that both management and staff recognize the "research potential within art and design" and that "the development of the profession and education should be based on research

rather than…[the] development and exchanges of experiences via practice…". Art schools have responded by insisting that "individual, college and wider institute objectives and aspirations" match, that all new appointments are expected to be research active, and that research/professional practice is accepted as the basis of appraisal and promotional criteria. Such re-conceptualization of creative practice may raise issues with respect to the ownership and management of intellectual property arising from such activity. One institution, however, felt it was realistically "facing a generational change among the academic staff…".

In these circumstances, what actions are art schools taking to help grow research? There is strong emphasis on developing policies which enhance the nexus between research and teaching and developing support and mentoring systems. Similar to "good practice" models across higher education, art schools are trying to bring otherwise disparate individuals together to form subject/thematic groups via interdisciplinary projects and intra- and inter- institutional networks. There is also an emphasis on collaborative projects with industry, galleries and museums as represented by various urban cultural districts initiatives. Institutional support is provided via teaching remission, targeted funding, academic awards/rewards, facilities, technical support, seminars/workshops, etc. Better organised, art schools are turning their attention to positioning themselves to compete for external funding – from research councils, from the public and private sector, and from independent foundations.

Conclusions

It may be easy to dismiss the relevance of many changes occurring in the global higher education system for art schools because of their specialised niche and pedagogy. This view may be further advanced because student demand for such programmes remains buoyant. In contrast, this section puts forward an alternative sustainable strategy for art schools based on three propositions, adapted from the "Inaugural Address" of Ruth Dunkin as Vice Chancellor of RMIT (Dunkin, 2000).

- Art Schools are not immune from either the developments or challenges impacting on HE globally;
- Art Schools need to deepen their traditional expertise while learning to co-generate knowledge and innovation;
- Art Schools need to respond to demands of knowledge economy and labour market by mobilising capabilities in different ways.

The changes and challenges affecting higher education are so profound and global that traditional safety nets are gone and no institution has a pre-ordained future. While art schools may have been slower to have been affected, or perhaps more truthfully to recognise their impact, the changes are

nonetheless significant. Art schools need to respond by building upon their traditional role – which is sustained by a greater specialisation in the global HE marketplace – while developing newer and wider linkages to the community: acting as a community resource and as a research/teaching environment within the broad cultural/creative industry sector and region. This role is critical as it is now widely recognised that HEIs are no longer sole providers for either teaching or research; there are many new competitor-providers available as students, government and others use quality and value-for-money as criteria. In recognising its wider remit, arts schools need to prepare students for a wider range of career opportunities and respond to changing demands by students. What role can or will art schools play in the future?

In the past decade, two concepts have greatly influenced the choices being made by HEIs and policy-makers: the entrepreneurial university and Mode 2 or interdisciplinary knowledge creation. For Burton Clark, the "entrepreneurial response" is both an essential managerial and organizational response by HEIs to the changed financial and governance environment, and a "critical necessity for those universities/institutions that want to be a viable, competitive part of the rapidly emerging international world of learning" (Clark, 1998). He identified five components[7] which created the institutional and organizational framework for a dynamic innovative HEI based on empowering individual academics, departments and units to develop strategically but in partnership. Also in the 1990s, Michael Gibbons et al provoked an international debate about the relationship between research and society, and the role of HEIs when they argued that universities are not the sole site for learning and research. "Socially robust knowledge" is knowledge created within the context of being useful; accordingly, it was no longer solely disciplined-based (Mode 1) or confined to the university but rather is interdisciplinary and conducted/provided in active engagement and collaboration with society – the wider community, civil society, industry, and the region..

> "The growth of the 'knowledge' industries has not only led to an increase in 'knowledge' workers and a proliferation of sites of 'knowledge' production, but has also tended to erode the demarcation between traditional 'knowledge' institutions such as universities and research institutes and other kinds of organization". (Nowotny *et al*., 2002, pp. 15, 95)

As society demands more and more from art schools, their agenda needs to move from a desire to simply increase the general education level of the population to a greater concern to harness their education and research outputs to specific economic and social objectives (OECD, 1999) Art schools need to find ways to overcome their strong defence of individual art disciplines and all that that represents in terms of their academic programmes, management and organization. Critically, this needs to be a conversation involving everyone within the arts and art schools.

1. *What becomes of an arts graduate?* Until recently, the curriculum of art schools focused predominantly on educating (or training) future artists by what can euphemistically be referred to as the "atelier" model – the gifted student studying with the established artist/musician. To some extent, within this configuration, the role of the art school as a higher educational institution was displaced by emphasis on the acknowledged expertise of the individual artist-teacher, who was (is) often supplementing their professional career by teaching. Unlike

   > "Professional and trade schools [which] are judged on their ability to turn out qualified workers who will achieve some level of success in their field…Art schools…don't promote themselves on how successful their graduates are becoming…: the numbers would be embarrassingly low. Instead they define their goals more modestly." (Grant, 1999).

   As students and governments have begun to demand more from education, the academy has been asked and is asking questions about both the content and relevance of the arts curriculum and the extent to which it prepares students adequately for what is widely acknowledged as a precarious career. Questions of employability of art students (see ELIA, 2000 and Hazelkorn, 2000) have taken on greater importance in light of the economic significance of the arts, new opportunities for the arts (creativity) when linked to digital technologies, and the employment potential of the "cultural industries". In response, there appear to be two broad approaches:

   > "…is a comprehensive arts college where students, faculty, professionals, and audiences from diverse cultural communities come together to develop a high degree of professional competence, explore connections, develop new modes of communication, and engage in the process of making art….[the] multi-disciplinary program prepares students for careers in the arts, and gives students the tools to enter a diverse number of other careers". (CVPA, University of Massachusetts at Dartmouth)
   >
   > "…offers professional courses in the arts to talented students who want to make a career in the visual arts, film, theatre, dance, architecture, music or museology, as a performing or creating artist, as an arts teacher, or in a creative profession behind the scenes". (Amsterdam School of the Arts – AHK)

   This artist *vs.* cultural worker dichotomy has direct implications for the curriculum. While some art schools state that "…within 5 years, [a] graduate should be functioning as a fully professional artist or arts worker", others are building-in work experience, internships, professional practice and other similar opportunities within the curriculum to help students gain awareness of current industry conditions, and value and develop

"entrepreneurial" qualities and skills with regard to establishing own businesses in the future.

2. *(re)Defining metaphors of disciplinary practice – implications for curriculum?* Over the past decade, the trend towards interdisciplinarity has been occurring steadily with a growing recognition and facilitation of boundary crossing and cross-fertilization. Interplay between perspectives is providing greater depth, breadth and synthesis, enabling greater coherence within each discipline and connections with/between other disciplines and the world beyond the academy. As a result, many art schools have developed options in interdisciplinary studies, albeit it is important to acknowledge that interdisciplinarity builds upon disciplinary practice. Perhaps some of the most exciting boundary crossing initiatives have emerged through links between the arts, science and technology. Information technology and creative practice have spawned new disciplines, such as electronic arts, digital media and electronic literacy, preparing students for new professional and career opportunities. The emphasis is on new programmes and theories with respect to creative practice rather than simply using information technology as a new tool set. Accordingly, there have been implications for pedagogy and institutional organization: experimental and research studios-laboratories, workshops, new media art and design organizations, virtual teaching and learning spaces.
3. *New models of art school organization?* To respond positively to the new higher education environment, art schools are beginning to exploit the organizational boundaries between disciplines and external organizations. By actively fostering a culture of intra- and inter-institutional collaboration – with other (arts) institutions and/or within larger universities – and community engagement – with arts organizations (*e.g.* museums and galleries) and/or as part of a "cultural industry precinct" – new opportunities are identified. This has implications organisationally, and critically, in the physical design of art schools to encourage interdisciplinarity among art formats as well as across the wider campus environment. Like other HEIs, art schools are also developing a management practice which encourages innovation and facilitates staff involvement via interdisciplinary units, technology/design companies, commercialisation and incubator units, experimental performances, festivals, training initiatives, self-funding courses, etc. All these initiatives offer third stream funding sources.

In conclusion, art school managers face several strategic choices. This polar approach aims to convey a continuum delimited by two poles rather than simply two stark choices. Art school managers need to decide where their institution sits along this strategic spectrum – in other words what is the

appropriate balance for their institution – in order to respond successfully to the new international competitive environment.

- *Independence vs. integration?* To what extent should or can the art school remain an independent institution or should it seek to develop alliances with other similar institutions or with another, perhaps complementary, institution?
- *Specialisation vs. interdisciplinarity?* To what extent should institutional mission and the curriculum focus on individual discipline specialisation or should there be additional or new focus placed on interdisciplinarity, linking various art forms or the arts with other disciplines, such as technology?
- *Educate for creativity vs. educate for employment?* To what extent should an arts curriculum include business or employment-related subjects or "prepare students beyond the bounds of particular disciplines and professions"? (OECD, 1998, pp. 37-38).
- *Internal focus vs. community engagement?* To what extent should the art institution interact with society?
- *Professional/creative practice vs. research? Scholarship vs. research?* To what extent should the art school promote professional or creative practice and/or research or scholarship? What is the appropriate balance between these different activities?
- *Reliance on government vs. diversified funding base?* What is the appropriate balance between public (government) and private (grants, philanthropy, commercial activities, etc.) funding?

Some of these choices are more difficult than others albeit each institution needs to make strategic choices in the context of its external realities. It is nevertheless clear that higher education is operating in a highly competitive international world of learning. Universities and colleges can no longer maintain their existence on the basis of past achievements or historical circumstance. Today, society is asking questions of all higher educational institutions, including art schools. To ensure a sustainable future, art schools need to develop the appropriate response.

The Author:
Dr. Ellen Hazelkorn
Faculty of Applied Arts
Dublin Institute of Technology
Rathmines Road
Dublin 6
Ireland
E-mail: *Ellen.Hazelkorn@dit.ie*

Notes

1. This paper is based on the presentation given to the IMHE conference, "Managing Art Schools Today", OECD, Paris, August 2003. I welcome additional comments and suggestions from Kieran Corcoran and Tom Evans albeit all errors and omissions are mine.
2. For-profit Art Institutes exist in many US cities, some of which are attached to well-established art museums/galleries.
3. A UK sub-degree qualification award which provides national recognition for a wide range of professional skills and abilities.
4. MFA is a Master of Fine Arts which has been considered the terminal degree in the US in the creative arts and media; recently a DFA has been introduced in some universities. There is an equivalent DMA in music.
5. Some Ministries of Culture still cling to the model of the Academy of Fine Art as a cultural ivory tower, to be kept pure and separate from industry, commerce or indeed money. This has been a very strong French theme, which has also influenced German thinking (Germany having based its art school system on the Beaux-Arts de Paris of the Franco-Prussian war period). [I am grateful to Tom Evans for this point.]
6. ELIA and ICFAD, for example, jointly sponsored a Senior Managers Forum in December 2003 to share experiences and learn about new challenges facing higher arts education.
7. (i) *Diversified funding base* – given reductions in public expenditure and need for discretionary funds, diversification of the funding base becomes critical to any institution's survival and strategic plan. (ii) *Strengthened steering core* – as the complexity and challenges increase, there is heightened demand to develop more organized ways for universities and art schools to manage and organize themselves. (iii) *Extended developmental periphery* – boundary-crossing or outreach units (*e.g.* research centres, companies, etc.) open up new opportunities while providing a means to generate additional income. (iv) *Stimulated academic heartland* – empower academic departments and staff to become "entrepreneurial" and each promotes alliances and third-stream income. (v) *Integrated entrepreneurial culture* – promote an institutional work culture that embraces change.

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Erratum

In *Higher Education Management and Policy*, Vol. 16 No. 2, two authors' addresses were incorrectly published. The correct addresses are given below with apologies to the authors:

Page 17 should read

Maurice Kogan
Professor Emeritus of Government and Director
Centre for the Evaluation of Public Policy and Practice
Brunel University
Correspondence address:
48 Duncan Terrace
London N1 8AL
United Kingdom
E-mail: *maurice.kogan@brunel.ac.uk*

Page 30 should read:

Mary Henkel
Professor Associate of Government
Centre for the Evaluation of Public Policy and Practice
Brunel University
Correspondence address:
67, Northdown St
London N1 9BS
United Kingdom
E-mail: *mary.henkel@brunel.ac.uk* "

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