PURSUING PRODUCTIVITY, EXCELLENCE AND OTHER RESEARCH SNARKS: A Critique of Current Attitudes

Universities are ultimately responsible to the societies that sustain them for the quality of their research product. The idea, explanations, theories, prescriptions, criticisms and reflections that collectively comprise this product form an important element of cultural development and, naturally, of the productiveness of this kind is commended and encouraged. Commencement and encouragement are, however, no substitute for firmly grounded policy about the nurture of research. At present, research policy formulation in Australian universities seems to involve around interlocking national research objectives, categorization and priority determination for bureaucratic ends, and exhortations to maximize productivity—whether this is a little policy development that has its roots in an understanding of the complex ecology of the university itself and the attitudes, values, and mythologies that pervade the research realm. A contextual view, that includes an understanding of the rich and varied nature of research itself and the personal, professional and social realms that sustain it, is fundamental to informative policy making.

The Pursuit of Productivity

Who, in recent years, has not felt and resented the sense of urgency and promotion that surrounds any discussion or pronouncement about rates of research productivity. Under the guise of social accountability and utility researchers are exhorted to produce. The imperatives of a recessionary economy, a conservative ethos and contracting funds may fill many researchers with trepidation about the levels of competition induced within and between disciplines and research programs. In such a highly competitive environment there is a danger that normal expectations of productivity in research will be pushed towards limits beyond which a self-reinforcing pessimism of research activity is established and productivity becomes an end in itself. In this event the real purpose of research, to create knowledge, cultural development and social utility, are lost and researchers are sucked into an upward spiral of productivity and reward, reflected as a larger slice of the research pie, status and kudos. 

Ironically, the exhortation to maximize productivity reflects a misconception about the nature of research itself and the way in which it is deeply rooted in, and dependent upon, the strength and rich variety of function in the university, of which research is but part. The basic misconception is that research can somehow be understood and practiced in a common way among the various disciplines of the university. The reality is that there are significant, often fundamental differences about what comprises research. Different modes and processes of research, within and between the disciplines, bear different obligations. Creativity and discovery are not necessarily linked to high levels of productivity. That is why, contrary to the widespread popular belief, productivity does not decline with age. To complete the heresy it has to be said that there are fundamental problems in measuring the real level of productivity anyway.

It is worth exploring some of these considerations further.

Productivity, Creativity and Discovery

In the context of research, creativity at an individual and team level is reflected in innovation and discovery. If new knowledge is established as a result of research then the people, processes and product involved may be labelled creative. It is often assumed that a high level of productivity is a necessary precondition for creative achievement, but as Peiz and Andrews demonstrate there is no general rule that abundant producers are creative thinkers. Some are, and rely on their abundant product to provide the ground for real breakthroughs, others use their abundant product to compensate for, or even to mask, a lack of such breakthroughs Conversely, there is no general rule that creative research must be also productive. If any research results do not often come regularly and that considerable interludes may separate these interludes are critical times in their professional and personal development. These interludes are occasions when the theoretical development of the discipline involved, often become benchmark markers for personal development, they occasionally progress the knowledge base of the discipline and, even more occasionally, the culture. Einstein's suite of pivotal papers in 1905 is a prime example of this clustering of productivity; indeed a career marked by few but creative research events. For some researchers their most innovative work is clustered at critical times in their professional and personal development. These surges outside the mainstream, especially within the theoretical development of the discipline involved, often become benchmarks markers for personal development, they occasionally progress the knowledge base of the discipline and, even more occasionally, the culture. Einstein's suite of pivotal papers in 1905 is a prime example of this clustering of productivity; indeed a career marked by few but creative research events. For some researchers their most innovative work is clustered at critical times in their professional and personal development. These surges outside the mainstream, especially within the theoretical development of the discipline involved, often become benchmark markers for personal development, they occasionally progress the knowledge base of the discipline and, even more occasionally, the culture. Einstein's suite of pivotal papers in 1905 is a prime example of this clustering of productivity; indeed a career marked by few but creative research events. For some researchers their most innovative work is clustered at critical times in their professional and personal development. These surges outside the mainstream, especially within the theoretical development of the discipline involved, often become benchmark markers for personal development, they occasionally progress the knowledge base of the discipline and, even more occasionally, the culture. It is hard to believe that this perception of research is anathema to those who have a more reductive view about ordered, regular thinking and production processes. In fact, of
course, the perceived inactivity in the interlude is an illusion; these periods being most valuable for the interrelation of formulation and purification which is the basis for the next round of intense and innovative activity.

These interludes may be necessary gaps in a research project, but in order not to misinterpret them as signs of inactivity, uninterest or as evidence of a failing talent. Indeed, rejection by peers and funding agencies during such periods may be disastrous to the ultimate productivity resulting from a successful breakthrough in the project.

Hidden Productivity

Of course, there are often good reasons why researchers cannot appear to be constant producers. A lack of public pronouncement does not necessarily imply a lack of productive work. Indeed, there is a considerable amount of research work that is highly productive but remains temporarily hidden from the wider research and general communities.

When researchers are preparing the ground for a particular project, for example, there is a period of working through the existing literature, establishing information systems and designing experimental methods. These are all essential preparatory activities which are creative and productive. As is the building of working relationships with colleagues and friends and the generally becoming attuned to the balance between personal initiative and collective wisdom. These preliminaries rarely result in publications except in the rare case of post-hoc reporting of the sociology of the research event. However, there is often a wide array of informal work and discussion papers produced that add to the ultimate bank of knowledge on the project. From time to time, there is also a need to shield from partial validity, sensitive or confidential research from pronouncement to the academic and wider communities. It may be more important to engage with intensive, but private dialogue and circulation before establishing an appropriate basis for more public communication.

Age and Productivity

Among the most prevalent misconceptions in the university research community is the supposed correlation between the advancing age of the researcher and decline in personal research productivity. Lehmans's proposition that researchers and other people who work intensively are likely to peak in productivity at around 35-40 years of age seems to be a part of the mythology of research management. The publication in 1969 of Butler, Stern and Knorr's book 'The Middle Years of a Research Career' is often cited as support for Lehmans's work by Butler, Stern and Knorr (1969 p. 68) the image of the young researcher as the founding head of productivity is hard to break. Indeed, a research generation ago Peiz and Andrews indicated that productivity and creativity typically peak twice in the careers of pure explorers researchers. The first peak occurs at 35-40 years, supporting Lehman's analysis, then another peak later, at 50-60 years of age. It is the perceived trough in research productivity at mid-40 years of age that is critical.

For the university to embrace research priorities and funding policies which, directly or indirectly, fail older researchers and regard them as nearing the end of their productive lives is an effective means of determining their decline. Sudden funding chocking and other seemingly arbitrary actions affecting the trough age group of the mid-40s, produces the caution and lack of confidence sometimes associated with older researchers. The university needs policies that are sensitive to the vast potential of maturity: helping mid-career researchers to realize themselves, having faith and patience in older colleagues, encouraging them to speak out, to speculate and to offer new perspectives to younger colleagues.

Research Modes and Productivity

Productivity also varies with the mode of research involved; the split between pure or fundamental research and problem or mission-oriented research being critical. Problem-oriented research is usually characterized by a careful delimitation of objectives to suit the available resources: it is usually short term, targeted and pragmatic. Objectives set within the university funding organisations and sponsors who work on the basis of short-term goals, provide a strong impetus for systematic and frequent productivity in this research mode.

On the other hand, however, pure research tends to be longer term, held high levels of speculation, and consequent high risk of failure; it is theoretical, even esoteric, often cross-disciplinary and tends to expand beyond its funding base. The pure research mode may not be highly productive but it always holds the potential for the kind of profound shifts and developments in knowledge that are of great cultural value in the longer term. It may also open off problem-oriented research projects, by a careful delimitation of procedure. For example a pure exploration is ascribed to a fundamental discovery. The research may then be useful within society and it may serve purposes which were unimagined previously. There are many researchers who, in the course of their research, who react not to massive or expensive publications, but to the sudden openning of a new world, believing in the adage that it is important to have something published, if only to provide a base for further pubilicing. As Knorr et al indicate, multiple authorship, length of articles, failure to distinguish the highly original and novel from the more routine, so-called 'salvaged' or 'salvaged' plagiarism are complicating factors in establishing the real level of productivity of researchers from the raw data.

Whilst there is no disputing the value of genuine publication as a means of disseminating ideas, stimulating intra-disciplinary critique and dialectic and as a developing record of the knowledge base, it is important not to overlay an image that high publication levels, productivity and the worth of the particular researcher are necessarily mutually interdependent.

The central argument here is that productivity levels in university research are variable. The complex weave of social structures, conceptual processes, diverse personal attributes and other characteristics of the research community discussed above produce an irregular series of peaks, plateaux and troughs in productivity that complicate the idea of encouraging excellence among the worth of particular researchers and projects.

The Pursuit of Excellence in Research

Whilst no one would seriously argue against the idea that excellence in university research, there are problems in deciding what comprises an excellent piece of research, in recognising it when it occurs and in providing an appropriate level of encouragement to future researchers. Some prize elegance and the aesthetic and compositional symmetry. Others see beauty in an entirely different way and may be ascribed to an event of excellence purely on the basis of short-term goals, provide a strong impetus for systematic and frequent productivity in this research mode.

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Utility and Excellence

The distinction between great utility better explains the pattern of phenomena being investigated. It is powerful in prediction and is highly generative, it styles if many questions as answers and it opens avenues for development and discovery that may have been unimagined previously. On a pragmatic level such an event may be directly and immediately useful within society or it may serve to contribute to the creative impetus to the creation of socially useful products.

Internal Integrity and Complexity

The research event of great integrity has a sense of entirety and close adherence to the precepts of its paradigmatic environment. It may even be so powerful as to forge its own paradigm. It must demonstrate great consistency with the conceptual structure, the perceptions and the methods of the paradigm. Distillation is critical and clear distinctions are made both within the phenomenon investigated that are to be included and those to be excluded, those assumed as given, constant and those designated dependent and independent. Integrity also depends on the quality of preinvestigation and hypothetical model construction, the accuracy and structural necessities of data bases and the depth and appropriateness of the analytical methods used. The coherence and consistency of inference and interpretation, pattern recognition and theoretical model construction, with the care and rigour of the validation procedures.

The Aesthetic and Excellence

The myth of an objective, value free, unisonational basis for research has not vanished. The myth of the literature of research and discovery is alive with reference to aesthetic preferences. Dirac's assertion that 'God does not play dice' provides an explanation is more likely to prove correct than an ugly research does not serve to replace in the literature of research for many the idea of encouraging excellence and excellence in research is ascribed to an event of excellence purely on the basis of short-term goals, provide a strong impetus for systematic and frequent productivity in this research mode.

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l Opportunity aggregating in a particular field of knowledge, compared with other events which are more overarching and embrace wider theoretical developments. The Misesian view is that successful research events are available at regular intervals for the public documentation of research is dominated by reporting of the achievements only, whilst the preconditions for excellence in the organisation that any research event is a product of the self-image and its morale.10 He cites the importance of a strong collective image, highly developed internal communication, freedom of expression, equality of status and an adequate base of fundamental pre-requisites. To this may be added the value of role interaction, tolerance of alternate academic viewpoints and the support of researchers during times of both high and low levels of achievement. If such a community is to be established, or re-established as the case may be, then university management must come to terms with the complexity of the organisation that it is managing, rejecting any downhill slide into the sterility and desiccation that is so deeply characteristic of bureaucratic models. University management that is sensitive to the need for diversity, that encourages autonomy among its various researchers, than can communicate across the developing gap between itself and its researchers, and that encourages both control, established research projects and more peripheral, exploratory ones is desperately needed.

References

Conclusion
Arguing for the view of the university as a learning community, and for a contextual attitude to the pursuit of productivity and excellence in its research, touches on the complex ecology that is the modern university. The most strongly made point in support of a continuous and dynamic conception that any research event is a product of the struggle, the personal and professional realms of the individual researcher and the sense of collective responsibility throughout the institution.

The complexity of the research realm penetrates deeply into the university. The multiplicity of roles, with theorems and hypothesis producers, social argument producers and the plethora of auxiliary and facilitative roles provides the mix necessary for an equally varied and complex research process. As if this is not enough, the diversity of the research process and method evident within and between the disciplines of the university, adds another level of complexity. Weimer stresses that there is no single logic or algorithm for scientific discovery and that research processes are rarely smooth and sequential. Even in research dominated by the rigours of scientific and taxonomic method progress is often stuttering, with pauses, delays, mistakes, iterations and leaps of insight, that disturb any notion of flow from problem definition to discovery. La Tourel found that even in apparently straightforward and mechanical research experimentation there is ample evidence of a more turbulent intellectual environment than that suggested by formal reporting of the research work. There are indeed chaotic, illogical, opportunistic and contextual forces at work in parallel with the rational ordering forces of research.

The diversity arising from these differences is, paradoxically, a source of unity for the university — a unity based on an understanding and respect for the richness of the learning field that it provides, together with the potential for collaboration and interaction across the various disciplines. Management of this diversity requires great sensitivity, adaptability and faith. Research managers must realize that, unlike the business organisation, the university research complex has a wide variety of units of production and research is devoted in almost autonomous groupings, individual growth and difference is encouraged, external direction is generally not desired and self-regulation among its various groups, institutes and individuals is desirable — a different environment entirely to the normal hierarchies of public and private bureaucracies. It requires a different management strategy. The integrity of the university research community is gauged by how much the researcher can feel self-expression and self-determination to be their natural due, wedded with some of the wider community from which extends the exchange, critique, facilitation and moral support so necessary for research performance. As Johnson asserts, the preconditions for excellence in a tertiary education institution revolve, naturally enough, around the academic staff — its self-image and its morale.10 He cites the importance of a strong collective image, highly developed internal communication, freedom of expression, equality of status and an adequate base of fundamental pre-requisites. To this may be added the value of role interaction, tolerance of alternate academic viewpoints and the support of researchers during times of both high and low levels of achievement. If such a community is to be established, or re-established as the case may be, then university management must come to terms with the complexity of the organisation that it is managing, rejecting any downhill slide into the sterility and desiccation that is so deeply characteristic of bureaucratic models. University management that is sensitive to the need for diversity, that encourages autonomy among its various researchers, than can communicate across the developing gap between itself and its researchers, and that encourages both control, established research projects and more peripheral, exploratory ones is desperately needed.