

The Strategic Management of Research: Using Academic's Views of Research as a Tool to Increase Research Productivity

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Abstract

Academics have different perceptions of the research activity and the practices and processes are involved when they carry out research. Their differing perceptions and practices provide a framework for understanding research behaviour and the research process. This paper demonstrates that there have not been uniform responses to changes in research funding mechanisms or the added pressure to increase research outputs. There have been arrays of responses. They are the product of several factors, particularly, disciplinary differences, (A person's discipline affects but does not determine how they view research), the different organisational settings (in particular, whether they are now part of a pre-1987 university or not) and their own individual disposition towards research. These three factors broadly shape the responses to change in funding mechanisms and pressures to increase research activity. A model of academic's orientations to research is presented. The model can be used, by those responsible for managing research, to take a strategic approach to research management and identify which academics are more likely to contribute to research

KEYWORDS: Research, Researchers, Universities, Strategies, Management.

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Introduction

It is useful to explore the relationship between academics and ideas. Academics are located in a number of different disciplines whose livelihood it is to work with ideas; the ideas are those which lend themselves to sustained exploration, and which form the subject matter of the disciplines in the academe. It is contended that the ways in which particular groups of academics organize their professional lives are intimately related to the intellectual tasks on which they are engaged. The two appear to be inseparably intertwined.

Becher (1989) in his seminal study of *Academic Tribes and Territories* (disciplinary differences) draws a distinction between the social aspects of knowledge communities and the epistemological properties of knowledge forms. He also looked at how the two influence one another. Becher (1989:1) found that in

many cases, both individual and group behaviour can be seen to be affected by factors outside the field of knowledge itself – and sometimes outside the academic world broadly defined. Yet, in other cases, Becher (1989) suggests the most appropriate explanation for a particular cultural phenomenon may be in terms of apparently arbitrary convention. In his investigation of disciplinary differences Becher's main concern was to highlight how disciplinary practices could be closely matched with the characteristics of the relevant domains of inquiry.

Taxonomies of knowledge fields have been generated in a wide variety of ways, and have yielded a multiplicity of different structures. Kuhn (1962, 1970) proposed a simple two-fold categorisation that was primarily concerned with the sciences to the exclusion of other disciplines. However there is a case for extending the basic distinctions made to a much wider field of academic knowledge.

Kuhn's classification was mainly concerned with academic communities and applied at the disciplinary level rather than at the subdisciplinary level of research activity. Kuhn based his taxonomy on the detached observation of how researchers operated in their exploration of their different domains. However from the standpoint of this study and that of Biglan (1973a) and Becher (1989) another useful approach to categorising and characterising knowledge forms derives from examination of how the actors themselves perceive the particular arenas in which they are engaged. As Becher suggests, "knowledge as portrayed by the knower".

Biglan (1973a & b) based his discussion of 'the characteristics of subject matter in different academic areas' on questionnaire data from academics. He was able to derive three main dimensions against which to map the responses: hard *vs.* soft, pure *vs.* applied and life system *vs.* non-life system. His mappings of the subject areas on to pairs of these dimensions help to underline the diversity of epistemological characteristics of different academic disciplines.

A further complication to diversity evident in different academic disciplines is the debating and questioning about what counts as knowledge and what are the appropriate methods for generating it. Such debates have heightened with pressure mounting to change a research funding system that places a lesser value, in terms of points, on the outputs of Arts and Media Studies (such as exhibitions of paintings and film documentaries). Greater points values are awarded to the outputs of those disciplines which fit the positivist model and whose outputs are commonly refereed journal articles.

Not only is the conception of research activity and the methods of inquiry changing but also there is a quest for recognition of a widening range of research outputs. Such changes are occurring in an environment where research-funding bodies are requiring universities and academics alike to be accountable for research funding. They require a report explaining how funding was used, what was researched and how and most importantly what were the outputs of the research. In this context, it is becoming evident that research activity needs to be strategically managed within an environment of increasing managerialist pressure on universities and their activities as a whole. Drawing on Biglan's and Becher's categories of researchers and their subject matter, it is proposed that effective management of research in a university will require that those responsible for managing research will need to use different strategies to increase research activity in each of the categories of research. It is useful to explore how academics' view their research and whether their research can be categorised by the disciplinary areas it emanates from. It should also be considered whether another type of categorisation is more

appropriate in indicating how researchers and their research can be appropriately grouped and strategically managed to increase research activity and output.

Methodology

Six universities in Australia were selected for this research. They were:

- University of Technology, Sydney (UTS)
- Charles Sturt University (CSU)
- University of Newcastle (UNEWCL)
- University of Sydney (USYD)
- Macquarie University (MACQ)
- University of New South Wales (UNSW).

All of the above universities, with the exception of two, are located in Sydney, Australia. Charles Sturt University and the University of Newcastle are regional universities and were included to determine whether the research strategies adopted differed in response to the different challenges posed by location. (Regional universities do not have large populations to service, industry is less concentrated, and the commercial activity carried out around to the university is likely to be based on natural resources - coal mining, water resources, agriculture, natural conservation, animal husbandry, etc.)

Table 1: Categorisation of the Six Universities Chosen for Study

Category 1 Equal partners ex CAE / Institute of Technology	Category 2 Pre-1987 university who did not amalgamate or the amalgamation was with a less significant partner involving less than 10% additional staff	Category 3 Amalgamation of pre-1987 university and CAE where there are multiple smaller non- university partners or where the non-university partner contributes greater than 30% additional staff
University of Technology, Sydney	Macquarie University	University of Sydney
Charles Sturt University	University of New South Wales	University of Newcastle

Based on such a categorisation, assumptions can be made about the stage of development of research activity in the post-1987 institution¹. The level of

¹ In Australia, the CAE sector was established in 1965 as a result of recommendations of the Martin Report. CAEs were originally designed to fill a gap between universities and technical colleges. CAEs were to train middle-level personnel for industry and government and would concentrate on sub-degree courses. But, by the late 1970s, the larger CAEs closely resembled universities in many respects and nationally almost 70 per cent of all CAE students were enrolled in bachelors and postgraduate courses. In 1989, John Dawkins introduced a series of reforms to merge CAEs with existing universities and with other CAEs, abolishing the binary system of higher education and expanding the number of university places available throughout Australia. (See Dawkins (1987) and (1988) for a background to the government policy changes and these reforms to higher education.)

maturity of a research ethos/culture will be indicated by the level of resources / infrastructure available and committed to research activity, the level of funding attracted to the post-1987 university to carry out research, the level of experience of individuals in undertaking research activities and the degree of track record individuals have in grant-getting. The role and problems faced by research management are expected to be quite different in each category and therefore affect the range of strategies selected to strategically manage research in each university.

Selection of Management Respondents

At each university site the following management positions were interviewed:

- Vice Chancellor (1)
- Deputy Vice Chancellor (Research) or Pro Vice Chancellor (Research) (1)
- The Head or Director of the Research Office (1)
- The Dean and Head of School responsible for each of the four disciplinary areas selected for that university site (4)

A total of 42 University management staff were interviewed for this study.

Selection of Academic Respondents

Biglan (1973) created a method of categorising academic discipline based on three attributes:

- Hard/ Soft
- Pure/ Applied
- Non-Life/ Life.

At each of the two universities within each category (see Table 1), four disciplines were selected alternating the life/non-life dimension.

Table 2: Academic Task Areas Selected For Study

Task Area	Hard		Soft	
	<i>Non Life</i>	<i>Life</i>	<i>Non Life</i>	<i>Life</i>
Pure	Chemistry	Biology	History	Sociology
Applied	Computing Science	Agriculture	Accounting	Teacher Education

In each discipline, interviews were conducted with two successful researchers and two less productive researchers, who were nominated by each Head of School. 16 academic staff were interviewed at each university site, bringing the total of academic staff interviewed for this study to 96.

The categories shown in Table 2 (Biglan 1973a) were utilised to ensure there was an equal number of respondents from each category, from each university site. It was recognised that the role of research and its importance to academics could vary according to their discipline's paradigm development and so a concentration of respondents in any single discipline could invalidate or bias the results. In summary, by using these paradigms the researcher has "created a recipe of the

attributes essential to one selected unit and has proceeded to find or locate a unit that matched the recipe" (Goetz & LeCompte 1984:77).

Results

Strategies that have been implemented to improve research

There are ranges of strategies that have been used to increase research. It was expected that each university in this study would use different strategies that would take into account different levels of research experience, the history of each university, its post amalgamation components, the different disciplines present in the university, and the life-cycle stage of research within the university.

The following table provides a summary of the range of strategies to increase research at the six universities in this study that were being used by Pro Vice Chancellors (Research), Deans, and Heads of School. The strategies have been categorised under the headings of: Structural strategies, Recruitment and Selection strategies, Training and Development strategies, Appraising and Improving Performance strategies, Remuneration, Reward and Sanction strategies and Financial and Resources strategies.

It can be said that the choice of strategies used reflects; (a) the mix and size of the pre and post-1987 components of the university, (b) the dominant culture of the amalgamated institution, (c) the perceived strengths and weaknesses of the amalgamated institution, (d) the focus of effort and resources for research activity, and (e) where research managers perceive they are going to get their best returns of research productivity.

Structural Strategies

University of Sydney and University of New South Wales both used large sums of money from endowments and fundraising appeals to alumni to substantially increase the number of **internally funded postgraduate scholarships**. Both universities have strengths in the Sciences. Large teams of postgraduates are characteristic of the sciences and are essential to the successful functioning of many science research programs. Both universities also recognised the prestige value of being entrusted with the research training of large numbers of postgraduate research students.

University of Technology, Sydney was the only university in this study to use the structural strategy of appointing **Associate Deans (Research)**. This strategy has enabled there to be an academic concentrating on research effort at the faculty level. This extra level of management allows closer, more targeted management of academic research activity and postgraduate research students.

All universities except University of Sydney in this study had adopted the strategy of **concentrating their research focus**. Universities recognised that they could not be all to everyone. Each university was constrained by limited funds and resources. As explained by a Head of School at Macquarie University, "concentration of research focus meant that resources were able to be applied at a reasonable level to allow meaningful research to be done rather than mediocre research be conducted with resources that had been spread too thinly". The **concentration strategy** was carried further at Charles Sturt University and

Table 3: The range of strategies used to increase research at six universities

STRATEGIES	UNSW	USYD	UNEW	MACQ	CSU	UTS
STRUCTURAL						
Internally funded postgraduate scholarships	X	X				
Appointment of Associate Deans with responsibility for research and p/grad studies						X
Concentration of the research focus (e.g. Rural research)	X		X	X	X	X
Focusing of research resources – limitation on field of research for postgraduate students				X	X	
The accessing of external funds to develop infrastructure		X			X	X
Recruiting quality post graduates	X	X	X	X	X	X
FINANCIAL & RESOURCES						
Provision of infrastructure for research		X	X	X	X	X
New units and new staff research fund		X		X		
Development of general support structure					X	X
Return of a portion of research quantum to those who earned it, to spend on research needs.	X					
Grant support	X					
TRAINING AND DEVELOPMENT						
Internal seed grants	X	X	X	X	X	X
Grant writing workshops		X	X	X	X	X
Publishing workshops		X	X	X	X	X
Research methods workshops			X	X	X	X
Leave to complete research higher degree					X	
Regular research seminars/ colloquia				X		
Mentoring schemes	X					
RECRUITMENT & SELECTION						
Recruiting research qualified staff with research track records	X	X		X		
Recruiting Professors and outstanding scholars as senior staff	X				X	
APPRAISAL & IMPROVING PERFORMANCE						
Annual research report and review of performance	X					
Talking, attempting to motivate, encouragement	X	X	X	X	X	X
REMUNERATION & REWARDS & SANCTIONS						
Lowering of teaching loads						
Scheduling teaching loads and timetabling to allow flexibility						
Visiting scholars/ research fellows/post doc's	X	X			X	
Establishing Research Groups/ centres/ teams	X	X	X	X	X	X
Setting up networks						
Study Leave					X	
Fund conference attendance						
Threat of loss of job or non renewal of contract	X					
Apply pressure (verbal and written expectations)	X					

Macquarie University. At Charles Sturt University post a staff member who is not a member of a CSU research centre cannot supervise graduate research students. Students, academic researchers, resources, funding are all concentrated without exception in the CSU research centres. Macquarie University similarly concentrate resources to their university research centres, however they are not quite as restrictive as CSU, research student supervision can be carried on outside of the university's research centres.

University of Sydney, Charles Sturt University and University of Technology, Sydney have adopted the strategy of **accessing external funds to develop infrastructure**. The other three universities in the study did not specifically mention this strategy. Charles Sturt and University of Technology, Sydney have needed to build up their research equipment and infrastructure quickly. Both universities have set up extensive research programs with industry. Their industry partners provide funding but also share expensive resources and research expertise. University of Sydney has accumulated substantial amounts of research infrastructure, however their problem is that their resources have been neglected and allowed to run-down. To remedy the problem requires substantially greater funds than University of Sydney have access to, or they can get from DETYA. University of Sydney has adopted the partnership with industry strategy to assist them in the task of repairing and updating their research infrastructure.

All universities in this study recognised the importance of **quality postgraduate research students** in the research process. Quality Research students provide the unpaid labour often vital in large research projects in the sciences. Students also ask questions and are a source of ideas during their research candidature. In order to increase their numbers of research students, many universities have funded additional numbers with Australian Postgraduate Research Awards (Industry), APRA (I) which were tied to specific industry research projects and APRA awards provided to the university on the basis on its prior research performance.

Financial and Resources Strategies

All universities in this study with the exception of UNSW provided infrastructure for research. At UNSW infrastructure for teaching was provided and the additional infrastructure for research had to be provided by the academic. Academics involved in research were required to use grant funds, industry support in cash and kind, and the research quantum that was returned to the researchers who earned it, to finance their research infrastructure needs. All other universities besides UNSW provided research infrastructure that was available to all researchers, however top research performers had their needs for special or additional infrastructure met. Often the funding was provided at the expense of other areas of the university.

Due to the large amounts of non-university staff that were added to Sydney University and Newcastle University special Staff Research Funds were established. This funding was to assist the staff from the non-university sector to establish or in some cases re-establish research proficiency and activity. The scheme was established with a limited time frame of five years in mind. Now, in 1999, all of these schemes have concluded. Macquarie University did not have the same extent of non-university staff amalgamate with the university, however they too established a special Staff Research Fund.

As UTS and CSU had not been dedicated research institutions they did not have the same accumulation of basic research equipment and infrastructure that would normally be expected.

This includes appropriate bench space, glassware, refrigeration units and hot houses for science based disciplines. In other disciplines items such as appropriate computer facilities, library research databases, research journals and books, were needed.

A further two Financial and Resources strategies were identified. Of the six universities studied, they were only being used at UNSW. To distribute resources, whilst concentrating them on research achievers, the research management at UNSW return a sizable portion of research quantum to those who earned it, so they can spend it on their research needs. We have previously identified the pressure on universities to participate in the competition to gain ARC and NHMRC funds. To assist academics in preparing their Large ARC grant submissions UNSW provide grant support funding. This funding can be used to complete library and literature searches, pay for typing assistance, research assistance and pay for a small amount of teaching release to reduce teaching loads whilst the grant application is being prepared. This strategy is used as a sweetener to encourage Large ARC grant submissions.

Training and Development Strategies

All six universities recognised that an academic may be a good researcher but may not have a track record in gaining grants. At each **university internal seed grants** were used to get academics started and build experience in applying for grants. All respondents in this study agreed that grant writing was not the same as writing a journal article. It was stated that there was an art to grant writing and above all, applicants needed to know how to sell themselves and their research ideas.

At each university site in this study with the exception of University of New South Wales there was an emphasis on the training and development strategies of **Grant writing workshops** and **Publishing workshops**. At the universities that offered these workshops they were seen as complimentary to the seed grants strategy and integral to getting the novice researcher to become more established.

The strategy of providing **leave to complete research higher degrees** was mentioned only at Charles Sturt University. This strategy was in recognition of their low level of staff with postgraduate research qualifications. The lack of suitably qualified staff was considered to be affecting the university's ability to attract postgraduate research students. Postgraduate research training was seen as an essential component of the university's research effort.

All universities in this study with the exception of University of New South Wales and University of Sydney held **Research Methods workshops**. There was an assumption that academics that had been recruited to those two institutions already knew how to undertake research. This assumption was validated by the recruitment and selection conventions that had been in place in these two universities for quite some time. This assumption however was not valid for the ex CAE components that were amalgamated with these two universities. However, no offering of research methods workshops was made to the ex-CAE academics.

Macquarie University was the only university in the study that used **Research Seminars and Colloquia** widely across the university. A culture of staff and research students making research presentations was strong and well developed. At Macquarie there was a heavy schedule of **visiting scholars** university-wide. The Vice Chancellor had the view that it was important to be on the "cutting edge" and know what was going on internationally. The Vice Chancellor admitted that there

was good publicity in having a stream of noted scholars visiting Macquarie University. However, she was devoting substantive sums of money to provide the opportunity for academics to "learn and be inspired by the best".

University of New South Wales was the only university in the study that had **mentoring schemes** as a key strategy. **Mentoring** was seen as a very cost effective method of using the existing research strengths of staff to assist in the research development of other academics, and to ensure that all staff as much as possible reached their full research potential.

Recruitment and Selection Strategies

University of New South Wales, Sydney University, and Macquarie University mentioned their strategy of **recruiting research-qualified staff with research track records**. All three of these universities were convinced that a person could not be considered as an academic if they did not carry out research. Restricting recruitment to research experienced staff reinforced the expectation that all academics should carry out research or as stated by one Vice Chancellor:

" They must research or at least be engaged in a high level of scholarship. If not, there is no place for them here." Statements such as this help to reinforce the "window dressing" and public image "preening" that is undertaken by some universities in the system to create research reputations in the minds of people if it cannot be based in fact.

University of New South Wales and Charles Sturt University have adopted the strategy of **recruiting Professors and outstanding scholars as senior staff**. However, these two universities go about implementing this strategy for different reasons and in different ways. University of New South Wales claim that they want to maintain a particular level of research expertise that is already present. Further, they have stated that this strategy is necessary to enhance their international research reputation. Research Management at University of New South Wales claim that it is their already high research reputation that allows them to draw outstanding researchers to the university, particularly from other high calibre international research universities. What is not so freely talked about is the packages that are put together in order to entice international research leaders. The University of New South Wales offers excellent salary packages and generous amounts of research funds and facilities to get the researchers they want. The resources to conduct this strategy are often drawn away from other areas of the university. But importantly research management recognise that many researchers of international status will already have substantial research resources and lines of funding that will be transferred to the University of New South Wales upon the researcher joining the university. One senior research manager stated that: " The philosophy is that a conservative investment in the present can bring substantial returns in the future".

Charles Sturt University have used the strategy of **recruiting professor and outstanding scholars** in order to build their research competence and expertise. The view of many research managers is that to "home grow the desired research expertise would take too long, it is better to bring in the tall poppies and let them bloom here". The hope of many research managers is that outstanding scholars once introduced into the university will bring their research track record and ability to attract grants, form groups of academics and research teams around them, and improve the level of research ability and productivity. It was admitted that this scenario does not happen every time and some outstanding scholars "keep doing

their own thing with their buddies, they can't be bothered with new researchers". One research manager was told by one of their newly acquired Professors that "involving people who don't know what they are doing and can't live up to my [his] standards are a distraction and a nuisance." Charles Sturt therefore report mixed success with this strategy but do believe that it is essential to raise the profile of the university so they can attract support and gain a reputation for outstanding research in selected areas of endeavour.

Appraisal and Improving Performance Strategies

University of New South Wales was the only university in this study that required each department to provide an **annual research report** that was then used by university research management to review the research performance of academics. The research report was used to create competition and to highlight those academics that were not performing in research. The research report was used at a faculty level and department level to compare academics' research performance by **praising** some staff and **berating** other staff at meetings, performance interviews and other such forums.

All six universities included in the study used a strategy of **talking in an attempt to motivate and provide encouragement**. This strategy had different success rates. As is discussed in greater detail later, the academics' motive for conducting research or not is of paramount importance here. One senior research manager at Charles Sturt university mentioned that many staff were lacking confidence in their research ability and activity and that gentle encouragement was "the key to kick starting them" if doubt set in. In contrast, one research manager at Macquarie University stated that they provided motivation and encouragement in a more public way - through the research bulletin and having a celebration when the university won a number of significant grants. Clearly the research manager at Charles Sturt is referring to encouraging the new or novice researcher, which were found in greater numbers at Charles Sturt and University of Technology, Sydney. The research manager at Macquarie University is referring to encouraging performance from those researchers that are already performing and is relying on the effect of public celebration of success to motivate others to "great heights".

Remuneration, Rewards & Sanctions Strategies

University of New South Wales, University of Sydney and Charles Sturt University **fund visiting scholars, research fellows, and post-doctoral fellows** to visit and research with those researchers in the university that are acknowledged as "performers". This strategy brings considerable prestige to the university involved as well as to the department hosting the visit and the researchers involved. The reward is the additional expertise that can be accessed as well as the increased research output that can be achieved with additional "pair of hands". One Research manager at UNSW indicated just how important this strategy was in the sciences. He stated the benefit and reward was the acceleration the work on an important project, injection new ideas to the research, the increased capacity to train more higher degree research students, the chance to try better but more labour intensive techniques, and the increase in image and reputation of the research team. These were all reasons given by University of New South Wales and University of Sydney for implementing this strategy. Research managers at Charles Sturt University on the other hand, stated that the visiting scholars and research fellows strategy was used primarily to increase research activity and to influence academics to become enthusiastic about their research and inspire other to consider undertaking research. The lesser goal of the strategy was as a reward, however it was the case that visiting scholars and research fellows were funded and supported

only for research teams and centres that were high performers. (It was mentioned previously that research support is targeted to a number of centres of research excellence).

All universities in this study mentioned the strategy of establishing research groups, centres and teams as an important method for concentrating human and physical resources in order to increase research output. One extreme use of the strategy was found at Charles Sturt University. The supply of resources, internal research grants and higher degree research students is targeted to University research centres. An individual researcher has limited survival prospects if they are not located in a centre at Charles Sturt. Charles Sturt took this approach because it was felt that they could not try to be all to every one. They just did not have the resources and the funding to do so and were never likely to. The Vice Chancellor decided that their best philosophy to adopt was one of **concentration and specialisation**. Each academic area put a proposal to the Vice Chancellor and his committee. They identified their strengths both in academic skill and resources. They were required to outline their weaknesses and what remedies if any were appropriate. The opportunities for the future and the perceived threats from competitors and other elements in their internal and external environments were identified. Quite a strategic approach was adopted in that academic units had to make a case for their existence and to obtain funding and resources from the university allocation. The areas chosen were where the university had expertise and either had a reputation or could build a significant reputation for research and service in the near future (5-year time span). Those responsible for research management realised that they were in for a big struggle in numerous ways. The decision to concentrate and specialise was guided by where it was likely that the university could obtain industry funding through the various industry schemes, individual companies and government departments. The university's lack of track record in the prestige granting body stakes (ARC and NHMRC) necessitated the **concentration on industry** with emphasis on the university's location amongst rural communities and the surrounding agricultural activity. The Vice Chancellor explained his stand by stating that "If our limited resources are spread too thin, we will have attempted to do a lot and achieve very little. We must use our unique relationship with industry and do what we do best." He went on to explain that "To do anything else would put us further behind the starting line, let's at least get on the starting blocks. If we can't win their [pre-1987 universities] race, then perhaps we should start our own race, a race at least we have the right gear and running shoes for." **Concentration of the research focus** was the guiding strategy. It is interesting that some three years later with much more institutional confidence in the research capabilities of the university and "some race wins on the board" the Vice Chancellor and his research managers' views were refined somewhat. Publicly in press statements, editorials and university information literature it was stated [by the university] that they did not have to compete in the same way, their strengths were different, rural society and agriculture were applied disciplines and areas of research activity. The university needed to work with industry and access funding from them. They could not be another Sydney or Melbourne, nor did they want to be.

Each university pursued a different combination of strategies from the categories discussed above and some respondents responsible for research management pursued strategies more vigorously than others, thereby creating differing results and outcomes. However, the individual academic's view of research and their orientation towards research is an important variable to consider in any discussion of the strategic management of research and research productivity.

Model of researcher types

This second part of this study was to explore “the pieces of the patchwork” by interviewing academics regarding their ideas about what research is, about what they are doing when they carry out their research with a view to understanding their research behaviour.

Seven qualitatively different perceptions of research have been identified, which indicate the likely outcomes of research activity for each of the study’s participants as a product or outcome of the views regarding research that they hold. The perception categories include “A Piece of the Jigsaw Puzzle”, “Enhancing Peer Perception”, “Creation”, “Personal Growth and Change”, “Necessity”, “the Forced Researcher”, and the “Non-Researcher”. Each of these categories derived from the interviews conducted with nominated academics will now be discussed.

A Piece of the Jigsaw Puzzle

Study respondents described research as a process that was quite separate from them. It was an activity that they carried out. It was described a series of discrete tasks and parts of the process. Discussions were about the process, which was presented, in minute detail. A series of inputs put through a range of processes provided an answer or solution to particular problems and questions. Chemicals, financial data, biological specimens, were mixed, analysed by computer programs and dissected then subjected to a range of machines and instruments performing various processes so that answers can be provided to problems and questions posed. The research question or problem was broken into logical component parts so that they could be worked on. These were pieces that had meaning separately but when combined together provided a total picture, just as pieces of a jigsaw puzzle have meaning and provide clues that advance us toward the final solution. Putting a series of jigsaw puzzle pieces together successfully creates clues as to what to do next to derive a solution, that is complete the jigsaw puzzle to reveal a complete picture.

Enhancing Peer Perception

Respondents were focussed on the end product of their research activity and how others were likely to perceive them as the producer of those results. The focus is on the outcomes of the research such as inventions and products, publications and grants. Research is seen as a social commodity, which is provided in its various forms in exchange for social recognition and social discourse. These researchers love talking about their research with colleagues, presenting papers on their research at conferences and giving keynote speeches. The people factor is most important not only in the discussion of the research and its outputs but also the process, that is the people who assist or are co-researchers. Reference is made to the “team”. These researchers are in Gouldner’s (1957) terms cosmopolitan, they are part of an international community. They highlight their place in that community and they’re being valued by that community. Importance is placed on meeting with this notable researcher, and talking with that notable researcher, and building upon someone else’s seminal work and collaborating with researchers with whom the field of research is identified with.

Creation

Researchers in this category see their research as being able to reveal explanations, providing a greater depth of knowledge and bringing to the surface previously unknown findings. The research is viewed as revisiting and reinterpreting knowledge on another level. There is a quest for the ultimate “truth” through

exploring new dimensions of existing solutions and rediscovery by donning a different pair of lenses providing “a whole new view of the world”.

There is a view held that the research will be improved in some way. Researchers view their research as clay in their hands constantly being worked, kneaded, pounded, molded and remolded. That in their manipulation of the clay (research) they are creating and research is a creative process, rather than the results of their research merely waiting there to be discovered. The process is not merely looking under another rock or even looking under the same rock at a different time. It (research) requires a different mindset to establish that there is indeed something else to be found and to provide the “different” interpretation. There is an important sense in which two observers need not “see” the same thing. As Hanson (1958:4) put it, “There is more to seeing than meets the eyeball”.

Personal Growth and Change

Research is seen as very important and an integral part of the researchers life. It (the research) affects the researcher’s career and spills into their personal life. Whether or not the issues being pursued and researched are relevant to the researcher’s life they are viewed as such by the researcher. The research topics have often been pursued over long periods of time, with research topics often beginning or emanating from Master’s and/or Doctoral theses. The research is a personal life journey with researcher wanting to know more and to grow and change along with the research.

I like to meander along the paths looking and learning. It is interesting how I have matured along with my research. I am constantly learning and changing. My research “talks” to me like a voice telling me that I should rethink things and do things differently. Often when I talk about my research I find I start to talk about myself, sometimes it is very hard to separate the two.

My research is my life, what I find out about teaching and learning feeds into my teaching and how I think about it. My research gets me to think about the way I do things.

Necessity

Research is seen as a means to an end. As the university places emphasis on research and research outputs academics conceptualise research as necessary in order to gain promotion, tenure and increasingly more common get a renewal of their contract. These researchers do not talk about research very enthusiastically. In fact there is a constant search for how to get the most out of the least effort. As one respondent said,

I often join a team, and do my bit, by going along for the ride as part of the team I get my name on the report or conference paper too.

Respondents tended to focus on doing just enough to appear to be involved in research. Others were anxious that they not be the targets for the spate of retrenchments occurring in some universities.

An interesting comment by one researcher, focussed on the necessity of the research, the fact that research kept him employed, and what that provided.

After all I have a family and a mortgage, I can’t afford to loose my job. I have been out of industry for a long time. I would find it hard out there...getting another job. ...I’m a bit out of touch.

Forced Researcher

This group is similar but different from the necessity researcher. Whilst the necessity researcher accepts the need to conduct research as inevitable. The forced researcher must be forced to do research and checked upon that they are doing research. Their reluctance is reflected in the way that they can reliably find a myriad of excuses as to why they never complete research.

One researcher blamed his lack of research performance on other competing activities that consumed his time.

I don't have time to finish my research; they are always loading more and more work onto me. I never get any funds to do my research that only goes to the "smarties", the so-called achievers.

Some forced researchers become very resentful and blame their low research performance levels on a range of factors that they claim are out of their control.

I can never get the glassware I need, someone else has always got it, how can they expect me to do anything when Professor XXX's little darlings clean out the place. They knick all the stuff all the time. I had my stuff in the cool room and they moved it and deliberately left it out on the bench. My specimens ended up a heap of shit.

These researchers give the impression that they are reluctant to do research. In fact, one wonders whether if all the apparent barriers of funding, time, and equipment were removed whether there would be a change in attitude and research performance of these forced researchers.

Non Researchers

The non-researchers do not focus on research. Some respondents focus on teaching and pride themselves on being a good teacher. Many discuss the different techniques and innovations that they are using in their teaching and fail to see that they could provide research results on how successful their new techniques were and what changes occurred as a result of the techniques being used. Many respondents saw research and teaching quite separately.

Just because you do research doesn't make you a good teacher. Quite the opposite I know of quite a few whiz-bang researchers who are hopeless teachers and don't care that they are hopeless...neither does the university. They keep on letting them do their research and keep on promoting them."

One respondent expressed frustration with a system that states that it values good teaching and provides teaching awards but appears to value research more highly by providing promotion and resources.

You can be a brilliant teacher but you won't get promoted...but if you are a good researcher and a shocking teacher the uni rewards you with a promotion. Where's the logic in that? We're supposed to be here to teach students? They are our bread and butter!

A recipient of a teaching award expressed anger at the rhetoric.

I got a teaching award after quite a few years of very hard work, and what did I get a few thousand dollars and my name in the university newsletter. Yet a guy in my department does heaps of fairly mediocre research and gets promotion, the fan-fare, and the lot.

The respondent went on to add sarcastically,

If I did do research now I'm not going anywhere because I am branded as a teacher, I couldn't possibly be considered as a researcher, seriously.

Many non researchers who were employed by a CAE pre 1987 do not have research experience or research higher degrees and feel that it is too late to complete a research higher degree and learn to do research.

One respondent stated,

I'm too old to start learning to research, you don't start a Ph.D. in your late forties, by the time I finish, I will be due to retire. Let the others do research, I'm happy as I am.

A further respondent justified himself as a non-researcher stating,

We all can't be out doing research can we, who is going to do the teaching.

Conclusions

There has been a lot of credibility given to academic disciplines or subject areas as being a framework that can be used to explain differences in research and its delivery. The examination of the research strategies used by those responsible for managing research activity provides a context by detailing the research environment at each of the universities included in this study. In addition, by examining how researchers and non-researchers conceptualise research we can provide a framework for explaining differences in research. More importantly it may be possible to predict future research output of academics, as researchers holding particular conceptions of research may be more likely to be more productive in research output than others holding other conceptions of research.

A focus on research conception and orientation can highlight why it can be difficult for researchers of different orientations to understand and appreciate each other's views. A researcher who merely sees research as a necessity to keep their job is unlikely to fully appreciate the piece of the jigsaw puzzle researcher. The jigsaw puzzle researcher is inner directed, driven to find the answers and may spend seventy to eighty hours on their academic job with a major proportion, up to seventy percent of that time, spent on research activity.

Orientations to research are important particularly in an environment where higher education research policy at the national and university level is focussing increased research outputs in terms of publications and such focus is highlighted by government funding policy. This view of research fits the **Enhancing Peer Perception** researcher who produces increased research output in order to secure further funding. Research here is seen as a social phenomenon, a vehicle for being known, for gaining credibility, and providing a means of common discourse. The focus is on building teams and fostering networks and to a large extent government funding policy and individual university research grant policies have tended to favour funding of teams and concentration of research and how it is funded.

The **Jigsaw Puzzle** researcher also benefits by current government funding policy as this type of researcher is internally driven to complete the cycle of inputs, process then outputs and it is after all outputs which count.

The government's current funding policy makes it difficult to focus on research that takes a long time to show results, as it is the frequency of results that is rewarded. Such an environment poses particular problems for the **Personal Growth And Change** researcher, as their research is a personal life journey, what is valued is the intimate relationship between the researcher and their research. The journey is paramount, the different ways of looking at and thinking about

problems, of running down different paths is important to self-development and self-discovery.

University managers and research funding bodies are under pressure to find strategies to “pick winners” with research focussing increasingly on short term outputs, there is then an inherent difficulty in engaging in “blue skies research” which is speculative and cannot provide outputs in the short term with any surety.

Research has increasingly been viewed as a commodity within government funding policies. Such a view threatens the viability of the **Personal Growth And Change** researcher and the **Creation** researcher. Further, such a view presents a problem for newer disciplines where research is a vehicle for personal learning and change and the establishment of new forms of research.

A significant percentage of the study respondents, eighty percent, conduct research to satisfy a need to know and to cater for social goals such as providing a better place to live. However, what is absent is the strategic and goal directed behaviour of producing products, publications and other applied outcomes, typical of short term research. What can be seen from these responses regarding research is the focus on a longer term view, as indeed a longer time frame and a longer term view is necessary to “understand the world we live in”.

There is a danger that a research funding environment that focuses on short outcomes and “picking winners” ignores the serendipitous nature of research and the possibilities that can emerge from the work of the **Personal Growth And Change** researcher and the **Creation** researcher.

Whilst efficiency may be achieved instead of there being a rich diversity in research activity the research landscape and research management within it becomes isomorphic (DiMaggio and Powell, 1983) and inevitably structured (Giddens, 1984) with limitations on action and limited choice becoming a reality.

In order to test the robustness of the model of academic’s orientations towards research, a study that includes an increased number of respondents from each discipline, an increased number of disciplines using Biglan’s classification of disciplines, and selection of a larger number of university sites is necessary.

Appendix

The general election in July 1987 in Australia returned the Hawke Government to office. There was a major restructuring of portfolios and departments to form super departments and ministries. John Dawkins was appointed Minister of the new combined portfolio of Employment, Education and Training. He moved to initiate reform of higher education in line with the government’s major thrust of economic reconstruction, and was particularly interested in making Australian industry more efficient and competitive internationally as well as broadening the country’s export base.

The main elements of the Dawkins reform agenda were:

1. Abolition of the binary system, which drew a clear distinction between universities and CAEs with respect to roles and funding, and replacement by a new unified national system of higher education.

2. Major consolidation of institutions through amalgamation to form larger units.
3. Substantial increases in the provision of student places and various efforts to improve student progress rates in order to increase the number of graduates.
4. Increased emphasis on disciplines such as applied science, technologies, computer science and business studies, perceived to be of crucial importance to economic recovery and growth.
5. A more selective approach to research funding, with greater stress on research covering topics of national priority, and substantial increases in research funding.
6. Changes to the composition of governing bodies to make them more like boards of companies, and the strengthening of university and college management, particularly to give greater power and authority to chief executive officers.
7. Major changes in staffing, particularly aimed to increase the flexibility of institutions, improve staff performance, and enable institutions to compete more successfully in staff recruitment in priority areas.
8. Changes to achieve greater efficiency and effectiveness in the higher education system, including reduced unit costs in teaching, improved credit transfers and rationalisation of external studies.
9. (9) Moving of some of the financial burden for higher education to individuals and the private sector, and encouraging institutions to generate some of their own income (Meek and Goedegebuure 1989:9).

List of Abbreviations and Acronyms

ARC	Australian Research Council
ASTEC	Australian Science and Technology Council
CAE	College of Advanced Education
DEET	Department of Education, Employment and Training
DEETYA	Department of Education, Employment and Training and Youth Affairs
DET	Department of Education and Training
NBEET	National Board of Education, Employment and Training
NHMRC	National Health and Medical Research Council
UTS	University of Technology, Sydney
CSU	Charles Sturt University
UNSW	University of New South Wales
UNEW	University of Newcastle
USYD	University of Sydney
MACQ	Macquarie University

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