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Everything for Sale?

The marketisation of UK higher education 1980-2012

Roger Brown[*] and Helen Carasso[**]

Abstract.   Higher education in the UK has, since 1980, been subject to a series of key policy developments that have progressively marketised the national system.   These changes for institutions, students and the sector may be seen as having improved efficiency at a time of growth and diversification through the encouragement of entrepreneurial practices, with values safeguarded through appropriate regulation.   However, proposals by the Coalition Government for further substantial changes to funding and governance from 2012 may, it is argued, run the risk of taking the sector beyond the point where it can continue to retain its core characteristics and delivery of quality.

Keywords: higher education funding, marketisation, quality in higher education, student funding, UK higher education system(s), university governance

Introduction

Since the failure of any political party in the May 2010 General Election to obtain an overall majority of seats in the House of Commons, Britain has had a Coalition Government of the Conservative and Liberal Democrat parties, the first such government since the Second World War.   This article describes the major policy changes in UK higher education since 1980, culminating in the radical reforms proposed by the Coalition Government during 2010 and 2011 (BIS, 2011a).   It argues that the common thread is the notion of "marketisation" – the increasing provision of higher education on market or "quasi-market" principles.   These changes have certainly made UK higher education more entrepreneurial and efficient.   But they may have taken it to the point where these gains are offset by issues of quality and equity (for the full argument, see Brown, in press).

The article begins by defining the terms "market" and "quasi-market".   A summary of the main policy changes over the period is then offered.   These cover six domains: research, teaching, student support, quality assurance, system structure and institutional governance.   Brief reference is also

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made to changes in the structure of state supervision. The second part of the article summarises what is known from the scholarly literature about the impact of marketisation[1] in higher education. It then offers an assessment of the impact of the policy changes described. A chronology of key developments is appended.

Markets and non-markets

In economic theory, a market is a means of social coordination where the supply and demand for a product are balanced through the price mechanism. Consumers are assumed to make rational choices between the alternatives on offer on the basis of suitability, not only in terms of price but also of quality and availability. Suppliers adjust their products or services to accommodate consumers' preferences or go out of business.

If higher education were to be supplied in this way, market entry would be lightly regulated, if at all. Students would have plenty of choices and there would be considerable competition for them. Institutional funding would depend entirely on the ability to attract and retain students. There would be no control of the prices charged (tuition/fees) or of the numbers of students enrolled. The costs of teaching would be met entirely from fees, set at a level at least to cover costs, and students would meet these, as well as their living costs, from their own or their families' resources. Students' choice of what, where and how to study would be based on the rational analysis of information about the price, quality and availability of relevant subjects, programmes and institutions and the benefits they could expect to gain from obtaining a particular qualification. Research funding would depend on the interests of the research sponsors but again there would be no subsidies for suppliers or consumers.

The fact that both student education and research are subsidised in nearly every higher education system takes us into the issue of "market failure". The main causes of such failure relevant to higher education are externalities/spillovers, monopoly powers and information. Because of externalities, public goods will by definition be unattractive to private market providers. Monopolies, or at least some degree of oligopoly, may be justifiable or unavoidable because of the role which universities play in producing, allocating and regulating knowledge and status. Information is a particular problem in higher education because there are no universal, shared definitions of quality and how it might be measured. Furthermore, there is agreement among economists that social opportunity may be underprovided within markets, thus providing a rationale for governments to impose certain constraints on their operation in the delivery of public services, resulting in the creation of quasi-markets.

Within the theory of markets, quasi-markets differ from conventional markets in three ways:

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[1] "Marketisation" is often confused with "privatisation". At least conceptually, they are distinct. Privatisation is defined here as the penetration of private capital, ownership and/or influence into what were previously publicly funded and owned entities.

"... non-profit organisations competing for public contracts, sometimes in competition with for-profit organisations; consumer purchasing power either centralised in a single purchasing agency or allocated to users in the form of vouchers rather than cash; and, in some cases, the consumers represented in the market by agents instead of operating by themselves." (Le Grand & Bartlett, 1993, p.10)

As we shall see, the provision of higher education in the United Kingdom – as in other systems with market features – the US, Australia, New Zealand, Canada and, with caveats, Japan and Korea – is really a quasi-market, with continuing subsidies and state regulation.   We now look at the development of such quasi-markets in six policy domains: research, teaching, student support, quality assurance, system structure and institutional governance.

The funding of research

Historically, the public funding that British universities received for research infrastructure – libraries, laboratories, *etc*. – came as part of an undifferentiated "block grant" also covering teaching.   Not only was there no distinction between research and teaching, but there were also no performance criteria: everything was funded according to a formula.   This began to change in the 1980s, with the publication in 1984 of a strategic document by the then main public funding agency, the University Grants Committee (University Grants Committee, 1984).   This lead to a series of periodic reviews – the Research Assessment Exercises (RAE) – under which the quality of university research, subject by subject and department by department – is subject to national peer scrutiny, with the grades awarded feeding directly into institutional funding according to algorithms that vary from time to time not only after but sometimes between reviews.   The first such review took place in 1986, the most recent was in 2008.   The next review is due in 2013/14; this will for the first time include an assessment of research impact, and is to be called the Research Excellence Framework.

British universities' other main source of public research funding is for specific projects from the Research Councils.   This has also become more selective, as have other public support schemes including the funding of research students.   As a result, a high proportion of public research funding goes to a small number of institutions: of 170 higher education institutions, 25 receive three quarters of public research funding, and four receive a quarter.   The basis and method of allocating research funds matters not only for the health and direction of university research but also because research underpins the institutional hierarchy, the intensification of which is, as we shall shortly see, one of the consequences of market-based systems.

The funding of teaching

British university teaching has always been funded by a combination of grants to institutions and

student fees.   By 1980 grants comprised the great bulk of teaching funding, with the balance made up from fees which were also heavily subsidised by the Government.   The greater proportion of Home/EU undergraduate fees fell to the public purse, even as students were gradually asked to make increased contributions from 1998 onwards.   From 2012, however, funding changes implemented by the Coalition Government will mean that, within English institutions, the costs of teaching all but a small number of subjects that are viewed as strategically important (and, in many cases are also expensive to teach) will be met entirely from student fees.   This is in effect a "voucher" system (Bekhradnia & Massy, 2009).   It should be noted that none of the devolved regions – Scotland, Wales and Northern Ireland – is following England down this path.

The main changes between the two dates were:

- The Government's requirement from October 1980 that overseas students' fees should no longer be subsidised
- The Government's decision in 1989 that the fee level for Home/EU students should be substantially increased, so that a higher proportion of the cost of teaching would be met from the (still subsidised) fee
- The introduction in 1998 of a means tested, up front, fee of £1,000
- The introduction in 2006 (in England) of a variable fee regime under which institutions were allowed to charge up to £3,000 for full-time undergraduate courses with the fee backed by a subsidised, income contingent loan

Student support

Historically, the UK has had one of the most generous student support regimes.   Following the report of the Anderson Committee (Department for Education, 1960), a means tested maintenance grant regime was introduced.   The increased costs of the scheme to the taxpayer as the sector expanded led the Government to propose in 1988 that maintenance grants should be frozen in value and supplemented by subsidised maintenance loans.   These were introduced in 1990.   Between 1998 and 2006 maintenance grants were entirely replaced by loans.   Grants were reintroduced in 2006, with the intention of reducing the barriers that it was feared increasing fees would present to the participation of students from low income families in higher education, but form a much smaller proportion of student support than previously.

This dual regime will continue after 2012 albeit at lower rates of public subsidy, with institutions charging fees of more than £6,000 required to commit a proportion of that additional income to (mainly income-contingent) student support in the form of bursaries, fee waivers and a contribution to the new National Scholarship Programme.   The National Scholarship Programme is a scheme established by the Government to provide grants to students with a declared income of under £25,000.

Both the Government and individual institutions will contribute to the costs with the Government's share rising from £50 million in 2012-13 to £150 million in 2013-14.

Quality assurance

Prior to the unification of the higher education sector in 1992 (see next section) there were very different quality assurance regimes in the universities and the polytechnics. Universities enjoyed an almost wholly self-regulatory regime though they did agree in 1989 to establish an Academic Audit Unit to review their quality assurance processes. Polytechnics, on the other hand, were not only subject to periodic inspections by Her Majesty's Inspectors of Schools, but were also overseen by a state agency, the Council for National Academic Awards (CNAA). Although the intensity of CNAA supervision decreased as time went on (Harris, 1990) there nevertheless remained very different traditions of quality assurance on either side of the so-called "binary divide' of institutions delivering degree programmes.

The new quality regime for the single sector combined them. A sector-owned agency, the Higher Education Quality Council, took over the audit function. A government-owned assessment unit within the Higher Education Funding Council in effect took over departmental inspection. After concerns about duplication, the two operations were combined in 1997 in a new agency – the Quality Assurance Agency for Higher Education (QAA) – which was and is jointly owned by the Government (through the Funding Council) and the institutions, through their representative bodies. Under current proposals from the Coalition Government, the QAA may though soon fall directly under the Funding Council.

In the late 1980s and early 1990s, attempts were made to link teaching assessment judgements to institutional funding, with institutions receiving additional funds where they received high scores. Partly because of the halting of the late 1980s expansion in 1993, but also because of doubts about the validity of the judgements, this was largely abandoned (Brown, 2004, p.99). Nevertheless attempts have been made from time to time to resurrect it.

The rationale for linking funding to performance was that, in the absence of a genuine consumer market, this was the best way to reward high quality teaching. However since 2001 successive governments have pursued a more market-based route, by strengthening the requirements on institutions to provide detailed information on quality and other aspects of their performance. The current proposal is for institutions to publish no fewer than 17 items of information at course level for all full-time undergraduate degrees. These measures will include the proportion of time spent in various learning and teaching activities; the mix of assessment methods; measures of student satisfaction (taken from the National Student Survey); the destinations of graduates six months after graduation; of those employed, the proportion in managerial/professional jobs six months after graduation; and salary data six months after graduation from the course concerned and for all courses

in the subject across all institutions six and 40 months after graduation (Higher Education Funding Council for England, 2011, pp.12-15).   This information set will far exceed that which is available in any other major system.

System structure

The lowering of entry barriers to facilitate supply side competition between institutions is a major feature of a market-based approach.   Over the period 1980 to 2012 three particular developments can be identified in Britain: an increase in the number of universities; the removal or reduction of formal limits on institutional development; and an increase in the number of larger, comprehensive institutions and a reduction in the number of smaller, specialist ones.

The number of universities more than doubled.   There were two main waves of expansion. The first was in 1992, following legislation to permit the 30 polytechnics in England and Wales (and subsequently the five Scottish Central Institutions) to obtain a university title.   The second, from 2004, was legislation to permit colleges without research degree awarding powers to obtain a university title.

In 1980 there were three quite distinct categories of institutions: universities, teacher training colleges (colleges of education), and polytechnics and technical colleges.   These formed quite separate sectors, the universities being funded through the University Grants Committee, the colleges of education and the polytechnics and colleges through their local education authority.   All this was to change in the 1980s.   Most of the teacher training colleges either diversified as colleges of higher education or were incorporated into larger, multi-campus institutions (mostly polytechnics).   The polytechnics and larger colleges were incorporated in 1989 and became universities in 1992.   No limits were placed on their development so that formally they were equivalent to the universities and able to engage in the same range of activities if they could find the necessary resources.

As well as the disappearance of the teacher training colleges as separate specialist institutions, two further waves of institutional rationalisation have occurred.   In the 1990s, most of the London medical schools became part of larger London institutions.   In the 2000s, many of the other specialist institutions, particularly in art and design, were absorbed into larger ones.   The reasons were various, but a common theme was the greater resources, protection against competition, and spreading of risk which being part of a larger and more diverse institution afforded.   All in all, over the last 16 years, 40 institutional mergers have taken place in UK higher education, most involving the takeover of a small specialist institution by a larger one (Ramsden, in press).   More are expected, especially in Scotland and Wales where the devolved administrations see institutional rationalisation as a priority.

Finally, at the same time direct public funding to institutions for teaching is to be reduced by about 80%, the Coalition Government has proposed (BIS, 2011b) a number of measures that have the potential to increase the regulation of the system.   It has also recently announced its intention of

changing the rules for market entry and membership to facilitate the participation of private, and especially not-for-profit providers, including organisations that do not teach or conduct research. The Government also wishes to see more higher education provided in further education colleges (roughly equivalent to community colleges).

Institutional governance

The other major area where government policies moved universities in a market direction between 1980 and 2012 was in relation to institutional governance, and especially the role and composition of governing bodies and their relationship with senates and academic boards.

Historically – and outside Oxford and Cambridge, where the supreme governing body always was, and remains, a corporation comprised of all academic staff – the pre-1992 universities had a shared system of governance. A large, lay-led council worked alongside, and sometimes in the shadow of, a senate or academic board, with the Vice-Chancellor very much "primus inter pares" amongst the academics. However when the polytechnics were incorporated in 1989 – prior to becoming universities in 1992 – the Government took the opportunity to create a more corporate model, the main characteristics of which are: the governing body should be smaller rather than larger; it should occupy a superior position to the senate or academic board; it should have clear majority of external governors, ideally with business backgrounds and expertise; staff and student representation should be limited; the governing body should be distanced from the work of the institution; and the Vice-Chancellor should be chief executive as well as leader of the academic community (Brown, 2011b, 2011c). With the major exceptions of Oxford and Cambridge, this model is now gradually taking over across the system though with varying degrees of compliance.

System governance

By European standards, UK universities enjoy considerable autonomy. Although in receipt of significant sums of public money, they remain statutorily private, and have charitable status. Nevertheless there have been major changes in the framework through which the system as a whole is governed, that were designed to give government a greater degree of control. In particular, the two bodies which historically enjoyed a good deal of discretion in playing a "buffer role" between government and institutions – the University Grants Committee and the National Advisory Board (from 1981, for the polytechnics) – were replaced in 1989 by two agencies – the Universities Funding Council and the Polytechnics and Colleges Funding Council – which were more directly accountable to the Government.

These two agencies were combined in 1992 to form the Higher Education Funding Council for England, with Scotland and Wales at the same time obtaining their own funding councils. As

responsibility for higher education policy is increasingly devolved from Westminster, these latter two funding councils have, however, become increasingly accountable to their own regional administrations rather than the Westminster parliament.

The independence under which universities operate is though subject to oversight from another direction, with increased emphasis being placed on ensuring that, as charities, they demonstrate that they are delivering wider public benefits.   Furthermore, the UK Government has recently proposed that the regulatory powers of the English Funding Council should be extended and strengthened (BIS, 2011b).

The impact of marketisation

In 1992 Gareth Williams wrote:

> "The case for market approaches to higher education funding is based on three main propositions.   One is the belief that the private sector can relieve government of some of the cost burden.   The second is that many of the benefits of higher education accrue to private individuals and they should be prepared to pay for them.   However, private finance is not necessary for market mechanisms to operate, and the third premise is that both external and internal efficiency improve if government agencies buy services from universities rather than make grants to them.   More efficient institutions offering better value for money flourish while those that are less efficient lose out.   Markets put the power in the hands of the purchasers of higher education services, so the system has to be responsive to their demands. Advocates of markets define efficiency as the satisfaction of consumer wants at minimum costs." (Williams, 1992, p.138)

There can be little doubt that market competition increases the efficiency with which resources are used since otherwise institutions would be unable to survive, be competitive or obtain the resources needed for their activities.   Market competition makes the publicly allocated resources go further whilst stimulating institutions to increase their private funding.   It also makes universities and colleges more attentive to the needs, interests and views of external stakeholders, especially students and prospective students, but also employers, public bodies and funding agencies.   It may also make them more innovative and entrepreneurial (Brown, Ed., 2011a, pp.20-22).

But there are also drawbacks.   These arise chiefly from information market failure: the difficulty (in reality, the impossibility) of obtaining suitable and timely information about product quality. What therefore happens is that students and their advisors seek, and institutions try to provide, indirect or symbolic indicators of quality (McPherson & Winston, 1993, p.81).   The indicators chosen usually refer to prestige, reputation and status.   This reinforces higher education's traditional function of allocating status through the granting of credentials, a function that has become of even greater importance as the number of top level positions in society fails to increase at the same rate as the

number of those qualified to occupy them (Collins, 2002).

The inevitable consequence – given the market and political power exercised by the leading institutions in most countries – is the creation or, more likely, the intensification of stratification, of both the institutions and of the socio-economic constituencies they serve.   The other main "external" consequence is a reduction in institutional diversity as institutions pursue prestige, a process often called "academic drift" (Pratt & Burgess, 1974; Brewer, Gates & Goldman, 2002).

Market competition also has an impact on the internal functioning of institutions, with an increase in the proportion of resources diverted to management and administration, and an increased differentiation of activities, structures and personnel.   It may also diminish "collegiality" and reduce the ability of the academic community to control or influence the "academic agenda" of what is to be taught and enquired into (Tapper & Palfreyman, 2010).

The impact of market competition on quality is strongly contested.   On the one hand, quality of services may improve as institutions respond to their competitors and student demands.   But quality can also be damaged by the "commodification" of knowledge (Naidoo & Jamieson, 2005), as well as by grade inflation and increases in plagiarism and other forms of cheating.   It may also lead to a diversion of resources away from teaching to activities like marketing, enrolment, student aid and administration and facilities such as accommodation and sports halls that are less directly relevant to student learning.

The impact of the marketisation of UK higher education since 1980 conforms broadly to this picture.   The proportion of GDP spent on higher education has changed little over the period even though the system has more than doubled in size.   At the same time, higher education has considerably reduced its reliance on the taxpayer.   Student:staff ratios have nearly doubled. Spending on infrastructure (libraries, laboratories, teaching spaces, refectories *etc*.) has also lagged behind the growth in student numbers.   In spite of these reductions in investment, student progression, retention and graduation rates remain respectable in international terms, although participation rates have stagnated.

Other positive indicators include the absorption of a high proportion of those qualified to attend university; a continuing high level of student satisfaction albeit with significant increases in complaints towards the end of the period; continuing high rates of both personal and collective economic and social returns; continuing attractiveness to internationally mobile students as well as to multinational companies; strong links with business and the public sector; and strong links with private providers.   The UK also remains a high research performer, with citations *per* researcher second only to the much larger US system.

So the UK higher education system as a whole is certainly more efficient than it was in 1980, and much of this must be down to the market-based policies of successive governments of all political parties.   However there is another side to the picture.

Historically, there was always a status hierarchy in British higher education.   This was not only

between the different sectors (universities, polytechnics and technical colleges, colleges of education; later universities, polytechnics and colleges) but also within the old university sector, where it broadly corresponded with institutional longevity. However this stratification has increased substantially, a major contributory factor being the increased selectivity of research funding from the mid-1980s. This has led not only to the concentration of research funding noted previously but also to greater differences in institutional resources and wealth, so that by the mid-2000s there was a very substantial gap between the best and worst resourced institutions. It is certain that this will increase after 2012 when a small number of "imperial" universities charging fees of £9,000 ($14,000) to the best qualified students will effectively dominate the system (Brown, in press).

This increased stratification matters for a number of reasons. It has no educational justification: peer effects in higher education are weak (Carnevale & Strohl, 2010). It has no economic rationale, and may therefore well not be the best use of either taxpayers' or investors' money. It enhances, or at least does nothing to reduce, the pressure on less prestigious institutions to compete by offering similar products even with much more limited resources. It complements and reinforces the status hierarchy elsewhere in the education system. And it is negative for access and widening participation because the best resourced and most prestigious institutions recruit primarily from the higher socio-economic groups (Sutton Trust, 2011), something which the new funding arrangements after 2012 can only be expected to reinforce.

The other major casualty of increased marketisation is diversity, generally held to be one of the key properties of a healthy higher education system (Birnbaum, 1983). In Britain this reduction in diversity can be seen in various ways. One that we have already noted is the reduced range of institutions, with many fewer smaller specialist institutions. Another has been the push for prestige associated with research. Examples include:

- In 1992 all but one of the former polytechnics entered the RAE, and the only one that did not was castigated for foregoing the incremental income that would have resulted
- The quick and universal rejection of the proposal by the Government-appointed Dearing Committee in 1997 that institutions should be compensated financially for not entering departments in the RAE
- The similar rejection in 2003 of the option in a review of the RAE for "whole of institution" submissions for institutions still developing their research
- The fact that, seven years on, nearly all of the universities that acquired their titles under the 2004 legislation have sought (and obtained) research degree awarding powers even though this is no longer needed for university title and having such students will certainly cost them tens of thousands of pounds each year

Finally there must be a distinction between diversity and hierarchy. Put crudely, to be

meaningful, diversity must involve some parity of esteem.   Yet in seems that within the UK reputational (and actual) hierarchies must by definition involve some imparity of esteem.   In other words, too much stratification is incompatible with diversity.   The British seem to have a genius for turning diversity into hierarchy.

There is an extensive literature in Britain about the increase in differentiation within institutions of activities, structures and personnel, with many decrying the rise of "managerialism" and the decline of collegiality (Deem, Hillyard & Reed, 2007).   But how much of this is due to marketisation as opposed, for example, to the growing size and complexity of institutions, with the much wider range of functions institutions now carry out, increased specialisation of knowledge, and wider societal changes, is less clear.

On quality, the picture is again mixed.   There are a number of reasons for supposing that quality may have declined, although many of these are hard to disentangle from the historical disinvestment. They include:

- a reduction in the amount of actual learning due to a reduction in the size of the curriculum, a shorter academic year, less contact with academic staff, heavier workloads, larger teaching groups, higher student:staff ratios, more students in paid employment during term time
- some deterioration in progression, retention and graduation rates
- increasing reports of students less well prepared for degree level study than previously
- employers' perceptions that graduates are increasingly less well equipped for employment
- greater pressure on pass rates and grade inflation
- more plagiarism and cheating
- declining levels of trust between students and staff
- increasing resort to temporary and part-time lecturers and tutors, including graduate students
- a growing tendency for programmes and awards to be valued for their "exchange" value, particularly in the labour market, rather than for their "use" value, to the student (commodification, see Naidoo & Jamieson, 2005)
- students adopting a more "instrumental" approach to their studies
- a diversion of resources away from teaching

The position on research is not much clearer.   Whilst there appears to be general agreement that greater selectivity has led to better use of resources, reduced or restrained costs, and the elimination or reduction in "poor" research, there is much less consensus on the impact on quality.

Conclusion

Traditionally British higher education has occupied a midway point between the state supervised,

closely regulated and more egalitarian European systems, and the more open, more market oriented but also more unequal American system. In little more than a generation, it has move to a point where it increasingly mimics the US. This shift will be reinforced by the reforms introduced by the current Coalition Government, especially higher and full cost fees and the partial deregulation of numbers and market entry. The policies described in this article have undoubtedly made British universities more efficient and entrepreneurial. But they also raise major issues of quality and equity, issues that may not be resolved for a while yet.

Appendix

Chronology of key developments in the marketisation of UK higher education

1980   Full cost fees introduced for overseas students.

1983   University College Buckingham becomes the University of Buckingham.

1984   In *A Strategy for Higher Education into the 1990s* the University Grants Committee announces research selectivity policy.

1985   Green Paper[2] *The Development of Higher Education into the 1980s* sets out a government "agenda" for higher education, with the greatest emphasis being on the need for universities to serve the economy. *Report of the Steering Group on University Efficiency* (Jarratt Report) marks first step towards the corporatisation of university governance and the development of sector-wide performance indicators.

1986   The first Research Assessment Exercise (RAE) (subsequent exercises in 1989, 1992, 1996, 2001 and 2008).

1987   White Paper[3] *Higher Education Meeting the Challenge* announces the Government's intention to incorporate the polytechnics and other major public institutions and create new national funding agencies for them and the existing universities.

1988   Education Reform Act. Incorporation of the polytechnics. New funding councils and contractual funding of teaching. Consultative paper on top-up maintenance loans for students.

1989   Speech at Lancaster University by the Secretary of State (Kenneth Baker) setting out the Government's vision of an expansion of higher education on the American model, with greater "engagement" of private resources.

1990   Increase in the fee level and reduction in the level of teaching grant to institutions (though both continue to be paid in full by the Government). Introduction of student loans for maintenance, supplementing grants: Education (Student Loans) Act.

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[2] A Green Paper is a discussion paper issued by a department of the UK government
[3] A White Paper is a policy paper issued by a department of the UK government

1991   White Paper *Higher Education A New Framework* announces the Government's intention to abolish the "binary line" and enable the polytechnics and certain other "public" institutions to obtain a university title.

1992   Further and Higher Education Act and Further and Higher Education (Scotland) Act. Abolition of the "binary line". Creation of a new single funding council in England (HEFCE). Funding Councils in Scotland and Wales for the first time. Development of system-wide performance indicators.

1993   Introduction of Teaching Quality Assessment (Subject Review) with links between quality judgements and funding as intended complement to RAE.

1994   Introduction of Maximum Aggregate Student Numbers (quotas) for individual institutions.

1995   Vice Chancellors threaten to levy additional "top-up" fees. Government establishes internal review of higher education.

1996   Government establishes Dearing Committee with all-party support. First private non-university institution receives degree awarding powers (Royal Agricultural College)

1997   Dearing Committee recommends significant fees to help meet institutions' teaching costs. New Labour Government emphasises universities' role in social mobility.

1998   Introduction in England of means tested "top-up" tuition fees. Abolition of maintenance grants.

1999   Publication of first HEFCE statistical benchmarks.

2001   Reforms to quality assurance regime. Teaching Quality Information replaces Subject Review.

2003   White Paper *The Future of Higher Education* announces the Government's intention to introduce variable tuition fees supported by income contingent loans.

2004   Higher Education Act. Modification of rules for university title. Extension of degree awarding powers to FE colleges (none awarded until 2011).

2005   First National Student Survey.

2006   Introduction in England of variable fees capped at £3,000 and income contingent fee and maintenance loans. New Office for Fair Access to monitor institutions' widening participation plans. Partial reintroduction of maintenance grants. More private institutions begin to gain degree awarding powers. New Office of the Independent Adjudicator to handle student complaints not resolved through institutions' own procedures.

2009   White Paper *Higher Ambitions*. *The future of universities in a knowledge economy* proposes closer links between institutions and skills needs in the economy.

2010   Government accepts recommendation of the Browne Committee that in future most teaching in English universities should be funded through the tuition fee, with direct funding to institutions confined to a small number of priority areas. Fee cap raised to £9,000. Proposed modifications to the fee and maintenance loan regimes.

2011   Government publishes a White Paper *Higher Education Putting Students at the Heart of the*

System also proposing changes to the rules for degree awarding powers/university title to facilitate the market entry of private colleges.

2012   Introduction of new regime for funding student education.   Further concentration of public funding for research.

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University Reform Now in Japan: From a screening device toward a place of teaching and learning

Shinichi Yamamoto[*]

Abstract.   The role of universities in Japan has been rapidly changing since the beginning of a major university reform movement commenced in the early 1990s.   The magnitude of this change is profound, as universities shift their focus away from the screening of young students – previously a feature of the Japanese system – and towards teaching, learning, and research, which is the global standard of university systems around the world.   This change has several causes that the author will analyze.   Finally, the impact of the announcement of the University of Tokyo to change the start of their academic calendar from April to autumn, will be discussed.

Keywords: screening devise, accreditation, university reform, teaching and learning, role of universities

1. Changing situation surrounding universities in Japan

Universities in Japan, both private and public, have been heavily involved in a movement of reform since the early 1990s.   Universities, which once enjoyed strong 'autonomy', known as *Daigaku-Jichi* in Japanese, or the power to oppose the higher education policy initiatives of the government, have become the targets of reform as part of the nation's intentional, widespread and rapid political and economic transformation into a globalized knowledge-based society.   Once 'the university' was the center of academic learning and research, expected to lead society, but it has now become just one of several kinds of higher education institutions or schools which large numbers of people utilize in preparation for future employment or for the simple entertainment of study activities – a very distinctive feature of adult education in Japan.   The elite position universities held until the 1950s or 60s has been replaced by a position as popular facility serving the needs of individuals and society. People no longer avoid criticizing universities and university professors.   Professors, who used to insist upon institutional autonomy and academic freedom, now seem to give priority to gaining

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popularity among the various kinds of stakeholders who may help them by some way.   Especially remarkable is that universities have become very friendly with, or even dependent upon, the government, a situation not seen before the 1990s.   University reform is now very easy for the government to implement.

It is not unreasonable that university reform has been progressing since 1990s.   There are several important events for the progress of university reform in Japan.   First, the end of the Cold War changed the political situation not only internationally, but also for the domestic situation within Japan.   Left-wing parties lost their power and the old notion of university autonomy was replaced by a new notion of self-governance with accountability and competition, in accordance with the progress of a new way of management, a competitive mode of funding, and the incorporation of national universities (Yamamoto, 2007).

Second, the so-called Bubble Economy collapsed during this same period.   This caused fundamental and structural changes in Japanese industry and society.   Universities were no longer able to exist without demonstrating social utility as they became reliant upon the support of government, industry and the general public.   Teaching and research, previously the main roles of the university, were completely re-evaluated, leading to several important policy measures, including: the faculty development (FD) movement; introduction of a national accreditation system; and a focus on strengthening the quality of education through Good Practice (GP) funding.

Third, the decline of the 18-year-old population has forced universities to change their systems, including changes to entrance examination, teaching, and even their way of management.   This aspect will be discussed later.

Table 1. University Reform in Japan since 1945

	Mode	Keywords
1945-60	Political	Post-War Reform, University Autonomy, Freedom of Research, Merger of HE Institutions into University System
1960-75	Economic	Economic Growth, Massification of HE, Entrance Exam Problem, University Management Trouble
1975-90	Planned	HE Plan that Prohibited New Institutions in Urban Area, Newly Schemed National Univ. such as Tsukuba
1990-05	Reform of Framework	Efficiency and Accountability, National University Corporation, Diversification of HE , Decline of 18-year-old Population
2005-20	Reform of Activities	Accreditation and Quality Assurance, Compliance, Reform of Teaching and Research

To conclude this section, Table 1 summarizes the changing environment surrounding universities in Japan.   Universities have experienced changes on a 15 year cycle, with each period characterized by the set of specific policy measures undertaken.   While 1990 marks the start of the most important period in terms of the university reform movement, the period commencing around 2005 is also highlighted.   By 2005 several very important new policy measures were in place, such as national university incorporation (2004), introduction of the professional school system (2003), and the national accreditation system (2004).   Universities had entered a period of 'activity reform' or quality improvement, which may continue until around 2020 when the 18-year-old population will decline sharply once again.

2. Specific features of Japanese university system

Universities in Japan have performed a role quite unlike universities in America and European countries.   Ronald Dore wrote that the later a country starts to develop, the more its education system is involved in credentialism (Dore, 1976).   This holds true for the modern education system in Japan which arose in the late 19th century, later than in many Western countries, and developed rapidly as the nation became 'modernized'.   During this period the education system, including higher education, became a mechanism for identifying potential talent from across society, from poor families and more 'established' families alike.   In this way, Imperial Universities played a critical role in modernizing Japan by recruiting students who would go on to play important roles in society, as politicians, bureaucrats, engineers, scientists, and so on.   Other kinds of higher education schools also played important roles according to their respective missions, assigned by the state.   While the focus of universities and other schools was the modernization of the state, individuals came to see these institutions as very useful tools for their own economic benefit and the promotion of their social status. The critical role of the entrance examination, and the problems associated with it, has been recognised since the beginning of the 20th century (Kuroha 1984).   Although participants were initially small in number, the 'examination hell' has been a problem shared by many generations of Japanese students.

After World War II, Japan restructured its education system almost completely under the strong influence of the U.S., but the processes of schools and universities did not fundamentally change. They remained highly selective institutions, choosing the most talented from among applicants who sought status or financial reward.   The challenge of selecting the most talented persisted, *i.e*., how to best choose freshmen from among the many applicants.   In this background, the entrance examination continued to be a one of the biggest educational problems in Japan.   People seeking to enter university might wish that the entrance examination were easier to pass, yet they favoured a system where passing the difficult examination and becoming students of prestigious universities was highly valued by society.

In this regard, since World War II universities have not only been places of learning, but have

also played an additional role in society. Acceptance into university has served as a kind of screening device by which students' hidden abilities or post graduation 'trainability' were identified. Typically, Japan's leading companies had no particular requirement for graduates who majored in humanities or social sciences, – and more than 50 per cent of total enrollments were in these disciplines – nor for any specific knowledge or skills, but rather they sought graduates with general abilities that could be adapted to the way of working within the companies. Thus university admission – passing the difficult entrance examination and gaining a place in a prestigious university – was a direct screening tool used by business, given more weight than what or how well students had learned, or what particular skills they might have developed while at university (U.S. Department of Education, 1987).

The screening device hypothesis presented above is supported by several observations about the university system in Japan. First, most students at universities are very young. According to the Ministry of Education, Culture, Sports, Science and Technology (MEXT), university freshmen aged over 25 years constitute only 2 per cent of the total cohort, while the average figure of the same category among OECD member countries is 20 per cent (MEXT, 2010). Correspondingly, those leading Japanese companies favoured by university graduates typically have firm recruitment and promotion policies – or at least they had such policies before the 1990s. According to such policies, tenured staff, employed full-time and on-track for promotion to management roles, should start work with the company immediately after graduation with bachelors' degrees and should be no older than around 25 years. This Japanese-style employment system, which the Ad-hoc Council on Education (*Rinkyoshin*) criticized severely in the 1980s, further highlights the importance placed on university admission processes. Students have only one chance during their lifetime to pass the very difficult entrance examinations set by prestigious universities in order to gain access to employment with leading companies in Japan.

Second, curricula at universities are not well organized and, except in medical, engineering, and other practical and professional fields, professors tend to teach their subjects in their own way. Indeed, many companies do not expect or require students to work hard at universities. Some company general managers have openly stated that students do not need to learn while at university, but rather should enjoy their campus life. Graduates would be trained in what the company wanted them to learn after joining the company. In such an environment, there was little institutional attention given to notions of academic standards or learning outcomes. This has changed more recently, as FD within universities became required by law and institutional evaluation processes grew to become the Authorized Accreditation System in 2004 (Yamamoto, 2009).

Third, the success rate of graduation at universities in Japan is very high. According to the data obtained by the School Basic Survey of the MEXT (MEXT, 2012), it is estimated that nearly 95 per cent of students obtain their bachelor's degrees within 4 years (86 per cent) or in 5 years (9 per cent). This shows that universities in Japan have historically been 'difficult to enter but easy to graduate'.

It also supports the screening device hypothesis.   However, due to the declining young population (Figure 1) and the increasing expectation of a teaching role for universities, the situation has been changing since the 1990s.
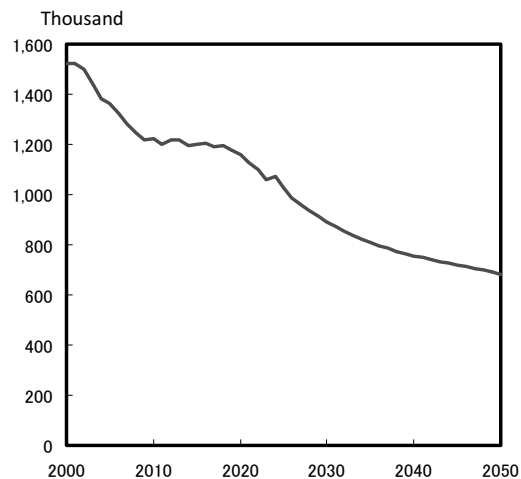
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Figure 1. Decline in 18-year-old Population

3. Declining population of the youth and its effect on the system and role of university

Universities in Japan have been much more dependent on the 18-year-old population than have any other OECD members countries.   Thus the decline of the young population directly affects universities in their enrollment management.   The 18-year-old population of Japan has often fluctuated since the end of World War II.   It exceeded 2 million in the mid of 1960s due to the growth of the baby-boom children and, after about 20 years decline and stability in lower level, it grew again to be 2.05 million in 1992.   Since then, however, the population has steadily declined and by 2010 reached 1.2 million (Figure 1).   It is not predicted to increase in the near future and from the 2020s will decline further to be 0.7 million by the mid of this century, according to the latest estimation by the National Institute of Population and Social Security Research (NIPSSR, 2012).

It is true that the growth of the participation rate in higher education tends to compensate for the decline of the 18-year-old population.   However, the recent decline of the population has been so sharp that some institutions have already suffered from difficulties in recruiting students.   Recent statistics show that the number of applicants for universities and colleges only slightly exceeds the number of entrants, *i.e.*, 0.75 million applicants against 0.70 million entrants, or scheduled number. The predicted future of 'open access' to universities and colleges seems to have been realized in Japan. Today, more than 40 per cent of universities are experiencing a shortage of students.   Under these

conditions the traditional model of selective admission through entrance examinations, consisting of academic achievement tests and other forms of assessment such as interviews, is unable to function. Such universities have adopted other means of student admission, such as interview only, or recommendation letter by the school principal based solely on the applicants' achievement during their secondary schooling. A new form of examination, the AO (Admission Office) entrance examination, which is done by the office more systematically based on the recommendation letters of school principals and interview, has become the most widely used form of entrance examination, and is now used by most of the private institutions as well as by many national and public universities.

As a consequence, the entrance examination process as a whole has become much easier and this means that the traditional function of university as a screening device is steadily but surely losing its effectiveness. Instead of an emphasis on screening, universities are required to demonstrate their performance by educating students and preparing them effectively to make positive contributions to the various area of society. In this regard, a university evaluation system becomes very important. Prior to the 1990s, few staff within universities viewed evaluation of their teaching and research as necessary. On the contrary, many were of the view that evaluation would erode university autonomy and thus should be avoided.

The introduction of a self-evaluation system in 1991 based on the recommendation of the University Council, the advisory committee to the Minister of Education during the 1990s, was truly an epoch making event. Their message of "Do evaluations for your own institutions' future" gave little hint that this voluntary practice would grow later to be the nation-wide accreditation system for universities. In 2004 the government introduced the Authorized Accreditation System, under which every university must submit to an accreditation procedure by one of the authorized accreditation agencies, such as Japan University Accreditation Agency (*Daigaku Kijun Kyokai*), every seven years. For universities with professional schools, the frequency of the accreditation is five years.

By this accreditation system the government aims to ensure the quality of university education and research, along with the associated administration and management. Although there are no direct administrative sanctions, failure of accreditation creates serious problems for an institution as it is no longer eligible to be regarded as a university. For this reason every university is now keen to maintain and demonstrate the quality of their endeavors.

In addition to the quality assurance through the accreditation system, the government recently seems to have taken an interest in raising the quality of university education. For example, the National Council on Education (*Chukyoshin*, which is also the advising committee for the MEXT) made a recommendation in 2008 that every student, whatever they study, must obtain general knowledge and skills during their undergraduate years (National Council on Education, 2008). This concept was crystallized as "*Gakushi-ryoku*," the minimum requirement for the student to be awarded a bachelor's degree.

Globalization also affects higher education policy. The MEXT implements several kinds of new

policies that aim at making universities adopt global standards. The recruitment of international students is one of the typical measures. In 2009, the MEXT initiated 'Global 30', a policy designed to stimulate globalization by assisting 30 leading institutions to become more international through the establishment of new courses taught totally in English, intended to compete for high achieving international students who speak English but not Japanese. Among about 20 universities which applied in the year, 13 universities, including the University of Tokyo, Waseda, and Ritsumeikan, were selected and started to implement such globalization measures. The implementation of this initiative is still underway, and therefore it is difficult to judge its overall effective. However, the number of international students has increased dramatically in these institutions.

In this way, the core function of university turned from a screening device with difficult entrance examinations to a place of study and learning, as the concept of *Gakushi-ryoku* indicates.

4. Future perspective of universities in Japan

In February 2012, the president of the University of Tokyo, Mr. Junichi Hamada, announced that they would start practical considerations toward changing their academic calendar and that within a few years the University will be accepting the freshmen of each year in autumn rather than in April (University of Tokyo, 2012). He says it is the global norm that the academic calendar commences in autumn, while Japan's system under which students start their study in April is in the minority internationally. The gap between spring and autumn is a significant barrier to study abroad for students, he says. This announcement is part of the University of Tokyo's plan for internationalization and globalization of its teaching and research. The implications of this plan upon the broader higher education system of Japan are quite profound. While a small number of institutions, like Tokyo, may enrich their teaching and research through such globalization, many smaller and less prestigious institutions will further lag behind the University of Tokyo and its colleague institutions such as the University of Kyoto, or Keio and Waseda.

One outcome from the initiative by the University of Tokyo will be to make Japanese universities more diversified in the near future. To date, the difficulty of entrance examinations have led to a hierarchy of prestige, yet this may be viewed as simply a reflection of the 'screening device' role of institutions, not of fundamental differences in their teaching and research. However, if globalization leads to more diversified teaching and research, the pecking order of Japanese universities will become greater and sharper. Thus as the recommendation by the National Council on Education in 2005, titled 'Universities in the 21st Century' (National Council on Education, 2005) says, Japan's universities are set to diversify and Japanese higher education to become a truly heterogeneous system. Japanese universities need to adapt to the rapid globalization and development of a knowledge-based society by reforming their function away from mere screening device and toward a place of learning.

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The International Student Density Effect: A profile of a global movement of talent at a group of major U.S. universities

Chun-Mei Zhao[*] and John Douglass[**]

Abstract.   While there is a growing presence of international students (IS) in major public research universities in the U.S., and globally, there has been very little research on their socio-economic background, motivations, behaviors, and levels of satisfaction.   What is their level of academic and civic engagement when compared to their U.S. peers?   And how satisfied are they with the experience they have in these institutions?   How does the increasing representation of IS in the public research universities impact the experiences of all IS as well as U.S. students?   This study explores the background, motivations, behaviors and experience of IS among a group of "peer" major research universities in the U.S. who are members of the Student Experience in the Research University (SERU) Consortium based at Berkeley and using data from the SERU Survey in 2010.   This survey was administered at 15 of the SERU member campuses, including all nine University of California campuses and six top 25 public national universities: Rutgers University, the University of Pittsburgh, the University of Michigan, the University of Minnesota, the University of Oregon, and the University of Texas.   One important preliminary finding is that an increasing presence of IS has a positive impact on both U.S. and IS students, especially in terms of the academic aspect of student educational experience with more engagement in academic activities and spending more time in academic efforts, based on an IS "density" indicator.

Introduction

Public and private major research universities in the United States are enrolling increasing numbers of international students (henceforth IS) at the undergraduate level.   There are varying motivations for

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increasing the number of these students.   Among private universities, the motivation relates to creating a more diverse student body, increasing international networks and the global reach of these institutions, and in some cases an overt effort to increase test scores and, thereby, rankings and the perception of prestige.   With global demand for higher education growing, and increased mobility, IS have, at least in the past, had relatively high test scores, and historically have come from families with relatively high incomes and wealth.

Among America's ranks of public research universities, these motivations can be found as well. But thus far the overriding push to increase the number of IS at the undergraduate level relates to generating additional income under the rubric that these students, like out-of-state students, can be charged much higher tuition and fees than in-state students.   The push by the publics to recruit and enroll IS has accelerated considerably with declining state support for public institutions.   Because private research universities, and private accredited higher education institutions more generally, charge the same tuition rate – minus discounting for financial aid – for 'in-state' students as well as for IS students, the motivations for private institutions are not quite the same as the publics.

While there is a growing presence of IS in major public research universities in the U.S., and globally, there has been very little research on their socio-economic background, motivations, behaviors, and levels of satisfaction.   What is their level of academic engagement when compared to their U.S. peers?   And how satisfied are they with the experience they have in these institutions? How does the increasing representation of IS in the public research universities impact the experiences of all IS as well as U.S. students?

Such an analysis is important in part because IS form an increasingly significant part of the student body.   University leaders and faculty need to be more aware of their needs and behaviors so as to better serve them, and not see them simply as a "cash cow."   At the same time, IS are finding that tuition fees at top public research universities, once a bargain, still lag the elite private higher education institutions (HEI's), but that gap is quickly closing – largely because public universities are desperate for increased tuition income.   There is also increasing competition globally for talented students willing to travel abroad for their education.   Will that change the nature of the market for these top public U.S. universities?   The experience of these students today may very well shape the attractiveness of these institutions for top student talent tomorrow.

The following essay explores the background, motivations, behaviors and experience of IS among the members of the Student Experience in the Research University (SERU) Consortium.   The Consortium currently includes 18 major U.S. research universities, and six international universities in China, Brazil, Europe and South Africa.   This study uses data from the SERU Survey in 2010 that was administered at 15 major U.S. research universities including all nine University of California campuses and six top 25 public national universities: Rutgers University, the University of Pittsburgh, the University of Michigan, the University of Minnesota, the University of Oregon, and the University

of Texas.[1]

Beyond offering an environmental scan of the experience of IS at these institutions, we offer a preliminary analysis of a core question: Does the presence of IS on a campus positively influence the behaviors and learning gains of domestic students, and visa versa? Among our SERU Consortium university members, we find that there is a positive correlation with the "density" of IS. This is an important finding as it adds considerably to why it is important for major universities to have a significant number of IS. If universities public or private wish to be more influential global participants, the proportion of IS students is an important policy variable.

State government, still a major funder for pubic universities, needs to also understand the critical role of attracting talented students from throughout the world to help expand the global skills and networking opportunities of domestic students, who in turn shape the labor market. State lawmakers have long seen the presence of IS as displacing domestic students. But they should instead see the growing pool of these students as a strategic response to not simply the need for additional income, but as an enhancement to the academic environment and productivity of their public universities. They key is to build enrollment and program capacity to both expand the number of IS and to expand access to domestic students – they are not mutually exclusive goals (Douglass & Edelstein, 2009).

As noted in the following, there are some limitations to our preliminary analysis, including the limited sample size and focus on a peer group of research universities most of whom are members of the prestigious Association of American Universities (AAU). We see this study as a beginning for a larger research effort that can build on the longitudinal and unique database offered by the SERU Consortium and other data sets that offer a window into student behaviors and experiences, including IS.

Growing world market for international students

World demand for higher education continues to climb, driven by the insatiable desires for socio-economic mobility of individuals, and by governments who now widely recognize that broad access to higher education, and the production of degrees at the baccalaureate, professional, and doctoral levels is one of the primary factors for economic development. In 2009, 3.7 million tertiary students were enrolled in an institution outside of their home country, up from 3.4 million in 2008, and an increase of 77% since 2000 (OCED, 2011). One estimate projects that world demand for international higher education will increase to some 7.2 million or more in 2025 as countries such as China, India, Indonesia, Brazil, Mexico, Chile, South Korea, Vietnam and Saudi Arabia grow economically and struggle to meet domestic demand for high quality advanced education (Bohm, Davis, Meares & Pearce, 2002; OECD, 2011).

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[1] The SERU Consortium currently consists of 18 major research universities in the U.S., and beginning in 2011 six international universities located in China, Brazil, Europe, and South Africa. For more information, see the SERU website at: http://cshe.berkeley.edu/research/seru/

Table 1. International Student Numbers and Economic Impact in Top Ten States – 2009-10

Top States for International Students	# of Students	Tuition and Fee (000,000)	Est Total Economic Impact (000,000)	% of Total Students	% Tuition and Fee of US Total	% Est Total Economic Impact US Total
California	94,279	$1,611	$2,834	13.65%	12.30%	15.09%
New York	76,146	$1,598	$2,296	11.02%	12.20%	12.23%
Texas	58,934	$774	$1,259	8.53%	5.91%	6.71%
Massachusetts	35,313	$980	$1,253	5.11%	7.48%	6.67%
Illinois	31,093	$694	$869	4.50%	5.30%	4.63%
Florida	29,708	$555	$827	4.30%	4.24%	4.40%
Pennsylvania	28,097	$736	$888	4.07%	5.62%	4.73%
Michigan	24,214	$546	$658	3.50%	4.17%	3.50%
Ohio	22,370	$447	$584	3.24%	3.41%	3.11%
Indiana	18,569	$419	$514	2.69%	3.20%	2.74%
Total US	**690,923**	**$13,095**	**$18,776**	**100.00%**	**100.00%**	**100.00%**
Top Ten Totals	418,723	$8,360	$11,982	60.60%	60.60%	63.82%
Top Five Totals	325,473	$6,212	$9,338	47.11%	47.44%	49.73%

Source: Association of International Educators (2010)

In 2009, the U.S. enrolled some 691,000 IS; these students pay tuition and fees estimated to a total of $13 billion dollars according to a yearly study by the Association of International Educators (AIE) (Table 1). Discounting financial aid, and adding the cost of living expenses for students and their families, they estimate that the direct total economic impact of IS is nearly $19 billion a year (AIE, 2010). The real economic impact of these students is most likely much larger than this, as the current economic impact model could be extended to indirect impacts like job creation and additional potential for international business ventures (Ruby, 2010). The AIE study also is limited to accredited colleges and universities and relies on data supplied by HEIs that report their number of IS – and some institutions did not report.

With these caveats noted, the six main state destinations for IS, in descending order in enrollment size, include California, New York, Texas, Massachusetts, Illinois and Florida. These states alone represent nearly 50 percent of the U.S. IS market. The top ten states, as shown in Table 1, enrolled just over 60 percent of these students, and with an economic impact of nearly $12 billion in their local economies – representing nearly 65 percent of the total U.S. impact, and is disproportionately higher due, likely, to higher tuition rates and higher costs of living in most of these states.

All of the top five states are relatively large in their total population, with the exception of Massachusetts. Of all the major urban areas in the U.S., Boston has the closest environment to what we might call a U.S. higher education hub (Douglass, Edelstien & Hoareau, 2011). But that is largely a default position and not part of any overt effort by government or the HEIs in the area.

Survey design

SERU Survey is a census survey of undergraduates geared toward the research university environment and that includes multiple sets of questions on campus climate, student research experiences, other study enhancement activities (such as Study Abroad), civic and social engagement activities, academic and non-academic time use, post-graduate plans, and expanded student demographic characteristics. The SERU Survey also provides comprehensive assessments of learning outcomes in 15 skills areas and allows for customized questions by a campus.

The census approach of the SERU Survey allows for a rich and in-depth analysis of the student experience including assessments of majors, course variety, class size, teaching, advising, and student services. It also includes open-ended questions asking students about how best to improve undergraduate education and the sources of important personal changes during college.

This study examines responses of both IS and domestic students at 15 of the SERU Consortium Campuses in the U.S., and with a focus on the differences and similarities between the University of California's nine undergraduate campuses, the six non-UC campuses (all of which are members of the Association of American Universities), and the UC Berkeley campus. A total of 125,354 students responded to the survey. Of the total, 5.72% were IS students at Berkeley; 2.80% in all the UC campuses; 3.94% at the non-UC AAU campuses – a higher average than all UCs; and for all SERU campuses a total of 3.23%.

At this stage, we have not yet been able to assess if these percentages are an accurate reflection of the total percentage of IS students on the respective campuses – although the Berkeley and UC campus percentages are close to the UC-wide data.

IS characteristics among SERU Consortium campuses

The SERU data provides a rich source for studies of IS. There are a number of general observations we can offer about the background and representation of international undergraduate students based on the 2010 SERU data set. IS are more likely to be male students compared to their U.S. counterparts and the age distribution of IS largely mirrors American students, in that the large majority of the students are traditionally aged students – 30 or younger.

There are a smaller percentage of international students at the first year (Table 2). This is because IS tend to transfer from another institution, rather than start as freshmen at a given research university. Although it is generally true for all campuses within SERU, Berkeley IS are more likely to come in as freshmen than other UC campuses and non-UC AAU campuses.

Reflecting worldwide trends in IS, a higher percentage come from wealthy, upper-middle, and middle-class family. The percentage of IS from wealthy families is the highest in Berkeley than UCs and Non-UC AAUs (Figure 1). However, there is an apparent paradox – although IS perceive

themselves to be wealthier, they are actually less well off than U.S. peers in the absolute dollar amount. To some extent, this can be attributable to the cost of living differences in the world, as while in terms of absolute dollars IS students are poorer, they may actually be from the wealthier classes in their own countries.

Table 2. U.S. and International Students Who Enter as Freshman and as Transfers – SERU Data

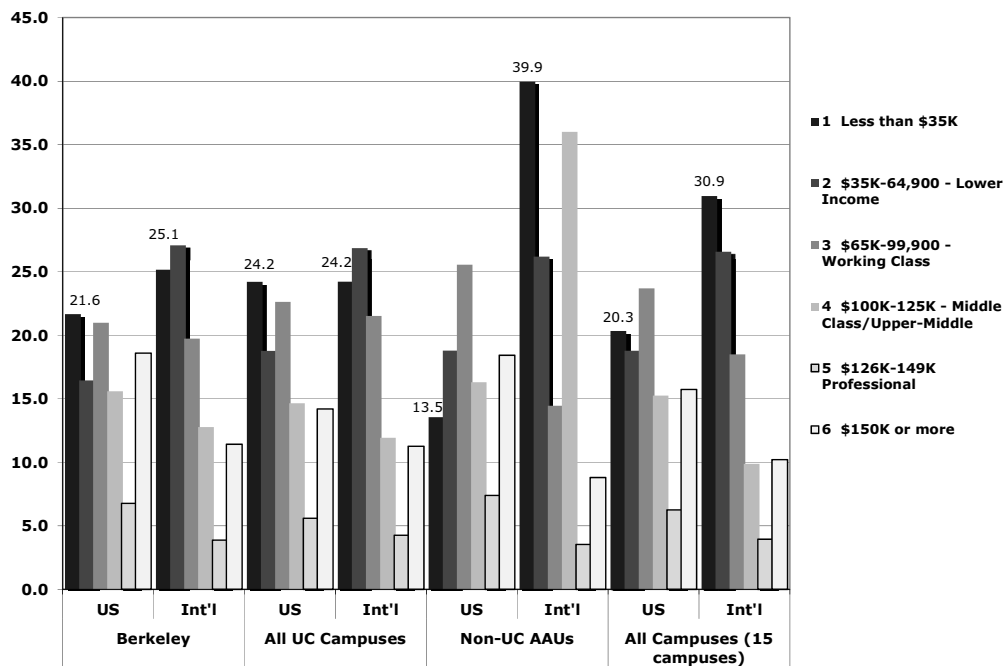| Transfer Status		Berkeley		All UC Campuses		Non-UC AAUs		All Campuses (15 campuses)	
		US	Int'l	US	Int'l	US	Int'l	US	Int'l
FRESHMAN	N	10,388	541	62,470	1,242	35,949	1,135	98,419	2,377
	%	75.3	64.7	79.6	54.9	76.9	58.3	78.6	56.5
TRANSFER	N	2,401	295	13,988	1,020	8,748	802	22,736	1,822
	%	17.4	35.3	17.8	45.1	18.7	41.2	18.2	43.3

Figure 1. Reported Family Income – U.S. and International Students

Overall, IS have higher SAT scores in Math but lower scores in Reading and Writing than their U.S. peers. This is true for other UC campuses (Non-Berkeley UCs) and for Non-UC AAUs. However, for Berkeley, IS' SAT Writing and Reading scores are basically on par with their U.S. counterparts while still maintaining the advantage in SAT Math scores (Table 3).

Table 3. SAT Scores of U.S. and International Students – Institution Data

SAT Scores	Berkeley				Non-Berkeley, other UCs				Non-UC, AAUs				All Campuses			
	US		Int'l		US		Int'l		US		Int'l		US		Int'l	
	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N
Critical Reading	641	10,900	636	563	577	54,745	550	746	605	30,279	543	926	593	95,924	569	2,235
Math	673	10,900	736	563	611	54,745	686	746	625	30,279	680	926	622	95,924	696	2,235
Writing	648	10,865	653	561	583	54,587	572	746	601	27,712	557	876	596	93,164	587	2,183

Overall experience and satisfaction of IS

The SERU data also shed light on the overall experience and satisfaction of IS, a direct feedback about how IS feel about their educational experiences in the U.S. campuses. Based on the data, we observed:

Although generally satisfied with their overall social and academic experience, IS are less satisfied than their U.S. counterparts. IS' perception on the value of education they are paying is ambivalent, much lower than U.S. students (Figure 2).
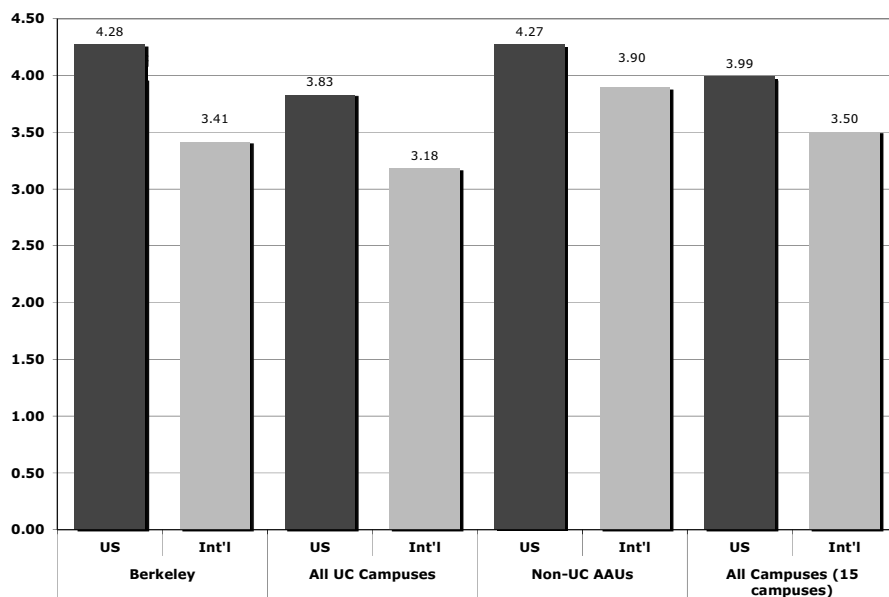

Figure 2. Value of Your Education for the Price You are Paying (1=very dissatisfied, 6=very satisfied)

Although rating their sense of belonging to the campus rather favorably, IS tend to have less sense of belonging than their U.S. counterparts.

Generally, agreeing, "Knowing what I know now, would still choose to enroll at this campus," IS are less likely to choose to enroll at the same campus than their American counterparts.

Reason for choosing a major

A major field in which a student studies provides an immediate/dominant learning environment and community he/she interacts with.   Understanding the reason(s) behind such a choice is a critical way to understand student experience.   This applies to IS as well.   Based on the data, we find:

Across all campuses, IS seem to be more practical minded in choosing a major than their American counterparts: reasons such as leading to a high paying job, prestige, and providing international opportunities are given more weight in choosing a major than U.S. students (Figure 3). Parental desire is a much higher decision factor in major choice for IS than their U.S. peers, indicating parents of IS are much more involved in their education and career path.
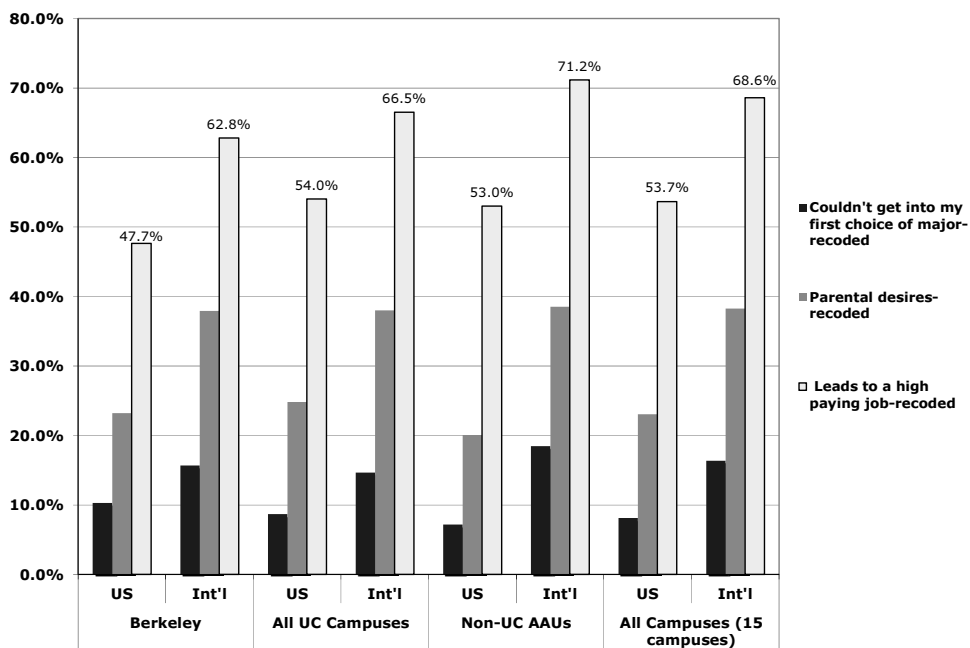
Figure 3. Three Top Reasons for Choosing a Major/Field

More IS expressed that they settled on the current major because their first choice of major is unavailable.   Taken together, compared to their U.S. counterparts, international students tend to choose their current major less out of interest in the major (Figure 3).   This is somewhat disturbing. On the other hand, this may signal that IS have given more priority to the choice of an institution than a major.   That is to say IS may have given more weight in the consideration of college choice to an institution's prestige, sometimes at the sacrifice of their preferred choice of a field of interest.

Engaging in activities

Students participate in many activities on and off campus during college, some academic and some

non-academic, that contribute to development of various essential skills.   To ease the presentation of these activities, we consolidate them into eight broad engagement factors (Table 8, Appendix): Satisfaction with Education Experience; Current Skills Self-Assessment (non-quantitative); Engagement with Studies; Gains in Self-Assessment of Skills (Non-quantitative); Development of Scholarship; Campus Climate for Diversity; Quantitative Professions; and Use of Time.

- *Satisfaction with Education Experience* – IS are less satisfied with their education experience than their U.S. peers.   They are less satisfied with the quality of instruction and courses in the major as well as with the access and availability of courses in the major.   That said, they are on par with U.S. students in their satisfaction with advising and out of class contact and clarity of program requirements, policies & practices (Figure 4).

- *Current Skills Self-Assessment (Non-quantitative)* – Compared to U.S. students, IS have a lower level of assessment of their current skills in non-quantitative areas, including Critical Thinking and Communication, Cultural Appreciation and Social Awareness, and Computer and Research Skills.

- *Engagement with Studies* – Although overall, IS do not differ significantly from their U.S. peers in the participation of academic activities, IS report a higher level of engagement in research or creative projects experience, and collaborative work.

- *Gains in Self-Assessment of Skills (Non-quantitative)* – These are students' assessment of their improvement in non-quantitative skills from the beginning of college to the current time. Although IS reported slightly higher gains than their U.S. peers in these non-quantitative skills for the entire SERU consortium, such difference is mainly observed within non-UC campuses.

- *Development of Scholarship* – Compared to U.S. students, IS feel a lesser degree of development in scholarship, including Critical Reasoning and Assessment of Reasoning and Curricular Foundations for Reasoning.   In terms of academic effort, IS do not differ from American students significantly, at least in Berkeley and UC campuses.   For Non-UC campuses, however, IS reported making more academic efforts than their U.S. peers (Figure 4).

- *Campus Climate for Diversity* – Overall, other than Berkeley campus, IS in other UC campuses and Non-UC campuses reported less favorably regarding the campus climate for diversity, including climate for personal characteristics, freedom to express beliefs, and climate for respect personal beliefs (Figure 5).

- *Quantitative Professions* – Compared to U.S. students, IS have a higher level of assessment in their quantitative and career skills than U.S. students.

- *Use of Time* – Compared to U.S. students, IS spent much less time on working for pay (employment activities) and much more time on academic studies and related activities.
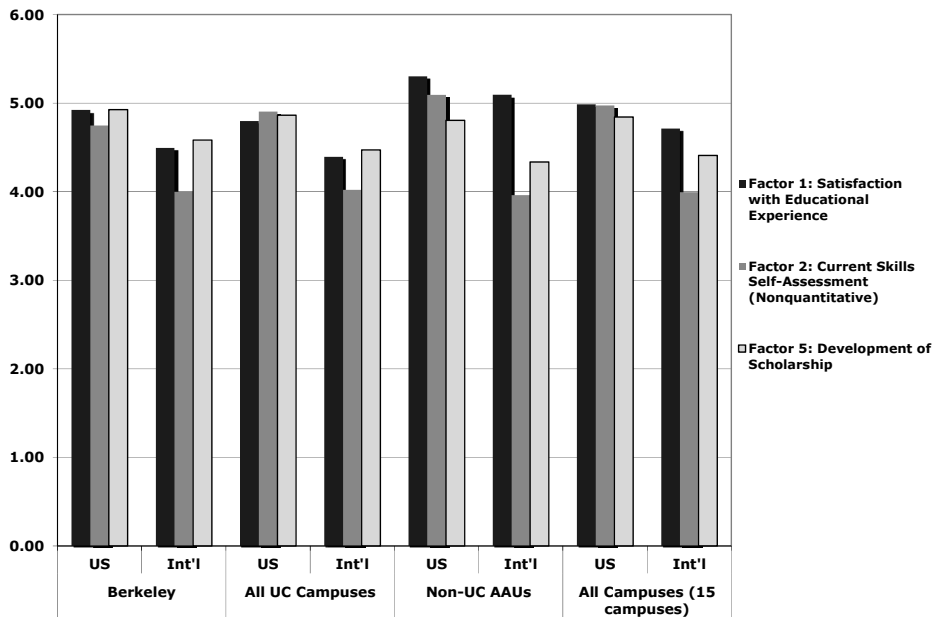
Figure 4. Satisfaction – Educational Experience, Skill Attainment, Scholarship
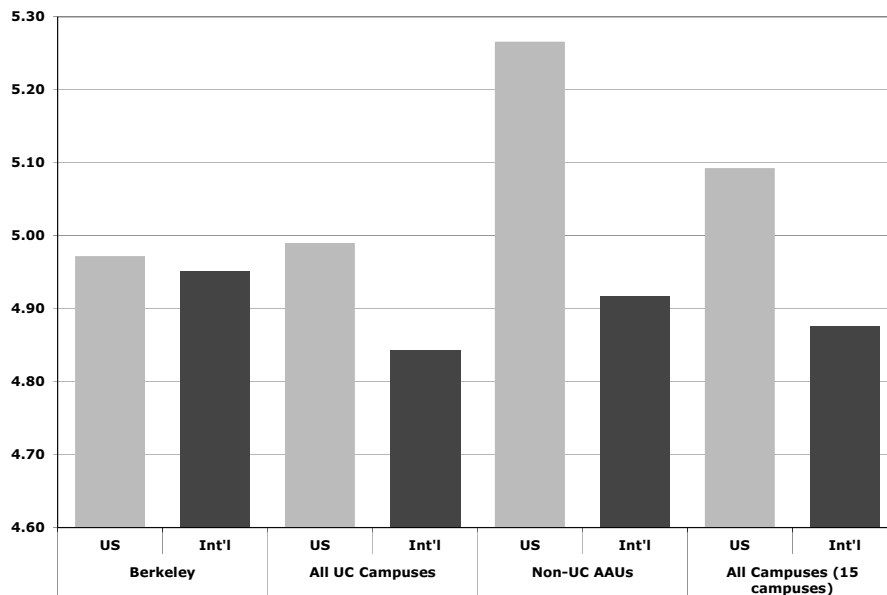

Figure 5. Satisfaction – Favorable Campus Climate

The international student effect

With the increasing enrollment of IS in colleges and universities throughout the world, an important question is how the increasing presence of IS impacts the college experience of both IS and domestic

students (Zhao, Kuh & Carini, 2005). Thus far, and as noted previously, U.S. universities and colleges have largely made a general statement that increased diversity in student backgrounds, be it IS or the socio-economic background of domestic students, has a positive impact on the education climate and learning experiences of students.

While some research has been conducted on this effect when considering race, with a flurry of studies generated to help defend affirmative action in the U.S, there has been no research done on this potential influence related to the presence of IS, especially IS at the undergraduate level. The SERU database offers a unique opportunity to investigate the influence, or perhaps more accurately the correlation, of diverse populations on student behaviors, experiences, and potentially outcomes.

Within the SERU Consortium campuses, we sought a way to shed light on this question by composing an IS "density" indicator that gauges the proportion of IS on a campus. Among our SERU campuses, the overall density of IS across all institutions is 3.2%.

Density ranges from 0.3% to 6.2% among the 15 campuses included in the study, as shown in Table 4. We divided institutions into three groups based on the density of their IS: Low IS density institutions (with less than 3% IS), High IS density institutions (with more than 6% IS), and Medium IS density institutions (with 3-6% IS).

Table 4. SERU Campus by Density Group

Campus	Density of IS	Density Group
University of Minnesota	6.2%	High
University of Oregon	6.1%	High
UC Berkeley	5.7%	Medium
University of Michigan	5.4%	Medium
UCLA	4.6%	Medium
University of Texas	4.5%	Medium
UC San Diego	2.4%	Low
UC Irvine	2.1%	Low
UC Davis	2.1%	Low
University of Pittsburg	1.9%	Low
UC Santa Barbara	1.6%	Low
UC Riverside	1.0%	Low
UC Santa Cruz	0.4%	Low
UC Merced	0.4%	Low
Rutgers University	0.3%	Low

We again used the above mentioned eight factors to examine how the IS density levels affect the way both international and American students spend their time and the extent students state they are satisfied with their educational experience (Figure 6).
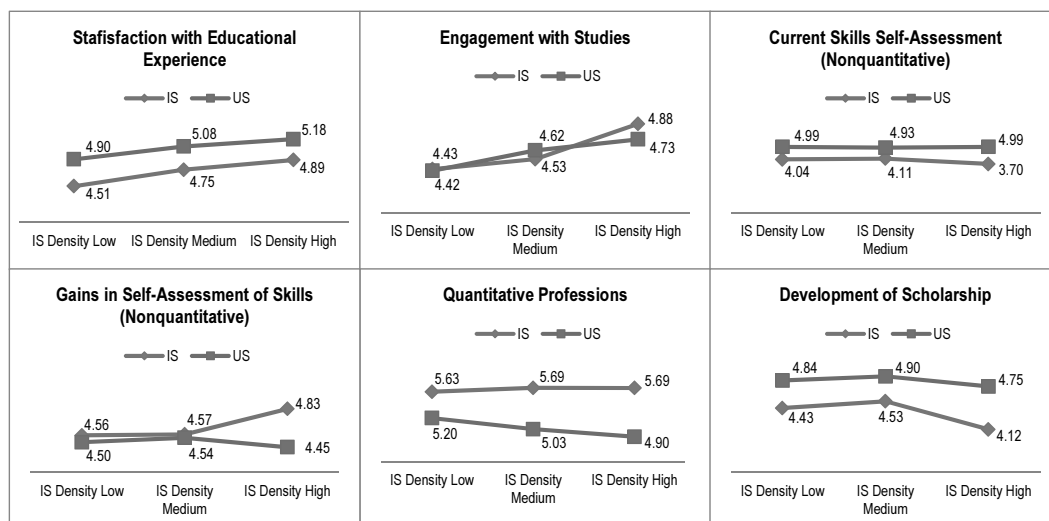
Figure 6. Engagement Factors by Density and IS Status

We find that among IS, having a higher IS density is positively related to satisfaction with educational experience, engagement with studies such as academic involvement and collaborative work, gains in non-quantitative skills (such as gains in Cultural Appreciation and Social Awareness and Computer and Research Skills), and use of time (in both academic efforts and employment).

On the other hand, the IS density level also showed some mixed effects among IS: high IS density (6% or more IS) is associated with a lower level self-assessment in their current skills in non-quantitative areas, development of scholarship, and perception for a favorable campus climate. That said, the medium level density (3-6% IS) seems to offer an optimal point for these areas. The density level does not have significant effect on IS' self-perceived skills in quantitative dimensions.

Among U.S. students, a higher level of IS density is positively linked to their satisfaction with their educational experience, engagement with studies and time spent in academic efforts and employment. On the other hand, it is also linked to less favorable perception of campus climate by U.S. students (although the effect is extremely small), and U.S. students' self-assessment of quantitative skills level.

The IS density level has mixed effects on U.S. students' self-assessment of their gains in non-quantitative skills and on development of scholarship. Again, institutions with medium density (3-6%) seem to have the most positive effect in these two areas among U.S. students. In contrast, in terms of U.S. students' self-assessment of their current level of non-quantitative skills, U.S. students in medium density institutions reported the least confidence in their current skills in non-quantitative dimensions.

Overall, based on the SERU data, the increasing presence of IS has a positive impact on both U.S. and IS students, especially in terms of the academic aspect of student educational experience with more engagement in academic activities and spending more time in academic efforts. It also suggests

there might exist a potential "inflection point" – lower or higher IS density levels might not be conducive to the best educational experiences in certain areas.

A number of caveats need to be noted.   One is the relative small sample size of institutions included in this study (only 15 institutions and they are all research universities).   Another is that the differences between campuses might also be explained by their different environments – some with larger numbers of students from different ethnic and recent immigrant backgrounds; some campuses may have more extensive support systems for IS to help with their transition to a life of academic work and living in the U.S..   Therefore our conclusions are deemed exploratory and in need of further study and validation with a broader scope and varieties of institutions and with a broader range of variables.   However, our findings do expand the range of effects of IS in a period of rapid globalization.

Conclusion

In the wake of the late-2000s recession and a long-term decline in public subsidies, U.S. public universities have significantly increased their numbers of tuition paying IS.   Students' backgrounds and experiences at these institutions, and how they influence the larger academic milieu, has been a secondary concern at best.   In part, the lack of analytical work on this growing sub-population reflects the lack of data.   The SERU Consortium and survey offers a window among a group of major research universities that is largely exploratory at this stage, but that will become more robust as the number of IS (inevitably) grows, as the SERU Survey matures as a longitudinal data set, and as the SERU Consortium grows in its number of U.S. and international partners.

Not withstanding the limitations of the data analyzed in this study, there are a number of important observations which can be made about IS students in our select group of public research universities.   IS share many similar background characteristics with domestic students in these institutions, with a greater tendency to come from families with high educational capital and marginally higher entrance test scores.   As these and other major universities in the U.S. are increasingly relying on their ability to recruit talented students globally, there are some warning signs about the overall experience of these students that university leaders need to heed.

For one, and as the price of a U.S. education continues to rise and outpace most other universities in an increasingly globally competitive world, IS are less satisfied with their overall academic and social experience and are less sure than their U.S. domestic counterparts about the value of their U.S. education.   Again in comparison with their U.S. counterparts, these students are also less likely to state that they would choose the university they are currently enrolled if they had the chance to make that choice again.

These results may reflect both the rising cost of attending an American university, and the fact that most of the public universities in our sample are undergoing a long period of economic stress.

This leads to higher student to faculty ratios and a reduction in what is widely perceived as an important value for highly talented, mobile students: greater opportunities for interaction with faculty and mentoring.

Perhaps influenced by parents who are making major investments in the education of their children, along with a more sober understanding of the job market back home or internationally, IS are more careerist in their choice of major or field than their U.S. counterparts.   They seem to have made a choice of what U.S. institution to attend in large part because of the increased job opportunities they perceive will then follow.   But again reflecting to some degree the financial woes of public universities in the U.S., these students have difficulties getting into the major they prefer.

We speculate that these inadequacies, perceived by many IS, may grow over time unless addressed by universities.   As the price of tuition grows, and as competition mounts globally with the further maturation of university programs globally, the pool of top students may see less value in making the financial commitment to attend a U.S. university – a perception that will also be tied to other factors, including the ease or difficulty of the path to citizenship and work.   These affects might be mitigated by the growing pool of IS that are estimated to grow, as noted previously, from about 3.7 million in 2009 to nearly 8 million by 2025 (Böhm *et al*., 2002; OECD, 2010).   Thus far, the U.S. has continued to attract top talent for its graduate programs, but remains a low performer at enrolling IS at the undergraduate level (Douglass *et al*., 2011).   Today, some 723,000 IS are enrolled in a postsecondary institution in the U.S., with 21.8 percent from China, 14.4 percent from India, 10.1 percent from South Korea, followed by Canada at 3.8, Taiwan at 3.4, and Saudi Arabia at 3.1 percent. Out of that total, half are graduate students (Institute of International Education, 2011).

The U.S. will continue to grow in IS in part because of the continued attractiveness of its top universities and colleges, the real and perceived job and social opportunities, and sense of tolerance of foreigners in a country of immigrants.   Thus far, the U.S. along with the UK, Australia and New Zealand also enjoy market advantages because courses are taught in the modern lexicon of business, politics, and academia – English (Wildasky, 2011).   But the competition will grow for the top talent and U.S. universities will need to work harder to recruit and enroll these students.   For example, China is investing significant capital into elevating the quality of its own growing network of universities with the goal of eventually having a larger percentage of its top talent educated domestically.

Throughout the world, leading universities are increasingly teaching courses at both the graduate and undergraduate levels in English, and many national governments have strategies and policies in place to recruit talented IS.   One may also see the benefits of regional efforts, including the European Higher Education Area but also new pan-Asia and pan-South American efforts to coordinate policies in part intended to increase student mobility and attract IS (Lasanowski & Verbik, 2007).   With a laissez faire mentality and a culture that tends to ignore the policy innovations of its competition, the U.S. has no similar set of policies at the national or state level (Douglass & Edelstein, 2009; British

Council, 2009).

At the same time, the 2010 SERU data set indicates real and positive gains by U.S. universities having a critical mass, or density, of IS. Among domestic students, having a higher density of IS students appears to positively influence their overall satisfaction with their academic experience and sense of belonging, their engagement in their studies, and seemingly a more realistic assessment of their overall abilities; U.S. students, it appears, tend to over-inflate the sense of their academic abilities. A higher density of IS also has a positive influence on individual IS, generating a greater sense of belonging (although still lower then their domestic counterparts), engagement in their studies, use of time, and overall experience.

Yet again we caution that this is an exploratory study, with conclusion that requires the further development of a larger data set and analysis that might more fully explain these differences and similarities in the student experience. In this study, for example, we have not explored the differences between students from different parts of the world: the Chinese IS for instance versus those from Brazil. As the SERU data set comes to include more international campus members, we imagine a more in-depth and cross cultural study on the background, behaviors and experiences of IS. This study has also focused only on IS at the undergraduate or what is often termed internationally as the first-degree level. Similar data and analysis needs to be pursued on the experience of IS graduate students as well. As in the past with undergraduate students, the lack of data among a group of peer institutions, including that generated by student experience surveys, places limitation on our knowledge of their behaviors and perceptions.

In the U.S., and globally, students will become even more mobile and IS become an even greater presence in institutions that have long served largely domestic constituents. We sense this will have a positive impact on the academic environment at universities, making students and faculty alike more mature global players and citizens. The higher education community, however, needs to expand their interest and understanding of the role of these students beyond the crass desire for additional income or to simply adjust their programs to rudimentarily serve the student as a client. They need to create a larger logic that is based on greater knowledge of the needs of IS students and how they can influence the overall academic and civic milieu of the post-modern university.

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Appendix: Data Tables

Table 5. Characteristics of International Students

Characteristics			Berkeley		All UC Campuses		Non-UC AAUs		All Campuses (15 Campuses)	
			US	Int'l	US	Int'l	US	Int'l	US	Int'l
Age										
	19 or younger	N	N/A		N/A		14,903	557	14,903	557
		%					31.9	28.6	31.9	28.6
	20-23	N					28,055	1,230	28,055	1,230
		%					60.0	63.2	60.0	63.2
	24-29	N					2,343	137	2,343	137
		%					5.0	7.0	5.0	7.0
	30-39	N					933	18	933	18
		%					2.0	0.9	2.0	0.9
	40+	N					536	5	536	5
		%					1.1	0.3	1.1	0.3
Gender										
	1 M	N	5,931	441	32,696	1,153	19,819	966	52,515	2,119
		%	43.0	52.8	41.7	51.0	41.7	49.6	41.7	50.3
	2 F	N	7,861	395	45,702	1,106	27,667	981	73,369	2,087
		%	57.0	47.2	58.2	48.9	58.3	50.4	58.2	49.6
Class Level										
	1 Freshman	N	201	15	8,590	151	6,938	391	15,528	542
		%	1.5	1.8	11.0	6.7	14.8	20.1	12.4	12.9
	2 Sophomore	N	2,191	156	15,331	323	9,827	438	25,158	761
		%	15.9	18.7	19.6	14.3	21.0	22.5	20.1	18.1
	3 Junior	N	3,065	224	20,016	704	11,430	545	31,446	1,249
		%	22.2	26.9	25.6	31.2	24.4	28.0	25.2	29.7
	4 Senior	N	8,325	439	34,320	1,081	18,564	572	52,884	1,653
		%	60.4	52.6	43.9	47.9	39.7	29.4	42.3	39.3
Transfer Status										
	1 FRESHMAN	N	10,388	541	62,470	1,242	35,949	1,135	98,419	2,377
		%	75.3	64.7	79.6	54.9	76.9	58.3	78.6	56.5
	2 TRANSFER	N	2,401	295	13,988	1,020	8,748	802	22,736	1,822
		%	17.4	35.3	17.8	45.1	18.7	41.2	18.2	43.3
Parent Education										
	1 None of the parents went to college	N	508	1	3,818	3	3,754	2	7,572	5
		%	3.7	0.1	4.9	0.1	7.9	0.1	6.0	0.1
	2 Either mother or father went to college	N	499	1	3,497	1	4,471	2	7,968	3
		%	3.6	0.1	4.5	0.0	9.4	0.1	6.3	0.1
	3 Both parents went to college and have AA or BA degrees	N	741	0	5,062	7	6,488	3	11,550	10
		%	5.4	0.0	6.5	0.3	13.7	0.2	9.2	0.2
	4 Either mother or father has post-baccalaureate degree or certificate	N	1,081	2	6,473	4	7,099	2	13,572	6
		%	7.8	0.2	8.2	0.2	14.9	0.1	10.8	0.1
	5 Both parents have post-baccalaureate degrees or certificate	N	881	2	4,078	4	3,660	2	7,738	6
		%	6.4	0.2	5.2	0.2	7.7	0.1	6.1	0.1
Income										
	1 Less than $35K	N	1,883	130	12,044	331	3,842	409	15,886	740
		%	21.6	25.1	24.2	24.2	13.5	39.9	20.3	30.9
	2 $35K-64,900 - Lower Income	N	1,430	140	9,341	367	5,332	268	14,673	635
		%	16.4	27.1	18.8	26.8	18.8	26.2	18.8	26.6
	3 $65K-99,900 - Working Class	N	1,825	102	11,259	294	7,253	148	18,512	442
		%	21.0	19.7	22.6	21.5	25.6	14.5	23.7	18.5
	4 $100K-125K - Middle Class/Upper-Middle	N	1,356	66	7,290	163	4,626	73	11,916	236
		%	15.6	12.8	14.6	11.9	16.3	7.1	15.2	9.9
	5 $126K-149K Professional	N	588	20	2,781	58	2,096	36	4,877	94
		%	6.8	3.9	5.6	4.2	7.4	3.5	6.2	3.9
	6 $150K or more	N	1,618	59	7,067	154	5,228	90	12,295	244
		%	18.6	11.4	14.2	11.3	18.4	8.8	15.7	10.2

Characteristics			Berkeley		All UC Campuses		Non-UC AAUs		All Campuses (15 Campuses)	
			US	Int'l	US	Int'l	US	Int'l	US	Int'l
Social Class										
1 Wealthy		N	168	35	809	73	667	58	1,476	131
		%	1.6	5.8	1.3	4.5	1.9	4.4	1.5	4.5
2 Upper-middle or professional-middle		N	2,965	201	14,063	544	10,477	441	24,540	985
		%	27.8	33.1	23.3	33.4	29.7	33.6	25.6	33.5
3 Middle-class		N	3,946	270	23,471	744	15,624	611	39,095	1,355
		%	37.0	44.5	38.8	45.7	44.2	46.6	40.8	46.1
4 Working-class		N	2,238	82	14,625	227	6,667	161	21,292	388
		%	21.0	13.5	24.2	13.9	18.9	12.3	22.2	13.2
5 Low-income or poor		N	1,338	19	7,501	40	1,874	40	9,375	80
		%	12.6	3.1	12.4	2.5	5.3	3.1	9.8	2.7

Table 6. Satisfaction with Overall Experience

Satisfaction with Overall Experience		Berkeley		All UC		Non-UC		All campuses	
		N	Mean	N	Mean	N	Mean	N	Mean
Overall social experience	Int'l	630	4.03	1,666	4.00	1,368	4.19	3,034	4.09
(1=very dissatisfied, 6=very satisfied)	US	10,760	4.29	61,305	4.26	35,891	4.60	97,196	4.39
Overall academic experience	Int'l	626	4.30	1,657	4.18	1,366	4.48	3,023	4.31
(1=very dissatisfied, 6=very satisfied)	US	10,751	4.50	61,217	4.37	35,868	4.58	97,085	4.45
Value of your education for the price you're paying	Int'l	629	3.41	1,665	3.18	1,362	3.90	3,027	3.50
(1=very dissatisfied, 6=very satisfied)	US	10,747	4.28	61,252	3.83	35,857	4.27	97,109	3.99
I feel that I belong at this campus	Int'l	630	4.41	1,668	4.30	1,372	4.53	3,040	4.40
(1=strongly disagree, 6=strongly agree)	US	10,796	4.67	61,461	4.55	35,970	4.81	97,431	4.64
Knowing what I know now, I would still choose to enroll at this campus	Int'l	629	4.48	1,666	4.34	1,367	4.66	3,033	4.48
(1=strongly disagree, 6=strongly agree)	US	10,779	4.88	61,364	4.63	35,933	4.89	97,297	4.72

All significantly different at p=.001 level

Table 7. Reason for Choosing a Major

Reason for Choosing a Major		Berkeley		All UCs		All Non-UCs		All Campuses	
		N	Mean	N	Mean	N	Mean	N	Mean
Intellectual curiosity	Int'l	626	0.933 *	1,667	0.924	1,367	0.924	3,034	0.924 *
	US	10,801	0.954	61,490	0.937	35,968	0.928	97,458	0.933
Leads to a high paying job	Int'l	624	0.628 ***	1,663	0.665 ***	1,360	0.712 ***	3,023	0.686 ***
	US	10,761	0.477	61,345	0.540	35,913	0.530	97,258	0.537
Prepares me for a fulfilling career	Int'l	625	0.885 *	1,660	0.881	1,364	0.907	3,024	0.893 *
	US	10,771	0.851	61,377	0.868	35,947	0.901	97,324	0.880
Complements desire to study abroad	Int'l	624	0.380	1,658	0.422 ***	1,353	0.501 ***	3,011	0.458 ***
	US	10,754	0.352	61,295	0.363	35,858	0.333	97,153	0.352
Parental desires	Int'l	625	0.379 ***	1,663	0.380 ***	1,352	0.385 ***	3,015	0.382 ***
	US	10,753	0.232	61,316	0.248	35,874	0.201	97,190	0.231
Easy requirements	Int'l	626	0.198	1,662	0.208 *	1,348	0.208 ***	3,010	0.208 ***
	US	10,749	0.184	61,271	0.182	35,845	0.137	97,116	0.166
Allows time for other activities	Int'l	626	0.387	1,659	0.358	1,350	0.430 ***	3,009	0.390
	US	10,744	0.404	61,224	0.370	35,841	0.380	97,065	0.374
Provides international opportunities	Int'l	626	0.649 ***	1,663	0.651 ***	1,359	0.701 ***	3,022	0.673 ***
	US	10,752	0.491	61,268	0.489	35,853	0.470	97,121	0.482
Prestige	Int'l	622	0.638 ***	1,657	0.605 ***	1,351	0.637 ***	3,008	0.619 ***
	US	10,743	0.513	61,236	0.519	35,844	0.521	97,080	0.520
Couldn't get into my first choice of major	Int'l	625	0.157 ***	1,660	0.146 ***	1,342	0.185 ***	3,002	0.164 ***
	US	10,723	0.103	61,090	0.087	35,750	0.072	96,840	0.081
Interest in subject area	Int'l	626	0.949 *	1,662	0.940 ***	1,364	0.924 ***	3,026	0.933 ***
	US	10,771	0.969	61,381	0.961	35,933	0.971	97,314	0.965
Prepares me for graduate/professional school	Int'l	623	0.729	1,661	0.727	1,355	0.714 **	3,016	0.721 *
	US	10,741	0.722	61,254	0.722	35,860	0.671	97,114	0.703

Table 8. Engagement Factor Scores

Engagement Factor Scores		Berkeley		All UCs		Non-UCs		All Campuses	
		N	Mean	N	Mean	N	Mean	N	Mean
Factor 1: Satisfaction with Educational Experience	Int'l	600	4.494 ***	1,581	4.394 ***	1,333	5.093 ***	2,914	4.714 ***
	US	10,468	4.922	59,346	4.798	35,147	5.303	94,493	4.986
Quality of Instruction and Courses in the Major	Int'l	350	4.980 **	1,203	4.713 ***	742	5.094 *	1,945	4.858 ***
	US	6,757	5.317	46,422	5.050	22,246	5.224	68,668	5.107
Satisfaction with Access and Availability of Courses in the Major	Int'l	596	4.368 ***	1,579	4.279 ***	1,328	5.062 ***	2,907	4.637 ***
	US	10,272	4.680	58,307	4.586	35,162	5.244	93,469	4.834
Sense of Belonging and Satisfaction	Int'l	613	4.355 ***	1,598	4.193 ***	1,340	4.862 ***	2,938	4.498 ***
	US	10,523	5.070	59,521	4.756	35,258	5.348	94,779	4.976
Satisfaction with Advising and Out of Class Contact	Int'l	606	4.960	1,601	4.896 ***	1,348	5.365	2,949	5.110
	US	10,463	5.051	59,456	5.095	35,073	5.302	94,529	5.172
Clarity of Program Requirements, Policies & Practices	Int'l	333	5.450	1,116	5.329	702	5.438	1,818	5.371 *
	US	6,460	5.537	43,168	5.405	20,856	5.506	64,024	5.438
Satisfaction with Library Support	Int'l	596	4.460 ***	1,595	m ***	1,327	4.966 ***	2,922	4.732 ***
	US	10,377	4.871	59,059	4.964	34,908	5.178	93,967	5.043
Factor 2: Current Skills Self-Assessment (Non-quantitative)	Int'l	576	4.000 ***	1,519	4.020 ***	1,252	3.962 ***	2,771	3.994 ***
	US	10,439	4.747	59,614	4.903	35,409	5.093	95,023	4.974
Critical Thinking and Communication	Int'l	562	3.996 ***	1,462	3.926 ***	1,245	3.877 ***	2,707	3.903 ***
	US	10,333	4.743	58,944	4.754	35,262	5.034	94,206	4.859
Cultural Appreciation and Social Awareness	Int'l	593	4.234 ***	1,549	4.305 ***	1,287	4.148 ***	2,836	4.234 ***
	US	10,427	4.960	59,528	5.112	35,182	5.173	94,710	5.135
Computer and Research Skills	Int'l	600	4.165 ***	1,560	4.382 ***	1,277	4.238 ***	2,837	4.317 ***
	US	10,387	4.708	59,234	4.963	34,871	5.060	94,105	4.999
Factor 3: Engagement with Studies	Int'l	628	4.446	1,662	4.361	1,360	4.853	3,022	4.583 *
	US	10,749	4.369	61,095	4.344	35,768	4.797	96,863	4.511
Academic Involvement and Initiative	Int'l	632	4.307	1,673	4.171 **	1,372	4.666 ***	3,045	4.394 ***
	US	10,792	4.401	61,444	4.312	35,920	4.949	97,364	4.547
Research or Creative Projects Experience	Int'l	603	4.723 *	1,594	4.801 ***	1,283	4.943 ***	2,877	4.864 ***
	US	10,529	4.560	59,631	4.639	35,196	4.619	94,827	4.631
Collaborative Work	Int'l	632	5.018 *	1,670	4.890	1,371	5.025 ***	3,041	4.951 **
	US	10,796	4.843	61,426	4.859	35,960	4.798	97,386	4.837
Factor 4: Gains in Self-Assessment of Skills (Non-quantitative)	Int'l	610	4.461	1,598	4.486	1,299	4.806 ***	2,897	4.629 ***
	US	10,511	4.549	59,668	4.503	35,187	4.505	94,855	4.504
Gains in Critical Thinking and Communication	Int'l	614	4.587	1,597	4.613	1,310	4.868 ***	2,907	4.728 ***
	US	10,490	4.592	59,604	4.541	35,205	4.528	94,809	4.536
Gains in Computer and Research Skills	Int'l	607	4.656	1,596	4.665	1,290	4.793	2,886	4.723
	US	10,420	4.739	59,218	4.690	34,954	4.712	94,172	4.698
Gains in Cultural Appreciation and Social Awareness	Int'l	603	4.365	1,567	4.391 *	1,259	4.795 ***	2,826	4.571 *
	US	10,379	4.483	58,689	4.483	34,502	4.494	93,191	4.487
Factor 5: Development of Scholarship	Int'l	613	4.582 ***	1,622	4.471 ***	1,348	4.337 ***	2,970	4.410 ***
	US	10,649	4.927	60,585	4.864	35,523	4.806	96,108	4.842
Critical Reasoning and Assessment of Reasoning	Int'l	612	4.593 ***	1,633	4.500 ***	1,344	4.504 ***	2,977	4.502 ***
	US	10,596	4.965	60,228	4.886	35,339	4.836	95,567	4.868
Curricular Foundations for Reasoning	Int'l	610	4.499 ***	1,617	4.348 ***	1,325	4.084 ***	2,942	4.229 ***
	US	10,608	4.925	60,442	4.897	35,475	4.853	95,917	4.881

Engagement Factor Scores		Berkeley		All UCs		Non-UCs		All Campuses	
		N	Mean	N	Mean	N	Mean	N	Mean
Elevated Academic Effort	Int'l	613	5.091	1,618	5.048	1,343	5.100 **	2,961	5.072 **
	US	10,490	4.959	60,019	4.961	3,5212	4.949	95,231	4.957
Factor 6: Campus Climate for Diversity	Int'l	617	4.952	1,634	4.843 **	1,356	4.917 ***	2,990	4.876 ***
	US	10,492	4.972	59,972	4.990	35,461	5.266	95,433	5.093
Climate for Personal Characteristics	Int'l	615	5.020	1,631	4.925 **	1,349	4.957 ***	2,980	4.940 ***
	US	10,470	5.047	59,696	5.043	35,357	5.260	95,053	5.124
Freedom to Express Beliefs	Int'l	620	4.758	1,632	4.639 ***	1,344	4.727 ***	2,976	4.679 ***
	US	10,448	4.858	59,713	4.850	35,242	5.136	94,955	4.956
Climate of Respect for Personal Beliefs	Int'l	618	5.035	1,641	4.968 **	1,353	5.123 ***	2,994	5.038 ***
	US	10,508	4.978	60,025	5.084	35,298	5.329	95,323	5.175
Factor 7: Quantitative Professions	Int'l	622	5.530 ***	1,660	5.578 ***	1,362	5.788 ***	3,022	5.673 ***
	US	10,698	4.877	60,969	5.090	35,771	5.162	96,740	5.117
Career Orientation	Int'l	625	5.658 ***	1,662	5.658 ***	1,360	5.871 ***	3,022	5.754 ***
	US	10,776	5.061	61,368	5.235	35,937	5.293	97,305	5.257
Quantitative Skills	Int'l	606	5.112 ***	1,581	5.186 ***	1,286	5.308 ***	2,867	5.241 ***
	US	10,218	4.779	58,259	4.911	34,325	4.971	92,584	4.933
Factor 8: Use of Time (Academic and Employment)	Int'l	701	4.741	1,845	4.584	1,542	4.806 *	3,387	4.685
	US	11,583	4.685	66,298	4.580	39,547	4.909	105,845	4.703
Time Employed	Int'l	692	4.010 ***	1,826	4.116 ***	1,546	4.393 ***	3,372	4.243 ***
	US	11,419	4.301	65,417	4.468	38,856	4.685	104,273	4.549
Academic Time	Int'l	676	5.725 ***	1,817	5.371 ***	1,530	5.474 ***	3,347	5.418 ***
	US	11,507	5.360	65,807	4.920	39,392	5.152	105,199	5.007

Table 9. Impact of Increasing International Student Presence

Engagement Factors (Mean Scores, Range 0-10)	International Students				US Students			
	IS Density Low (N=1163)	IS Density Medium (N=2085)	IS Density High (N=961)	Sig.	IS Density Low (N=72791)	IS Density Medium (N=38535)	IS Density High (N=14637)	Sig.
Factor 1: Satisfaction with Educational Experience	4.51	4.75	4.89	***	4.90	5.08	5.18	***
Factor 2: Current Skills Self-Assessment (Non-quantitative)	4.04	4.11	3.70	***	4.99	4.93	4.99	***
Factor 3: Engagement with Studies	4.43	4.53	4.88	***	4.42	4.62	4.73	***
Factor 4: Gains in Self-Assessment of Skills (Non-quantitative)	4.56	4.57	4.83	**	4.50	4.54	4.45	***
Factor 5: Development of Scholarship	4.43	4.53	4.12	***	4.84	4.90	4.75	***
Factor 6: Campus Climate for Diversity	4.81	4.98	4.75	**	5.11	5.10	4.98	***
Factor 7: Quantitative Professions	5.63	5.69	5.69		5.20	5.03	4.90	***
Factor 8: Use of Time (Academic and Employment)	4.51	4.71	4.85	***	4.61	4.76	5.04	***

Higher Education Reforms and Revitalization of the Sector[1]

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Abstract.   The unprecedented expansion, diversification of provisions, programmes and sources of funding, and a favourable policy support are signs of revitalization of higher education.   The reforms initiated in the recent past have contributed to this process of revitalization.   Based on a review of reforms in different countries, this paper classifies reforms into three distinct, but related categories, namely: reforms to enhance capacity to produce and use knowledge; reforms to reposition higher education to changes in the political orientation and employment market; and reforms to expand higher education.   These reforms have helped to reduce state control, increase institutional autonomy, make institutions self-reliant and responsive to the requirements of the production sectors, and bring the higher education decision-making process closer to the market.   It seems the reforms may have contributed to a widening of inequalities and if such is the case, state interventions need to focus on reprioritizing investments to ensure equity.

Keywords: autonomy, budget students, competitive funding, cost recovery, diversification, harmonization, institutional restructuring, performance contracts, privatization, revitalization

1. Introduction

The higher education system expanded in the decades of 1960s and 1970s thanks to the state support the sector received.   This was followed by a decade of decline of the sector in the 1980s when enrolment and the share of public resources allocated to higher education declined in many countries. The share of developing countries in additional enrolment in higher education declined from 85 per cent in 1980 to 50 per cent in 1995.   To overcome the financial constraints, many governments introduced cost reduction strategies, which included staff reduction, a freeze on new appointments, and a freeze on increase in staff salary, which encouraged many staff members to migrate to other sectors of employment or to other countries.   Deterioration of physical facilities and academic

standards combined with faculty attrition have contributed to a sharp decline in the quality of teaching and research. Many universities, especially in the developing world, fell into a severe state of disrepair.

These trends have been reversed in this millennium. Between 1995 and 2008, the system not only expanded considerably, but the developing countries also accounted for more than 90 per cent of the additional enrolment in higher education; budgetary allocation to higher education increased in most of the countries; staff salaries improved as did teaching and learning conditions. At present, both the state and households are willing to invest in higher education. This has contributed in no small measure to the revitalization of higher education.

These changes can partly be attributed to the changing perception of the economic value of higher education in production. With the emergence and expansion of knowledge-based production, the capacity to produce and absorb knowledge produced elsewhere became an influential factor in promoting economic growth. Empirical evidence supported the view that 'capacity to mobilize knowledge and use it to the full' (World Bank, 2008, p.3) determines the pace of growth of knowledge economies. Given the role of higher education in knowledge production and use, the revival of the sector is seen as a necessary condition for fostering faster economic growth.

The revitalization of the sector involved favourable public support, increased investment – especially from non-government sources –, diversified provisions and programmes, unprecedented expansion, and serious efforts to improve quality. This paper shows that the revitalization of the sector is the result of the reforms introduced. Most of the reforms in higher education focused on enhancing the role of higher education in knowledge production, on realigning higher education with production sectors of the economy, and on expanding the system. These reforms taken together led to reduced state control, made institutions more self-reliant, and households became more willing investors in higher education. This new context forms the basis for revitalization of higher education.

The next section of the paper discusses the major concerns in higher education reforms, followed by a review of the type of higher education reforms in a selection of countries (Section 3). Section 4 analyses the implications of these reforms for governance and management of higher education. Based on the discussions on reforms, Section 5 identifies the issue of university autonomy and its effects on governance and management. The final section makes some concluding observations.

2. The major concerns in higher education reforms

The reforms in higher education are many and the nature of reforms varies among countries. A review of reforms in several countries indicates that the pressure to reform came from three sets of actors – the state, the employers and the households. The core concerns in reforms were also an effort to satisfy these actors. These core concerns, common across reforms in several countries, may be categorized into three distinct, but related, factors: a) a concern for knowledge production and use

of knowledge in production; b) a concern for realigning higher education to the employment market; and c) a concern for expanding higher education.

a) *A concern for knowledge production and use of knowledge in production*

Knowledge has become a springboard of economic growth and development (The Taskforce on Higher Education and Society, 2000), and it has become a defining character of modern economies. Given the economic value of knowledge, it has become dear to corporations and rewarding to those who invest in its production. Knowledge and human capital has been 'the single-most important engine of growth in OECD countries in the past three decades' (OECD, 2000, p.17) and the driving force of economic performance (UIS/OECD, 2003). The capacity for higher education institutions to innovate and produce knowledge and absorb knowledge produced elsewhere has become a necessary condition for accelerated growth. The countries with higher levels of investment in Research and Development (R&D) activities have higher potential for growth and to retain, if not improve, their competitive edge in the globalized production process. Therefore, investing in knowledge production through improving quality in higher education has become a necessary condition for improving economic performance and competitiveness. 'Research and education are core national production factors contributing to industrial and technological competitiveness' (Dobbins, Knill & Vogtle, 2011, P.670). Enhancing quality in higher education implies focus on research and excellence in teaching. Most of the reforms focusing on the creation of research universities, the development of university ranking systems, and on quality are visible signs of reforms stemming from the economic value of knowledge and higher education. These concerns make higher education dear to the state and the corporate world.

b) *A concern for realigning higher education to the employment market*

The public sector has traditionally been the major employer of university graduates. Over a period of time, employment in the public sector decelerated and that in the private sector increased. Liberalization policies and the globalization process helped expand market based sectors to increase their share in production and employment generation. The type and nature of skills required in these sectors differ from the skills demanded in the traditional public sector job market. Traditional public universities in many countries could not offer courses aligned to the requirements in the emerging production sectors of the economy. Further, a large variety of jobs did not need skills to be developed through a long duration study programme leading to a degree offered by a university. This led to various reforms to diversify institutions providing post-secondary education (PSE), including changes to programmes of study, duration of study, and certification procedures. The skill premium enjoyed by PSE graduates was an incentive for households to invest and for public authorities to

transfer the burden from the state to individuals seeking such diversified higher education.

c) *A concern for expanding higher education*

The compulsions to expand higher education have come from various sources.   The knowledge economies and process of globalization has been one such influence.   Globalization demands skills and competencies which are developed mostly at the post-secondary level of education.   Another source of pressure to expand has been the increasing demand for higher education.   Given the large number of secondary school graduates seeking PSE, the social pressure to expand the system was high.   However, the public institutions neither had places nor funds to respond to this increasing social demand.   This formed a basis for reform which led to two patterns of relying on non-state funding for expansion: privatization of public institutions; and promotion of the private sector in higher education (Varghese, 2004).   Associated reforms related to new forms of financing the sub-sector – including cost sharing, cost recovery, and income generation – and stem from the compulsions of the state to expand higher education in a fiscally constrained environment.   These reforms indicated a move from state to non-state financing to expand higher education.

The effects of these reforms are very encouraging.   The enrolment in higher education increased from 100 to 158.7 million between 2000 and 2008 (UIS, 2010).   The average annual increase in enrolment was around 7.3 million in the first decade of this millennium – the largest expansion experienced by the higher education sector in any decade.   It is equally important to note that the expansion was universal and was experienced by countries belonging to all levels of development and in all regions.   In fact, the rate of growth of enrolment continues to be high in the less developed countries although enrolment ratios remain low.   Higher education is massified in the middle income countries and nearing universalization, if not universalized, in most of the OECD countries.

It is important to note some of the characteristics of the expansion of higher education.   First, the higher education sector is expanding at a higher rate than that of other levels of education and therefore warrants a higher level of investment in this sector.   This may necessitate a review of the intra-sectoral resource allocation policies followed by public authorities.   Second, the surge in enrolment is realized not only through public institutions.   The private sector in higher education is expanding rapidly and accounts for a large proportion of institutions and considerable share of enrolments.   Third, the expansion is not confined to the traditional university sector.   The sector is increasingly getting diversified and very often the expansion is faster in the non-university sector and in non-degree programmes.   Fourth, the expansion is not dependent upon public resources only. Very often expansion is funded by non-state resources.   Households are investing considerably in the sector; expansion of the non-state sector is an indicator of this trend.   Fifth, increasingly more females than males are enrolling in higher education.   In 2008, females accounted for 51 per cent of the global enrolment (UIS, 2010).   Further, it is the only sub-sector of education where the global

gender parity index is more than unity even when most of the countries are far from 'universal' higher education. Sixth, efforts to expand the system are accompanied by strategies to assure quality. The establishment of accreditation agencies/bodies in several countries is a reliable indicator of this trend. Seventh, there are serious efforts underway to harmonize the structure and content of study programmes at both the regional and global levels. Regional efforts in this direction have been very strong in the recent past.

One of the important features of the expansion is that, contrary to general belief, it did not necessarily lead to increased unemployment of higher education graduates. This may be partly due to the fact that expansion has taken place when economic growth has been positive and high (except during the crisis period) and partly due to the reforms which made serious efforts to align skill formation with skill requirements in the labour market.

The discussions in the above paragraphs indicate that an increasing recognition of the role of knowledge in production, re-aligning higher education with employment markets, and reliance on non-state funding for expansion are continuing concerns in higher education reforms. These changes also indicate a shift in public policy to prioritize investment and to promote diversity in provision, and households' willingness to invest more in higher education. For example, even during periods of economic crisis, governments continue to invest in science and technology – fields that are considered closest to knowledge production – to improve national competitiveness. The rate of return studies in recent decades show higher returns to higher education (World Bank, 2002). This is more so in the knowledge-based professions (Feenstra & Hanson, 1999). The higher educated enjoy a premium in the labour market, which encourages households to invest in education. In other words, most of the reforms in higher education stem from a belief that more of higher education is good and more provision does not necessarily imply higher investment by the public authorities nor increased unemployment of the higher education graduates.

3. A review of reforms in higher education

Now let us look into some trends in reforms in higher education introduced in several countries.

Reforms to enhance capacity to produce and use knowledge

The USA universities enjoy an enviable place both in knowledge production and excellence in teaching. Several USA higher education institutions occupy top positions in the global rankings of universities. These reputed universities help maintain the United State's global leadership role in economic and political spheres. According to the QS (Quacquarelli Symonds) 2010 universities ranking, the top 17 positions are shared between the U.S and the UK, with the U.S. universities accounting for 13 out of top 17 universities in the world. Needless to add, many of the top-ranking

universities are research universities engaged in knowledge production.

An analysis of reforms in Europe also provide evidence for the role of knowledge in production. These reforms stem from a belief that economic growth and global competitiveness are increasingly driven by knowledge (CHEPS, 2009).   Countries are competing to reach and retain global standards and to transform their national universities into world class universities.   This requires excellence in research, the high quality of teachers and teaching, talented students, and an abundance of funding. The move towards creation of research universities is a necessary step in the creation of world class universities (Salmi, 2009) with concentration of talents, resources, and institutional autonomy.   Many of the reforms initiated in several countries have some of these elements included in the reform measures.

For example, the White Paper on higher education (DES, 2003) and the Higher Education Act of 2004 reflected on the future of higher education in the UK and it emphasised, among other things, research and teaching to boost world class excellence, in order to make the UK higher education the best in the world.   The university rankings bear this out.   A UK university was not only the top ranking university in 2010, but also the UK accounts for 4 out of 10 top universities in the world. The 2007 Law of France encourages the higher education sector to compete on the global stage and meet the requirements of the workforce in France.   The reforms envisaged higher public investment in higher education and the granting of more autonomy to higher education institutions in France. The German efforts to restore and improve research capabilities through selected institutions (Centres of Excellence) to re-establish their reputation in global research is also in the same direction.   As noted earlier, many OECD countries continue their investments in science and technology subject areas despite the economic crisis.

Higher education reforms in many countries of Asia, too, had the same focus on achieving excellence.   The Chinese reforms of Project 985 or Project 211, the Centers of Excellence (COE 21) in Japan, Brain Korea 21 (BK 21), and the Accelerated Programme for Excellence (APEX) in Malaysia are good examples of this trend.   The recent reforms in India include the establishment of the National Commission for Higher Education and Research (NCHER), and the establishment of a national accreditation agency (Tilak, 2010).   Reforms in all these countries lay emphasis on research and improving the quality of teaching and learning processes.

Reforms to reposition higher education to changes in the external environment

The repositioning of the higher education system was necessary to respond to changes in political orientation and changes in production and employment markets.   The reforms introduced in Commonwealth of Independent States (CIS) were efforts to reassert the relevance of higher education to the changed political and ideological orientation of the state.   The efforts were to reposition and facilitate transition from a centrally planned to a market economy.   Curricular reforms took

precedence over other reforms and were intended to reflect market-orientation in the curricula and study programmes. New courses were introduced in economics, accounting, financial analysis, marketing, business administration, law, information systems, international relationships, psychology, *etc*. The intention was to socialize the students with market processes (Varghese, 2009b) and with the theories pertaining to market operations.

The expansion of the non-university sector is an example of diversification to respond to changing skills requirements in the employment market. In the USA, there are research universities, professionally-oriented universities, and community colleges. In countries such as France, there are Grandes Écoles, universities, and IUTs (Instituts universitaires de technologie): in Brazil there are research-oriented universities and teaching-oriented university centres. The creation of service universities in countries such as Korea is another example. The reforms in Norway led to two parallel sectors – the university sector concentrating on basic research and the professional colleges responsible for professional education and applied research relevant to the region (Tjeldvoll, 1998). In Malaysia, PSE includes pre-university courses or technical/vocational courses leading to certificates and diplomas. In Nigeria, PSE consists of universities and non-university institutions such as polytechnics and mono-technics, colleges of education, and schools of nursing.

Reforms to expand the system

The reforms in Africa and CIS countries also reflect concern for the generation of resources to counter the relative decline in public funding. These reforms can broadly be categorized into two areas: a) privatization of public institutions and b) expansion of private institutions of higher education (Varghese, 2004). Both these measures were intended to reduce the financial burden of the expansion of higher education on the state. The most common factor in both the measures was related to cost recovery through levying student fees. Examples of privatization measures include: the university enterprise scheme (UNES) and parallel programmes of the University of Nairobi; the dual track admission policy, with sponsored and private students, in Makarere University; the institutional transformation programmes, cost-sharing, and revenue diversification strategies of the University of Dar-es-Salaam; and the dual track systems in Zambia.

The CIS countries also adopted cost-recovery and cost-sharing measures to finance higher education. The retention of the professoriate was an important concern in this region during the period following the collapse of the Soviet Union. During the transition period the salaries of professors was reported to have declined below survival levels (Shattock, 2004), leading to a mass exodus of professors from public universities in the CIS countries. Institution based income generation was the only alternative left to the policy makers. Student fees were the most reliable and sustainable source of income. Following the reform measures adopted in universities of Africa, universities in CIS too started admitting fee paying and non-fee-paying students. The non-fee-paying

students, supported by the state budget, were called 'budget students' (Kitaev, 2004; Varghese, 2009b). The enrolment of non-budget students increased at a faster rate than the number of budget students.

In addition to the move towards privatization, most of the countries in Africa, Asia, and Latin America also encouraged the establishment of private higher education institutions. In many countries it is the private higher education segment that is expanding most rapidly (Levy, 2006; Varghese, 2004). The private sector is very prominent in Latin America. For example, in Chile, there are 25 traditional universities belonging to the Council of Rectors of Chilean Universities (CRUCH), which receives direct public funding (Araneda, 2010). The universities created after 1981 are self-funded private universities, and other non-university tertiary institutions are also self-financed private institutions.

The number of private universities outnumbers the public universities in Africa although their share in enrolment is less than one-third of the total enrolment. These reform measures have helped to maintain high growth rates of enrolment in higher education in most countries in Africa (Mohammedbhai, 2008). More importantly, the private segment of the public institutions (fee-paying students) and private institutions of higher education have helped facilitate expansion of higher education in many countries, and especially in Africa, without relying on state funding.

The European situation is characterized more by privatization of public institutions than by promotion and expansion of private universities. Privatization measures and cost recovery are more common in the UK universities than in German or French universities. The level of tuition fees levied in the UK universities is higher than that in the universities located in other European countries.

Did reforms lead to a more integrated system of higher education across countries?

Although the specifics of reforms varied across countries, they together have helped the system of higher education to converge globally. The efforts towards a harmonized degree structure, student assessment, and external quality assurance mechanisms have been driving the system towards better convergences and integration globally. The harmonization has two elements: harmonizing national systems with global (with higher education systems of the developed world); and regional harmonization initiatives. Most of these efforts to harmonize higher education stem from the Bologna Process.

The Bologna Process was, perhaps, central to higher education reforms in Europe in the previous decade. Most of the 46 countries constituting the European Higher Education Area have adopted new higher education legislation and a credit system (180+120 credits equivalent to 3+2 years of full-time study), have effected curricular changes, and have embraced new quality assurance processes. The development of the European Standards and Guidelines for Quality Assurance in Higher Education (ESG), and the creation of European Network for Quality Assurance (ENQA), the association of quality assessment agencies, were all efforts to improve the quality of higher education

in Europe (Martin & Antony, 2007). Although started in Europe, its effects transcend beyond the continent's borders.

The governments in Latin America, Africa, and Asia are planning to form their own regional networks and regional higher education areas to harmonize qualification structures and student and staff exchanges. For example, in Latin America in 2010, the Inter-American Organization for Higher Education initiated a programme to create a Latin American and Caribbean Higher Education Area; in West Africa, 15 countries signed an agreement to promote intraregional student mobility by giving students from other West African Monetary and Economic Union (WAMEU) states equal access to higher education. Southeast Asian Ministers of Education Organization Regional Centre for Higher Education and Development (SEAMEO RIHED) is taking initiatives to create a South East Asian higher education space. The harmonization effort in this region will include a credit transfer system, a quality assurance framework, a diploma supplement, and formation of research clusters.

The harmonization measures introduced in the CIS region were essentially intended to align universities in CIS countries with international standards, and their education systems with those of the West; and to respond to regional pressure to develop a comparable structure for the purpose of credit transfer systems between universities located within the CIS. The reform measures included the introduction of the credit system and changes in course structure and student evaluation methods.

The reforms in the recent past have helped to develop a more integrated approach to higher education irrespective of the varying levels of development of the country. The harmonization efforts have, no doubt, also helped to evolve a global framework to support higher education development, offering comparable levels of degree structures and facilitating the mobility of students and staff from one country to another.

4. Implications of the reforms for governance and management of higher education

Most of the reform measures discussed above have major implications for governance and management of higher education institutions. The reform measures in all the regions implicitly underlined the importance of bringing the locus of decision making closer to the units implementing these decisions. As a result, the locus of decision making in higher education invariably shifted from the government and Ministries to the institutions of higher education. This was a slow but successful process in many instances and a continuing process in other instances. This shift redefined the relationship between the state, institutions of higher education, and households. More specifically, this shift made institutions more autonomous and self-reliant, reduced direct state control, and at times, funding. The move away from the state control model also entailed a move towards the markets. In other words, the shift in the locus of decision making implied a shift from state control to a market-mediated decision making process – a shift that is in line with reforms implemented in economic sectors.

The state has traditionally played an important role in national development and the idea of state control and funding of higher education stems from this premise. During the post World War II period, governments saw universities as useful instruments for the advancement of national purposes (Anderson & Johnson, 1998) and the public support and funding for higher education were forthcoming. The universities were run or managed the way schools or government departments were managed. In many instances the head of the state served as the chancellor of public universities and they were also responsible for appointing the head of the institution; in some countries the professoriate was part of the civil service.

By the 1980s, government failure became evident in many sectors and the call was for a reduced role of the state in development – from a dominant to a minimalist role. The governments were initially hesitant to open higher education sector to markets. Therefore, governments gave freedom to institutions to engage in activities that would not necessitate additional resource from the public exchequer. In other words, governments granted institutional autonomy. This granting of autonomy implied a shift from state-control to the state-supervision model (Van Vught, 1994) of educational governance. The autonomy gave freedom for institutions to set priorities and targets and mobilize resources over and above state funding to achieve those targets. It seems that autonomy is one of the major reforms that has a near universal appeal and has helped with energizing institutions of higher education and revitalizing the sector.

5. University autonomy and its effects on governance

Autonomy is the freedom of an institution to run its own affairs without control from any level of government (Anderson & Johnson, 1998). Autonomy for an institution of higher education implies 'the freedom to determine its own goals and priorities; to select its own leaders; to employ and dismiss staff; determine enrolment size … ' (Saint, 2009). Eastermann and Nokkala (2009) in their study on 33 countries broke down autonomy into its components: organizational structures (governing bodies, executive leadership, and internal administration), staffing matters (recruitment and appointment, setting salary levels, civil servant status of staff), and academic matters (universities' ability to define institutional strategies, academic profiles and to regulate student admissions). Autonomy does not imply complete absence of external control. The government may be exerting influence through legislative authority and as per the division of roles agreed upon.

There is a need to distinguish between two types of institutional autonomy: substantive and procedural. Substantive autonomy pertains to academic and research areas, while procedural autonomy refers to non-academic areas (Raza, 2010). Substantive autonomy involves freedom to design curricula, evolve research policy, determine student admission policies, staff recruitment criteria, and criteria for the award of degrees. Procedural autonomy implies freedom to prepare and manage budget and financial administration, appoint non-academic staff, and procure and enter into

contract with others outside the institution. The newly attained autonomy included both types.

Granting of autonomy necessitated mechanisms to coordinate activities between the Ministry and institutions of higher education. To facilitate the process of dialogue, negotiations, and funding, many countries established buffer bodies. National councils of higher education, university grants commissions/committees, and tertiary education councils are examples of these trends. The buffer bodies had responsibilities for advising the government on higher education policy, funding, quality *etc*. (Saint, 2009). The role of buffer organisations was extended to cover issues related to the establishment of private higher education institutions.

The autonomy has three types of implications for higher education institutions, namely on the governance, on accountability measures, and on the internal management and re-organization of activities. A review of reforms in higher education in Africa (Saint, 2009) and a recent IIEP study (Varghese & Martin, in press) showed that governing bodies, board of directors, and board of trustees have become important and influential parts of the decision making process in the universities. There is diversity of governance structures such as a shared governance structure focusing on negotiations, the role of external stakeholders, and the participation of all groups (Sporn, 1999), or corporate governance (Braun & Merrien, 1999) emphasising the entrepreneurial character of universities and their strategic planning efforts linking universities, markets, and society. The new managerialism is part of corporate governance and has become the key principle for steering the higher education systems of many OECD countries. It focuses on decentralization of authority, institutional autonomy, the private sector, institutional evaluation, performance contracts *etc*.

Autonomy is also linked to accountability measures as can be seen from the reforms in many countries. A focus on accountability measures implies a move from ex-ante to ex-post control and strong result orientation. While the existence of block grants, strategic plans, academic freedom, and independent governing body are signs of institutional autonomy, performance contracts, performance based funding, competitive funding, payment for results, and external quality assurance processes are indications of strengthened accountability measures.

The institution based decision making (governing boards) and pressure to meet the accountability measures forced many institutions to re-organize their activities. The steering policies and institutional functioning measures mediate between enhancing autonomy and reducing public authority. Through a process of restructuring institutions, diversified sources of income reduced reliance on the government, opened new departments, rationalized structural changes to provide a stronger response capability, and created a central steering capacity. These changes, individually and collectively, have led to a major re-organization of university activities. Such reorganization, especially in public institutions, may be called 'institutional restructuring' (Varghese, 2009a), which is, in fact, the major change one notices in the higher education sector.

The autonomy attained by institutions has helped them in devising their own strategies of institutional development and together they have contributed to expansion of the system through

reliance on non-state funding, diversification of the system to meet the skill requirements in the labour market, and competition between institutions to improve quality and attract competitive funding for research.   Taken together, these measures have led to the revitalization of the sector.

6. Concluding observations

How did the reforms affect different stakeholders in higher education?   The emphasis upon research and upon quality in the teaching learning process is certainly beneficial to the process of knowledge production.   These efforts may help improve productivity and national competitiveness.   The employers, especially those who rely on markets, should be happy with the focus on measures to diversify institutional arrangements and programmes of study for skills formation.   All concerned are happy with the expansion taking place in the sector.

The more difficult area was implementation of the reforms in the institutional context.   The higher education institutions in many developed countries continued to enjoy state support and the system accepted these changes with limited resistance.   Some universities in Africa experienced direct confrontation between the authorities, students, and staff.   The reforms in the CIS countries were accepted with less resistance, since the alternative was to close down the institutions.   In South East Asia, protests were limited, but resistance was felt.   One of the important trends to be noted is that resistance to such changes, in general, declined over a period of time (Varghese, 2009a; 2009b).   It seems the reforms have now become more acceptable implying a process of legitimization of market operations in higher education.

There are legitimate criticisms against introduction of these reforms.   The reforms seem to have encouraged institutions to undertake financially attractive, but non-core activities leading to shrinkage of the core activities in higher education (Clark, 1998).   Resource mobilization has become an important responsibility of institutional heads and faculty.   Similarly, the diversification of programmes and sources of funding were important elements in facilitating expansion of the system.   In many countries, the privatized segment of public institutions and private institutions contribute substantially to increased student enrolments.   This in the long run may lead to inequalities in access to higher education and consequent income inequalities.

Did the role of the state in higher education decline?   This need not necessarily be the case.   The role of the state in directly controlling, funding, and managing higher education has declined.   However, the state's role in developing a framework for the functioning of institutions under the new autonomy and regulatory mechanisms, to meet accountability requirements and to ensure equity in access and quality in outcomes, may be on the increase.   Given the reduced funding role, the state may reprioritize its interventions to concentrate on these newly selected areas.   For example, during the financial crisis period, the state investments were targeted towards science and technology programmes – programmes which help retain and improve the market competitiveness of the economy.

Similarly, in order to ensure equity, the state needs to deploy its limited financial resources to targeted investments in favour of the less privileged. The understanding seems to be "State-dominated development has failed, but so will stateless development. Development without an effective state is impossible" (World Bank, 1997; p.25). The recent economic crisis has further confirmed the harmful effects of a minimal role of the state and an absence of its regulatory mechanisms.

To conclude, the unprecedented expansion of higher education may be one of the most visible impacts of the reforms. And this may be contributing to the increase in the stock of human capital at the national level – increasing access for the less privileged and helping to position higher education to meet the immediate requirements in the labour markets. However, questions related to whether or not these reforms will lead to a more balanced expansion of the sector or a more egalitarian society remain to be conclusively answered. Addressing these questions can form a fair basis for a realistic assessment of the reforms and their desirability.

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Promoting Interdisciplinary Doctoral Education: Expectations and opportunities

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Abstract.   Calls for interdisciplinary graduate education are increasing but systematic discussion and study of the knowledge, skills, and dispositions required of the interdisciplinary Ph.D. graduate is still scarce.   This article builds on the literature on doctoral education to explore the challenges of designing doctoral programs that will promote the development of the knowledge, skills, and dispositions that graduates will need to pursue interdisciplinary work in academic, industry, government, and other settings.

Keywords: curriculum, doctoral education, interdisciplinary collaboration, interdisciplinary research, student learning

Introduction

The complex, fluid, and dynamic knowledge production environment of the 21st century requires knowledge workers who are ready to integrate information and ideas from relevant academic disciplines, as well as knowledge sources outside the academy, to produce innovative solutions to societal needs.   The need for creative and integrative thinkers extends from industry to government to academia as these social institutions partner to ensure economic productivity and quality of life for citizens within their national borders and, given the globalized nature of 21st century work and life, across national borders.   Graduate programs leading to the Ph.D. have thus been challenged to prepare doctoral students who are not only experts in their field of study but who have the capacity and skills to work across disciplinary and other boundaries in pursuit of novel solutions to a range of complex problems such as climate change, hunger, disease, poverty, energy, and sustainability. These calls for interdisciplinary graduate education compel us to examine the educational experience of Ph.D. students to identify practices and structures that will foster interdisciplinary thinking.   A review of the literatures on doctoral and interdisciplinary education suggests common and ongoing

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challenges of doctoral education (for example, effective supervision and preparation for a variety of academic and professional career paths) that take new forms when the goal is to educate individuals who can effectively engage in interdisciplinary research and teaching.   This article considers these challenges as well as how doctoral education might be designed to meet them.

Ongoing challenges in doctoral education: An overview

More than a decade ago, a review of the literature on doctoral education concluded that improvements in doctoral education should include the incorporation of interdisciplinarity into graduate education (Nyquist & Woodford, 2000).   These recommendations were part of the project titled Re-envisioning the Doctoral Degree, which gathered information from stakeholders in U.S. graduate education, including doctoral students, members of the academy, and representatives from industry, private foundations, and government agencies.   The Re-envisioning project calls upon educators to balance disciplinary learning with a variety of interdisciplinary challenges: 1) providing more opportunities for doctoral students to work across disciplinary boundaries; 2) encouraging them to work with mentors from different disciplines; and 3) continuing development of interdisciplinary, multidisciplinary and crossdisciplinary doctoral programs.

In the U.S., the leading funding agencies, as well as private foundations such as the Howard Hughes Medical Institute, have sought to promote interdisciplinary graduate programs.   The federal National Institutes of Health has funded pre-doctoral and post-doctoral scholars in medicine and allied health fields through the New Interdisciplinary Research Workforce program.   Since 1998, the National Science Foundation (NSF), which supports academic research in the social, behavioral, life and physical sciences, has competitively awarded more than 500 million U.S. dollars to more than 200 doctoral programs through its Integrative Graduate Education, Research, and Training (IGERT) Program.   IGERT grants are intended to establish "innovative models for graduate education and training in a fertile environment for collaborative research that transcends traditional disciplinary boundaries" (NSF, 2009, p.4).   Such calls for collaborative and interdisciplinary research transcend national boundaries.   In August 2011, the Ministry of Education, Culture, Sports, Science & Technology in Japan (MEXT) announced the Secondary Guideline for Promoting Graduate School Education, calling for a systemization of graduate school education and also an "integrated education which breaks barriers between specialized fields such as a double major system and laboratory rotations" (MEXT, 2011).   Such efforts, MEXT and many others in government, industry, and academia assume, will foster graduates' creativity and enable them to engage productively in a variety of sectors.

Borrego and Newswander (2010) noted that the rhetoric of interdisciplinarity as a way to promote creativity is now part of the discourse on interdisciplinary graduate training.   The presumed linkages among creativity, innovation and interdisciplinary thinking are also evident in the policy documents of

MEXT and NSF. The question that remains largely unanswered, however, is whether interdisciplinary education (at the graduate or undergraduate levels) actually results in greater innovation. The logic of this argument typically proceeds in the following manner. Interdisciplinary education fosters a willingness and ability to recognize and incorporate into one's research methods, theories, concepts and/or ideas from other disciplines. It thus better prepares students to work across disciplines than the more traditional disciplinary program. Ultimately, it facilitates innovative thinking and innovation (see, for example, Clark & Brennan, 1991; National Academy of Engineering, 2004; National Academy of Sciences, 2005). The empirical evidence related to this argument is only now emerging. In a recent evaluation of the NSF's IGERT program, Van Hartesveldt and Giordan noted that faculty in IGERT programs "observed that students attracted to interdisciplinary graduate education appear to be more independent and more likely to 'think outside the box' than others" and that such training "enables students to tackle more complex research problems, to be more creative, and to take greater risks" (Van Hartesveldt & Giordan, 2009, p.4). This interview data is suggestive, but provides only indirect evidence of the actual outcomes of interdisciplinary graduate education.

In one of the few empirical studies of students in interdisciplinary graduate programs, Hackett and Rhoten (2009) found somewhat contradictory evidence of the impact of interdisciplinary graduate education on students' ability to think in innovative, interdisciplinary ways. The researchers devised an experiment to examine whether IGERT graduate students were more creative than students educated in discipline-focused programs. They recruited students from IGERT and non-IGERT doctoral programs nationally for a two-and-one-half day competition. From 158 applications, they choose 48 students, half from IGERT programs and half from disciplinary doctoral programs, based on geographic, disciplinary and institutional origins. They assigned the 48 students to eight teams of IGERT and non-IGERT students: four teams were composed of first- and second-year students, the remaining four teams were composed of third- and fourth-year students.

The researchers presented the teams with a research problem in the realm of environmental sciences that involved both social forces and ecosystem processes and services. Each team was to prepare a brief research proposal responsive to the problem and that linked to action or policy. In addition to developing the five-page proposal, the teams were also required to make a 20-minute presentation to a panel of experts in environmental sciences. This panel of expert judges individually assessed the research proposals produced by each team. Interestingly, these experts judged the proposals produced by the two senior IGERT student teams as the least innovative, and assessed the work of the junior IGERT teams and one of the teams of senior students from disciplinary Ph.D. programs to be more creative in research approach and applicability. The interpretation of findings offered by Rhoten and Hackett is that the more senior IGERT teams were overly focused on prescriptive notions of *how* to collaborate and on ensuring that the expertise of each team member would be utilized in the proposed project – and thus failed to develop an innovative proposal.

While this counter-intuitive finding is provocative, it is far from conclusive, not simply because of the limited sample size of the study, but because the students involved in the study were educated in a variety of IGERT programs which may have provided very different educational experiences.   For example, graduate programs may have varied in the kind and extent of opportunities provided to students to explore different disciplines, to work on interdisciplinary research projects, to collaborate across disciplinary lines, and to build the skills needed to communicate with researchers from a variety of fields of study.   Variations in supervision and mentoring may also have influenced graduate students' understandings of research and collaboration.   The literature on doctoral education suggests that variations such as these can have a significant effect on the quality of the graduate student experience and learning (see, for example, Lovitts, 2001).   Discussion of the component parts of the doctoral experience is thus warranted.

Defining interdisciplinarity: Assumptions and their implications

Before exploring how doctoral education might respond to the need for interdisciplinary graduates, it is necessary to define the term.   This is a challenging endeavor since there are many definitions of interdisciplinarity in the literature (for a discussion see Lattuca, 2001; Moran, 2010), but understanding the context in which interdisciplinarity is discussed provides some guidance in deciding which definition may be appropriate.   The MEXT Secondary Guidelines suggest that interdisciplinarity can be encouraged through programmatic structures such as double majors and laboratory rotations.   Such approaches rest on the (sometimes implicit) assumption that interdisciplinarity results from the synthesis or integration of two or more disciplines.   In this way, the MEXT strategy is consistent with definitions of interdisciplinarity common in the current literature on the topic as well as with those promulgated in U.S. policy documents.   The National Academy of Sciences report, *Facilitating Interdisciplinary Research*, for example, defines interdisciplinary research as "a mode of research by teams or individuals that integrates information, data, techniques, tools, perspectives, concepts, and/or theories from two or more disciplines or bodies of specialized knowledge to advance fundamental understanding or to solve problems whose solutions are beyond the scope of a single discipline or field of research practice" (National Academy of Sciences, 2005, p.26).   A widely cited definition of interdisciplinarity that is applicable to both research and teaching specifies that interdisciplinarity is a process that "answers a question, solves a problem, or addresses a topic too broad or complex to be dealt with adequately by a single discipline or profession" and that "draws upon disciplinary perspectives and integrates their insights" (Klein & Newell, 1996, p.393-94).

The MEXT Guidelines suggest that interdisciplinarity can be achieved by a single individual who has been educated in more than one discipline through a formal major and through related laboratory rotations.   The programmatic elements of an interdisciplinary doctoral education to produce an interdisciplinary scholar seem clear: doctoral students should develop disciplinary depth in more than

one field of study. This may best be accomplished by completing the requirements of the two relevant doctoral programs because this approach will ensure that students, at least, have disciplinary depth in the fields in which they will need expertise for their research programs.

Although interdisciplinarity may be achieved by individuals, interdisciplinary achievements in science, engineering, and technology fields are often the result of collaborative research, and indeed research across the natural, behavioral and social sciences appears to be have become increasingly team-based since the 1950s (Mâsse, Moser, Stokols, Taylor, Marcus, Morgan, Hall, Croyle, & Trochim, 2008). Perhaps as a result of this trend, or perhaps because the approach to doctoral education in the U.S. tends to be more course-based than it is in other countries, interdisciplinary graduate programs are being established in many universities. In these programs students from different fields of study may enroll in one or more courses to provide grounding in relevant disciplines; these courses may simply be selected from an array of relevant graduate programs in the disciplines, but some programs have designed courses (some of which are team-taught) that address the goal of disciplinary integration. The depth of disciplinary grounding required of a student in these interdisciplinary programs varies. Some require students to complete the requirements for a discipline-based Ph.D. in one field of study while also requiring significant coursework, laboratory, or field experiences to help students develop some level of familiarity with other relevant disciplines. Other programs allow students to develop an individualized program of study under the supervision of an academic advisor or perhaps co-advisors from the disciplines the doctoral student must master.

Programmatic variations and the quality of doctoral education and outcomes

Interdisciplinarity, it is often noted, is hindered by cognitive, professional and organizational challenges. The cognitive barriers typically include variations in epistemological assumptions. Rogers, Scaife, and Rizzo, for example, indicate that the following barriers to those collaborating on interdisciplinary research: "incommensurability of concepts, different units of analysis, differences in worldviews, expectations, criteria and value judgments" (Rogers, Scaife, & Rizzo, 2005, p.268) can all interfere with the ability of researchers to productively engage with colleagues from other fields. In the case of the interdisciplinary individual, the issues of epistemology will be internal struggles as the doctoral student struggles to reconcile conflicting perspectives from the disciplines he or she seeks to engage. These cognitive barriers are also professional barriers because disciplinary socialization during graduate education and the early career instills individuals with strongly held beliefs about research (*e.g.*, what is a good research question, what are appropriate methods of answering that question, what would count as credible evidence). Beliefs about research strongly influence research behaviors as well as a faculty members' sense of professional identity as a scholar (Becher, 1989; Lattuca, 2001; Smart, Feldman & Ethington, 2000).

The culture of the disciplines is further reflected in the department structure of higher education

institutions.   While universities are increasingly attempting to alleviate structural impediments to interdisciplinary research and teaching, administrative policies regarding credit for teaching and research grants, as well as faculty positions, are often tied to departments.   The literature on interdisciplinarity is replete with examples of how institutional practices and policies predicated on a discipline-oriented organizational model can inhibit cross-departmental collaborations in research and teaching.   Boden, Borrego and Newswander (2011) contend that higher education institutions are not positioned to facilitate interdisciplinary research, teaching, and other aspects of interdisciplinary graduate training because they are typically hierarchical in nature and thus unwilling to support interdisciplinary graduate education with human and financial resources.   Moreover, disciplinary divisions are reinforced by professional discourse communities that frequent different professional associations, read different journals, and generally act, as Becher has suggested (1989; Becher & Trowler, 2001), as academic tribes.   Decrying these barriers to interdisciplinarity, the report entitled *Facilitating Interdisciplinary Research*, published by the U.S. National Academy of Sciences argued that universities should instead "strive for a more complete integration of disciplines, institutions 'without walls', a high degree of flexibility and mobility for students and faculty, and research efforts that are organized around problems rather than disciplines (National Academy of Sciences, 2005, p.174).

These cognitive, professional and organizational challenges affect the structure and culture of doctoral programs and may interfere with graduate students' development as scholars and even their successful completion of their degree programs.   The following sections briefly summarize the literature on the experiences of students in doctoral programs, and then suggest how common problems in doctoral education may be magnified or exacerbated for interdisciplinary graduate education.

Challenges to discipline-based doctoral education

The recent literature on doctoral education identifies a number of common concerns that must be addressed to improve completion rates and learning and to accommodate the growing numbers of doctoral students who will pursue careers in industry and other sectors outside the university.   The latter concern is of particular interest since one of the goals of the MEXT Secondary Guidelines is to enhance the development of scholars with interdisciplinary habits of mind who will move not only into academia but into industry, government, and other fields.

Many studies of doctoral education are motivated by the desire to understand the factors that prevent students from timely completion of their degrees.   Data collected from doctoral students and doctoral student supervisors suggest that for many students, the transition from coursework to independent research is difficult due to the absence of a clear structure, set of tasks, and deadlines (Gardner, 2008; Golde & Dore, 2004; Lovitts, 2001, 2005).   The adequacy of doctoral advising and

mentoring is another critical concern; studies suggest that while some students receive excellent advising regarding their programs and careers, as well as effective supervision during their dissertation research, many do not. Increasing numbers of students are pursing career paths outside academia (Wulff, Austin & Associates, 2004). Doctoral students interviewed in the Re-envisioning the PhD project (Nyquist & Woodford, 2000) emphasized the need for more systematic mentoring, earlier in their educational programs, and from more than one mentor. They also wanted their mentors to provide guidance and advice regarding not only research, but also teaching, curriculum planning, service and outreach, and career planning. Finally, these students wanted more explicit and concrete information on their performances and career options; many felt their supervisors provided vague information about expectations and responsibilities, as well as about the realities of the job market.

Challenges of interdisciplinary graduate education

When situated in the context of interdisciplinary graduate education, these general concerns about doctoral education take on an added dimension. Educators no longer can focus solely on ways to help students transition from coursework to independent research, they must also consider how to create a curriculum that will support interdisciplinary learning outcomes. Graduate programs that require only that students choose courses from multiple disciplines or complete the requirements for more than one degree place the responsibility for synthesis and integration of disciplinary concepts, theories, and methods largely or even exclusively on the doctoral students since courses will not be designed to stress the kind of integration that most scholars argue is the marker of true interdisciplinary research. If the doctoral student works on a research team or in a laboratory that is engaged in interdisciplinary research, students will likely learn much about how to integrate disciplinary perspectives from their supervisors and others participating in these interdisciplinary research projects. But this is not always the case. In a study of the activities of faculty members, postdoctoral scholars, and graduate students in five interdisciplinary research centers funded as part of the NSF's Environmental Research and Education portfolio, Rhoten and Parker (2004) found that graduate students were more likely to report interdisciplinary collaborations than their professors, although both were affiliated with these research centers. More than 60 percent of the 99 graduate students who participated in the study reported at least one interdisciplinary collaboration, compared to fewer than 50 percent of the 147 professors studied. The assumption that professors will be able to provide skilled mentorship and supervision for interdisciplinary doctoral students may thus be optimistic. The researchers found that many of the professors associated with the centers worked in disciplinary and multidisciplinary ways, contributing their expertise to the center's projects, but not engaging in larger, collaborative interdisciplinary projects.

More intentional curricular planning may be needed to ensure that doctoral students achieve the disciplinary depth but also have opportunities to bring together the insights of the disciplines they

study.   These opportunities may occur if students take courses in more than one field or through laboratory rotations, but as Holley (2009) demonstrated in her case study of a neuroscience graduate program, doctoral students do not always benefit from such experiences.   Specifically, Holley found that although the first-year curriculum of the entering doctoral students exposed them to the breadth of disciplines in the field, many students were unable to understand the lectures delivered by faculty from the contributing fields because these students entered the program from a variety of disciplinary undergraduate majors and experiences.   The laboratory rotations required for the program were thus important mechanisms for building the content knowledge that the formal curriculum had not. Unfortunately, very few faculty affiliated with the neuroscience graduate program supported the practice of lab rotations.   Holley reports that some students were unsure of the significance of the experience and even adopted the disciplinary biases of their faculty supervisors, viewing the rotations as impeding their development as scientists.   When interdisciplinarity is not, Holley argued, "an active component of the advisor's daily research practice" (Holley, 2009, p.252), the rationale and benefits of interdisciplinary graduate education may be diminished or lost.

In recent decades, the U.S. government has supported large-scale, team-based research projects that have required significant federal funds; perhaps in response, there is an emerging body of research focused on understanding and promoting effective team research (Stokols, Hall, Moser, Feng, Misra & Taylor, 2010).   Some of this research focuses on interdisciplinary graduate education, identifying the kinds of cognitive, interpersonal, and emotional skills required for effective teamwork and a number of studies suggest a set of dispositions required for interdisciplinary research.   These include respect for variations in research procedures preferred by team members (Oberg, 2009), interdisciplinary communication skills (Borrego & Cutler, 2010), and an attitude of social cooperation, particularly for interdisciplinary projects that require team members work with clients, customers and or stakeholders who do not share the knowledge base of researchers but who nonetheless have information or ideas that will aid researchers in defining the research problem, devising potential solutions, and ensuring that their work has the intended impact on those it seeks to assist (Burger & Kamber, 2003).

Interdisciplinary experiences may promote the development of leadership, teamwork, and communication skills needed for success in collaborative environments in industry and academia by encouraging students learn to listen to the ideas of others with whom they work, grapple with ideas from different disciplines, and see problems from a variety of perspectives and from perspectives different than their own (Borrego & Newswander, 2008; Olds & Miller, 2004).   While explicit instruction can help graduate students understand the dynamics of teams and how to encourage effective functioning, more informal opportunities to interact with individuals from different disciplines may also contribute to the development of open-mindedness and respect for alternative ways of thinking and doing research.   Different levels of interaction are likely to build different skill sets.   Shared office space and professional development experiences, as well as regular opportunities to interact and learn from colleagues in other disciplines (for example, through journal clubs, weekly

seminars, or colloquia) may build students' capacity to listen, to express ideas in ways that are accessible to those trained in other fields, and to communicate to audiences outside of academia as well.   The last of these skills will be particularly important for scientists and engineers who seek to work in industry or in government or policy arenas.   The development of interdisciplinary collaboration skills may require active participation in interdisciplinary research teams.   Oberg (2009), for example, noted that interdisciplinary researchers need to learn to manage differences and create a climate that encourages dialogue so that researchers from different fields can rectify differences in methods or perspectives and thus find common ground on which to proceed.   Borrego and Cutler (2010) and Morse, Nielsen-Pincus, Force and Wulfhorst (2007) similarly argue for the development of a variety of teamwork skills for interdisciplinary researchers.   To work effectively in the teams, doctoral students will need opportunities to learn how to reconcile disparate disciplinary perspectives, conflicting concepts and theories, and competing methods if they are to achieve the goal of integration (Klein, 1996).

Morse *et al*. (2007) ground their calls for interdisciplinary teamwork skills in their experiences as members of an NSF IGERT graduate program jointly delivered by the University of Idaho (U.S.) and the Tropical Agricultural Research and Higher Education Center in Costa Rica.   The elements of this graduate program provide concrete examples of how curricular, laboratory, and other related educational experiences might be used and combined in interdisciplinary graduate programs.   Morse *et al*. (2007) explain that this IGERT program was specifically designed to create graduate-student research teams in which students and their major professors interact with other team members for the life of the project.   The teams develop common research problems, defining conceptual frameworks that are consistent with the different epistemologies represented by team members, as well as coordinating research questions, methods, and units of analysis into a single framework that synchronizes the research effort.   Finally, the outcomes of these research projects are expected to have an impact on the disciplines that contribute to the project, achieving one of the goals of interdisciplinarity – synthesis of disciplinary knowledge.   The graduate program was intentionally designed to build interdisciplinary capacity through the following components:

- *Curriculum*: Graduate students take a three-credit course, Interdisciplinary Research in Biodiversity Conservation and Sustainability, which is used to develop team proposals.   In addition, students complete two core courses in each of four core areas: social sciences & ethics; economics; biophysical sciences; and agriculture or forestry.
- *Mentoring*: Co-advisors are required for students conducting research in Costa Rica and dissertation committees include members from the Colleges of 1) Natural Resources and 2) Agricultural and Life Sciences.
- *Team research*: Students in different disciplines work together to define research problems and conduct interdisciplinary research.

- *Dissertation*: Dissertations must include at least one co-authored interdisciplinary chapter plus departmental requirements.
- *Preliminary examinations*: Each student's qualifying examination includes an interdisciplinary component.
- *Internships*: Students also complete a three- or six-month internship to develop breadth of international and/or interdisciplinary experience.
- *Annual program meetings*: Each year, field visits are made to student research sites, students and faculty participate in symposia and faculty symposia on team research and in interdisciplinary training workshops.

Morse *et al*. (2007) found that spending time on technical training on integrated frameworks, joint proposal writing, and on learning analytic tools appropriate to the interdisciplinary project paid dividends. Participants in the project workshops also noted that students benefitted by working with mentors who had prior experience in interdisciplinary research, although this admittedly created logistical challenges.

The emphasis on the research experience has long been identified as a strength of doctoral education, but observers have also noted a concomitant neglect of the teaching roles and responsibilities of professors in doctoral programs. Research on interdisciplinary graduate education, too, has stressed the development of students' research capacities; few authors mention, as Martin and Umberger (2003) do, the development of teaching and mentoring skills. Interdisciplinary curriculum design and teaching will likely challenge new instructors who may find themselves teaching in interdisciplinary graduate and undergraduate programs – the latter have significantly increased in number, particularly in the U.S., in recent decades (see Brint, Turk-Bicakci, Proctor, & Murphy, 2009). Helping undergraduate students understand both disciplinarity and interdisciplinarity, and to appreciate the benefits and limitations of both, is regarded as critical to the interdisciplinary mindset (Repko, 2008).

Identifying the outcomes of interdisciplinary graduate education

A key principle of effective curricular design, no matter what the level of education, is the alignment of desired learning outcomes – such as interdisciplinary habits of mind, collaboration skills, ability to communicate with people from other disciplines – with learning experiences intentionally designed to develop these outcomes and assessments that will provide credible evidence of the extent to which these outcomes have been achieved (*e.g*., Biggs, 1999; Diamond, 2008). Too often the word curriculum, however, is associated only with the set of formal courses that students complete to earn a degree or similar credential. If curriculum is defined more broadly as a set of learning experiences intended to lead to the development of particular kinds of knowledge, skills, and dispositions, then

both the formal and informal experiences of doctoral programs – bench work, journal clubs, seminars, conference presentations, proposal writing – are part of the curriculum and should be planned to maximize learning.

In this article, a number of potential learning outcomes of interdisciplinary doctoral education are suggested as a starting place for extended conversations about just how interdisciplinarity will be defined and pursued in a particular doctoral program. These discussions are necessary because surface-level agreements will break down if underlying assumptions about interdisciplinarity become apparent. The first assumption that must be examined is the role of the disciplines in interdisciplinarity. Should graduate students be expected to develop deep stores of knowledge in a single discipline and a working knowledge of additional disciplines relevant to their work? Or should doctoral candidates be required to develop deep knowledge of *more* than one discipline as part of the requirements for their degree? Research on interdisciplinary education and research strongly suggests that differences in disciplines and specializations matter in this regard (Lattuca, 2001; Moran, 2009). Instructors in the sciences may not agree on this point with those in the social science or the humanities. It is probably chimerical to assume that consensus will be reached across fields of study and even within a single field. The more important and realistic goal is that of forging agreement among faculty in a given doctoral program.

In addition to disciplinary knowledge, doctoral students who seek to engage in interdisciplinary research must have the ability to recognize when knowledge, methods or approaches from different disciplines can be fruitfully integrated to address a particular research problem. While some of this knowledge may be developed as a result of individual effort, interactions with others who are more expert in particular fields of study may provide students with an understanding of the habits of mind that promote the ability to see connections and evaluate their potential utility. As importantly, doctoral students should develop the competencies associated with productive team work on interdisciplinary research projects – whether these teams are located in or across academic programs and institutions, in industry, or in cross-sector partnership activities. Additionally, depending on the career goals of the doctoral student, the ability to collaborate on interdisciplinary teaching teams may also be needed. The ability to effectively communicate with those who do not share one's disciplinary background and knowledge is also critical for those who will work in the university or outside it. Whether a Ph.D. is working with customers or clients, communicating technical information to the public, or collaborating with colleagues from different fields of study on a research or teaching project, the ability to communicate the theories, methods, and research findings of his or her primary discipline to others is a fundamental competency too often overlooked in doctoral education.

More than 15 years ago, the three National Academies of the United States – the National Academy of Sciences, the National Academy of Engineering, and the Institute of Medicine, published a report entitled *Reshaping the Graduate Education of Scientists and Engineers* (COSEPUP, 1995).

The Committee on Science, Engineering, and Public Policy (COSEPUP), which authored the report, recommended that strengthening doctoral education would require the development of a modified, rather than an entirely new model, for Ph.D. training.   This model, the report suggested, would retain the existing emphasis on intensive research experiences that is a strength of excellent doctoral programs, but it would also provide students with additional experiences designed to enhance their versatility and expand their career options.   The report specifically recommended that the graduate education of scientists and engineers, in particular, should prepare them for a job market that would be interdisciplinary, collaborative, and global.   That job market has arrived, but only some progress toward this goal of preparing doctoral students to succeed in it has been made.   In addition, and of interest to higher education scholars, is the limited body of empirical studies of the effects of interdisciplinary doctoral education.   Such studies are slowly emerging, but the literature is still dominated by investigations of graduate student socialization and supervisory experiences (mostly done by U.S. researchers) and reports that focus on the purposes of doctoral qualification across disciplines and fields and intended to guide program development and organization (Kandiko, Baker & Pifer, 2011).   Less analytical attention has been paid to the nature and processes of learning through the range of academic experiences (Baker & Lattuca, 2010).   A more systematic program of research is needed to inform the design of Ph.D. programs that will prepare their graduates to thrive in settings – academic and otherwise – that are dynamic, global, and on the forefront of science and technology.

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Towards a Better Ranking in Higher Education and Research: Critique of global university rankings and an alternative

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Abstract. This paper summarises the methodological criticism of current global university rankings and presents an alternative, U-Multirank.   U-Multirank aimed to develop a feasible instrument that can contribute to enhancing the transparency about institutional and programmatic diversity of European higher education in a global context and test its feasibility.

1. Introduction

Every year the same frenzy invades universities around the world: who is number 1, 2, or 3 in the global ranking?   University leaders set goals to rise in rankings, ministers of higher education introduce policies to create 'world-class universities'.   But also every year the same angry reactions fill the columns of letters to the editor of newspapers and scholarly journals, criticising the rankings' methods, data and impact.   In August it is time for the ARWU from Shanghai, in September follows the World University Ranking from QS and in October the Times' features its World University Rankings.   How can this confusing circle be broken?

   In this article, a summary will be given of the main criticisms of global university rankings and an alternative will be proposed that answers to a number of those criticisms, called U-Multirank.   As I am part of the team developing U-Multirank (www.u-multirank.eu), I am not objective in this matter. However, the failings of current global university rankings are objectively visible, and as our team are convinced that rankings will not go away by mere criticism, developing a better ranking seemed the best alternative.   This article is based on the conceptual work that I contributed to the U-Multirank project report (van Vught & Ziegele, 2011).

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2. The need for transparency in global higher education and research

Global university rankings have become popular among many kinds of audiences since their appearance in the early 2000s.   Although this may be an example of the economic 'law' that supply creates demand, demand continues.   Why?   Apparently external stakeholders want to know more about higher education.   This may be explained by the fact that higher education's role in society is increasing, which has two connected consequences.   One is that more people or stakeholders get into contact with higher education.   Many of these new students, parents or, for instance, small or medium-sized companies that have an innovation need cannot rely on the social and cultural capital available in traditional higher education circles about who is who in higher education.   Moreover, with their growth in the past half a century, higher education systems have become so large and complex that it has become difficult to remain knowledgeable about the qualities of all those old and new providers of high-level knowledge and learning.   Another layer of complexity is added if the users' horizons expand beyond the national border: with the growth of cross-national student mobility this is obviously the case.

In short, an urgent need for dedicated instruments for transparency has arisen.   Rankings are the instruments available to fulfil that need.

However, the recurrent criticisms indicate that they do not fulfil that need in an uncontested manner.   I would like to summarise much of that critique, starting from two conceptual points of departure.

First, transparency instruments have become necessary because of the increased diversity of higher education systems.   The concept of diversity covers two dimensions: vertical and horizontal diversity.   Under *vertical diversity* we understand distinguishing higher education and research institutions as 'better' or 'worse' in, for example, prestige or performance.   The point is that there is a transitive ordering of units from 1 to *n* along a certain dimension.   *Horizontal diversity* is the term for differences in institutional missions and profiles.   It denotes the varied placement of units along several dimensions.   Horizontal diversity is addressed in classifications.   A *classification* is a systematic, nominal distribution among a number of classes or characteristics without any (intended) order of preference.   Classifications give descriptive categorizations of characteristics intending to focus on the efforts and activities of higher education and research institutions, according to the criterion of similarity.   *Rankings* are hierarchical categorizations intended to render the outputs of the higher education and research institutions according to the criterion of best performance.   Most existing rankings in higher education take the form of a *league table*, which is a single-dimensional, ordinal list going from 'best' to 'worst', assigning to the entities unique, discrete positions seemingly equidistant from each other (*e.g.* a top-100).

Second, transparency has to be achieved for someone.   Newer users of higher education, in particular, have less access to 'inside knowledge' about the expanded and diversified higher education

systems, but this is also true of other stakeholders, including policy-makers, who have lost overview. The information needs of the target groups of the transparency instrument should, therefore, lead the design process.

3. Some major problems of global university rankings

3.1 Problem areas of methodology

Notwithstanding differences in methodologies among the different rankings that can be found and their recent improvements, by and large the well-known criticisms of rankings remain valid (Dill & Soo, 2005; Usher & Savino, 2006; Van Dyke, 2005) and are borne out in more recent criticisms (Hazelkorn, 2011; Rauhvargers, 2011), which can be summarised as a set of methodological problems of rankings:

- *Unspecified target groups*: different users have different information needs while most rankings give only a single ranking
- *Diversity within*: many rankings are at the institutional level, ignoring the fact that education and research performances may differ considerably across programmes and departments
- *Narrow range of dimensions*: most rankings focus on indicators of traditional research, largely ignoring education and other functions of higher education and research institutions (*e.g.* practice-oriented research, innovation, 'third mission')
- *Composite overall indicators*: most rankings add or average the indicators into a single number, ignoring that they are about different dimensions and sometimes use different scales
- *League tables*: most rankings are presented as league tables, assigning each institution – or at least those in the top-50 – unique places, suggesting that all differences in indicators are valid and of equal weight (equidistant positions)
- *Field and regional biases in publication and citation data*: many rankings rely heavily on bibliometric data, ignoring the fact that the available international publication and citation databases mainly cover peer reviewed journal articles, while that type of scientific communication is prevalent only in a narrow set of fields (most parts of natural sciences, some fields in medicine) but not in many others (engineering, other fields in medicine and natural sciences, humanities and social sciences)
- *Unspecified and volatile methodologies*: in many cases, users cannot obtain the information necessary to understand how rankings have been made; moreover, some commercial publishers of rankings have been accused of changing their ranking methodologies to ensure changes in the top-10 to boost sales rather than to focus on stability and comparability of rankings from year to year

From our overview of the indicators used in the main global university rankings (as of 2010,

summarised in Table 1) we conclude that they focus heavily on the research function of higher education institutions (research output, research impact as measured through citations, and reputation in the eyes of academic peers) and that efforts to include the education dimension remain weak, based on distant 'proxy' indicators. A major reason why the current global rankings focus on research data is that this is the only type of data readily available internationally through the major databases on publications and citations.

Table 1. Indicators and weights in global university rankings

	HEEACT 2010	ARWU 2010	THE 2010	QS 2011	Leiden Rankings 2010
Research output	Articles past 11 years (10%) and last year (10%)	Articles published in Nature and Science (20%) [Not calculated for institutions specialized in humanities and social sciences]	Research income (5.25%) Ratio public research income / total research income (0.75%) Papers per staff member (4.5%)		Number of publications (P)
Research impact	Citations last 11 years (10%) and last 2 years (10%) Average annual number of citations last 11 years (10%) Hirsch-index last 2 years (20%) Highly-cited papers (15%) Articles last year in high-impact journals (15%)	Articles in Science Citation Index-expanded and Social Science Citation Index (20%)	Citations (normalised average citation per paper) (32.5%)	Citations per faculty member (20%)	Two versions of size-independent, field-normalized average impact ('crown indicator' CPP/FCSm, and alternative calculation MNCS2) Size-dependent 'brute force' impact indicator (multiplication of P with the university's field-normalized average impact): P * CPP/FCSm Citations-per-publication indicator (CPP)
Quality of education		Alumni of an institution winning Nobel Prizes and Fields Medals (10%)	PhDs awarded per staff (6%) Undergraduates admitted per staff (4.5%) Income per staff (2.25%) Ratio PhD awards / bachelor awards (2.25%)	Faculty student ratio (20%)	
Quality of staff		Staff winning Nobel Prizes and Fields Medals (20%) Highly cited researchers in 21 broad subject categories (20%)			
Reputation			Peer review survey (19.5+15=34.5%) International staff score (5%) International students score (5%)	Academic reputation survey (40%) Employer reputation survey (10%)	
General		Sum of all indicators, divided by staff number (10%)	Ratio international mix, staff and students (5%) Industry income per staff (2.5%)	International faculty (5%) International students (5%)	
Website	http://ranking.heeact.edu.tw/en-us/2010/Page/Indicators	http://www.arwu.org/ARWUMethodology2010.jsp	http://www.timeshighereducation.co.uk/world-university-rankings/2010-2011/analysis-methodology.html	http://www.topuniversities.com/university-rankings/world-university-rankings	http://www.socialsciences.leiden.edu/cwts/products-services/leiden-ranking-2010-cwts.html
Notes					There are several rankings, each focusing on one indicator.

3.2 Impacts of global rankings

According to many commentators, impacts of rankings on the sector are on balance negative: they encourage wasteful use of resources, promote a narrow concept of quality, and inspire institutions to engage in 'gaming the rankings'.   Nevertheless, positive impacts are cited as well: the global outlook of higher education institutions has improved; there is more emphasis on performing at a world level, *etc*.   In more detail, findings regarding impact seem to be as follows.

First, global rankings strongly impact on leaders in higher education institutions.   A majority of higher education leaders reported that they used potential improvement in rank to justify claims on resources (Espeland & Saunder, 2007; Hazelkorn, 2011).   They tended to focus on indicators in league tables that are most easily influenced, *e.g.* the institution's branding, institutional data and choice of publication language (English) and channels (journals counted in the international bibliometric databases).   Moreover, there were various examples of cases in which leaders' salaries or positions were linked to their institution's position in rankings (Jaschik, 2007).

Second, global rankings have prompted the desire for 'world-class universities' both as symbols of national achievement and prestige and supposedly as engines of the knowledge economy (Marginson, 2006).   In Japan, the *Global 30* programme could be seen as an example of that trend (IHEP, 2009; Ishikawa, 2011).   In fact, the global rankings that we studied limit their interest to several hundred pre-selected universities, estimated to be no more than 1% of the total number of higher education institutions worldwide.   Although it could be argued that such 'world-class universities' or 'world-class global research universities' may act as role models (Marginson, 2008; Salmi, 2009), the evidence that strong institutions inspire better performance across whole higher education systems is so far mainly found in the area of research rather than that of teaching (Sadlak & Liu, 2007), if there are positive system-wide spill-overs at all (Cremonini, Benneworth, & Westerheijden, 2011).

Third, the reputation race (van Vught, 2008) implies the existence of an ever-increasing striving by higher education and research institutions and their funders for higher positions in the league tables. In Hazelkorn's survey of higher education institutions, 3% were ranked first in their country, but 19% wanted to get to that position (Hazelkorn, 2011).   The reputation race has costly implications.   The problem of the reputation race is that the investments do not always lead to better education and research, and that the resources spent might be more efficiently used elsewhere.   Besides, the link between the quality in research and quality in teaching is not particularly strong (Dill & Soo, 2005).

In the fourth place, rankings' incomplete conceptual and indicator frameworks tend to get rooted as definitions of quality (Tijssen, 2003).   This standardization process is likely to reduce the horizontal diversity in higher education systems and to narrow the focus of effort in higher education institutions to whatever counts in the rankings, *i.e.* traditional fundamental research in the sciences. National ranking systems, not treated in any detail in this paper, may have an opposite effect: to the

extent that these rankings focus on education and especially student satisfaction, they may lead to investment in (short-term) student-friendliness (Dill & Soo, 2005).

In the fifth place, as a result of the vertical differentiation, rankings are likely to contribute to wealth inequality and expanding performance gaps among institutions (van Vught, 2008).   This is sometimes called the 'Matthew effect' (Matthew 13:12), *i.e.* a situation in which already strong institutions attract more resources from students (*e.g.* increase tuition fees), government agencies (*e.g.* research funding), and third parties, and thereby strengthen their market position even further.

Finally, there is the phenomenon of 'gaming the results'.   Institutional leaders are under great pressure to improve their institution's position in the league tables.   In order to do so, they sometimes engage in activities that improve their positions in rankings, but which may have negligent or even harmful effect on the performance in its core activities.   Examples mentioned are manipulating selectivity ratings by encouraging more students to apply (Dill & Soo, 2005), or giving strategic answers to peer questionnaires making their own institution look better or others worse.[1]

4.   Points of departure for better practice

At the same time, our review uncovered some good practices in the world of rankings, some of which exert a beneficial influence on others active in this realm, while practically all informed the design of U-Multirank.   The list includes:

- The Berlin Principles on Ranking of Higher Education Institutions (International Ranking Expert Group, 2006), which define sixteen standards and guidelines to make rankings transparent, user-oriented (clear about their target group), and focusing on performance
- Rankings for students such as those of CHE and Studychoice123, which have a clear focus based on a single target group, and which are presented in a very interactive, user-oriented manner enabling custom-made rankings rather than dictating a single one
- Focused institutional rankings, in particular the Leiden ranking of university research,[2] also with a clear focus, not pretending to assess all-round quality, and with a transparent methodology
- Qualifications frameworks and Tuning Educational Structures, showing that at least qualitatively it is possible to define performances regarding student learning thus strengthening the potential information base for other dimensions than fundamental research
- Comparative assessment of higher education student's learning outcomes (AHELO): this feasibility project of the OECD to develop a methodology extends the focus on student learning introduced by Tuning and by national qualifications frameworks into an international comparative

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[1] A US case that was commented on extensively: http://www.usnews.com/education/blogs/college-rankings-blog/2009/06/04/clemson-and-the-college-rankings.
[2] Available through: http://www.socialsciences.leiden.edu/cwts/products-services/leiden-ranking-2010-cwts.html

assessment of undergraduate students, much like PISA does for secondary school pupils

- Recent reports on rankings such as the report of the Assessment of University-Based Research Expert Group (AUBR Expert Group, 2009) which defined a number of principles for sustainable collection of data, such as purposeful definition of the units or clusters of research, attention to use of non-obtrusive measurement *e.g.* through digital repositories of publications, leading to a matrix of data that could be used in different constellations to respond to different scenarios (*i.e.* stakeholders' information needs)

5. U-Multirank: Implementation of feasibility project and some lessons

Making use of the conclusions of our review of the state of the art regarding rankings as summarised in the previous sections of the current paper, designing a new type of global ranking for higher education institutions was the aim of the U-Multirank project.

The project was funded by the European Commission,[3] which in 2009 decided to 'look into the feasibility of making a multi-dimensional ranking of universities in Europe, and possibly the rest of the world too', partly in response to the desire for more transparency voiced at the meeting of the higher education ministers in the Bologna Process, in Leuven/Louvain-la-Neuve earlier in the same year. (This illustrates, by the way, the intricate relationship between the Bologna Process which is not an EU project and the higher education activities of the EU.)   The Commission was convinced that accessible, transparent and comparable information would make it easier for students and teaching staff, and also parents and other stakeholders, to make informed choices between different higher education institutions and their programmes.   It would also help institutions to better position themselves and improve their quality and performance.

The project was won by a consortium, CHERPA-Network (Consortium for Higher Education and Research Performance Assessment), made up of partners in the Belgium, France, Germany, and the Netherlands, who had all been active in assessing higher education and research performance in different ways, from student surveys to classification of universities and bibliometrics.   The feasibility project strictly proceeded from the principle of a user-driven process, in intense consultation with stakeholders, to design and test a model of a multi-dimensional ranking on a sample of no less than 150 higher education and research institutions.   The sample would focus on the disciplines (applied science) of engineering and business studies (outside the 'core' sciences) and should have a sufficient geographical coverage (inside and outside of the EU) and a sufficient coverage of institutions with different missions.

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[3] CONTRACT-2009-1225/001-001, commissioned by the Directorate General for Education and Culture of the European Commission and its ownership resides with the European Community.   This paper reflects the views only of the authors.   The Commission cannot be held responsible for any use which may be made of the information contained herein.

From 159 institutions that showed active interest in participating, 109 (or 69%) succeeded in committing and delivering sufficient data to be included in our test runs.   As seen from Table 2, the institutions are spread around the world, with a strong emphasis on the EU.   This distribution was as planned.   Also as planned there was much diversity in the participating institutions, which included besides comprehensive (research) universities, an agricultural university, technical universities of different specialisations, a military academy, several music academies and art schools, and universities of applied sciences ('polytechnics').   The numbers and unbalanced distribution also indicate that even if we had wanted to publish a ranking out of this, *quod non*, it would have been a meaningless ranking, with *e.g.* only two US universities and, among the Asian countries, only two from Japan and one from China.

Table 2.   Distribution of institutions participating in the U-Multirank feasibility study across world regions

World region	Number of institutions which delivered data for mapping and ranking purposes
Africa	4
America, north	2
America, south	4
Asia	10
Australia-Pacific	6
European Union	70
Europe, other	13
Total	109

The focus in this feasibility study was on the development of indicators.   The selection of indicators has been based on the application of a number of criteria:

- *Relevance*: the relative importance of the indicator according to the various stakeholders' perspectives
- *Concept and construct validity*: the indicator focuses on the performance of (programs in) higher education and research institutions and is defined in such a way that it measures 'relative' characteristics (*e.g.* controlling for size of the institution)
- *Face validity*: the indicator is used in other benchmarking and/or ranking exercise and thus may be regarded as a measure of performance, which already appears to be used
- *Reliability*: the measurement of the indicator is the same regardless of who collects the data or when
- *Comparability*: the indicator allows comparison from one situation/system/location to another
- *Feasibility*: the required data are available or can be collected with an acceptable level of effort

Using these criteria, and after extended discussions with stakeholder groups, a large number of

indicators were 'pre-selected' for the pilot field test.   Most of those involved asking the participating institutions to report data, but also included a student satisfaction questionnaire.

Table 3. Numbers of indicators tested *per* dimension in institutional and field-based rankings

	Focused institutional ranking (FIR)	Field-based ranking (FBR)	Out of which are indicators common to FIR and FBR
Teaching & learning	5	18	4
Research	8	7	3
Knowledge transfer	8	7	3
International orientation	8	8	3
Regional engagement	5	6	3
Total	34	46	16

In consultation with the participating institutions, the results of the pilot test were used to assess the feasibility of the various indicators.   Even after a feedback round in the data collection process, it appeared that institutions in some contexts experienced more difficulty collecting data than others. Also, some indicators were more prone to issues of feasibility than others.   One surprisingly positive finding was that the student questionnaires on satisfaction with elements of teaching and learning did not show worrying signs of international or intercultural bias.   In a following round of U-Multirank, this would lead to a reduction of the number of indicators.

There also were data collected by the research team.   Regarding publication and citation data, a 'top-down' approach was followed as in all global rankings, *i.e.* the institution of publication was distilled out of the (Thomson Reuters) database without a check by the academics in the pilot institutions themselves if the publications were correctly assigned to authors and institutions. Therefore, completeness of the selected bibliometric data could not be guaranteed.   A partial test on French higher education and research institutions showed that in complex organisational contexts such as the French case, with many different, partially cooperating research and educational establishments, a substantial number of publications are missed by a pure top-down approach.   However, these problematic cases occurred in French institutions with particularly complex organizational structures. The findings were unlikely to be representative for all institutions in our sample.

With respect to the collection of patent data (*via* PATSTAT) there are two important caveats. First, we were only able to link patents to institutions in the database.   Subunits for field analyses could not be identified from the data, nor could patents filed under individual researchers' names or to spin-off companies be linked to universities.   Nevertheless, the conclusion regarding feasibility of patent data collection is positive.

The overall conclusions from the field test were that U-Multirank is feasible in principle and that institutionalisation of such a multi-dimensional ranking could best be undertaken in a modular way.

In the second half of 2011, the European Commission thereupon decided to fund another round of U-Multirank, this time to achieve publication of a multi-dimensional ranking of higher education institutions in the European Union. The horizon for this project will be the end of 2013.

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Addressing the Challenge of Maintaining the Australian Academic Workforce

Sophie Arkoudis[*], Emmaline Bexley[**] and Richard James[***]

Abstract. This paper draws on recent research by the authors that sought to provide a new perspective on academic workforce issues by focusing on motivations, priorities and attitudes of academics in Australian universities (Bexley, James & Arkoudis, 2011). The research was conducted across 20 universities and a total of 5,525 responses were received from Australia's academics. One of the main findings from the study was that the majority of academics report that the intellectual stimulation of their work, their passion for their field of study and the chance to develop new knowledge are the aspects of academic work they most prized. However, there was also widespread dissatisfaction with institutional leadership, and in particular with increasing amounts of administrative work, bureaucracy and red tape. This paper will discuss these issues and conclude by identifying three areas that could be considered in the future management and development of the Australian academic workforce.

Keywords: academic workforce, university leadership, workload, accountability, sustainable workforce

Introduction

Australia has an ageing academic workforce and the nation's capacity to refresh, build and maintain this workforce during a period of expansion in tertiary education participation needs urgent consideration. There is little doubt that the demographics of the Australian academic workforce will undergo changes in the next five years, as older academics retire (Hugo & Morriss, 2010) and the challenge for policy-makers and university managers will be to develop strategies that will sustain and

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replenish the workforce at a time of increasing change within the sector.

It is likely that the reporting and accountability requirements in Australian higher education will increase as the funding and regulatory architecture changes. From 2012, a new student-driven funding system will be introduced, which means that universities will be funded on the number of students they attract. The Tertiary Education and Quality Standards Agency (TEQSA) will introduce a suite of new quality and regulatory measures in the next couple of years. These are currently being developed under the Higher Education Standards Framework (TEQSA, 2011). In addition, Federal government is planning a number of initiatives aimed at "assuring and strengthening the quality of teaching and learning in higher education" (Department of Education Employment and Workplace Relations, 2011, p.1). These will include the new performance measurement tools such as the University Experience Survey, the Collegiate Learning Assessment and the Teaching Quality Indicator, as well as the introduction of the *My University* website.

Against this backdrop, the recent study conducted by the Centre for the Study of Higher Education, at the University of Melbourne (Bexley *et al*., 2011) focused on the factors that drive the academic workforce, which include:

- The locus of intellectual interests and passions;
- Levels of engagement with the core tasks of teaching and research;
- Satisfaction with the work environment, and with the work itself; and
- The way work conditions such as pay, leave, professional development opportunities and the availability of time for scholarly activities affect and interact with overall satisfaction and career motivation.

By uncovering the personal and professional drivers of satisfaction and dissatisfaction with academic work, the study differs from others that have explored satisfaction levels or the changing nature of academic work. The CSHE study focused on the intrinsic factors that motivate academics' work, and thereby provides insights for policy-makers and university managers to meet the challenge of building and maintaining a robust academic workforce.

Challenges for the Australian academic workforce

There have been three key shifts in academic work roles over the past fifteen years in Australia: the ageing of the academic workforce, the casualisation of academic work and the increase in reporting requirements. From an institutional perspective, these shifts have resulted in challenges for maintaining, sustaining and replenishing the academic workforce, with potentially fewer academic staff being available to undertake a growing amount of work (Hugo & Morris, 2010). From an individual academic perspective, these shifts have created diversity in academic work roles, with 'non-traditional' work roles, particularly sessional, teaching-only positions and limited term, research-only

positions, becoming the norm rather than the exception.

The ageing academic workforce

As stated earlier, student participation is likely to increase further in coming years.   The *Review of the National Innovation System* (Cutler, 2008), the *Review of Higher Education* (Bradley, Noonan, Nugent & Scales, 2008), and the *Inquiry into Research Training and Research Workforce issues in Australian Universities* undertaken by the House of Representatives Standing Committee on Industry, Science and Innovation (2008) all point toward increases in participation in higher education, particularly by students from educationally disadvantaged backgrounds.   The Group of Eight (2010) has calculated that, assuming no change in staff/student ratios over the next 20 years, an additional 26,600 full-time teaching staff will be required to meet the growth of the sector, putting aside retirements.

Yet this expected increase in student participation will occur at a time when many academics who entered the profession in the 1970s begin to reach retirement age, a problem that has been well documented (Edwards, 2010; Hugo, 2005a, 2005b, 2005c, 2008; National Strategic Review of Mathematical Sciences Research in Australia, 2006; Skills Australia, 2010).   The Group of Eight estimates that a further 16,400 staff will be needed to replace those who will retire over the next 20 years, on top of those required for increased student participation: a total of over 40,000 extra staff required by 2030.

An ageing academic workforce is a problem faced by many nations, including Austria, Belgium, France, Germany, Iceland, Norway, Sweden, the Czech Republic and the Netherlands (Huisman, de Weert & Bartelse, 2002; OECD, 2008).   The ageing of the academic workforce in Australia has resulted from the fast-paced expansion of the higher education sector in the 1970s, which necessitated an accompanying sharp increase in academic staff numbers.   This trend continued, with some variation, through the 1980s but ceased with the tightening of funding to higher education in the mid-1990s, since which time numbers of continuing and long-contract staff have increased only modestly. The age-group distribution of the tenured and continuing academic workforce has therefore become skewed toward the older end of the spectrum.   This is particularly apparent when the age-profile of academics is compared to the age-profile of the overall workforce (Figure 1).

While staffing levels picked up somewhat in the early 2000s, a missing generation of academics – Generation X – has left a hole in the age profile of the workforce as the Baby Boomers move toward retirement.   This phenomenon is evident in the data presented in Figure 2, which shows the shift of the 40-49 year old age group into the 50+ range over the 2000-2008 period, while the percentage contribution of the younger age groups has remained stable.

Hugo and Morriss (2010) estimate that by 2015, almost half the staff will retire and need to be replaced in Australian universities.   It is therefore critically important that Australian universities develop strategies for maintaining and replenishing the academic workforce.
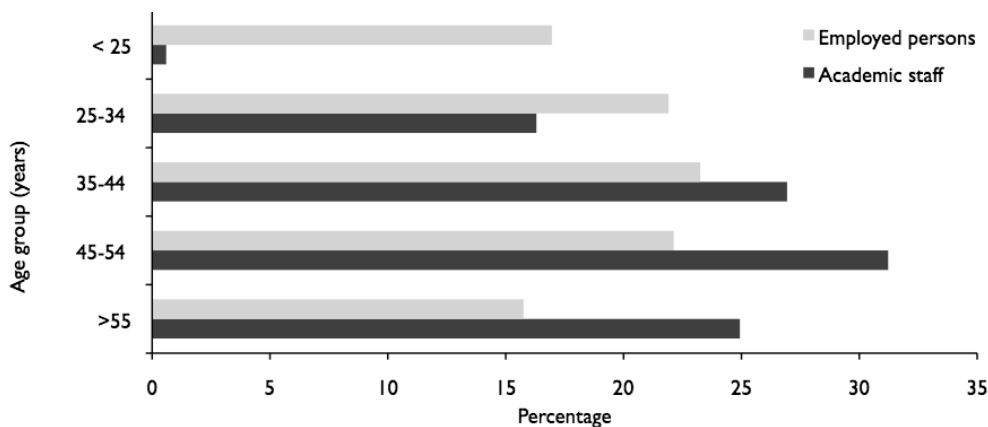
(Bexley *et al*., 2011, p. 3)

Figure 1. Academic staff by age group compared with other employed persons in Australia (%)
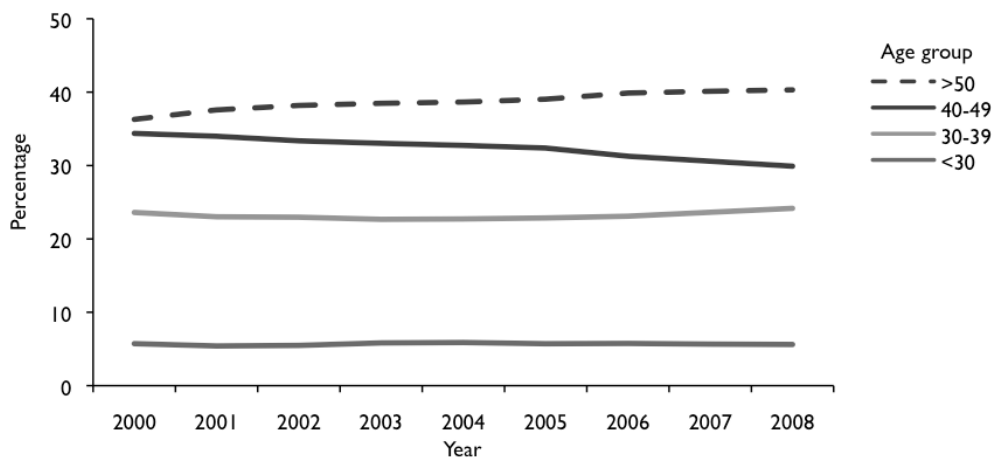
(Bexley *et al*., 2011, p.4)

Figure 2. Trends in age of academic staff (%), 2000-2008

The casualisation of academic work

One of the most significant changes in the nature of academic work over the last twenty years has been the increased dependence of Australian universities on casual academic staff to undertake teaching. It is difficult to ascertain the exact numbers of casual staff in universities, as universities only report full-time equivalent (EFT) staff load, and these data tend to be based on estimates (Bexley *et al*., 2011). There have been estimates that about 40 per cent of university staff are employed on a casual basis (Junor, 2004; Coates & Goedegebuure, 2010).

Casualisation has also been found to increase the workload of the continuing staff who manage casually employed academics.   Coates, Dobson, Goedegebuure and Meek (2009) contend that

casualisation has added to the burden on tenured staff, as they must manage the army of sessional staff on top of their other work.   Casualisation means that those entering on casual contracts face a far less certain professional future than previous generations of academics, while those who obtain tenure are likely to experience increased administrative workloads.

Increased accountability in Australian higher education

Mid and later career academics experience increases in administrative duties beyond the management of the casual workforce.   Research funding, in particular, has been tied to a variety of performance indicators and increased time must be spent by staff reporting the data upon which indicators are based. In a 2006 interview-based Australian study, academics 'complained bitterly about the time spent on low clerical work and accountability requirements', especially as this reduced the time available for what they saw as their primary tasks – teaching and research (Anderson, 2006, p.584).   Reduced time for research was regarded as 'a source of considerable stress' (*ibid*., p.585).   An earlier Australian survey-based study investigating the relationships between and among academics' demographic characteristics, work environment perceptions, and work attitudes also raised concerns that:

> Corporate management practices may deliver significant efficiencies for a university, but managerialism comes at a significant human cost, particularly for those academics with a strong sense of professional identity (Winter, Taylor & Sarros, 2000, pp.291-292).

The above shifts in the nature of academic work have resulted in an academic workforce that is adapting to meet the current Australian higher education context of decreasing funding and increasing managerialism in universities.   These shifts and characteristics of academic work have been documented from previous studies conducted on academic work in Australia.

Previous large-scale studies

There have been four major surveys of Australian academics over the past 11 years.   These surveys have focused on the following areas:

- Workloads, levels of satisfaction, key aspects of teaching and research activities and work preferences of academics (McInnis, 1999)
- Psychological strain and work satisfaction (Winefield, Gillespie, Stough, Dua, Hapuarachchi & Boyd, 2003)
- Components of academic work, including teaching, research, administration, the academic career, work satisfaction and stress (Anderson, Johnson & Saha, 2002)
- Changes in the academic profession since a previous international survey in the early 1990s (Coates *et al*., 2009).

There is a high level of agreement in the findings from these studies. The quantitative studies reveal the academic workforce has become more casualised, top-heavy in its age and classification profile, and is highly mobile. The qualitative studies provide a personal face to the trends uncovered in the statistics by revealing the levels of frustration experienced by early career and sessional staff and the increased burden on staff time imposed by administrative duties and bureaucratic requirements. While this is a worrying picture of the academic workforce in Australia, it is a picture that is remarkably consistent across a large number of studies. The question remains: how can this issue be addressed? What strategies can be adopted to guide further specialization and professionalization in university leadership and administration? The rest of this paper will discuss this issue and address the challenges for future sustainability of the academic workforce by drawing on the findings of the CSHE study (Bexley *et al*., 2011).

The study design

The study was based on an online survey across 20 universities that received 5,525 responses from academics, including sessional and casual staff. In all, 2,458 continuing staff, 1,818 limited term contract staff and 622 sessional staff responded to the survey (627 respondents did not indicate their contract type). The demographic characteristics of the fulltime and fractional fulltime (FT and FFT) staff in the sample showed a very close fit to that of the population of the sampled institutions as reported to DEEWR for its 2009 statistics collection, particularly in terms of level of employment, age distribution and work function. In this paper, findings are reported as proportions, generally as grouped one + two, and four + five indications on a five point Likert scale. Accompanying figures show 95 per cent confidence intervals following the method for proportions developed by Newcomb and Altman (2000).

Challenges regarding university leadership and administration

While there are many academics who indicate that they are satisfied with current conditions, and most indicate extremely high levels of satisfaction with their teaching, research and other scholarly activities, around half believe that their workload is not manageable, or that they experience high levels of stress related to their work. From a workforce management perspective, the key issues raised by these staff are: a perception of being over-managed; concerns about maintaining the quality of their scholarship across both research and teaching in an environment of high workloads; and the degree to which administrative tasks and bureaucratic requirements take them away from these core duties.

Core academic values

The study found that a majority of academics are committed to scholarly values expressed through both teaching and research.   This finding is consistent with previous studies and reflects the strong personal commitment that attracts people to academic work and lies at the core of their professional values.   In the study, 96 per cent sought an academic career as it provided the opportunity for intellectually stimulating work.   Around 94 per cent were drawn by passion for a field of study and 91 per cent for the opportunity to contribute to new knowledge.   Autonomy and control over working life was the fourth most prized aspect of academic work (86 per cent).   Together these factors establish some of the core values that draw academics to the profession (see Figure 3).   They are widely shared amongst academics.   Income, job security, travel and public status are relatively less influential in drawing people to the profession, though all are valued by a considerable proportion of academics.
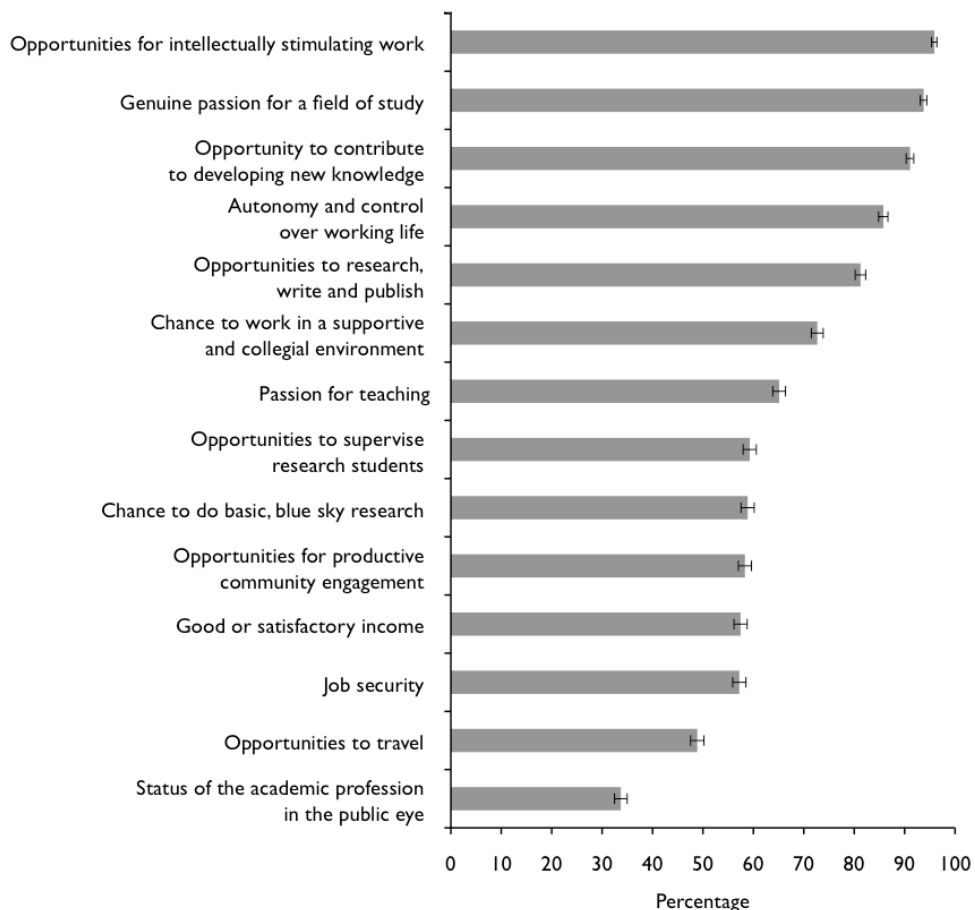
(Bexley *et al*., 2011, p.13)

Figure 3. Aspects of academic work that drew respondents to the profession, and that held the most value for them (percentage valuing item highly or very highly; error bars are 95% CIs)

Academics' commitment to the scholarly aspects of their work was also apparent in the qualitative aspects of the survey. Academics were asked to provide written responses to the statement, "The most satisfying aspect of my academic work or career is…?" Of the over 4,200 comments provided, most were focused on the pleasure of teaching: *"Seeing the light go on when students "get" the concepts"*. Many of the academics also commented on both teaching and research: *"The best moments of teaching, when I feel like it is an aspect of my teaching that has made the difference for a student and the best moments of scholarly writing, when you feel like you have made a breakthrough…"*. Interaction with a community of scholars and achieving highly in their field were also common responses, as were seeing students and research candidates experience moments of clarity and understanding in their learning:

> Creating new researchers with high level skills and confidence and discovering new knowledge through PhD supervision.

Comments such as these paint a rich picture of the motivators underlying academic work.

Academics were also asked to nominate the least satisfying aspect of their jobs. Most respondents (over 4,200 participants) nominated what they perceived to be excessive administrative duties, overbearing bureaucracy and lack of job security (mainly staff who are on casual or contract employment).

When asked about their primary interest in aspects of academic work, most academics surveyed (39 per cent) chose 'both teaching and research, but leaning toward research'. About a quarter chose 'research' (26 per cent), or 'teaching and research, but leaning toward teaching' (23 per cent). Only a small proportion chose 'teaching' (7.4 per cent) or 'leadership and administration' (4.6 per cent). These findings are broadly consistent with the 1999 CSHE study (McInnis, 1999) and Coates *et al.*'s 2009 CAP survey.

When the primary interest in each dimension of academic work is broken down by the work function of respondents, there is some indication that staff have specialised in their main areas of interest (Figure 4). Department and faculty managers and administrators tend to express an interest in leadership and administration (38 per cent and 48 per cent respectively), yet it is notable that many maintain an interest in teaching and research work. For the majority of academics, those who are interested in teaching have teaching roles and those interested in research have research roles. It is worth noting, however, the small but important proportions of staff who are not working in their area of interest illustrated in the figure below, particularly teaching-only staff who would like to incorporate research into their role.

Overall the majority of academics involved in the study indicated that a deep commitment to scholarship drew them to academic work, with the least satisfying aspect of their work being excessive administration and meeting institutional and external reporting requirements. This has implications for the sustainability of the academic workforce as potential increases of administration may mean that

there will be less time available for academics to engage in the scholarly activities that attracted them to the profession.
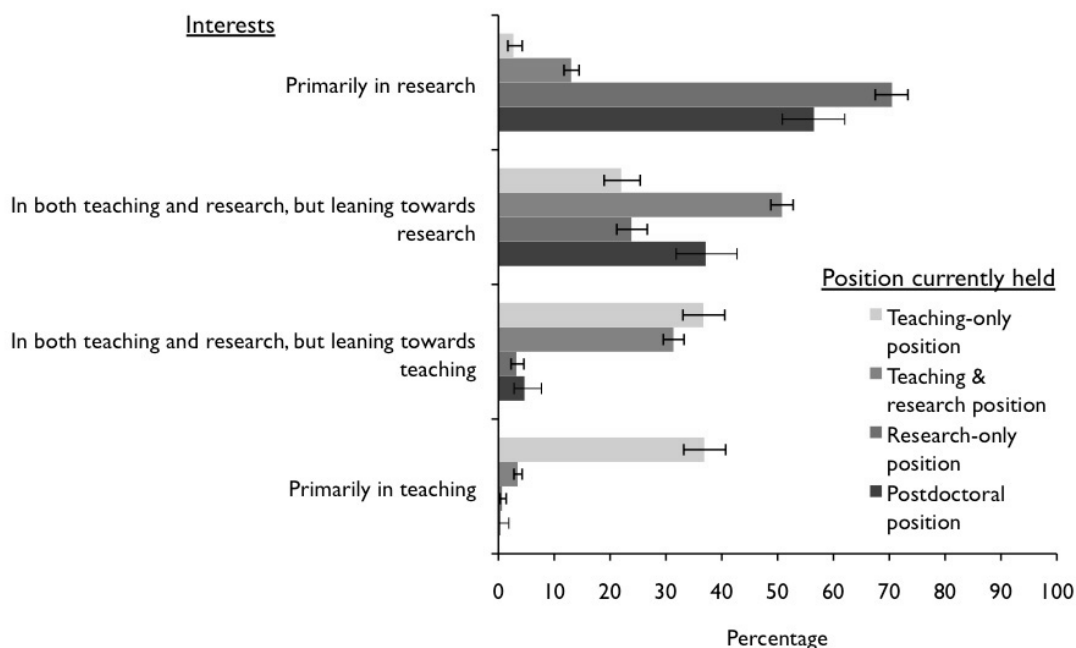
Figure 4.   The primary interests of staff and the nature of their current position (error bars are 95% CIs)

The influence of institutional context on academic satisfaction

One of the interesting findings from the study was the general disquiet among a significant number of academic staff with regards to institutional leadership and management of their institutions (42 per cent) (Figure 5).   Levels of dissatisfaction with leadership and management varied substantially across the 20 institutions involved in the study.   The highest level of dissatisfaction was 70 per cent and the lowest was just under 30 per cent.   Levels of dissatisfaction with overall institutional culture followed a similar pattern across institutions.   There was no apparent correlation between levels of satisfaction in these areas and type of institution.

While many believe there *are* adequate opportunities for conference attendance and study leave (44 per cent) and are positive about the infrastructure/built environment (40 per cent), academics also show high levels of *dissatisfaction* with the way teaching expertise is valued in academic recruitment (39 per cent dissatisfied), support for career development plans (39 per cent) and overall institutional culture (38 per cent).
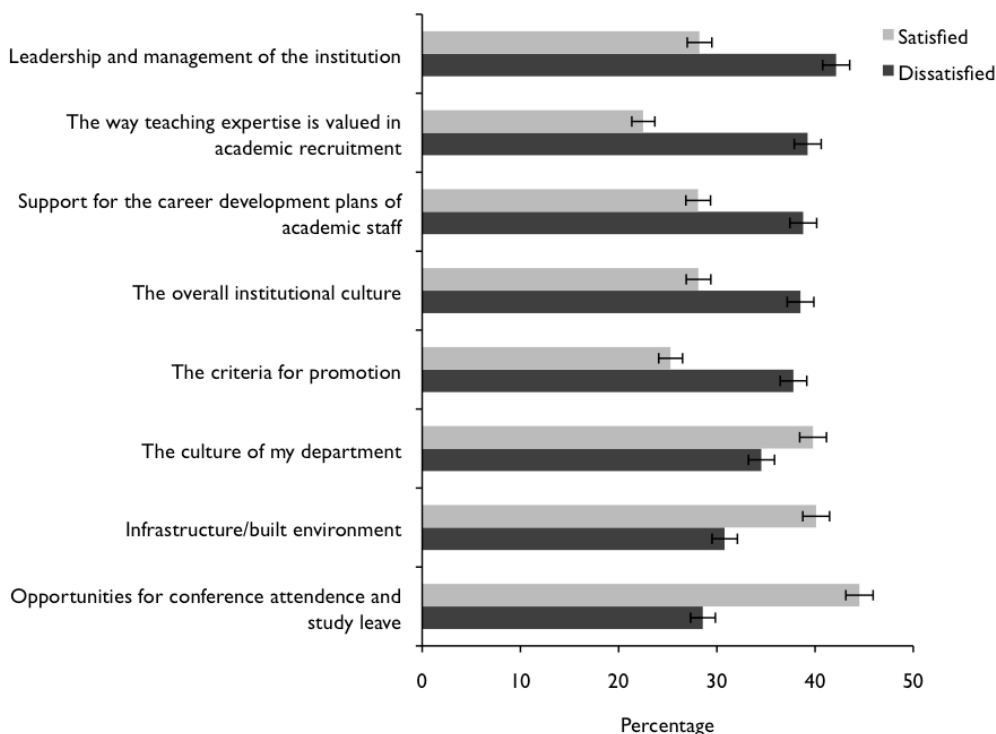
Figure 5. Proportion of respondents satisfied and dissatisfied with various aspects of workplace (1st and 2nd, and 4th and 5th points on five point Likert; error bars are 95% CIs).

Many academics (about 40 per cent) believe they receive little support for their career development plans.   Academics are more likely to be dissatisfied with leadership and management as they progress through their careers.   Early and mid career academics are more satisfied than later career academics.   These findings indicate that there are diverse issues that need to be addressed within individual university contexts regarding leadership and management and the influence of this on developing the academic workforce.

With regard to workplace culture, one of the most overwhelmingly common themes in the open comments sections of the survey was about excessive administrative demands and a perception of an increasing bureaucratisation of higher education.   These comments typically expressed the tension between scholarly work and the accountability requirements:

It is all stick and no carrot these days.   I am passionate about what I do and don't need to be threatened with punishments or distracted from real, productive work by the bureaucracy of surveillance, threat and punishment.   I would work seven days a week anyway (because I love what I do) but would be more productive if I was left to do what academics have always done.

Many of the comments also focused on what is perceived as incommensurate aspects of academic work:

> Over the past two decades, there has been a serious diminution in professionalism as we are compelled more and more to complete accountability measures, as if jumping over "productivity" hurdles could substitute for professional ethics. The biggest gap [between expectations of academic work and the reality], therefore is that between professional ideals/professional ethics and regulatory/accountability measures that give no credence to professional responsibility or professional judgment.

It was not always clear whether these complaints were aimed at government-imposed measurement activities, the requirements of individual institutions, or perhaps a combination of both.

Recognition and rewarding of academic work

In general the findings reveal that the majority of academics believe that teaching expertise and research activity should be equally valued within the promotions process, and that this is not necessarily the case in their universities. Academics are concerned about the perceived lack of recognition for teaching in the current promotions process. The findings indicate that most academics (88 per cent) believe that teaching should be rewarded, whereas only 31 per cent believe that teaching is currently rewarded in academic promotions. In contrast, 71 per cent of academics are of the view that research activity is currently highly rewarded and 74 per cent believe that it should be rewarded (Figure 6).
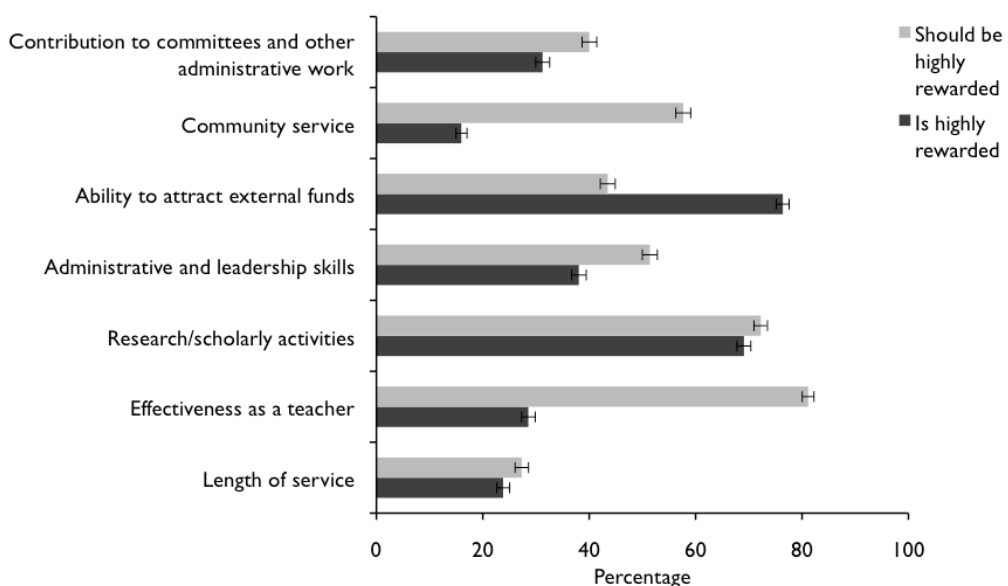
(Bexley *et al*. 2011, p.24)

Figure 6. Proportion of respondents believing listed activities *are* and *should be* valued in the current promotions process of their university (error bars are 95% CIs)

Views of academics on developing and maintaining the academic workforce

The academics were asked to offer their views regarding how universities could develop and maintain the academic workforce. Some of the strongest comments were reserved for management of universities. Academics indicate that over-managerialism in universities has resulted in low morale within the academic workforce. There is a perception that universities have lost sight of the main game – with many academics expressing their frustration that increased time spent on administrative tasks for accountability and auditing purposes means that they have less time available for their academic work. The following comment was typical of those received in the survey:

> Academics are expected to do more and more of the day-to-day administration that is frustrating and draws significant amounts of time away from our real work and duties in academia.

In order to redress this, many academics suggested that universities could restructure work practices, so that professional staff can undertake more administrative duties, where appropriate, allowing more time for academics to focus on their academic work.

Possible ways forward

The study has revealed that Australian academics highly value their scholarly work. From a workforce management perspective, some of the key issues raised were a perception of being over-managed, and the degree to which administrative tasks and reporting requirements take academics away from their scholarly work. Addressing these issues requires, wherever possible, removing tasks that can be more efficiently and effectively completed by professional staff. We suggest that a further specialisation and professionalization of university administration would be an important step. Below we propose three areas for consideration in managing the academic workforce.

1. A better understanding of the nature and extent of administration activities associated with national and institutional benchmarking and quality audit requirements is needed.

The perception that academic staff are undertaking unnecessary amounts of administrative and basic data entry work is widespread. A better understanding of the nature and extent of administration activities associated with national and institutional benchmarking and quality audit requirements is needed, leading to business process reform. Reporting requirements can indeed be onerous and a sore point for academics regardless of the legitimacy of their purposes. Institutions and government need to work collaboratively on administrative workload matters to avoid negative effects on the quality of academic work, and the attractiveness of the academic profession in Australia. A structured approach to reporting is needed, for example the creation of data warehouses that can be

used to generate a broad range of reports. Similarly, the workload associated with reporting on publications is unnecessary when ample data is available on publications and citation that can be accessed by professional staff.   There should be an ongoing monitoring of accountability and auditing processes to ensure that they have minimal impact on the time available for teaching and research.

2. There is a need for the development of a new and specialised kind of professional staff.

At present, academic staff undertake many tasks that are in essence administrative, and peripheral to core academic duties around teaching and research.   Such tasks may include: reporting activities for audits and performance measurements (of publications, grant histories, *etc*.); preparation of grant applications; and subject coordination tasks (such as data entry for grading and other administration). While these tasks do require staff with a deep understanding of elements of the disciplines and the nature of academic work, the development of a new and specialised kind of professional staff could assist in many aspects of academic work.

3. Further professional development is needed at senior levels for academic staff moving into department and faculty leadership roles.

Specialised professional development is needed to improve managers' skills in mentoring and developing academic staff.

The traditional model of academic work evolved to serve the knowledge generation and knowledge dissemination needs of a student body and a society different to those it serves today. The unbundling of academic work is an evolutionary stage in the way in which universities are organized to fulfil their social mission.   This process will not be successful if a diverse range of contributions are not placed on equal footing within the policies and cultures of universities.   The suggestions above are presented within a context in which the performance capacity of the academic profession, while already under some pressure, will be further stretched by projected increases in participation, the retirement of older workers, and the potential for instability around the shift to a demand-driven funding model.   The suggestions are aimed at improving capacity within the current academic workforce.

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