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The sentinel disciplines: Languages in ERA

Abstract

In this paper I propose the term ‘sentinel disciplines’ to describe the ways in which languages and language education, along with a small number of other disciplines, function like canaries in coalmines and roses in vineyards, providing early warning of danger. The peril that is signalled by these disciplines which are always the first to be cut back and made vulnerable when there is financial stringency in the air, or when there is too much utilitarianism in the water, is to the wider humanities disciplines and to the general case for the intrinsic worth of the arts and human sciences. Some of the assumptions and modes of operating of external assessment of university performance are especially problematical for languages because of underlying narrowness, excessive functionalism and bureaucracy supporting modes of measurement. It is in the interests of everyone concerned with the place of the arts and humanities in public life in Australia to defend languages for their intrinsic worth but also because their endangerment is like a bellweather, signalling a deeper deterioration in education. In light of this the paper describes the history, trials, operations and results of ERA trials and plans for the future.
Sentinels of change

Domestic canaries taken into coalmines and rose bushes planted in vineyards function like ‘sentinels’. They are placed in situations of potential human or crop vulnerability, to provide early warning of danger. In coalmines canaries were used to detect the presence of toxic gases before the miners could be expected to, gases like carbon monoxide, and to signal (unfortunately by dying) that little time remained for the humans to escape to safety or for management to install respirators. In a similar spirit, roses are planted near grape vines because they can provide early warning of fungal diseases, like mildew. I think there are several ways in which we can see languages as a ‘bellwether’ discipline, just like canaries in coalmines and roses in vineyards.

The qualities of language education and language use that lend themselves to this sentinel status are many, first, the unique combination of a highly practical aspect and a deep normality-destabilising aspect, second, the extremely long time frame required for literate and culturally full entry into a new language world combined by the requirement for immediate communicative performance, and third the way in which with deeper mastery the language, large and looming in early acquisition becomes inseparable from the unique meanings and messages of its community of speakers. If I am right about these claims it suggests that academic disciplines in general, especially those broadly understood as the humanities where experience as understood subjectively is an important part of human knowledge, should be more attentive to the fate of languages. It could be that defending not just languages in universities, but also a particular way to treat languages, as proper, full academic disciplines, not simply as tools servicing trade, diplomacy or security, are tied in important ways to the independence of universities, the autonomy of scholarship, and even to the rights of free expression which is what western universities, at least, have traditionally fostered. If languages come under threat of abolition, or if they are loved too much by policy makers who want to convert them into short term tools serving other agendas and purposes perhaps these foretell a wider vulnerability to academic life itself. Languages, uniquely in my view, or at least more deeply than most other disciplines, require us to enter systems of knowledge and experience, worldviews in short, experienced, named and naturalised by other societies in the here and now and by those societies in their own pasts, and for this reason alone, though there are others, languages as full academic disciplines justify a permanent and esteemed presence in all universities. If this deeply cultural and intellectual quality of language study is eroded it signifies that disturbing trends are underway throughout the academy, in precisely the way that bellwethers are supposed to operate, signalling through long distance sound the imminent arrival of a flock of sheep out of immediate eyesight.

The Australian Academy of the Humanities has played a key role in the creation of LCNAU in the interests of securing a strong and secure place for languages in higher education in Australia, both because we regard languages as intrinsically valuable,
and necessary, in the university curriculum, but also because languages and language are central to all the humanities (indeed to all knowledge systems) as I have argued above. This aspiration of strengthening languages in Australian universities has been deeply felt within the Academy, and explains why has maintained as its only standing committee a Language Studies Committee, for almost 40 years, from shortly after the inception of the Academy itself. It has been through several initiatives of the LSC that LCNAU has come to be and we strongly support its continued growth and prominence.

The Language Studies Committee is the main source of commentary and policy for the Academy, supporting its many submissions to government on all the disciplines in the Humanities. The Committee draws on the expertise of its four language sections, the ‘stakeholder disciplines’ of Asian Studies; English; European Languages and Cultures and Linguistics. We should ask today, in light of ERA and what ERA signifies, about the special impact on languages as academic disciplines, and what this in turn signals about the university education in general, and what LCNAU, a much wider grouping than the Academy or its standing committee, can say to the wider world about languages, who they are for and why they matter.

**RQF to ERA**

The advent of ERA, both the actual manifestation in administrative terms, but also the underlying reasoning and assumptions behind research measurement and benchmarking, LCNAU has an opportunity to sharpen its discipline-specific voice on behalf of language academics.

After its election in November 2007 the Rudd and then the Gillard Federal governments abandoned the Research Quality Framework (RQF), which the Howard government had been developing for the previous 3 years. Rejecting the RQF Senator Kim Carr, then Minister for Innovation, Industry, Science and Research, called its processes of time consuming peer review, disciplinary clusters and expert panels reviewing massive quantities of submitted work “cumbersome and resource greedy” (Carr 2008). A target of this judgement was the methodology for ascertaining the impact of research, which under the RQF had been proposed to be an essay-like narrative supported by up to four case studies and the nominating of ‘beneficiaries’, i.e. end-users of research who could potentially serve as referees.

Those who supported the impact component of the RQF thought that its inclusion of this range of different kinds of impact was very positive and that it offered good prospects for cross-discipline applicability. Current approaches reserve far less space to assessing impact beyond scholarly/academic contexts. It is of course particularly problematical to assess impact when the purpose of some research isn’t functional, when it is critical or problematising, and when impact might involve slow-gestating attitudinal or cultural change, or personal growth and cultural exploration. Languages
are an emblematic case of these challenges, since we can discern within language learning and teaching all of these qualities. There are some obvious externally verifiable impacts, such as the utilisation of language skills in, to take the commonly argued one these days, trade negotiations. Then there is also concrete stocks of knowledge that could be counted and measured, about a society, or a language community, its cultural products and history, their fortunes and circumstances over time. But these are linked with the subtle, personal, attitudinal, often-slow and sometimes troubling destabilising of the settled, monolingual perspective on the world of an individual person, a learner, and whole cohorts of learners. The latter kind of impact, the one that evades measure and quantification, is interestingly almost always proclaimed even in the most functionally and instrumentally oriented justifications for teaching languages, is the one that is least often studied, and that is poorly described and understood. I recall a very instrumentally minded Minister for Education at the Federal level who wanted everything measured and tidily accounted for, well before ERA could be capitalised and function as an acronym, who said that the reason he wanted Australians to learn Japanese wasn’t just for trade, but because we otherwise had no hope of understanding what he called “the Japanese mind”. I find this is almost always true, those who argue most strongly for short term and instrumental goals in language teaching, when pressed, concede that there is something subtle and deeper involved in entering a new communication world, one we all struggle to name well, but we know it exists.

So, language education is a mix of elements we can account for and count, and elements we struggle to pin down and name. We can document the reproduction of the workforce of teachers, translators and other language professionals, but the ‘subjectivity’ of such individuals, i.e. their mental and cultural worlds, developed directly and indirectly through their engagement with the curriculum of university language education, the deep and extensive reading, the immersion in other people’s internal conversations among themselves and about themselves, this we can ‘see’ but can rarely ‘document’. So, with these considerations in mind, how have we (language academics and researchers) and they (university language offerings) fared?

**Measuring under way**

After two trials in 2009, which included Humanities and Creative Arts, the national ERA exercise was commenced. It shares some features of the Research Assessment Exercise in the UK, but now leaves aside the idea of assessing impact except in a marginal way, concentrating instead on making progress with the metrics that would be applied to research, and to retaining and giving solid ground to peer review and, commendably, to finding space account for the practice-based research typical of some arts fields.
However, from a humanities perspective, we could not discuss research performance outside of the context of long term structural disincentives and inequities in the funding system; especially the fluctuating commitment to serious language policy that Australian governments have shown for more than three decades. I can count a large number of national leadership centres in languages that have been created with fanfare and high hopes since the 1990s only to have inappropriate market economy based accountabilities imposed on them and then to cease operating in a short period time, sometimes operating for only three years.

Research has documented a steady decline in the number of languages offered at university level and declines in the enrolled candidature. This depiction is not true everywhere, but it is generally accurate of the system as a whole. Over an extended period such inconsistent policy combined with inappropriate funding mechanisms and internal structural problems within institutions have led to the marginalisation and chronic under-funding of humanities research, and of languages in particular, with flow-on consequences for research capability and renewal. As a result it is possible to map, mutatis mutandis, ERA results onto the structures established by the relative funding model and see a compelling if predictable correlation.

ERA data show that Sciences and Technology massively outstrip Humanities and Social Sciences in terms of research income. Biological Sciences alone received three times the total research income for the entire Humanities and Creative Arts including Law. In the most recent ERA round less than 4% of total category 1 Higher Education Research Data Collection (HERDC) funding has gone to the Humanities and Creative Arts (including Law), yet the Humanities and Creative Arts (HCA) cluster produced 15% of national outputs.

This demonstrates that the low performance of the Humanities in attracting research dollars is not a function of an incapacity to produce high quality research; rather it reflects structural differences in access to research grant programmes (such as the Super Science initiative and until recently the Cooperative Research Centre programme) and in the actual costs of research.

It is important to keep in mind that ERA is essentially a retrospective snapshot of research performance, not a review of universities. ERA measurements represent a compromise between a top down standardising pressure and a bottom up pluralising one. The dynamic interaction produces a compromise which allows a kind of discussion between the audit culture of public officials and the culture of pedagogy and research of academics.

The audit, accountability and comparative standardisation required by politicians and public officials comes into interaction with the nuance, diversity, pluralism of outlets and modes of research, employment conditions and critical mass of scholars in any one place. In addition there are the inter-disciplinary combinations and approaches favoured by many language professionals that despite recent recognition by government still do not get adequately reflected in ERA.
The overall conclusion from a sober reflection on ERA in the context of a long history of funding differentials is that in general terms performance is relative to opportunity, and opportunity is structured by both external investment and esteem by the host institution.

Enter LCNAU

LCNAU has a key role to play in the general field of language education provision and especially in the conversations that surround the relationship between languages and other disciplines. A defining feature of LCNAU is its composition, as a tutor to professor alliance on behalf of a permanent place for languages in the Australian academy. This workforce representativeness of LCNAU is matched by another unique feature, its institutional representativeness, i.e. the workers and their employers. This makes LCNAU a unique vehicle for participating in discussions about the future and the health of languages. It represents an alliance of the people involved in language education, and an alliance of the institutions delivering language education. This clearly affects and should affect the voice that LCNAU is able to project, a discipline wide voice.

The risk of failing is all too obvious. In relation to ERA it is clear that retrospective and far from perfect measures of research performance can lead to government disinvestment in areas judged to constitute poor performance and can be used prospectively by institutions and faculties for staff assessment and department pruning.

Results so far

ERA results therefore reflect relative investments and reveal what most already know: the landscape for the humanities disciplines, and specifically for languages, are biased towards the main metropolitan universities. But there are clear lessons as well. One is in the exceptional performance in the 2010 ERA of institutions which were able to select and invest in specific planned areas. The best example of this are the clear dividends earned by the University of Western Sydney, which scored a 5 (‘well above world standard’) in Cultural Studies, in large part because of wise long-term investment and targeted institution building in this area. Institutions and individuals therefore have the capacity to intervene and change the trajectories suggested by past funding and policy patterns if they commit to long-term strategic building of selected areas and support these research areas with productive international alliances.

ERA 2010 showed many instances of exceptional performance in the humanities with scores of 4 (‘above world standard’) and 5 (‘well above world standard’) across several disciplines.
Overall languages performed creditably, and in some universities very well, in spite of the long period of relative neglect of the humanities and the chopping and changing that has characterised the national approach to language policy. But Language Studies was assessable at only 9 institutions, and did not score a 5 anywhere – ANU and Melbourne shared the top ‘ranking’ at 4. There was no assessment at UWA, UNSW, UQ and Adelaide.

The picture at regional universities is especially variable for all Humanities. For a more nuanced understanding of the ERA results it is important to examine the disaggregated picture, particularly by field of research. When the unit of analysis is institutions there is a clear advantage for established universities with the Go8 dominant. When we look at ‘clusters of excellence’ we see a more complex but still incomplete picture.

Critical to ERA are Fields of Research (FoR). FoR are a shared Australian and NZ standardisation of research, i.e. the names that are applied to consistently focused research domains. As such FoR classify national research and development activity according to the specific method or focus of research rather than the unit performing the research or its purpose. This hierarchical classification consists of the three levels of Divisions (2 digits), Groups (4 digits) and Fields (6 digits). The operating assumption is that groups, i.e. the 4-digit level, share broad methodology, techniques and/or perspective.

At 2-digit level Humanities scored at world standard (i.e. ‘3’) across the board: Language, Communication and Culture 3.0; History and Archaeology 3.2; and Philosophy 3.1 (72% of units evaluated at or above world standard). Language, Communication and Culture is division 20 of the Fields of Research. As a total Division of national research effort Languages, Communication and Culture produces 3% of documented national research outputs, but it garners only 1% of HERDC research income and in ERA 2010 had 67% of units evaluated at or above world standard.

Reflecting on these results Senator Carr stated on 22 March 2011:

“Australia’s strong research performance in the humanities, arts and social sciences (HASS) plays an important role in our nation’s development and helps to drive innovation across the economy.” (Carr 2011)

This statement succinctly captures the horns of the dilemma on which the Humanities, Arts and Social Sciences, and specifically for today, languages, are hoist.

We “perform strongly”. We know through our contact with students, our professional collegial activities and in other ways that this plays “an important role in our nation’s development”. However, from this point on, things start to get dodgy for many language advocates, and certainly for me, from when “development” is reductively directed to indicators of macro-economic success, intensified by the final claim that the strong research performance in the Humanities and Social Sciences (HASS) “helps drive innovation across the economy”.
Shaping debates

In modifying such reductive discourse LCNAU’s could play a critical role. Of course the Academy, and our Language Studies Committee, will continue to participate in these conversations about how to understand what the national investment in research produces for the nation, but LCNAU brings the voices of its wide membership to bear on these discussions as well. This can help with what we most need, which is, essentially, to normalise the place and standing of our field, and in doing this to continually assert the multiple dimensions of language study, the externally verifiable and the much deeper dimensions. We also need to recall the sentinel status of our discipline, and collaborate closely with other humanities disciplines for a wider appreciation that the dimensions of language education that are beyond measure may store a treasure house of value. Much of LCNAU’s work will be intra-disciplinary and intra-institutional, but some will be extra-disciplinary, involving engagement in the debates and the politics of research evaluation, how research is documented and reported, and its connection to funding. We need to engage with what precisely people mean when they talk of ‘innovation’ and ‘national development’ and direct these notions away from their currently exclusive association with technology, business and the economy in general, to include society, social groups and intellectual and cultural development.

ERA is a manifestation of the prevailing audit culture in higher education and as such it imposes measures of standardised comparison. The Academy has found, however, that both the government and the ARC are amenable to persuasion and we have had considerable success in pursuing refinements and changes in the various proposals for research evaluation. Ongoing participation and developing expertise in the complex operationalisation of research evaluation is an indispensable task for representative organisations if we are to see both nuclear physics and Indonesian teaching subjected to valid modes of quality judgement.

The funding formulae applied to the research sector for the past two decades, whatever its achievements in terms of the sector as a whole, has caused considerable harm to the Humanities along the way. Added to this is the fact that research income is used to calculate general funding flows to universities, so that over half of the Institutional Grant Scheme (IGS) and nearly half of the Research Training Scheme (RTS) allocations are awarded based on research income, derived from HERDC data. Additionally, the formula-driven Research Infrastructure Block Grant (RIBG) money is allocated on the basis of the relative success of each institution in attracting competitive research funds.

These measures are functions of the capacity to attract total funding dollars, rather than the number of grants, the prominence or utility of the application of outcomes, or any other research value outside the simple marker of revenue to the university. As Humanities research activities are almost always considerably cheaper to fund than those in other discipline clusters, this measure actively disadvantages...
institutions for employing Humanities researchers who can achieve their research outcomes for fewer dollars than big-spending counterparts in other areas.

To its credit the ARC has been well disposed to input from the Academy and has received feedback we have made on such questions very positively. What is required from us, in addition to participating in the specific schemes that are put forward by the ARC and the government, is that we undertake a related effort to disrupt the basic assumption on which public audit culture operates. To do the latter is largely about marshalling persuasive language, to try to talk the new and future administrative schemes towards more inclusive and credible modes of operating in light of what is unique about our disciplines, and specifically today, about languages.

**Things to attend to**

We can see one way this will happen by looking at the language, predictably, in which the new meanings and purposes of research measurement are couched. Social innovation is the new buzzword that economists worldwide have attached a lot of mental creative energy to in recent years, deriving much energy from the ideas and writings of the Austrian scholar Joseph Schumpeter who introduced the notion of ‘innovation’ into economic theory, alongside his claim that capitalism depends on ‘creative destruction’. There is even noticeable interest now welling up in international economic think thanks looking into the distinctive ways that the Humanities and Social Sciences shape understanding of phenomena that in the recent past our disciplines would not have been considered to have anything worthwhile to contribute, both within economics and in public policy. For us to argue that languages require discipline appropriate modes of evaluation suggest we engage with these wider debates.

Adapting modes of assessment, conceptualisation and the scoring of research excellence derived from the naturalised place of the Sciences to the Humanities is ultimately not helpful to the task of stimulating the social innovation that more and more economists and public policy analysts claim is needed by our economy. Nor does it support or foster the scholarly traditions of the universities, the interdisciplinary character of so much language work and the critical job of teaching languages effectively.

This process is complex and difficult enough without the compounding difficulty of media conflations, confounding Humanities and Social Sciences as the same, for example the two-digit category “Studies in Human Society” which masquerades as a Humanities field but actually mostly includes Social Science disciplines – Demography, Political Science and Sociology. Worse than this are decisions of university management at department or faculty level which impose on staff new or higher requirements for research productivity which they think they sniff in the wind as the long term outcome of the overall exercise of research evaluation.
The Academy has played a key and in some respects, decisive role, in debates and modifications of ERA over the past few years. As a result, the government decided earlier this year to discontinue the use of journal rankings as part of ERA 2012, and the ARC has recently issued new submission guidelines for ERA. Key changes are:

- new journal quality profiles
- increases to the percentage allocated to peer review (30%)
- low volume threshold for peer review disciplines has been raised to 50 apportioned weighted outputs
- conference publications are now eligible for peer review
- modification of fractional staff eligibility requirements
- improvements to the assessment of interdisciplinary research

The Academy has argued that appropriate recognition and assessment of interdisciplinary research remains a key challenge, and that the system of peer review needs overhauling, not least with respect to the volume of assessments and the workload of assessors. Getting the peer review process right for the next round is particularly important given that ‘institutions must [now] nominate 30% of all research outputs for peer review’ (ARC 2011).

The new journal quality profile, will, as reported by Campus Review, paraphrasing remarks of ARC Chief Executive Margaret Sheill in June “count up the number of papers each university discipline published, and develop a list of 20 most popular for that individual discipline”. Each profile would indicate the “number of papers published and the percentage of the total represented in each journal” (Woodward 2011). In fact, this is a rather loose use of the term ‘quality profile’, and seems more like an indicator of publishing behaviour and/or popularity. The shortcomings of the 2010 ERA round were many and the Academy, through the extensive engagement of Fellows, made active proposals throughout. The greatest seemed to be the lack of strong coordination of the work of reviewers assigned to the same unit of assessment, especially when these were too large for any single reviewer to look at more than a fraction. As one ERA panel member commented in personal conversation: “There was no way of knowing whether different reviewers all dealt with the same fraction or with different fractions” and went on to point out that increasing the percentage allocated to peer review, even as high as to 30%, would need to be accompanied by significantly improved mechanisms for coordination of the entire peer review process, otherwise problems would only be exacerbated. Such a change would mean that within a given Field of Research (FOR) there would need to be equal ratios of submitted items peer reviewed across the units of assessment for that FOR.

The difficulties in handling the workload is only one of the important points, others are the need for serious progress on how to handle interdisciplinary work. The current discipline-based framework applied by or influenced by other academic fields tends to be conservative in that it reinforces inherited university academic structures, when what we need is more effort to reflect structurally and organisationally how
the actual work of Humanities and specifically language academics is conducted, what fields it dialogues with and incorporates.

Is it possible for disciplines with their boundedness and tendency towards solidity to coexist in a non-discriminatory way with those working at the margins and borders, what is the role and places of Aboriginal Studies, or Asian Studies, self-conscious and coherent fields that overlap and possibly disrupt ways to organise and think of academic life in more traditional categorisations? These are all questions that LCNAU can contribute to and which should interest language academics, researchers and teachers.

**What are the refinements for ERA 2012 and beyond?**

Based on feedback received and experience gained from the evaluations of ERA 2010 substantial changes have been made to the methodology of future iterations of ERA.

These include the withdrawal of the Ranked Outlets indicator and introduction of a refined journal indicator that does not use prescriptive ranks, improved capability to accommodate interdisciplinary research – in an extension of the arrangement successfully trialled in 2010 for the mathematical sciences, institutions will be permitted to code a journal article with significant content (66% or greater) not represented by the journal’s FoR(s) to the FoR code that best describes the content. In addition, for peer review disciplines, an increase will be allowed in the low volume threshold to 50 apportioned weighted outputs, bringing it in line with the threshold for citation disciplines (50 apportioned indexed articles).

Finally, there will be a modification of fractional staff eligibility requirements so that staff employed at 0.4 FTE or greater are automatically eligible, while staff below this threshold are eligible where affiliation is shown (through use of a by-line, for instance).

**Engaging in debates**

The whole issue of esteem, operationalised through rankings and ratings of value, involves a dialogue between language researchers, non-research based language teachers, government and the scholarly publishing community. What might these debates entail and how can we position languages in them?

One predictable struggle will be about who does the ranking, what the consequences of ranking will be in careers of language academics, and what redress is available to us when rankings rankle, i.e. when we dispute what is decided. While languages share many of the characteristics of other Humanities differences there are also crucial differences. Many scholars in the general Humanities argue that their disciplines dispose them towards the critical rather than the useful, and as a result the conventional or ‘classic’ measures of impact cannot not apply to them. But, as I
argued earlier, language education combines multiple kinds of orientation, some part of it is plain useful, much of it disposes us to reflection about ourselves and others, some of it disposes us towards problematising, troubling and critical orientations.

We could expand the Minister’s claim that research should support innovation by including the language of social innovation, and extending usefulness from labour market indicators to individual learners, groups of learners, to the social climate of acceptance of minorities, of foreigners, of foreign ideas and, most abstractly, but perhaps most importantly, languages are ‘useful’ to the acceptance and understanding of difference itself.

In reading social innovation it occurred to me that it was a kind of distress call, though I wouldn’t want to overstate this, from the worlds of public policy and economics, admittedly only small sections thereof, for assistance in understanding why economic interventions so often fail to achieve the desired ends. In this respect, if there is a call for help, the notion of social innovation contains the invitation for the entry of humanistic reasoning into the domain of productivity reasoning in some schools of applied economics. At the very least our disciplines can shed light on ways in which policy interventions are experienced, and interpreted, and offer perspectives on how the social, personal, and also the subjective world of people, is written, thought about, created and imagined. Surely social change, as profoundly troubling as it inevitably is, and policies aimed to produce social change, can only be more richly informed by the methods, concepts, practices and thoughts of humanities disciplines. In one example that comes to mind, that of social integration of minorities, it is surely the case that teaching skills in language and culture can be the beachhead for inserting wider and deeper notions about the unique role of language education regarding acceptance and naturalisation of language and culture differences, i.e. that they are normal and intrinsic to other national traditions, to other societies, to other economies.

If we can find a shared way to talk about this, between academics and public officials, then we might move into the new ERA space with more confidence and could devise esteem and performance measures that are congenial to our professional activity. Most productively we need to develop a and propose alternative systems in which we can see assessments of research impact fitting into the stories that academics already tell each other about what research is useful, interesting, important etc, and then find a way to account for this story that includes politicians and public officials and the wider public. In this story I suggest we could begin by thinking of responsibilities:

- Academic responsibility which we owe to our disciplines;
- Cultural responsibility which we owe to our communities;
- Citizenship responsibility which we owe to our society’s place in the world and in time;
- Pastoral responsibility which we owe to our students;
- Professional responsibility which established academics owe to the future academics.
We also have opportunities to shape and influence how general assessments of performance occur and what they are taken to be in public debate, in funding, and in career paths. But we also have an obligation, to the work and rights of our colleagues to disrupt forms of assessment that are deleterious to good scholarship, to fair employment and to the place of languages in Australian tertiary education.

ERA might or might not be the most important public policy exercise facing us on these fronts, but it is very important nonetheless, and it remains a curate’s egg. Much of what is acceptable there we have fashioned ourselves and so it can and must be improved further, and we know that languages are not just ‘our’ disciplines, but sentinels of some deeper and significant consequences for the quality of advanced learning in general and the quality of our national culture.

Notes

1. Comments by two reviewers have been incorporated into a revised version of this paper.

References


