3rd draft July 2002

Establishing and sustaining a Research Culture.

A Working paper
3rd redraft @: March 2002
Edited July 2002.

Robin A. Hill

Department of Business Studies & Office Technology

Waikato Institute of Technology

Please note. This paper is in draft form.
This is an incomplete third version of:

Hill, R.A. (1993). Establishing and Sustaining a Research Culture: A working paper. Presented to the Australian and New Zealand Academy of Management Conference, held at Deakin University, Geelong, Victoria, Australia, December 1993.

Abstract

A literature review was been carried out to answer the question "How does an academic department, namely a Business School, that has previously not enjoyed a research culture, establish and sustain one?" The most valuable literature came from the fields of Nursing Research, the Society of Research Administrators and Higher Education Research and from analysis of the UK Research Assessment Exercise (RAE). There has also been some more recent contribution from Australian institutions that have been through this transition. The literature revealed that to establish and sustain a research culture, there are two levels of focus: First at the level of the institution or organisation and second at the level of individuals. At the level of the institution a research culture maybe fostered when research actions are cohesive and when the institution makes research easy for researchers (an enabling" environment). This involves: (a) sharing expertise and knowledge, (b) having research direction, niche or strategy, (c) having institutional support including commitment at top level, researcher's perception of that support and administrative support, and (d) provision of research facilities and resources. Research culture may develop when at the level of the individual consideration is given to (a) motivation and incentive, (b) developing the institution's endowment of research skills through recruitment and/or education and training and (c) the parallels between the study of research culture and organisational culture per se.

RCULTURE

Establishing and sustaining a Research Culture.

A Working paper
Redraft @ March 2002

By Dr. Robin Hill.

> *"Research, to put it simply, involves 'finding out.' If this is done in advance of future action, there are obvious advantages... ...we might take a simple example. The youth who is now a paraplegic in hospital is there because he neglected to do some elementary research. He would not have suffered a broken neck had he searched the river for rocks before he dived in. Maybe he did look, cursorily. But his investigations would have had to have been sufficiently thorough to discover the submerged rocks as well as the visible ones, especially at the point where he dived. Otherwise he could be said to have generalised from an unrepresentative sample (the visible rocks)."*
>
> *Shellard (1979) Page 1.*

This quotation sets the scene for this paper. It is an attempt to "look before you leap" into the actions of setting up programs, institutions and resources to establish and sustain a research oriented environment, or research presence, in an organisation that has not traditionally been involved in research. Much of the salient literature on the topic comes from Nursing Research and the Society of Research Administrators, with some additional input from Higher Education research literature.

The purpose of this paper is to answer the question: "How does an academic department that has previously not enjoyed a research culture, establish and sustain one?" In a very real sense this question asks "Given a department where staff historically have not been involved in research, how can it shift to become an environment where research is a relatively normal and enduring activity?" This is where the literature from Nursing Studies becomes relevant. Nursing had been a profession that had not traditionally been expected to be involved in research. It had traditionally been a profession that concerned itself with the welfare of a client - the patient. Research is now an expected and demanded function of the profession.

Many Institutions of Higher Education (IHE's), that have traditionally focussed all their energy on teaching students, find themselves in the same position as Nursing. It seems surprising the extent to which these institutions have neglected to write about or analyse their experience (or at least, how difficult it is to find such writing or analysis) with the exception of papers presented at the *Research and the New Tomorrow Conference* held in Auckland in 1997.

The literature pertaining to this topic suggests two levels of interest. (A) the **level of the individual** and (B) the **level of the institution**. These levels seem sub dividable as follows:

A. The level of the individual
- *A.1. Motivation and incentive*
- *A.2. Developing the endowment of research skills.*
  - A.2.a. Recruitment of the skills and attitude.
  - A.2.b. Education and training experiences.

B. The level of the Institution.
- *B.1. Making Research Actions cohesive.*
  - B.1.a. Sharing expertise and knowledge.
  - B.1.b. Having direction, niche or strategy.
- *B.2 Making Research easy for researchers. (Facilitation of research)*
  - B.2.a Having Institutional Support.
    - B.2.a.i. Commitment to research and researchers' perceptions of support.
    - B.2.a.ii. Administrative support.
  - B.2.b. Having Research facilities and resources.

Polk (1989) examined this issue in relationship to establishing research culture in the clinical nursing environment. She examined the concept of culture *per se*, and how it develops. She then related the components of that to the development of *research culture*. Polk concluded that the major components essential to the development of a research culture are (1) knowledge, (2) values, beliefs and norms and (3) material artefacts. The knowledge comes in the form of individual research skills and experience. The values and norms become embedded in concepts of motivation and support. The material artefacts constitute the facilities and tools for research. Hence, in identifying these three components, Polk has highlighted the same variables as stated above: issues at the level of individual skill and motivation, and issues at the level of institutional support and provision of facilities and resources.

Before addressing the levels of interest, outlined above, it is pertinent to firstly report those variables that tend to correlate with research productivity.

Institutional variables that correlate with research productivity.

In 1992 a Research Assessment Exercise (RAE) was carried out in the United Kingdom. A reasonably large body of literature has since reported on the variables that appear to correlate with research productivity. RAE was an evaluation of the quality of research across various academic departments, in a wide range of academic institutions. According to Johnston (1994) the assessments were done by a number of different panels (60 in 1992) which used differing criteria. Most, however, are reported by Johnston, as using quality of published output as the major indicator. While productivity measured as publications is not a direct parallel with presence of a research culture, and is in fact debated as a valid criterion of research quality, the

literature on the RAE does give some insight into the variables that may constrain the emergence of research culture.

Prior to the 1992 RAE, Gleave, Harrison & Moss (1987), Edwards (1991) and since the RAE, Hoare (1995), Johnston (1994) and Taylor (1994) have noted that larger academic departments tended to receive higher grades in these assessment exercises. The underlying implication being that larger departments have higher rates of research productivity. A host of research findings from all over the world report the same phenomenon (eg. Meador et al. 1992)

Johnston (1994) notes that emphasis on department size, does not display the entire picture, and along with Unwin (1993) and Curran (1994) sought to investigate other variables that may be at play. Unwin (1993) noted a relationship between research output and the presence of "international stars" in a department. Both Unwin (1993) and Curran (1994) reported that productivity trends differ across different academic disciplines, a finding also suggested from Norwegian research by Kyvik and Smeby (1994).

Unwin (1993), Johnston (1994) and Taylor (1994) also demonstrated a relationship between RAE grading and number of student researchers per department, number of contract staff supported by research grants and the ratio of post-graduate students to staff. Similarly, Kyvik and Smeby (1994) found that in Norway the number of post-graduate students being supervised by faculty correlated positively with their own research productivity, a result mirrored by Christensen and Jansen (1992) and also reported by Meador et al. (1992).

Johnston's research also notes that higher grading seemed to depend on type of institution, with older universities faring better than Polytechnics, the "new" universities or Colleges of Higher Education. It was reasoned from this, that the culture and resource allocation of the institution plays an important role in quality of research output. An exception was medical institutions which tended to score well, even when small in size. Bailey (1992) found a similar result when comparing research productivity in US institutions that ranged from Liberal Arts Colleges through to the Research Universities.

Overall Johnston (1994) found:
(1) Bigger departments, meaning departments with more staff, more research students and more research assistants or fellows, were more likely to gain higher RAE grading.

(2) There were variations across types of institution. The main distinction occurred between institutions traditionally funded to "research and teach" compared to institutions traditionally funded to "teach only." This had implications for research time and facilities available to staff.

(3) The culture of the institution contributed as evidenced by lower gradings for institutions whose emphasis was on applied research. Presumably because applied research is often client based and not necessarily publishable.

Johnston (1994) found that the larger the department, the more likely to be a range of **specialist** staff who cover the main components of higher level courses. There was a link between research productivity and teaching only in one's area of research interest – compared to being a *jack of all trades* teaching across several domains. There was also a link between decreased research output and teaching in lower under-graduate courses.

In small departments, according to Johnston (1994) staff are more likely to be called upon to teach in a range of courses, many of which are **NOT** linked to their areas of research interest. Instead of research output, their "research time" becomes absorbed by preparation for their teaching and keeping pace with developments in the broad range of subject areas they are asked to teach in. Christensen and Jansen (1992) also noted a correlation between involvement in teaching and research output.

Larger departments also enjoyed larger administrative bodies to allocate tasks that would otherwise be loaded onto academic staff. In other words larger departments enjoy both economies of scale and economies of scope. The larger the department, the less the need for discipline **generalists** and the greater opportunity for research **specialists**. Henderson & Cockburn (1996) report that economies of scale and economies of scope brought about by size of organisation, also contribute to increased research and development activity in the pharmaceutical industry.

Unwin (1993) reasoned that scholars of "international repute" were randomly distributed across institutions, and therefore larger departments were more likely to have a scholar of international standing. The presence of such a "star" tended to have a major influence on the RAE rating, irrespective of the performance of the remainder of a department's staff. Johnston (1994) notes that the vast majority of research in a department is executed by just one or two "stars" and that the vast majority of academic staff contribute relatively little to the overall bulk of research output. A similar trend was found in Australia by Towe & Wright (1995). In the United States, Borokhovich, Bricker, Brunarski and Simkins (1995) have found a related trend by institution. They report that in the field of finance research, out of 661 institutions, just 40 of them account for over 50% of all publications in the most reputable journals and that 66 institutions accounted for over two-thirds of publications. The remaining 595 institutions (90% of them) contributed less than one-third of reputable research, indicating once again that the vast majority of academics are not particularly active in producing high quality research.

In contrast to Unwin (1993), Johnston (1994) claims that rather than random distribution of international "stars," scholars of international repute tend to gravitate towards larger institutions - and gain opportunities to publish. In smaller departments where emphasis is on teaching, it is likely that there may be latent stars, devoid of the opportunity.

Johnston argues therefore that research output should change if the institute's culture changes, perhaps through the leadership of the institute. It is noted that change in culture and leadership (or lack of it) could alter the research productivity in either direction (more or less).

Johnston (1994) reports that the size to output relationship is especially damaged when a department or discipline provide a very broad range of subjects at under-graduate level. Unless a department is of a critical size, the demands on its relatively **small** number of staff to cover such a wide range of subject matter in teaching will militate against them having time to do research, or to become research "stars" in their specialism. According to Johnston, it is ironic that some disciplines measured for research output perceived breadth of the teaching programme to be desirable, and usually sought to increase the breadth of subject matter by filling gaps in their programmes. Paradoxically this appears to be an action that works against the likelihood of increasing research output, and also one that failed to receive due consideration when making recruitment decisions.

Johnston (1994) concludes that milieu is a crucial influence in how scholars' attitudes to research develop. Size is neither a necessary nor sufficient condition for research productivity. However, other factors associated with size, such as economies of scale, plus leadership and research ethos are major players.

In summary, variables that associate with research productivity tend to be: tradition of research in the institution, emphasis on *applied* versus *pure* research, size of department in terms of academic staffing, availability of graduate students to contribute to research activities, and the presence of researchers of international repute who teach and research in their specialism. These variables tend to go together - the larger the department, the more likely the presence of graduate students and research stars and hence the higher the research output. Furthermore, research stars are more likely to be present in departments that do **not** attempt to provide a broad-base of subject matter at undergraduate level and who, therefore are required to teach only in their specialism. This is a key variable, since it has been found that in departments with high research output, most of the research has been completed by just one or two very active "stars" and that the **vast** majority of academic staff members produce a very small proportion of the entire research output.

In the USA, in a comprehensive survey involving over 4,000 respondents, Bailey (1992) found that in addition to that reported above, research productivity was related to professional rank, tenure status, provision of internal research support, engagement in scholarly work, and time spent on scholarly activity. She found that productivity increased as: respondents rank moved from instructor to professor, status moved from untenured to tenured, receipt of internal support moved from none to some, and as hours spent engaged in scholarly activity moved from 10 to 40 hours per week.

A. The level of the individual

A.1. Motivation and incentive

The question behind this paper may be interpreted as: "How can staff be motivated to engage in research?" Hence an appropriate theoretical orientation to this problem lies within motivation theory.

The importance of motivation is supported by Okamoto (1991) who reported that factors which are very important in fostering good researchers and good research leaders are provision of facilities (particularly electronic facilities) and **incentive motivation**. From an informal survey Lederman (1991) concluded that the morale of scientists in the early 1990's was at an all-time low. For many scientists, the difficulties of obtaining research support were beginning to overshadow the rewards of actually doing the research. That is, lower motivation to engage in research. Christensen and Jansen (1992) report that internal motivation of faculty staff is a significant correlate with research productivity.

It is not appropriate, in this paper to report motivation theories in depth. An account of the general motivation theories can be found in any introductory psychology, management or organisational behaviour textbook. These usually contain a standard reporting of the need-drive theories (Murray 1938, Maslow 1943, McLelland 1955, Herzberg 1966, Alderfer 1972). An account of the cognitive theories usually follows, including Festinger (1957) Adams (1964), Vroom (1964), Porter and Lawler (1968). A very good review of the expectancy theories of motivation can be found in the account by Campbell, Dunnette, Lawler & Weick (1970). Most of these textbooks will also provide a review of behavioural, reinforcement theories based on Skinner (1959) and goal setting theory of Locke, Shaw, Saari & Latham (1981). An informative account of all these theories, and others, can be found in Landy (1989).

Some lesser known theories that may provide insight include Reversal theory developed by Apter (1979). The main motivating principle of this and a number of other theories reside in the assumption that people seek to avoid low pleasure states and move towards higher pleasure states.

Another less frequently reported, but well respected theory includes personal construct psychology (PCP), (see for example, Kelly 1955, Bannister & Fransella 1986 or Hill 1990, 1996). PCP is an entire psychology and not a theory of psychology. The motivational notions are complex and hence inappropriate to report here.

Personal construct approach would suggest, that some individuals are likely to be motivated to engage in research, and others would not. Those for whom there are few if any implications to engage in research will be disinclined to do so, and vice versa for those who do perceive a host of implications to entail from research. Such an idiographic approach suggests that we will know little about a person's motivation to do research without studying that person individually and establishing the underlying values that guide their behaviour.

Hence the motivational aspect of establishing and sustaining a research culture, in accordance with this approach, may mean identifying those people who are inclined towards research and those who are not. We might then sustain the research culture by providing resources and incentives to those people who are. In other words engagement in research becomes individual choice. To motivate the disinclined towards research, would mean changing those cognitions that have implicative linkages with research activity. This might be achieved by encouraging these staff members into training and research-experience programs in which they discover for themselves whether or not research has implications for them. For example, a person maybe disinclined to engage in research because: they've never done it before, they believe they wouldn't enjoy it, are afraid of the statistics, think they would be no good at it and don't have the time for it. If, however, they discovered that they were quite good at it, that the statistics were minimal (or could be handled by a colleague), that they got answers to some questions that bothered them and that it was reasonable fun, then these changes may in turn change their motivation to engage in future research. They may reconstrue their meaning of research. Those who view the context of research with relative cognitive simplicity are likely to experience relative resistance to change or shift towards research.

A motivation theory that is frequently found in introductory textbooks, but not mentioned above is House's (1971) path-goal theory. This approach may be particularly useful in trying to encourage research activity since the theory is a synthesis of expectancy theories of motivation and situational theories of leadership.

In a nutshell the expectancy theories of motivation state that a person will be motivated (a) if they perceive that effort will lead to a desired standard of performance, (b) and if they perceive that attainment of the standard will lead to receipt of a reward, and (c) provided they also perceive the reward as valuable and equitably distributed. Situational leadership theories state that appropriate leadership style should be adapted depending upon the situation. The most crucial variable in that situation is the degree to which the person requiring leadership is ready, willing, confident and able. Generally speaking a totally unready person (unable and lacking confidence or unwilling) requires close supervision and directive, task oriented leadership. Completely ready individuals (able, willing, confident and experienced) respond to leadership based on delegation and autonomy.

The path-goal approach sees leadership in terms of coaching, whereby the leader facilitates and assists the individual to set realistic goals, to then map out a path to those goals and create or put in place stepping stones required to actualise the path.

Other literature regarding motivation.

Balkin (1989) states that one of the most important factors explaining why university faculty members form unions is dissatisfaction with the economic aspects of their jobs. Balkin examined the effect of faculty unionism in publicly funded PhD-granting universities in the south-eastern US. Results indicated that unionism had no effect on satisfaction with pay level, pay structure, and pay increase dimensions. There were very few differences

between the two faculty types. However, among these differences, Balkin reports that unionised faculty were more satisfied with their research support than non-union faculty.

Megel, Langston and Creswell (1988) studied the different motivating influences in prolific researchers compared to low producers of research in a university faculty. They found that the highest producers of research were motivated by peer pressure outside their institution, as well as by research team members within their institution, and displayed a greater personal preference and inclination for conducting and writing research than low-producers. High producers co-authored papers with mentors and colleagues and spent less time in teaching. Implications from this research are discussed in the sections below.

A similar study was conducted by Walker (1992) who surveyed faculty members of the five US universities that comprise the Academic Affairs Conference of Midwestern Universities. The results suggested that those incentives that exert the strongest influence to submit proposals for outside funding of research are personal professional development and the search for new knowledge. Other important incentives include: released time from teaching for research, academic recognition, increased opportunity for promotion, and financial aid in publishing research results. When asked to designate essential features that ought to be incorporated in a university policy on faculty research supported by outside funding, faculty members who had submitted proposals for outside funding emphasized: 1. assistance in the preparation of proposals, 2. clearer policies regarding distribution of the overhead monies generated by their grants, and 3. the minimizing of administrative red tape. There is no reason to assume that these recommendations do not also apply to incentives to submit **any** research proposals.

An aspect of incentive highlighted by Hicks (1995) concerned the image associated with the role of "researcher" compared to other roles within one's profession. Hicks asserted that while establishment of research culture was being encouraged in the nursing profession, it was apparent that the way in which a nurse's role is construed by both the nurse and associated personnel was dysfunctional to development of the nurse as a researcher, and hence in turn dysfunctional with attempts to establish a research culture. Hicks provided nurse managers with 15 bipolar dimensions of characteristics inherent in a "*good nurse*" and asked them to rate the extent to which two nurses would possess these attributes. One nurse was described as a "*good clinician*" while the other was described as a "*good researcher*." Hicks found that a nurse described as a good researcher was attributed with fewer of the characteristics assumed to be inherent to a good nurse. To be a good researcher seemed incompatible with perceptions of also being a good nurse. Furthermore, a good researcher was less likely to be employed. It is reasonable to assume that similar attributions and stigma may be associated with characteristics of a "good academic staff member" if comparisons were made between "good researchers" and "good teachers." Until this sort of attribution bias is depleted, academic staff members will experience little incentive and perhaps personal cost in assuming the research role. It is suggested that a replication of Hicks research in the academic environment, might be enlightening.

Summary - Motivation

In short, motivation theories suggest that individuals will avoid circumstances that they find unpleasant and will approach circumstances that they find pleasant. These circumstances can be manifold and may be physiological or psychological. The circumstances might represent relative deprivation and disequilibrium (need & drive), unfulfilled expectancies, valued incentives, aversive physical stimuli, psychological states such as stress, anxiety or boredom, perceptions of inequity, attitude discrepant tensions, threat to one's construct system, and so on. In addition, each individual has their own meaning and experience of "pleasant - unpleasant". This may be confounded further, when people experience a conflict between a desire to approach a circumstance and simultaneously avoid it, or to simultaneously approach two incompatible circumstances (see Lewin, 1931, 1935; Miller 1944; Epstein & Fenz 1965).

The expectancy theories have a number of implications for the research culture. The first set of implications: if requirement to do research becomes an additional burden that interferes with their ability to meet their teaching commitments and standards, then staff members may not be motivated to engage in research, or may become less motivated to apply effort to their teaching. The staff members need to have some perception of standards of attainment in research and some understanding of the effort required to reach that standard.

The second set of implications of expectancy theories for research is clear if we construe reward as incentive. The researcher needs a clear perception that specific standards are attached to specific incentives - publication is one. Many tertiary institutions require "publication" as part of job performance. The standard imposed on the research is therefore to actually gain acceptance for publication and the incentive relates to job tenure, salary rises and promotion. In view of the principles of goal setting (see Locke, Shaw, Saari, & Latham, 1981), this establishes a goal or objective that is largely out of the researcher's control. They may perform research of a publishable standard and yet not have it accepted for publication. Or, they may produce research that meets other esteemed standards (for example, good enough to pass a PhD, or worth quite a few thousand dollars to a Government agency) but which, because of its nature or confidentiality, rather than its quality, is unpublishable. Note, there is a distinction here between work of a publishable standard and actual acceptance of a manuscript for publication.

It is possibly preferable that the standard should be "publishable" and the incentive should be "publication", rather than the standard being "publication" and the incentive being "brownie-points" for tenure, promotion etc. The publish or perish syndrome, which seems to be taking a stronger grip in New Zealand, may well lower the standard of the research. Researchers are looking for easy publications and their names in the publications lists at conferences, rather than engaging in meaningful research that contributes meaningful information to their academic discipline. It has also seen a huge increase in survey questionnaires circulating the world, a phenomenon that is beginning to wear thin and create resentment among those who are asked over and again to respond to yet another questionnaire.

Morgan (1997, p. 98) explains very succinctly that when we try to achieve goals or targets as end states (for example “achieve two peer reviewed publications before end of year”) the target often dominates attention and obliterates other key aspects of the overall situation. Morgan asserts that attention, energy and action tend to be invested in that point in the future when the target must be attained (for example “the end of the year”) and the environment tends to get manipulated in a way that allows us to achieve the goal. In the process we can anticipate, from history, that all kinds of dysfunctions and unintended consequences occur. Research “stars” might achieve the publications, but in the process do irreversible damage to the “departmental culture,” morale, quality of course delivery, and quality of the research process as attention is diverted towards achieving the publication rather than considering the value of research, its nexus with teaching and role in learning.

Support for the fallibility of publication as an output measure comes form Murrey, Taylor, Hollman and Hayes (1994) who found that university professors in risk and insurance faculties did not hold academic research - including their own publications - in high regard. Most of these professors were actively engaged in research because the reward system in higher education in the U.S.A. dictated that research and publication played a large part in evaluation for promotion, tenure and salary increments. Murrey et al. (1994) assert that different criteria would result in fewer, but higher quality research articles and a more efficient use of ever scarcer higher education dollars.

The New Zealand *Research in Polytechnics* conference generated discussion of research as a "form." Research is not a "thing." It is process. Discussion following a presentation by Haynes (2000) and a number of others (eg. Harvey 2000) centred around the problem of an "outputs," product focussed management of research, and the possibilities of research being managed as process.

Valency and equity have implications for remuneration and other tangible forms of reward. Staff who feel that their research efforts and achievements are not compensated with valued and equitably distributed rewards are less likely to be willing to engage in research.

The practical implications of Apter's (1979) reversal theory are quite simple. Firstly, research can be very anxiety producing and stressful. It can also be very exciting. Parts of it can be boring, but little of it is relaxing. To be motivating, research needs to be pleasant, and probably mechanisms need to be available to encourage that pleasure. Undue stress related to outcomes probably needs to be reduced. Olsen & Sorcinelli (1992) report an ongoing longitudinal study which showed that over a five year period, changes in new academic staff included perceptions that teaching had become more satisfying and less stressful than research, and also increased stress related to research productivity. Again the publication expectation probably needs to be reduced in this respect. A publication should be a good thing to have, and something to be proud of when it occurs, rather than an expectation and a source of frowning when it does not occur. Encouragement is probably required rather than criticism.

It is advisable that entry level researchers should learn the simple, uncomplicated, pleasant ways of doing things, rather than indulge in the unnecessarily complex. Why get "stressed out" over an incredibly complicated research design, with numerous variables being tested, requiring a complex statistical analysis, when a one variable question requiring a simple t-test analysis will do. The implication here, is to do research one step at a time and to consider multi-variable questions as separate pieces of research (even if data is collected on a single questionnaire). The implication of this for the Research Leader is: try to keep research as simple and uncomplicated as possible, so as to encourage pleasure in doing it and pleasure in seeing simple but clear results. A cyclical action research model (first introduced by Lewin 1946, 1947) might be used to assist a beginner to study an event in depth, but by completing “bite sized chunks” one step at a time. This notion has been addressed in more detail elsewhere (see Hill, 2000 and Taylor 2000).

What are the implications of behaviourist/contingency theories? We seek to encourage research. We seek to increase the practice and then sustain an acceptable level. Hence we seek to provide **situations** for research, and in those situations provide reinforcers while holding down punishers.

Research culture mechanisms would probably be punishing as follows: If insufficient funding was available and the researchers found themselves monetarily out of pocket. If insufficient time resources were allocated and the research infiltrated time associated with more highly valued rewards. If a collegial research review seminar programme (colloquia) took on an atmosphere of criticism rather than encouragement. The trick here, will be to identify representativeness of these kinds of contingency. Funding, time and encouragement are but three.

Personal construct theory suggests that there will be some people who are disinclined to engage in research. To motivate them towards research means discovering, for each individual, what it is about research that they avoid. By changing their beliefs about these, we may see the individuals begin to approach research. Others may be inclined to approach research but may be some distance from actual engagement in it. With these people we need to discover the implicated dimensions (constructs) for each individual (in a sense the blockades, insufficient time, insufficient resources, insufficient self-confidence) and design ways that enable these people to move to the desired position on these dimensions, hence opening up the way to research activity.

Lastly, it was suggested that House’s Path-goal approach might be useful for the research leader. This approach involves leader and follower in the mutual setting of realistic goals, mapping a path to those goals and building the pathway of stepping stones to reach it.

Hornblow and Neal (2000), emphasised the motivational aspect in a paper concerned with the development of a research culture by "celebration." They described their institution as containing a number of "old fogies" content to teach and mark the work of student technicians to strict prescriptions. These old fogies would never do research and were resistant to development into degree programmes. However, at their institution, when people achieve

research and publication outputs it is celebrated with late afternoon wine and nibbles. Hornblow and Neal stated that while the old fogies will never do research, they are very much a part of the research culture - because they're keen to turn up for the wine and nibbles, happy to stand there to congratulate and applaud the successes of their colleagues and shake their hands. Hence, if an institution really and honestly wants its staff to carry out scholarly activities, it would be helpful to move towards a celebratory environment.

A.2. Developing the endowment of research skills.

A.2.a Recruitment of the skills and interest.

Lubin (1992) indicates that one strategy for building a research team and research environment is to recruit and invest in young promising researchers and then wait to reap the benefits of their mid-career successes. In support of this notion Shoben & Smith (1988) stated that the most vital potential activity that could be undertaken to enhance an organisation's endowment of scholarship and research skills is the appointment of capable and productive scholars.

Johnston (1994) also alluded to this when noting that research productivity tended to be highest in larger departments which enjoyed the presence of post-graduate students and scholars of international repute. While recruitment may not enable the appointment of an international “star,” in order to enhance research culture and productivity it may be pertinent to recruit post-graduate scholars (indeed, recruit **scholars**) who have reported research interests and specialisms. Goodwin and Sauer (1995) indicate that among economics teachers, research activity rises sharply in the initial stages of their careers, remains high for a long period beyond reaching its peak, then slowly declines in latter years. This once again highlights the investment notion of recruiting scholars for their future output.

A.2.b Education and training experiences.

As indicated above, Megel et alia (1988) noted that the highest producers of research in one faculty displayed a greater preference for conducting and writing research than non-producers. They also tended to publish more and earlier in their careers than non-producers. These results were descriptively compared with correlates of research productivity for faculty in other disciplines. Implications for administrators of research in schools of higher education include encouraging research at early stages of a faculty member's career.

Polk (1989) reports that the individual knowledge required to develop a research culture includes knowledge of the following: (1) conceptual or theoretical models of thought, (2) models of scientific enquiry, (3) methodological designs, (4) probability theory and (5) statistical analysis. Individual research training and education programs should therefore include at least an introduction to these concepts.

Polk (1989) also dwelled on the important role in the induction or orientation of new personnel. She reported a case where orientation for all new staff emphasised that (a) research is necessary for the development of the discipline or profession, (b) participation in research was the responsibility of all staff members, (c) the purpose of research was (in their case) to investigate problems encountered in their work and (d) the value of research in providing data regarding the effectiveness of other goals, such as patient care or attention to student needs.

Bruce & Brameld (1990) evaluated a program of instruction concerning use of the library for senior students that aimed at improving their research efforts. Students who received extended library-use instruction were compared with those from the previous year who had not received such instruction. They found that the instruction improved student researcher's information seeking behaviours and their literature reviews. This study implicates the role of the academic library in facilitating the research process.

Data collection was considered by Bostrom (1991) as an experiential method for learning about the research process, and claims that it affects participant's attitudes about research and future research involvement. Bostrom's study describes the effects of data collection experience on: 1. nurses' perceptions of nursing research, 2. the research environment and 3. nurses' plans for further research involvement. This has implications for using the data collection experience as an educational process about research. Bostrom's paper reiterates the notion discussed above, concerning motivation and personal construct theory: a learning experience may change the individual's position on some constructs that then enable a shift towards research activity. This implies that it would be useful to include research naive and research inactive staff members as data collection assistants in other departmental research programs. This way, they need not have developed the research question, nor written a proposal, analysed and interpreted data, and written a report. They will, however, have been involved, gained exposure to some aspects of research, and gained experience.

Summary - The endowment of research skill.

One way of establishing and sustaining a research culture is to recruit the skills and research interests into the department or organisation. Another way is to develop the skills and interests in the incumbent members of staff. Ways of doing this include, collegial support, formal training and supervised experience, and as suggested above, providing that experience as early as possible in a staff members tenure. Polk (1989) has outlined the role of the induction and orientation process with new employees. It may be useful for those who are inactive in research, to be engaged as research assistants, so that they can formulate their attitude towards research on the basis of experience with the research process.

B. The level of the Institution.

B.1. Making Research Actions cohesive.

B.1.a. Sharing expertise and knowledge

MacCorkle (1991) states that scholarly inquiry is a social process and that one way to encourage the research culture at an institution is to develop services that stimulate intramural communication. This is supported by Megel et alia (1988) who noted the highest producers of research were strongly motivated by internal peer support of research team members. Implications for the research culture include encouraging faculty to establish research networks and supportive research teams. MacCorkle (1991) reports that faculty research referral databases and faculty publication bibliographies are ways to disseminate institutional research interests. MacCorkle cites the example of The Otto G. Richter Library at the University of Miami which operates an annual bibliography of research undertakings. A use survey indicated that the bibliography covered an estimated 87% of the books and journal articles published by authors associated with the university and that over 25% of the respondents contacted another faculty member as a result of research identified in the bibliography. Chistensen and Jansen (1992) also report a significant correlation between research productivity and networking with other faculty.

A multicomponent intervention to enhance research productivity at the University of Akron in Ohio was described and evaluated by Wodarski (1991). The components of the intervention included: 1. improving the information exchange system, 2. implementing a systematic approach to securing funds, 3. presenting seminars, 4. reallocating indirect cost returns, and 5. establishing a fund to cover unplanned research expenditures. The creation and maintenance of a positive culture for research was emphasized. Incorporation of these procedures should, according to Wodarski, result in increased research productivity, scholarly activity, and spirit of entrepreneurship that will bring additional funds to an IHE and contribute to the overall educational climate.

Hanson (1992) notes that the US National Science Foundation advocates an increase in opportunities for interdisciplinary work both between universities and industry and among the various scientific areas.

B.1.b. Having direction, niche or strategy.

Lubin (1992) indicates that crucial to the development and success of a research program, top management, the administration, and the academic leadership must agree to a strategy for research support and development. It is also important to integrate a research program with an institution's existing strengths.

Okamoto (1991) reports that a research culture is enhanced by determining a research theme. In determining the research theme, there are 2 main considerations - 1. picking out the "candidates" or "research questions" and 2. evaluating them. Imagination and creativity are essential in picking out the "candidates". Okamoto advocates a combination of brainstorming and scenario writing as effective for improving creativity and imagination.

Following this a mid-range strategic research plan can be compiled. This plan is further broken down into short-range research plans. Individual research themes are proposed according to this plan. It is important to note however, that the research themes be built upon the candidates abilities, interests and questions, rather than imposed upon them.

From the perspective taken by Polk (1989), this aspect constitutes the essence of the research culture problem. She took a sociological perspective and concluded that establishment of a culture involves internalisation of values and norms, and stabilisation of the culture. To do this she advocated setting goals that provide the framework for internalisation of research values.

Elsewhere, Hill (2000) discusses the mystification of research, and cyclical periods of de-mystification and re-mystification. Mystification occurs when the reason for research in an institution is not clear and purposeful, where competing agenda obscure the meaning of research and where clarity of purpose is not adequately communicated to researchers. Mystification also occurs where the researchers themselves are given least opportunity to *voice* their agenda – in other words when the research agenda is set by personnel other than researchers and where the researchers are denied a contributing voice.

With regard establishment of research niches or themes, Harvey (2000) sounded a warning about the type of research niche institutions developed for themselves, particularly if a specific type of methodology was adopted as that that niche. For example she warned strongly against developing a focus on "applied" research in contrast to "pure." Harvey, felt that it was unhealthy to dichotomise research in this way, since these dichotomies tend to become exclusive categories. They become constraining boxes. You're either in, or you're out. By focussing on "applied" as a niche, departments in tertiary education institutions might preclude themselves the opportunity of contributing research in other ways.

In the past a similar argument has been made about the "Qualitative – quantitative" and "tight – loose" dichotomies in research (see for example Bannister, 1981) . These dichotomies are useful ways of describing research but should not be viewed as "types" of research. When seen as types, researchers seem to think they need reside in one camp or the other, rather than straddle the full span. Rather than dichotomous types, these should be viewed as bi-polar extremes that allow for "shades of grey" in between. All good research is both qualitative and quantitative (even if dominated by one form rather than the other). Good research would also be both applied and pure. In relation to "tight versus loose" research, Bannister (1981) states that unfortunately social scientists tend to take up residence and work exclusively within one or other of these types of construing. Overly loose research results in outcomes that are *vaguely and superficially significant* and which meet with *death by chaos*, while on the other hand, overly tight research results in outcomes that are *specifically and precisely irrelevant* on the other hand and which meet with *death by boredom*. We should embrace the full range of available methodologies, not limit ourselves.

Summary - Cohesive research action.

The literature suggests that enhancement of a research culture and research productivity relies heavily upon communicative networks and the sharing of ideas. It also suggests that formulation of a strategic plan or "direction" may facilitate the process. The strategy should encompass both ways and means for supporting research and for encouraging certain types and topics of research. As presented by Binney and Williams (1997) the strategy or "direction" is least likely to be successful in generating research activity when it is either imposed entirely in a "top-down" fashion or constructed entirely in a "bottom-up" fashion. Binney and Williams advocate exploitation of the best of both approaches by engaging in what they term "leading and learning." This approach sees management of an organisation leading the establishment of direction and strategy while at the same time collaborating with and learning as much as possible from their key stakeholders, especially their key employees in each field.

B.2 Making Research easy for researchers. (Facilitation of research)

B.2.a Having Institutional Support

Lubin (1992) indicates that success of a research environment depends upon a firm commitment of time, effort, money, and resources on the part of top management, the administration, and the academic leadership.

Shoben and Smith (1988) advocate that institutions that desire to integrate full-scale research must provide effective research support and appropriate research administration. For the necessary scholarship to grow organically out of the intellectual directions of scholars rather than out of reaction to available funds requires the strong representation of research in the highest councils of the institution. This may require procedural modifications within the institution to facilitate the research effort.

One of the key conclusions to be drawn from the *Research and the New Tomorrow Conferenc*e, held at in Auckland in 1997 was recognition that institutions throughout Australasia that had managed to establish a flourishing research environment, reported that they firstly needed to "put resources **into** research" in addition to just "having resources **for** doing research." Some institutions had provided "resources for doing research" in the form of a central contestable research fund, but had done little to "put resources into research" in the form of building infrastructure and a research enabling environment. In essence this means that an institution cannot expect chemistry lecturers to do research if there is not a laboratory, nor photography lecturers without a darkroom or studio. Institutions serious about developing and sustaining a research culture must be prepared to provide the infrastructure and facilities for all academic disciplines that are the equivalent of chemists' laboratories and photographers' darkrooms.

Internal institutional support may not be the only contributor to enhancement of healthy research activity. At the New Zealand *Research in Polytechnics*

conference (2000) here was a high representation of delegates from the Information Technology (IT) academic discipline. They were generally buoyant about research progress in their arena. It became apparent following presentations by Taylor (2000), Bridgeman (2000) and Brimblecombe (2000), that an important role had been played by NACCQ in helping foster research activity in the IT sector of Polytechnics. NACCQ is in effect, the New Zealand association of Polytechnic IT teachers. They have moved from simply having an annual meeting, to now having an annual conference and have developed an academic journal as a publication outlet for members. All over the country IT research outputs in Polytechnics seems to have flourished. Research also seems prolific in other disciplines that have formal professional and academic societies, complete with annual conference and academic journal. National psychological societies provide ready examples. Some disciplines do not enjoy such an association (for example business studies). A way forward for other disciplines may be to follow suit and have their external body collaborate in the development of publication and dissemination outlets. An implication for institutions in transition might be to actively assist degree programmes to lobby with their external bodies in this respect.

B.2.a.i. Commitment to research and researchers' perceptions of support.

In an unpublished doctorate Martin (1988) examined why research by staff members flourishes in some institutions and fails to appear in others. A perspective on the effectiveness of an organization in supporting research was suggested as including the context (setting), the culture (institutionalized support), and the climate (the shared perspective of the staff). A sample of seven US institutions with "exemplar" staff research programs was acquired. The study included one survey per institution on organizational context and research culture that were to be answered by a representative from staff administration. Secondly, a questionnaire on research culture and organizational climate was distributed to 100 randomly selected staff members. A survey to all staff asked questions on research productivity. There was a significant difference among the institutions studied in research productivity; and differences between them were found (a) on three organisation climate dimensions, (b) regarding relationships between staff that perform different roles, and (c) in relation to research culture. Since these results are embedded within an unpublished PhD the specifics are unknown by the present writer. Despite this, and although the institutions were not IHE's, the findings contribute to an understanding of the organizational influences on staff research productivity that are needed to guide management.

Martin (1990) examined staff given the mandate to perform research and the obstacles they encountered in fulfilling it. Such staff are often torn between two time-consuming responsibilities: attention to their clients (in the case of an academic institution, this means attention to students and teaching) **and** attention to research. Without a systematic approach, supported by the institution, that provides both material resources and time to conduct studies, research is de-emphasised. As already indicated above, Megel et alia (1988) found that higher research producers spent less time in teaching than low producers. One implication for administrators of academic schools, who want

a research culture to develop, includes adjusting teaching loads in order to provide time for research and writing. Donaldson (1991) indicates that psychological support and a supportive environment provided to faculty and staff is an essential ingredient for success in developing a research effort. Dooley (1994) reports a survey where faculty staff valued involvement in attempts to gain research grants. However the survey affirmed the difficulties involved in developing a grant proposal, and most respondents requested their employing institution to help minimise the burden and support the time consuming development process with release time and administrative support.

An important issue, sometimes misunderstood by institution administrators and managers, is that research is a very time consuming activity. Furthermore, it is frequently the process of developing, preparing and planning a research proposal that is more time consuming than the field work, data collection, analysis and final report writing. That available time is a factor in facilitating research was highlighted in a finding by Christensen and Jansen (1992) that research productivity correlated significantly with conducting research over the summer, presumably during the student vacation period. Fostering a research culture means allocating and managing time for the activity.

Polk (1989) addressed a similar issue concerning conflict between two cultures or mindsets that exist in institutions embarking upon a research culture. This is the conflict between the *research oriented* culture and mindset on the one hand, and the *practice oriented, client-attention* culture and mindset on the other. In other words, in the case of an IHE, the conflict between research and teaching. Polk stated that when these two meet, the zeal of one may devalue the other. She continued that development of "unit" and individual research agendas represents a bonding of the research function into the fabric of the practice function. Stabilisation of the research culture occurs when research becomes core to the practice function as illustrated by reinforcement and sanction to do research, recognition for doing it and provision of release time from the practice (teaching) to engage in research.

B.2.a.ii. Administrative support.

A stable administrative support system is crucial, according to Lubin (1992,) for the development and success of a research program. A firm commitment of time, effort, money, and resources is required on the part of top management, the administration, and the academic leadership. If there is no display of commitment or mixed signals about commitment then we can hardly expect a flourishing research culture to develop

There is a host of literature concerned with research administration - a quick thumb through any volume of the Society of Research Administrators' Journal reveals articles concerned with intellectual property issues, managing funding, facilitating staff with grant applications and marketing the institution's research activities. It is important to acknowledge that research management and administration is a professional practice and academic field in its own right that envelops an exceptionally broad range of talent and expertise (Krebs, 1992).

According to Lasker & Morris (1991) the primary domain of the research administrator directly includes: 1. the selection of sources of sponsorship, 2. review and processing of proposals, 3. budget preparation and control, 4. negotiation with sponsors, and 5. accounting, purchasing, physical planning, patents, publication, and public relations. Lasker & Morris emphasise that research administration is not the administration **of** research, it is the administration **for** research.

White (1991) states that the research administrator has the paradoxical role of seeing to it that the research function is managed with sufficient consistency and form so that time and money are not wasted and yet that management stops at the point where consistency and form begin to hamper the productivity of the researcher. White identifies four paradoxes in the research administrator's role: 1. *the controller-entrepreneur paradox*, involving a balance between being too rigid in operational guidelines, which leads to stagnation, and being too liberal, thus straying from the mainstream of relevant research, 2. *the master-slave paradox*, involving a balance between being too demanding or too lenient, 3. *the censor-publicist paradox*, or balancing the necessity for scholarly communication with the necessity for security systems to avoid infringement, and 4. *the tradition-innovation paradox*, involving a balance between adherence to traditional principles and a willingness to pursue innovative approaches.

Four areas of knowledge that are vital for research administrators are identified by Chermside (1991). These include: 1. a knowledge of basic business theory and practice, 2. a feeling for research theory and practice, 3. a knowledge of how to deal with or work in funding agencies, particularly the government agencies that support an increasingly large portion of research, and 4. an understanding of how research relates to society, both in specifics and in general. According to Chermside, there is a strong argument that research administrators should develop out of Schools of Business Administration.

Rose (1991) reports that the Society of Research Administrators' (SRA) Research Committee presented results of a survey of 221 research administrators that attempted to compile a common denominator or profile of research administrators. From these results, Rose asserts that the goals of research administrators should be based on the following principles: 1. The only function of the research administrator is to **help** expedite the process of research. 2. The purpose of standards is to improve the process of research, not the process of administration. 3. No decisions affecting research programs should be made without involving the researchers in the decision-making process.

The same message is conveyed by Lawrence (1991) who stated that the role of research administrators includes being service providers, facilitators, and monitors. To be successful in the profession, they must develop the management skills to run a small, highly efficient, and productive office. They should establish a partnership with the researcher and research staff and care about them as if they were family. They should help the researchers get into the public eye so the rest of the world knows how good the researchers are. In addition, research administrators should cultivate contacts at the

granting agencies and meet with them personally. They must believe that their role is to be of service to the researcher, and above everything else, they should enjoy what they do.

McKenzie (1988) studied styles of research administration. She reported that an adaptive style, while allowing for the unexpected, can still provide a necessary level of organizational control. Because it recognizes the dynamic character of research activity, it can succeed in developing an effective research environment. Through the use of precedents, practices, and open, two-way communications, research administrators are more able to deflect the demands for control that are placed on the research activity by others, without reducing the ability to comply with external requirements or relinquishing control over the research activities. By replacing the red tape of the bureaucratic style with personal ties, the adaptive style reduces the tendency to circumvent organizational control. The adaptive style, by requiring greater involvement of research administrators, assures that the balance between compliance-control and creativity-productivity is maintained. As a result, the researchers, research administrator, and the organizations involved in the research activities all benefit.

B.2.b. Having Research facilities and resources.

One component of research culture establishment outlined by Polk (1989) includes introduction of the *artefacts* of the culture. She states these as being the tools and facilities for conducting research and describes their introduction as contributing to the "birthplace of the research acculturation process" (Polk, 1989, p.27). This was mentioned, above, in relation to putting “resources **into** research” in addition to just having “money **for** research.”

Much of the literature dwells on the role of information facilities, particularly electronic ones. In addition to incentive motivation, Okamoto (1991) states that the next most important factors in fostering good researchers and good research leaders are hardware support and software support. Ali and Young (1992) found that acquisition of electronic databases was a significant factor in increasing faculty research output.

MacCorkle (1991) stated that one way an academic library can contribute to encourage the research culture at an institution is to develop services that stimulate intramural communication. Faculty research referral databases and faculty publication bibliographies are ways to disseminate institutional research interests. There are two implications here: the first holds that the academic library is an important facility relevant to the research culture and which should play an active role in that culture. The second concerns the facilities provided by that library. Ojala (1992) advocated cutting corners by replacing precious time with quick electronic on-line search facilities. She contended that this eliminated waste from the office research environment, and by acquiring virtually instantaneously the information needed to speed up the research process allowed users to achieve the edge they seek. Meador et al. (1992) reported that research performance is enhanced by having a quality research library.

Summary - Facilitation of research

For research to flourish, there needs to exist a firm commitment to it at the highest levels in the organisational system. In addition to that, the researchers must be able to perceive that they have that top level support and commitment behind them. In a huge number of research-active institutions this commitment is manifest as provision of funding resources, research facilities and development of a research administration body who oversee research policy and manage funding, public relations, marketing and research information. It appears that research administration offices need to take pains to balance their administrative and facilitative roles.

On more than one occasion the literature refers to the conflict experienced between *client attention* and *research attention* and time and again, the literature referred to an organisation's need to address problems relating to teaching load and release-time to engage in research. With regard to **facilities**, apart from a research administration function, the literature refers predominantly to the role of the academic library, and the effectiveness of electronic search, information and networking facilities.

CONCLUSION

Top level commitment and support are probably the most crucial variables in enabling a research presence to flourish. If the IHE, or department, sees itself as a teaching organisation and not as a research one, or as a profit making enterprise rather than a learning focussed one, then establishment of a research environment will remain difficult and possibly even surplus to requirements. The first crucial step therefore, involves the organisation in making a decision about whether or not it wants a research culture to develop and whether or not they are prepared to support it. The rest of this conclusion assumes an organisation that **does** want research to flourish.

In a large number of the papers reviewed the question of time allocation and release from teaching load was discussed. It seems that this is an issue at the heart of research culture development; an issue that requires careful and honest consideration. The conflict between teaching and research, if not addressed, is likely to lead to the impoverishment of one or the other. IHEs establishing a research presence must ensure that their requirements for staff to engage in research do not become a burden that interferes with their ability to meet their teaching commitments and standards, and *vice versa*.

A stable, supportive and yet adaptable research administration system is suggested, indeed probably a separate office to carry out the function. Recruitment of such an administrator should be done with great care, since they will find themselves handling paradoxical roles and tricky boundaries.

The organisation should provide realistic standards of research quality and acceptability. At the outset, to germinate and nourish research activity "publication" may not be a realistic standard. In addition the organisation should think carefully about providing mechanisms and systems that enhance pleasure, excitement of doing research, and that reduce anxiety. For example, it may be desirable to reduce the stress from expectations bound in the "publish or perish" syndrome. This area of research motivation may

become a crucial function of the research supervisor/mentor, whereby they encourage parsimonious research, help set objectives and learn to interact with their charges with *unconditional positive regard*. That is, with encouragement, by seeing the good in the research activity, and by telling their charges that they are well capable of doing it. The supervisor should not do this dishonestly however - the research-learner should be protected from gaining an unrealistic perception of both their own ability and the size of their project. Funding and resources play an important role as well. To remain a pleasing activity, the organisation needs to ensure that their staff are not "out of pocket" from their research endeavours.

It is expected that a research culture would develop as the pool of research skills increase within the organisation. This might be achieved both by recruiting the skills into the organisation, and by training and developing those skills with existing staff. It is suggested that this commence at the induction of all new staff, and by encouraging involvement in research as assistants to more experienced colleagues. This may represent very valuable exploitation of the individual's specific strengths (for example, statistics). Hence, experienced researchers should probably be encouraged to also involve at least one other colleague (research apprentice) in their projects, rather than operate entirely alone.

Communication and sharing of ideas and progress appears to contribute to the development of a research culture. This might take the form of collegial networks and the sharing of literature and publications. It is also suggested that a research presence might be enhanced by establishing a strategy for research support and by identifying favoured research topics that reflect the organisational culture.

REFERENCES

Adams, J.S. (1965) Inequity in social exchange. In L. Berkowitz (Ed.) Advances in Experimental social psychology, (Vol. 2). New York: Academic Press. 267-299.

Alderfer, C.P. (1972) Existence, Relatedness & Growth: Human needs on Organisational settings. New York: Free Press.

Ali, S.N. & Young, H.C. (1992) Information Access through CD-ROM and its impact upon faculty research output. Microcomputers for Information Management, 9, 177-189.

Apter, M.J. (1979) Human Action and Theory of Psychological Reversals. In G. Underwood & R. Stevens (Eds.), Aspects of consciousness (Vol. 1). London: Academic Press.

Bailey, T.G. (1992) Faculty research productivity. ASHE Annual Meeting Paper. Paper presented to the Annual Meeting of the Association for the Study of Higher Education, Minneapolis, Oct. 28 - Nov. 1, 1992.

Balkin, D.B. (1989) Union Influence on Faculty Satisfaction with Compensation and Resources. Journal of Collective Negotiations in the Public Sector, 18, 315-326.

Bannister, D. (1981). Personal Construct Theory and Research Method. In P. Reason & J. Rowan (Eds.). Human Inquiry. Chichester: John Wiley & Sons.

Bannister D. & Fransella, F. (1986) Inquiring Man, The Psychology of Personal Constructs, Third Edition. Harmondsworth: Penguin.

Binney, G. & Williams, C. (1997) Leaning into the Future. London: Nicholas Brearley.

Borokhovich, K.A., Bricker, R.J., Brunarski K.R. and Simkins, B.J. (1995) Finance research productivity and influence. Journal of Finance, 50, 1691-1717.

Bostrom, J. (1991) Data collection as an educational process. Journal of Continuing Education in Nursing, 22, 248-253.

Bridgeman, N. (2000). Recognising Opportunities for Research Outputs: The New World of Polytechnic Research. . Paper presented at the *Research in Polytechnics: Strategies for Success* conference, Whangarei. 28-29 September 2000.

Brimblecombe, T. (2000). Strategies to successfully balance teaching, qualification upgrades and research targets on degree programmes: Maximising opportunities to engage in relevant research and meet required outcomes. Paper presented at the *Research in Polytechnics: Strategies for Success* conference, Whangarei. 28-29 September 2000.

Bruce, C.S. & Brameld, G.H. (1990) Developing Research Skills for Civil Engineers : A library contribution. Higher Education Research & Development, 9, 151-159.

Campbell, J., Dunnette, M., Lawler, E., & Weick, K. (1970) Managerial behaviour, performance and effectiveness. New York: McGraw-Hill.

Chermside, H.B. (1991) Education for Research Administrators: Where to Go from here. SRA - Journal of the Society of Research Administrators, 23(3), 13-15.

Christensen, K.W. & Jansen, D.G. (1992) Correlates of Research productivity for Industrial Education Faculty. Journal of Industrial Teacher Education, 29, 23-40.

Curran, P. (1994) The slope of the playing field. AREA, 26, 249-260.

Donaldson, C. (1991) Developing a successful sponsored research program at a "teaching" college. SRA - Journal of the Society of Research Administrators, 23(2), 35-40.

Dooley, L.M. (1994) Barriers and the inducements to Grant Realted Activity by a College of Education Faculty. Paper presented at the Annual

Meeting of the American Educational Reseach Association. New Orleans, LA, April 4-8 1994.

Edwards, R.A. (1991) UK Geography departments: A perspective on UFC ratings. AREA, 23, 197-208.

Epstein, S. & Fenz, W.D. (1965) Steepness of approach and avoidance gradients as a function of experience. Journal of Experimental Psychology, 70, 1-12.

Festinger, L. (1957) A Theory of Cognitive Dissonance. Evanston, Illinois: Row Peterson.

Gleave, M.B., Harrison, C. & Moss, R.P. (1987) UGC Research Ratings: The bigger the better? AREA, 19, 163-166.

Goodwin, T.H. & Sauer, R.D. (1995) Life cycle productivity in academic research: Evidence from cummulative publication histories of academic economists. Southern Economic Journal, 61, 728-743.

Hanson, D. (1992) NSF's Future Role: Focus Urged on Basic Research Support. Chemical & Engineering News, 70, 6-7.

Harvey, S. (2000). Learning from expereince: Beyond "Practical" research in Arts. . Paper presented at the *Research in Polytechnics: Strategies for Success* conference, Whangarei. 28-29 September 2000.

Haynes, J. D. (2000). The Nature and Advancement of a Research Culture. . Paper presented at the *Research in Polytechnics: Strategies for Success* conference, Whangarei. 28-29 September 2000.

Henderson, R. & Cockburn, I. (1996) Scale, scope and spillovers: The determinants of research productivity in drug discovery. Rand Journal of Economics, 27, 32-59.

Herzberg, F. (1966) Work and the nature of man. Cleveland: Worl Publishing.

Hicks, C. (1995) A study of nurse managers' constructs of nurse researchers. Journal of Nursing Management, 3, 237-245.

Hill, R.A. (1990) An action research application of personal construct psychology in organisations: The use of cognitive maps to produce policies for action. Unpublished PhD. Thesis, Massey University.

Hill, R.A. (1996) Personal Construct techniques useful for both ideographic exploration in organisations and exploration of ideas in the tutorial classroom. Occasional Papers in Business Studies, # 3, The Waikato Polytechnic.

Hill, R.A. (2000) Demystification of Research: Getting bigger (and better) by thinking small. . Paper presented at the *Research in Polytechnics: Strategies for Success* conference, Whangarei. 28-29 September

2000.

Hoare, A.G. (1995) Scale economies in academic excellence: an explanatory analysis of the United Kingdom's 1992 research selectivity exercise, Higher Education, 29, 397 – 402.

Hornblow, D. and Neal, T. (2000). From Salivation to Celebration: The Emergence of a Research Culture at the Open Polytechnic of New Zealand. Paper presented at the *Research in Polytechnics: Strategies for Success* conference, Whangarei. 28-29 September 2000.

House, R.L. (1971) A path-goal theory of leader effectiveness. Administrative Science Quarterly, 16, 221-238.

Johnston, R.J. (1994) Department size, institutional culture and research grade. AREA, 22, 343-350.

Kelly, G. (1955) The Psychology of Personal Constructs: Vols. 1 & 2. New York: Norton.

Krebs, R.E. (1992) A curriculum for Professional Research Administrators. SRA - Journal of the Society of Research Administrators, 24(1), 25-30.

Kyvik, S. & Smeby, J.C. (1994) Teaching and Research: The relationship between the supervision of graduate students and faculty research performance. Higher Education, 28, 227-239.

Landy, F. (1989) Psychology of Work Behaviour: 4th Edition. Homewood, Illinois: The Dorsey Press.

Lasker, L. & Morris, T.M. (1992) Research Administration: What Is It - Fact or Fiction. SRA - Journal of the Society of Research Administrators, 24(1), 31-35

Lawrence, S. (1991) What's It All About - This Research Administration? SRA - Journal of the Society of Research Administrators, 23(1), 39-41

Lederman, L. (1991) Research Constricted by Inadequate Funding. Computerworld, 25(10), 25.

Lewin, K. (1931) Environmental forces in child behaviour and development. In C. Murchison (Ed.) A Handbook of Child Psychology. Worcester, Mass.: Clark University Press.

Lewin, K. (1935) A Dynamic Theory of Personality. New York: McGaw-Hill.

Lewin, K. (1946) Action research and minority patterns. Journal of Social Issues, 2, 34-46

Lewin, K. (1947) Frontiers in group dynamics II: Channels of Group life: Social planning and action research. Human Relations, 1, 143-153.

Locke, E.A., Shaw, K.N., Saari, L.M. & Latham, G.P. (1981) Goal Setting and Task performance. Psychological Bulletin, 90, 125-152.

Lubin, B. (1992) Market Memo: Clinical Research Depends on Integration and Support. Health Care Strategic Management, 10, 18-22.

MacCorkle, L. (1991) Publishing an Annual Faculty Bibliography at the University of Miami. Information Technology & Libraries , 10 , 121-127

Martin, P.Y. (1988) Research productivity by nurses in hospitals: the influences of organizational context, climate, and culture**.** Unpublished PhD. Thesis. Case Western Reserve University.

Martin, J.P. (1990) Implementing the research role of the clinical nurse specialist -- one institution's approach. Clinical Nurse Specialist , 4(3), 137-140

Maslow, A.H. (1943) A theory of motivation. Psychological Review, 50, 370-396.

McLelland, D.C. (1955) Some social consequences of achievement motivation. In M.R.Jones (ed.) Nebraska Symposium on Motivation. Lincoln: University of Nebraska.

McKenzie, B.J. (1988) Towards a More Effective Style of Research Administration: A Comparison of the Bureaucratic and Adaptive Style. SRA - Journal of the Society of Research Administrators, 20, 85-91.

Meador, M. and others (1992) Academic research productivity: Reply, Still further results. Economics of Education Review, 11, 61-67.

Megel, M.E., Langston, N.F. & Cresswell, J.W. (1988) Scholarly productivity: a survey of nursing faculty researchers. Journal of Professional Nursing, 4(1), 45-54.

Miller, N. (1944) Experimental studies of conflict. In J. McV. Hunt (Ed.) Personality and Behaviour Disorders. New York: Ronald Press.

Morgan G. (1997) Images of Organisation: New Edition. Thousand Oaks: Sage.

Murray, H.J. (1938) Exploration of Personality. New York: Oxford University Press.

Murrey, J.H., Taylor, R.L., Hollman, K.W. & Hayes, R.D. (1994) Risk and insurance faculty attitudes toward research and publishing. CPCU Journal, 47, 162-172.

Ojala, M. (1992) Improving the Bottom Line. Link-Up, 9, 23-25

Okamoto, A. (1991) Creative and Innovative Research at RICOH. Long Range Planning, 24, 9-16

Olsen, D. & Sorcinelli, M. (1992). The pre-tenure years: A longitudinal perspective. In M. D. Sorcinelli & A. E. Austin (Eds.), Developing New and Junior Faculty, New Directions for Teaching and Learning, No. 50 (pp.15-26). San Francisco: Jossey-Bass.

Polk, G.C. (1989) Research & Clinical Practice: Building a nursing research culture. Journal of Psychosocial Nursing & Mental Health Services, 27, 24-27.

Porter, L.W. & Lawler, E.E. (1968) Managerial attitudes and performance. Homewood, Illinois: Dorsey.

Rose, R. (1991) Research Is the Doughnut! SRA - Journal of the Society of Research Administrators, 23(3), 17-26

Shellard, J.S. (1979) Perspectives of research and policy. In J.S. Shellard (Ed.) Educational Research for Policy Making in Australia. Hawthorne, Vic.: ACER, 1-10.

Shoben, E.J. & Smith, J.W. (1988) Research Administration and Graduate Education in American Universities. SRA -Journal of the Society of Research Administrators, 20, 187-194.

Siler, J.F. (1989) Million-Dollar Professors: Should the Ivory Tower Be a Gold Mine? Business Week, Aug. 21, 1989, 90-92.

Skinner, B.F. (1959) Cumulative Record. New York: Appleton-Century-Crofts.

Taylor, H. (2000) Baby Steps in research: So you've got the research culture – now what? Paper presented at "Research in Polytechnics" Conference, Northland Polytechnic, Whangarei, 28 -29 September 2000.

Taylor, J. (1994) Measuring Research Performance in business and management studies in the United Kingdom: The 1992 Research Assessment Exercise. British Journal of Management, 5, 275-288.

Towe, J.B. & Wright, D.J. (1995) Research published by Australian economics and econometrics departments: 1988-93. Economic Record, 71, 8-17.

Unwin, D. (1994) Matthew writes again: Size and the RAE. IBG Newsletter, 20, 7-8.

Vroom, V. (1964) Work and motivation. New York: John Wiley & Sons.

Walker, H.E. (1992) Faculty Incentives for Research. SRA -Journal of the Society of Research Administrators, 24(1), 9-23.

White, V.P. (1991) The Paradoxical Role of the Research Administrator. SRA - Journal of the Society of Research Administrators, 23(3), 7-10

Wodarski, J.S. (1991) Building and maintaining a positive culture of research. SRA -Journal of the Society of Research Administrators, 23(1), 13-23.