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ABSTRACT

The paper considers the key changes in tertiary education research and the national science regime under neo-liberal governments in New Zealand. It tracks the moves in both systems towards mounting contestability and integration for increased economic performance. This investigation questions whether government policies around knowledge production will be successful in giving New Zealand entree into the much touted "knowledge society" and whether this is a desirable goal for the country, anyway. Finally, it looks at the other possibilities for the production of knowledge and the conditions within which it occurs. (Contains 45 references.) (Author/SAH)

A Decade of Change for Tertiary Education and Science Research in New Zealand: Who Benefits?

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Abstract

The paper considers the key changes in tertiary education research and the national science regime under neo-liberal governments in New Zealand. It tracks the moves in both systems

towards mounting contestability and integration for increased economic performance.This investigation questions whether government policies around knowledge production will be successful in giving New Zealand entree into the much-touted "knowledge society" and whether this is a desirable goal for the

country, anyway. Finally, it looks at other possibilities for the production of knowledge and the conditions within which it occurs.

Introduction

It is old news today to talk of New Zealand's fifteen year old experiment (Kelsey, 1997) with New Right policies. Peters and Marshall (1996) have characterised the main theoretical elements of the New Right as: a reliance on market forces as the most satisfactory way of distributing society's goods; a strong notion of individualism in all areas of social organisation; and the concept that 'big government' is deleterious to the efficient workings of the market and therefore disadvantageous to society as a whole. Under New Right Governments of both New Zealand's major parties: Labour and National, the country has experienced the ascendancy and now dominance of the discipline of economics and its underpinning requirement for ever-increasing efficiencies (however bizarre and inefficient these may be) as the main arbiter of daily life. Economics, or at least its neo-liberal spawn have had a hyper-performative effect on traditional business contexts such as financial markets and the workplace and have gone on to encompass realms traditionally outside the ambit of commerce such as education, health and the family. The adjective *hyper-performative* in this context borrows from Jean François Lyotard's notion of performativity (1984). He writes:

> The true goal of the system, the reason it programs itself like a computer, is the optimisation of the global relationships between input and output - in other words, performativity. Even when its rules are in the process of changing and innovations are occurring, even when its dysfunctions (such as strikes, crises, unemployment, or political revolutions) inspire hope and lead to belief in an alternative, even when what is actually taking place is only an internal readjustment and its result is no more than an increase in the system's "viability." The only alternative to this kind of performance improvement is entropy, or decline (Lyotard, 1984: 11-12).

The New Zealand government's quest for high economic performance embodied in the notion of a "knowledge economy driven by knowledge workers" has increasingly leaned towards the integration of university/tertiary education research and government science research. Such a strategy may eventually pull all government funded research into the service of the economy through contestability and its associated power over what kind of knowledge is produced. Lyotard (1984: 47) again:

> Power is not only good performativity, but also effective verification and good verdicts. It legitimates science and the law on the basis of their efficiency, and legitimates this efficiency on the basis of science and law....
>
> Research sectors that are unable to argue that they contribute even indirectly to the optimisation of the system's performance are abandoned by the flow of capital and doomed to senescence. The criterion of performance is explicitly invoked by the authorities to justify their refusal to subsidise certain research centres.

In the current climate, the convergence of tertiary education and science research within the same framework would happen in an acultural, asocial policy environment of futurology. Ironically, government policies in both science research and those planned for tertiary education research are more likely to further erode rather than increase New Zealand's wealth, as well as its spirit despite the rhetoric to the contrary.

The Tertiary Education White Paper

In the *Tertiary Education Review White Paper* (Ministry of Education, 1998) released in November 1998, after a long and breath-holding wait by tertiary institutions, the New Zealand National Government outlined its goals for tertiary education. Many of its suggestions pick up where the Government (both Labour and National) left off in 1990. As Butterworth and Tarling (1994: 249) prophetically noted in their epilogue of *A Shakeup Anyway* : "In a different political context the 1990 Act (Education Amendment Act) might be seen as something of a compromise. It may be better seen in the 1990s as a stage in a continuing struggle."

Criticisms of the 1998 *White Paper* came thick and fast following its release in November and included:

*the introduction of a pseudo-voucher system for tertiary education in the form of the Universal Tertiary Tuition Allowance. This was announced in the *1998 Budget* (Fancy, 1998) and prior to the *White Paper* but formed an integral part of its policy to fund Private Training Establishments (PTEs) at the same rate as government institutions and allow funding to 'follow the student

(situated as consumer)' in a strong consumer/provider relationship. The allowance was promised at first to be just above the 75% funding level, but in the wake of the Asian Economic Crisis it fell below to only 72.4% of full costs.

*differential funding (more commonly known as capital charging): the transfer of funding through the EFTS system from asset-rich to asset-poor institutions, possibly including PTEs. The peculiarity of this particular approach is captured in the following quote from the *New Zealand Educational Review* (Gerritson, 1998:9):

> A controversial aspect of the differential funding system is the possibility it could include private training establishments (PTEs). If that happens the government will be in the unusual situation of compensating private operators for the fact that it paid for assets at state institutions. Furthermore, it could see private organisations given state money for the purpose of buying assets the state will not own....

*Issues around governance and the establishment, composition and powers of Tertiary Institution councils. The *White Paper* proposed giving far greater power to the Minister of Education to influence the composition of councils, in addition, councils were reduced in size and formal representation of staff and students was not permitted (Ministry of Education, 1998).

The particular focus here, though, is the government's research policy for tertiary education as articulated in the *White Paper* . Key changes in the research policy for tertiary education as expressed in the *Tertiary Education Review White Paper* were as follows:

Allocating Vote Education Research Funding and Assuring the Quality of Publicly Funded Research

* The quality of research, where research is required, will be assured by the same process as that used for assuring the quality of courses generally.

*From 2000, the government will introduce a dual system for funding research at tertiary providers.

*First, most research funding from Vote Education ($80 million out of ($100 million) will be allocated through tuition subsidies based on student numbers in a way that is similar to the current system.

*Second, $20 million of current EFTS subsidies for research will be separated and allocated through a contestable pool for advanced research.

* The operation of this contestable pool will be reviewed in 2001.

*Subject to the results of this review, the size of the contestable pool will be increased gradually to $80 million over a three-to-five year period starting in 2002 (so reducing the research component of tuition subsidies for degree programmes to $20 million) (Ministry of Education, 1998:31).

Criticisms, specifically targeting the proposed research policy quickly followed the release of the paper. The conveniently round figure of $100 million that the government supposedly currently contributed through EFTS funding to the tertiary research effort was denounced as being crude and inaccurate:

> Lincoln University vice-chancellor Frank Wood questioned the $100 million figure set aside for research and said that it did not appear to be a calculated figure but a number that had grown (Cassie, 1998a:10).

The zero-sum game of taking money from current EFTS to, firstly, transfer through an EFTS top-up and, eventually, through almost full blown contestability raised a number of problems for universities, in particular. Early calculations determined that the money targeted for redistribution was coming primarily from current university (rather than polytechnic) enrolments and particularly post-graduate subsidies. Even more worrying for cash-strapped science faculties was that the proposed across-the-board top-up for doctoral science students would be levelled to the same rate as for Arts, whereas the current differential varies between $4-6,000. High compliance and administrative costs in a contestable environment were seen as a difficulty especially since the government had established the $100 million figure (of questionable historical derivation) with no indication of future increases. As Association of University Staff research committee spokesperson, Neville Blampied, noted: "The proposal does nothing to address the desperate underfunding of research in New Zealand" (Cassie,1998a:10). In addition, the government's requirement for a strategic focus in the research requiring that: "Researchers...demonstrate how their portfolios will develop the innovation and resource capabilities of New Zealand" (Ministry of Education, 1998:33), was criticised as being anathema to the university system where any research of significance would be supported, whether or not it had specific relevance to New Zealand e.g. the investigation of Sanskrit manuscripts or a cure for malaria (Cassie,1998a:10). The University of Canterbury Vice-Chancellor, Daryl Le Grew, called the government's proposed policy "anti-intellectual", "aggressive anti-university" and a "macho approach to the way that dry economics is being run in this country" (Cassie,1999a:1). In particular, he made the point that the international credibility of New Zealand's universities was at stake with the threat of even lower levels of research funding in the context of already low research funding by international standards.

In fact, zealous idealogues in government and Treasury had attempted to draw university research funding into a contestable funding pool for over ten years. The footprints of these earlier attempts are clearly discernible in the *White Paper* . The far reaching and ideologically cohesive *Government Management* (Treasury, 1987) was one such signalling device. As Butterworth and Tarling (1994: 124) noted:

> Those volumes, described on the front as a brief for the government, and on the back as a brief for the Minister of Finance, adopted an approach that resembled that of the 1984 briefing paper but went much further, indeed well beyond any possible job description it (Treasury) might be

thought to have in a system of representative Cabinet government.

Contestability, accountability, separation of the teaching and research funding lines, and performance measurement through output formulae, were all central to Treasury's vision for tertiary education. In this environment, the *Report of the Working Group on Post-Compulsory Education and Training* (Hawke, 1988) (more commonly known after its convenor, Professor Gary R. Hawke, as the Hawke Report) was released on 31 July 1988 after secret discussions with individuals rather than open negotiations with the tertiary and especially the university sector.

> The report - Treasury designer chic locked in a death struggle with the English language, ... affirmed devolution whilst providing for highly centralised structures; asserted teaching and research were interdependent, but proposed a separate funding for each function; stated that councils must 'reflect the community' but reduced them in size; claimed that there should be no barriers to entry, but supported charging higher fees (Butterworth and Tarling, 1994:137).

The University of Auckland, in particular, took a very dim view of the lack of consultation and secrecy surrounding the Hawke Report and, along with the University of Canterbury sought legal council and threatened legal action against the Labour government. The latter was narrowly averted by the establishment of a working party of Vice Chancellors and officials in February 1989. In essence, the Hawke proposals, particularly as regards the separation of teaching and research were not followed up. Instead, a more modest arrangement, the Tertiary Research Board (TRB), was to be charged with the job of arranging limited contestable funds in the tertiary sector for particular research projects. The board was to be established in July 1990 with five members appointed by the Governor General. However, with major changes in tow for government science funding and the desire to integrate tertiary education research in some way with a strategic government science regime, the TRB was put on hold (Palmer, 1994).

Strategic Planning and Public Good Science

While tertiary education, and the universities, in particular, escaped the worst excesses of the Labour Government restructuring at the close of the eighties (Butterworth and Tarling, 1994) (only to have them revisited in the late nineties), government science funding underwent the most fundamental changes since the inception of the Department of Scientific and Industrial Research (DSIR) in 1926. Butterworth and Tarling (1994: 236) write:

> Government policy on contestability in DSIR had emerged only after one of those engagements familiar in Wellington between Treasury Ministers and their current target Minister. The then Minister of Science, R.J. Tizard, had staunchly defended the DSIR against the threat of instant implosion.

Ministry of Research, Science and Technology (MoRST), historian, Clive Palmer (1994), tracks years of dissatisfaction within the science regime leading up to the restructuring. Numerous working parties and subsequent reports throughout the eighties had advocated changes to a science funding regime which had, since the establishment of the DSIR, worked within a departmental framework led by career scientists. Some had called it a soviet style management of science while others believed it had served New Zealand very well.

As a response to the reviews, and in line with other government policy influenced at the time by public choice theory, the overhauled science regime was designed to reduce interest group capture (scientists in this case), and to separate policy advice and policy implementation. The Ministry of Research, Science and Technology (MoRST) and the Foundation of Research, Science and Technology (FoRST) were established in 1989 and 1990 respectively under the Labour government. Palmer (1994: 44) writes: "The era of strategic thinking (and management), long sought after by NRAC, Beattie, STAC and others, had arrived". Although changes had been occurring in the DSIR over the latter half of the eighties, this new form of managing science research in New Zealand was a marked change from the professional leadership that had distinguished its management previously. And in the bi-partisan New Right environment of the time, strategic planning for New Zealand science meant exploiting science and technology as far as possible in the service of the economy. As Peters (1994: 317) has noted:

> The then Minister of Research, Science and Technology, Simon Upton, in his foreword to the Summary of the Report of the Ministerial Task Group (1991:4), leaves little room for misunderstanding when he states that science and technology are the 'cornerstones of economic growth and sustainable management' and that the restructuring of traditional science departments into commercially-oriented research companies 'forms part of a much broader blueprint for economic change'.

The universities were eventually brought into the system in a limited way when they transferred $10.2 million to the PGSF in late 1992 (Palmer, 1994). As Butterworth and Tarling (1994: 235) had observed earlier:

> If divisions of the DSIR were to compete for pooled funds, should they not have outside competitors? Given the low level of private-sector investment in research and development, whence could competition be drummed up from other than the universities? ....Funding would migrate permanently from Vote: Education to Vote: Science and university research would become more narrowly focused on what Cabinet from time to time decided should be financed.

The major contestable fund through which researchers and institutions would apply for funding was named the Public Good Science Fund and was administered through the Foundation for Research, Science and Technology. The distribution of funds over the, firstly forty, and later seventeen output classes, within the PGSF fund between 1990 and 1999 demonstrates that the great proportion of government funding goes into mature, capital-rich industries such as the dairy industry, forestry and forest product industries, horticulture and others. Moreover, although the government's own rhetoric indicates that one of its four high level goals is to: "Enhance New Zealand's capacity to innovate through knowledge creation and by developing capabilities and networks (FoRST, 1997:4)", the sudden demotion of John Manning, Manager of Technology New Zealand earlier this year, threw their stated priorities into question. John Manning had publicly announced that the primary sectors were getting around 60 per cent of tax-payer funded research money while contributing little of their own, while sunrise industries such as electronics,

information technology and manufacturing were getting less than 12 per cent of money distributed through PGSF. The rumour was that members of some of the research institutes had complained about Manning's comments to the Minister Maurice Williamson and that this prompted the demotion (Braddell, 1999). Interestingly, Manning's comments have been supported subsequently through the government's *Bright Future* programme (Ministry of Commerce, 1999) (which privileges 'innovation' through technology), but Manning himself has never been reinstated in his previous position of responsibility. Embarrassingly for the government, his views were made public just before a prime time documentary by journalist Rod Vaughn (1999) looking at the brain drain of educated New Zealanders to Australia and other countries in a context of poor economic performance in New Zealand and lack of good career options for well-educated and student loan burdened young people. One of the difficulties, highlighted is the dearth of opportunities (and investment finance) for young people wanting to get fledgling, high tech businesses underway. The programme also emphasised the lack of economic success in New Zealand where Government was explicilty "hands off" in terms of economic management compared to countries like Ireland where the government had taken a very proactive stance towards promoting economic and other types of growth.

In addition to large amounts of government money being spent on what Manning had described as sunset industries only a very small amount of PGSF funding is specifically targeted for Social Science research despite a high level government science goal (one of only four) being:

> Contribute to well being, equity and inclusiveness in New Zealand society by increasing knowledge of our own and others' cultures, societies, economies, histories and international contexts, and by supporting the uptake and use of such knowledge (Williamson, 1997:3).

In the 1997/98 year $6.9 million of the total pool of $282 million (about 2.4%) went to output class 13, Society and Culture (Williamson, 1997). Although social and cultural aspects could be incorporated into research in other output classes the lack of specific targeting went no way to ensuring that this happened.

Professor Ian Pool, from the University of Waikato has roundly criticised the lack of social spending through the contestable fund. In a conference paper for the Science and Public Policy Conference, Wellington, 1997, he noted that Health and other social policy amount to approximately 78% of total Government spending, while funding through the PGSF allocation for both amounted to about 8% of the total. He went on to say that: "...we have not established an environment for the formulation and implementation of informed, and thus efficient social policy. In this area as in others 'you only get what you pay for'"(Pool, 1997: 9).

The New Era - Foresight Science

In December 1997, the Ministry of Science, Research and Technology launched the Foresight Project. The point of the exercise was to involve research 'providers' and 'end-users' in a major new reprioritising and consultation exercise for the PGSF with the purpose of meeting new Government target *outcomes* rather than what had been perceived to be rather more narrow target *outputs* . Given that the number of categories remained the same at seventeen, the reasons for involving the science community in such a huge and costly exercise became more doubtful, especially since the system had been through two reprioritising exercises since the PGSF was established in 1991. Cassie wrote: "the research sector faces this latest shake-up to the science system already wary, if not a little demoralised, after a decade of change and stagnant funding" (Cassie, 1999b:7).

It would appear that three major areas of motivation underpinned the Foresight project:

*It provided a chance to publicise and gain (selected) cross-sectoral support for the government construction of New Zealand as a knowledge society.

*It enabled the introduction (through the change process) of project funding by negotiation directly with PGSF staff rather than through peer review. Thus placing even more power into the hands of FoRST bureaucrats and government ministers.

*It initiated a process which encompassed tertiary education (supposedly) and began to forge closer links between the three sectors: tertiary education, business and science.

Foresight planning in New Zealand happened in one of the most commercialised, competitive and contestable government funded science regimes in the world (Ziman, 1994). This type of organisation of government science makes project life less certain, science jobs less secure and, because of the tight government control of the purse strings through bureaucrats, power over what counts as 'useful or important' research can be exercised very strongly. Conducting the exercise through a *Foresight programme* (which was new to New Zealand although other countries had used the process for some time e.g. the United Kingdom) was a significant way of advertising and getting support for policies which may have seemed less palatable without the brouhaha surrounding the process. Some of the discourse of Foresight in New Zealand, particularly within the Foundation and Ministry, rang with almost religious fervour and childlike playfulness. Steve Thompson's (Chief Executive of FoRST) completely fanciful article, describing *faper* - paper made from fish scales, in the Foundation newsletter (Thompson, 1999:6) was a good example of this.

Foresight was billed as a way of removing the supposed shackles of thinking about the past and present and starting from a 'clean slate' to imagine the desired future in New Zealand, 2010. It presented three scenarios in *Building Tomorrow's Success: Guidelines for Thinking Beyond Today* which the public were invited to choose between as an ideal for New Zealand. The scenarios were: Possum in the Glare, Shark Roaming Alone and Nga Kahikatea Reaching New Heights. Only the last of these had any appeal and was pre-constructed as a choice. Michael Peters (1999:4) in an examination of the Foresight Project asks the following

questions:

> We might inquire as to whether this really represents anything like a futures exercise or rather...expresses rather obviously *present* fears. The second feature that deserves comment is the limited and ideological nature of the choices that are constructed for us. What determines the number of scenario-narratives we should construct/ why three rather than twenty three? Is there an optimum number? ...We must ask ourselves who is constructing these *future narratives* and for what purposes. What are the choices that the scenario builder is forcing us to make and are these choices always mutually exclusive? Is there ever a genuine choice to be made or is the process here always one that is intended to trade upon particular ideologies.

In addition, Peters (1999) traces the philosophy and planning process employed by MoRST to a variety of management theory known as *scenario building* . It originated in filmmaking and was popularised in the corporate world Royal Dutch Shell as a method of business management.

Foresight *science* planning is borrowed from overseas science planning exercises and as the United Kingdom Foresight website boasts is (among other things):

*breaking down barriers to collaboration across business sectors and academic disciplines, and between business and the science base;

*focussing business and the academic community on key issues for quality of life and business success in the 21st century (United Kingdom Foresight, 1999).

While these would be goals of the New Zealand programme as well and have been an historical mission of neo-liberal government in New Zealand, there had been little involvement of the universities or recognition of their role as 'knowledge institutions' in the Foresight exercise. The Midsight conference of the Foresight project in Wellington in 1998 was attended by more than 200 people. Approximately five of these would have been from the tertiary education sector and only one was a 'prominent university figure'. The conference claimed wide national and sectoral consultation, although only approximately fourteen of the participants were women, four were Maori and two were Pacific Islands. No other ethnic groups seemed to be represented.

Wallace and Packer (1998:1-2) note that New Zealand government foresight fails to take account of two important areas:

> 1. ...economic effects are not sufficiently theorised in terms of the wider forces underpinning them, forces which are actually social and cultural;
>
> 2. the likely effects on society and culture of globalising economic practices and imperatives are not drawn out.

They also criticise the foresight process as being too simplistic and monological. They write: "What is required are scenarios where a variety of voices and languages are placed alongside each other so that they can keep on discussing the evolution of their environment" (Wallace and Packer, 1998:14).

The National government's intent to harness knowledge production in New Zealand for economic growth was highlighted through two key projects in the late nineties: the Foresight project and the Tertiary Education Review White Paper. The concept was still rather crude, however, as the documentation of neither was cross - referential. It was recognised, by late 1998 when the *White Paper* was released that increasingly lean government policies for tertiary education were impeding rather than promoting a healthy economy, society and knowledge base for New Zealand. The solutions, however, were not broadly agreed upon.

Max Bradford - First Time Minister for Tertiary Education

The appointment of Max Bradford as Minister of Tertiary Education in the National government's January 1999 cabinet reshuffle heavily underscored an intention for an explicit and a (somewhat) simplistic yoking of tertiary education (and, more specifically science and technology) for the purposes of economic growth and caused apprehension among many through the university sector. Max Bradford is a strong supporter of New Zealand's economic restructuring and has been integral to many key changes during his time in parliament e.g. the deregulation of New Zealand Post and the Employment Contracts Act. His pre-parliamentary career spanned finance, economics and employment and included a number of years in Treasury, four years working for the International Monetary Fund and later the Employer's Federation (Chen and Palmer, 1998:1-2). Bradford is currently the Minister for Enterprise and Commerce, Minister of Revenue, Minister of Defence. That tertiary education should warrant its own portfolio, separate from the compulsory sector might have been welcomed in another context but under Bradford many were worried that the appointment meant a further retreat from public tertiary education in New Zealand (Barkness, 1999:6). Mr Bradford's appointment seemed to solidify the threats from the November *White Paper* . Moreover, Prime Minister, Jenny Shipley's new clustering of responsibilities had explicitly drawn together portfolios of tertiary education, commerce and enterprise, science, research and technology, and the Crown Research Institutes into one cluster which Bradford readily admitted was to bring the tertiary sector on board with promoting growth in the economy. The *New Zealand Educational Review* reported:

> Bradford said he, along with cluster colleagues Maurice Williamson and Simon Upton, were going to be building up a closer network between their sectors to meet the common aim of stimulating growth.
>
> In his own area of enterprise and commerce, work had been done developing ideas to provide a "major stimulus" to help growth industries particularly clusters of like industries. "To do that we've got to have a major growth input of intellectual capital into key industry groups that have got major growth or significant growth potential." He said obviously the tertiary sector from industry training organisations to universities had a role to play in producing the intellectual capital needed (Cassie, 1999b: 3).

According to the *White Paper* , however this was to be achieved in an environment where university research was to receive no more and in fact saw funds decreasing in post-graduate areas and through the bureaucratisation involved in contestability.

Subsequently, though, Bradford distanced himself from the *Tertiary White Paper* . Bradford's cabinet cluster has undergone a major rethink of how New Zealand's prosperity might be achieved. On Vaughn's (Vaughn, 1999) documentary, Maurice Williamson , Minister for Research, Science and Technology, admitted that New Zealand may have to look to the Irish example of strong government leadership and support to improve our situation, he admitted that this amounted to "blasphemy" for a National cabinet bent on "smaller and less" government.

Bright Future

Just eight months after the *Tertiary Education Review White Paper* was released the weekend paper sub-headline read: "A review of *tertiary education* on hold as the Government rethinks *economic strategy* " (my emphases) (Small, 1999:1). The article implied that not enough thinking had gone into the *White Paper* on how knowledge production in tertiary education could be linked to economic growth. Indeed, the *White Paper's* recipe for hollowing out postgraduate programmes (particularly those of science and research) and research generally, haunted the government as increasingly the warnings and realities of the "brain drain" and truncated science careers commanded expanding media space.

The *Bright Future* package, launched by Max Bradford and Prime Minister Jenny Shipley, on 18 August 1999 very clearly underscored the fact that some thinking *had* gone into repositioning the National government's tertiary education policy just three months out from an election. *Bright Future* is the government's answer to accusations of a lack of government leadership and direction in New Zealand's knowledge policy. It explicitly pulls together research, business and education for the service of business and economic performance.

The *Bright Future* sixty-four page package is, ostensibly, the result of consultation across the country during Max Bradford's *Five Steps Ahead* roadshow between April and July 1999. The five steps as announced in February are as follows:

- lifting our skills and our intellectual knowledge base
- better focussing the Government's efforts in research and development
- improving access to capital
- getting rid of the red tape stifling innovation
- promoting success, and supporting creative and innovative New Zealanders (Ministry of Commerce, 1999:7)

These directives support a very wide ranging set of strategies and are currently driving policy within the science regime as well as in education at all levels. The *Bright Future* document integrates and articulates the goals for government science, education systems and research, in particular, more cohesively than in the past.

> Effective linkages between the world of work and the world of education are crucial and need to be strengthened....These linkages need to be fostered from an early age through entrepreneurial studies at school (Ibid: 16).
>
> The movement of people with specialist skills will be an important catalyst for spreading innovation across the economy. We need to increase the flow of ideas between researchers and industry, both internationally and within New Zealand. It is imperative that the worlds of education, research and business achieve a genuine partnership (Ibid: 29).

Interestingly, the document is published by the Ministry of Commerce even though it outlines programmes in the Science and Education fields. While cohesion in policy can be a very constructive thing for a country, and many would welcome the government finally showing some leadership in the area of economic development, it appears to close down different ways of thinking about knowledge, education, science and technology. It never entertains a discussion, for example, of education for citizenship or knowledge for living, not just as something to profit from.

Few could disagree with the populist rhetoric of the *Bright Future* package. Slogans and truisms saturate the document:

> ...ideas are our greatest asset....Governrnent will make life simpler for the small and medium-sized businesses that are the powerhouse of the New Zealand economy.... We've got to want to be the best and have confidence in ourselves that we can do it.... Educators have an important role in equipping students to positively contribute to the knowledge age society that is evolving (Ibid).

Unless one remembers that it is indeed the same system which has steadily reduced per student funding in tertiary education, imposed student loans and debts, reduced the opportunities for a vast array of less well off people in New Zealand and constituted the most commercialised science regime in the world it would be easy to think that the document had some substance. As the President of LIANZA, Penny Carnaby, noted recently, however, "there is evidence the knowledge base is diminishing", (Carnaby, 1999:7). For example, 1500 journal subscriptions in university libraries were cancelled last year making this information impossible or much more expensive to access. In addition, John Scott, (Chief Executive of Christchurch Polytechnic) noted that many of the initiatives previewed in *Bright Future* are aimed at rewarding and fostering people at the very top of the academic ladder. He goes on to point out that these may not be the most innovative and entrepreneurial people at all (Scott, 1999: 7): "polytechnic and university drop outs, will frequently turn out to be those who stretch the boundaries and challenge the status quo". And one of the constant annoyances in the document is the insistence that science and

technology-based knowledge are the only types of knowledge that hold any commercial value and therefore any intrinsic value. Only people in these areas will be valued and funded to the exclusion of those who engage in any other kind of "knowledge work".

While other countries have undergone major reviews of their tertiary education systems recently (e.g. Australia and the United Kingdom) none have attempted to pull all their knowledge production systems into economic service in quite the same way as New Zealand has done. The United Kingdom Higher Education review document, commonly known as the Dearing Report (1997) places quite a different emphasis on education. As Peters and Roberts (1999: 173) note:

> The Dearing Report, whatever one may say about its vision, at least makes a 'philosophical' attempt to place education at the centre of its policy proposals. In the Dearing Report education is fundamental to the fabric of a new, society - and not simply an adjunct to the economy....The Dearing Report explores in a rigorous manner, the relationship between learning and social, cultural and economic wellbeing.

Conclusion

The New Zealand Government cannot seem to see its way in policy-making past creating a strong economy for New Zealand, which despite the rhetoric it has been dismally unsuccessful at doing. Part of the difficulty is its keenness to secure easy answers to complex questions. The primary role for New Zealand science and tertiary education seems only to be economy building; not the formation of a strong, civic society; nor a strong cultural identity; nor a confident nation. Throwing all our intellectual resource into the same contestable market fest for knowledge devalues, debases and controls ideas and research to the point where original (truly innovative?) and critical thinking becomes unwelcome and makes a mockery of any romantic notion of a knowledge society the government would like to construct. John Ziman (1994:276) provides some key requirements for research which rapidly seem to be disappearing (if not already absent) in the current climate in New Zealand:

*social *space* for personal initiative and creativity;

**time* for ideas to grow to maturity;

**openness* to debate and criticism;

*hospitality towards *novelty* ; and

*respect for specialised expertise.

In the last of his three volume critique of the Information Age, Manuel Castells (1998) describes the huge gap between technological overdevelopment and social underdevelopment and the fact that many of our developments in the Information Age have thus far been channelled into "self-destructive confrontation" and the untrammelled adherence to narrow political and economic ideology. Castells' *Finale* presents a vision which is deeply appealing and wrests on an exhaustive attempt to describe and analyse the global present and recent past. It is a vision that would help New Zealand far more than narrowly-based, unreflective elitist and marketised views of a *knowledge society*. Castells writes:

> There is nothing that cannot be changed by conscious, purposive social action, provided with information, and supported by legitimacy. If people are informed active, and communicate throughout the world; if business assumes its social responsibility; if media become the messengers, rather than the message; if political actors react against cynicism, and restore belief in democracy; if culture is reconstructed from experience; if humankind feels the solidarity of the species throughout the globe; if we assert intergenerational solidarity by living in harmony with nature; if we depart for the exploration of our inner self, having made peace among ourselves. If all this is made possible by our informed conscious, shared decision, while there is still time, maybe then, we may, at last, be able to live and let live, love and be loved (Castells, 1998:360).

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Acronyms

DSIR - Department of Scientific and Industrial Research

EFTS - Equivalent Full Time Student

FoRST - Foundation of Research Science and Technology

LIANZA - Library and Information Association of New Zealand Aotearoa

MoE - Ministry of Education

MoRST - Ministry of Research, Science and Technology

NRAC - National Research Advisory Council

PCET - Post-compulsory Education and Training

PGSF - Public Good Science Fund

PSRA - Public Scholarship and Research Agency

PTE - Private Training Establishment

STAC - Science and Technology Advisory Committee

TRB - Tertiary Research Board

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