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Reengineering the Academic Unit's Research Practice: A Stages Model

Dieter Fink
Edith Cowan University

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Dieter Fink,
School of Management, Edith Cowan University, 270 Joondalup Drive, Joondalup, WA 6666, Australia
d.fink@ecu.edu.au

ABSTRACT

The paper presents a stages model that guided the efforts of an academic unit at an Australian university to improve its research performance. Aiming to grow the research culture it used the re-engineering approach to bring about a transformation. There are four stages in the model used: establishing the current research presence, facilitating research interaction, increasing research transactions and achieving research transformation. Part of stage 1 was a survey to establish significant gaps between staff research expectations and perceptions. Progress for stages 1 and 2 were able to be managed within the academic unit but stage 3 was largely influenced by university processes. The final stage (stage 4) will only be reached in a year or two when the research expectations-perceptions survey should be repeated to measure the degree of change that has been achieved. The approach outlined in the paper should be of value to other academic units seeking to re-engineer their research efforts.

Keywords: Research Culture, Re-engineering Research, Academic Unit, Expectations-Perceptions Gap

INTRODUCTION

The author was given the position of Research Leader within the School of Management (SoM) at an Australian university in 2010 by the newly appointed Head of School (HoS). This was the first time the position had been created with the role defined as primarily one of co-ordinating the School's research efforts and to assist the HoS to develop, promote and deliver the School's research and higher degree strategy and objectives. Since it was a new position, with no previous guidelines to work from, the author decided to approach the task of research leader in a manner that reflected a research project.

First, a model was developed to guide the development of research within SoM. This was followed by implementing the model and testing its fitness for the purpose it was developed. Lastly, the model was reviewed based on the experiences gained. In summary, the objective of the research was to develop and test a stages model that would enable research within an academic unit to be re-engineered.

UNDERLYING CONCEPTS

As outlined above, the objectives of developing research within the SoM required that the existing research culture had to be enhanced and research itself be increased to a higher level. For this to occur, two concepts were investigated as outlined below.

Growing a Research Culture

Cheetham (2007) recognised the research deficiencies in the Australian Higher Education (HE) sector and pointed to the emergence of New (post 1989) Universities, the commoditisation of HE in general, the rising number of students and resources not keeping up, and staff who have no research experience. His stated ambition was to examine how the research culture at Australian universities could be grown by focusing on the following:

- Making research a learned behaviour;
- Linking research culture to structure;
- Basing research around the behaviour of staff and students;
- Ensuring that it is in the context of today and not yesterday; and
- Expecting research to be continuously developed.

Cheetham (2007) acknowledges that a research culture "cannot be accomplished either quickly or easily; progress is bound to be almost as slow as the decline would be if we do nothing." (p. 5) He recommended a course of action that is "aimed at raising the level of dissemination, discussion, interaction and mutual support." (p. 6) "We will know when we have arrived when research culture is effectively invisible, when research is nothing special … we will be discussing it over coffee … it will be simply part of what we do as academics as intellectuals." (p. 7)

Re-engineering Research

The concept of re-engineering emerged strongly in the 1990s mainly in connection with re-engineering the processes of business through applying Information Technology (IT) to make business more effective and efficient (Davenport, 1992). The common theme for re-engineering was change. Gover et al (1995) identified several approaches to managing change, including the well known Lewin's theory of change (unfreezing, change, refreezing), managing organisational development (e.g. behaviour modification) and managing resistance. Another approach is that of innovation process where change is managed in three phases: initiation, adoption and implementation (Pierce & Delbecq, 1977).

The innovation approach includes the following. For initiation: scanning of organisational problems and opportunities; for adoption: invest in resources necessary to accommodate the implementation effort, and for implementation: development, installation and maintenance activities. For this study, the innovation approach was adopted. Initially stock was taken of current practices to initiate the changes that were planned. Then, for adoption, emphasis was placed on increasing research interactions and transactions which was followed by implementation when research becomes the norm. The re-engineering of research was therefore accomplished by applying a stages model, one that provided a road map to assess the status of research as it evolved.

RESEARCH MODEL

In the research model designed for this study, the above two concept were applied to the research context of the SoM and then brought together in the model. This was achieved as follows. First, the high level university research priorities were used to develop detailed activities that could be carried out at the school level. The school in this sense is one of many academic units within the university that has teaching (not considered in this paper) and research responsibilities. Hence, university' research priorities should determine the research activities at the school level.

Once activities had been developed they were grouped in what can be considered a life-cycle or stages organisation. An obvious start was to establish the current research presence within the SoM as the foundation from which to build research. This was followed by the stages to increase research interactions and then research transactions as outlined earlier. An example of the former is encouraging collaboration among researchers while for the latter research output, in the form of publications, were a measure of transactions. In the last phase transformation would have been evident in that substantial change in research attitudes and activities should be observable, i.e. research has become everyone's business.

The research model, showing the four stages, the research activities and university strategic priorities, is provided in Table 1.

Table 1: Stages of Research Re-Engineering

Stage	Activity	University Strategic Priority
Establish current research presence	• Determine staff research expectations and perceptions (questionnaire) • Publish staff research profiles (on Delphi site) • Publish staff research outcomes (on Delphi site) • Publish student research topics (on school website) • Publish research in centres/clusters (on school website) • Constitute School Research Committee (SRC) • Synthesise research focus of school (from above)	Build areas of research concentration, depth and sustainability
Facilitate research interaction	• Assign staff to a research centre and/or research cluster • Monitor research within centres and clusters (via regular feedback at school meetings and/or colloquiums) • Implement person-to-person mentoring • Encourage staff attendance at research seminars and colloquiums and proposal presentations • Encourage collegiality with research students via monthly coffee mornings, faculty research forums • Support networking at external seminars and conferences	Increase collaboration internally. Stimulate knowledge transfer
Increase research transactions	• Define expectations for refereed publications • Support progress towards publications (via mentoring) • Support grant applications, preferably via external collaboration • Improve quality of research students (via risk assessment, determining conditions) • Monitor quality of supervision via Thesis Supervisory Register • Determine publications expectations for research students (e.g. co-authored with supervisor)	Increase collaboration externally
Achieve research transformation	• Narrow gap between staff research expectations and perceptions (repeat of questionnaire) • Staff and student research output increased • Research performance benchmarked against other similar universities • Workload model provides time to do research • Staff actively engage with research (as shown by attendance at seminars, etc)	Strengthen research culture, training and support

In stage 1 (referred to earlier as the initiation stage) the university's priority to build research provided the reason why SoM staff were surveyed to establish the research expectation-perceptions gap (see discussion below). Furthermore, an intra-school website was to be implemented in which staff research, either as individuals or in teams, could be recorded. In addition a School Research Committee (SRC) was to be formed to develop the school research focus.

For stage 2 (the adoption stage), the university objective was to increase internal collaboration and knowledge transfer. For the school this meant that staff would be encouraged to collaborate through joining research clusters and/or centres, implementing a mentoring scheme for the benefit of novice researchers, getting together in research forums such as colloquiums, and engaging with research thesis students who should be regarded as valuable research assets.

In stage 3 (also part of the adoption stage) emphasises would be on external collaboration which was seen as submitting research papers to refereed journal and conferences and applying for competitive external grants. An important aspect is attracting high quality research students since they can add substantially to the research quantum produced by the school. New activities would include a thorough assessment of research student applicants, effective thesis progress management by supervisors and joint publications with students.

The final stage (the implementation stage) was perceived as achieving transformation in the way research was conducted. The university refers to this as research culture, training and support. A useful description is that research has become every academic's business and the research culture is well established. The measure for this would be a repeat of the expectations-perceptions survey to ensure that the gap between expectations and perceptions had been substantially narrowed. Other measures include a larger quantity of research output in the form of publications, benchmarking research against similar types of universities, and greater recognition of research within the academics' workload model of the university.

STUDY APPROACH

To achieve the research objective of developing a stages model and then observing the success or otherwise of its implementation, an ethnographic approach was used that is qualitative and in context. As the approach implies, the researcher is an active participant in the program which enables him/her to have studied the program over a period of time. Ethnographic research is essentially phenomenological in nature and the researcher constructs a meaning in terms of the situation being studied. Hence, it falls within descriptive/interpretive research paradigm and 'law-like' generalisations cannot be derived (Remenyi et al, 1998). Nevertheless, the conclusions drawn in this paper should be of interest and value to other academic units that are contemplating developing research to a more advanced level.

More specifically, the approach used was action research. As commented by Remenyi (1998) action research has proved particularly useful in the area of managing change because the researcher is involved in a 'real manner' in an organisational situation. He or she becomes "actively involved in the situation or phenomenon being studied" (p. 49) and, thereby, is able to collect real data in a live situation. Remenyi identified the requirements for action research as follows:

- It is participative and specific;
- It relies on the co-operation of staff involved in the research domain;
- It is self-evaluative;
- The researcher has to be aware of the impact his or her presence has on the situation;
- Quantitative or qualitative research methods can be applied to analysis the evidence collected; and
- It is phenomenological in nature and not replicable.

As a first step, the author conducted research aimed at establishing the gap between what academic staff in the SoM expected from approaches to research and what they perceived were the current approaches. Findings would enable school management to narrow the gap between research expectations and perceptions so that research practice could be made more effective, leading to increased research quality and outcomes.

The approach to measuring the gap between expectations and perceptions has been a long established practice and its first use was via the SERVQUAL instrument developed by marketing professionals (Parasuraman et al, 1988). As the name implies, the original approach was to measure service quality dimensions but over time the approach was adopted by other disciplines, such as Information Systems (for example, Pitt et al, 1995).

Criticism of the gap scoring process emerged on a number of grounds very early on (see Van Dyke et al., 1997). Essentially the criticism was that the approach is too simplistic to measure complex cognitive evaluation approaches when separately measuring expected and perceived quality. Furthermore, the perception of current practice (e.g. service quality) already entails an expected practice (e.g. Brown et al., 1993; Cronin and Taylor, 1992, 1994). In addition, expectation measures suffer from multiple interpretations such as the prediction that practice will occur or should occur.

Despite these weaknesses, a staff survey was conducted to establish the gap between expectations and perceptions for school research. There were six research constructs, supported by research variables, as follows: school research profile, school research activity, staff research, theses supervision, theses progress, and theses completions. As reflected in the names of the research constructs, the focus was on gaining insights into raising the school's research profile and activity, increasing staff research, developing effective processes for theses supervision, progress and completions.

DEVELOPMENTS AND DISCUSSION

Developments during 2010 in each of the 4 stages are discussed below.

Establish current research presence

The activities during the above stage of research re-engineering involved determining staff research expectations and perceptions and publishing current staff research profiles, staff research outcomes, student research topics and the profiles of research centres and clusters as well as constituting the School Research Committee (SRC). It was hoped that this would lead to a synthesis of the research focus for SoM.

The major activity was determining staff research expectations and perceptions via a survey. Its research constructs and variables are shown in Appendix 1. Thirty questionnaires were distributed and 21 completed ones were returned (70% response rate). High reliability was found for the research constructs (Cronbach's Alpha above .80) but the test of normality (Shapiro-Wilk statistic since sample < 100) indicated lack of normal distribution. Hence, non-parametric tests were applied of which the nonparametric T-test (at $p < .05$) indicated statistically significant gaps existed between expectations and perceptions for research except with what is expected and what is currently taking place in respect of research seminars (participating and attending) and encouraging research students to publish. A summary of outcomes is provided in Table 2.

Table 2: Important Findings from Expectations-Perceptions Survey

The highest expectations (above 6 on scale of 1 – 10)	**The lowest perceptions (below 3 on scale of 1 – 10)**
Effective thesis supervision is ensured through	***SoM research activity is increased through***
Supervisor being qualified to supervise	Recognising current research in the workload model
Gaining initial experience as co-supervisor	Working towards a balanced teaching-research workload
	Developing a committee to guide research
The integrity of managing thesis progress is ensured through	
Conducting the initial interview with the student	***SoM ensures successful theses completions through***
	Forming a committee to oversee theses completions
SoM research profile is raised through	The committee assessing applications
Presenting at quality conferences	The committee allocating supervisors
Publishing in high calibre journals	The committee approving reviewers and examiners
	The committee reviewing supervision records
SoM research activity is increased through	Scheduling dates for proposal presentations
Recognising current research in the workload model	Ensuring effective proposal presentations
Working towards a balanced teaching-research workload	Maintaining a supervisor register
Providing school research support	Maintaining a research student register
	Arranging student research progress presentations

According to the findings, priority was required to

- Recognising current research in the workload model and working towards a balanced teaching-research workload. Both attracted high expectations and low perceptions.
- Improving thesis supervision, viz. supervisor qualification, experience and conduct.
- Making transparent the way the SoM manages successful thesis completions through a system of committees, schedules, presentations, registers and reviews.
- Recognising staff performance when publishing papers at high quality conferences and in high calibre journals.

A high workload detracts from being an effective researcher. Expectations for academics to perform in a range of activities have substantially increased in recent years. Typically, in Australian universities, academics are expected to research, teach, engage with the community and accept administrative responsibilities (Gururajan & Fink, 2010). However, the design of the workload model is outside the authority of the individual academic unit and not much was able to be done to provide more time for research. The SoM, however, was able to improve the processes of its PhD applications and making them transparent through flowcharts circulated to staff and constituting a panel that considered all applications. This panel reported to a newly formed School Research Committee consisting of the HoS, professors and an elected staff member.

The current research profiles of staff, students and research centres was quickly published on two websites. One being on the intranet that served to collect information and the other on the university's website that provided the information to the public. However, at the time of writing this paper, a research vision that could provide future direction for research, had not yet been synthesised from the above information.

Facilitate research interaction

The main purpose of stage 2 was to increase communications and activities between researchers within the SoM. The intention was to assign staff to an existing or emerging research centre and/or research cluster, implement person-to-person mentoring, encourage staff attendance at research seminars and colloquiums and proposal presentations, and increase collegiality with research students and networking at external seminars and conferences.

These objectives were largely achieved through the formation of research clusters that brought together staff with similar research interests, typically around their discipline. They provided additional research activities to the existing more formal research centres. Furthermore, an active programme of monthly research colloquiums was implemented, attended by both staff and students, as well as monthly coffee mornings at which staff and research students mixed in an informal manner. Funding was made available, again for staff and research students, to present papers on their research at national and international conferences.

Increase research transactions

The aim of the third stage was not only to increase research output but also its quality. An important incentives was the emergence of an Australian government programme that assessed every university in terms of its research excellence, referred to as ERA (Excellence in Research Australia). The university responded by increasing its research management activities by forming the Office of Research (OR), by for example defining its expectations for refereed publications and supporting competitive grant applications. In addition, the Graduate Research School (GRS) determined entry criteria for new research students (through risk assessment) as well as supervisor effectiveness through training and a supervisor register.

As noted above, the efforts to increase research transactions (quantity and quality), originated mostly outside the SoM, namely the OR and the GRS. The school's role was to encourage staff to publish in ERA recognised publications (which were given rankings), work with the research office when developing and submitting competitive grant applications, ensure that its supervisors were eligible to be placed on the supervisor register, and take into account the risk assessment for higher degree research applicants.

Achieve research transformation

The final stage has not yet been reached because it would require a repeat of the staff research expectations-perceptions survey. Only when the gap has been significantly reduced could it be claimed that transformation has occurred. Further evidence of transformation could be collected by benchmarking research performance against research in similar universities. It could also be expected that staff and student research would have increased, both in quantity and quality, as measured by ERA rankings. Once this has been achieved it could be claimed that research has become every SoM member's business.

CONCLUSIONS

The researcher was an active contributor to re-engineering research but his influence was mostly in stages 1 and 2. Establishing the expectations-perceptions gap provided a sound foundation from which improvements could be made and also increased transparency for staff of the changes that occurred. For stage 3, the role of other actors in the university, i.e. the research office and graduate research school, came into play and the school played a supporting role. This confirmed that high level strategies regarding teaching and research are usually developed top down according to Clegg & Smith (2010) who conducted an extensive review of institutional learning and teaching strategy practices. As indicated, stage 4 has not been completed since the outcomes of the re-engineering efforts are only emerging and it may take a year or two before changes can be measured.

The action research approach itself was effective since no overt resistance from staff was encountered as seen from the good response rate achieved with the expectations-perceptions survey. The paper also demonstrates how the criteria of action research can be applied, namely the study was participative and specific to research in the SoM, relied on the co-operation of staff involved in the research domain, was self-evaluative as outlined in the paper, the researcher had to be aware of the impact his or her presence on the situation (i.e. his role as research leader), applied quantitative and qualitative research methods to analysis the evidence collected, and was phenomenological in nature. Even though it is stated that the approach is not replicable, some guidelines should be apparent in this paper for other academic units seeking to re-engineer their research efforts.

APPENDIX: EXPECTATIONS-PERCEPTIONS CONSTRUCTS AND VARIABLES

	Strongly disagree						Strongly agree
Staff research is encouraged through							
Mentoring by senior staff	1	2	3	4	5	6	7
Junior staff accepting mentoring	1	2	3	4	5	6	7
Staff collaborating in research	1	2	3	4	5	6	7
Staff collaborating in grant applications	1	2	3	4	5	6	7
Participating in research seminars	1	2	3	4	5	6	7
Attending research seminars	1	2	3	4	5	6	7
Qualifying as thesis supervisor	1	2	3	4	5	6	7
Acting as thesis supervisor	1	2	3	4	5	6	7
Effective thesis supervision is ensured through							
Supervisor being qualified to supervise	1	2	3	4	5	6	7
Supervisors attending refresher training	1	2	3	4	5	6	7
Gaining initial experience as co-supervisor	1	2	3	4	5	6	7
Being qualified to review a thesis proposal	1	2	3	4	5	6	7
Using experienced proposal reviewers	1	2	3	4	5	6	7
Using experienced thesis examiners	1	2	3	4	5	6	7
The integrity of managing thesis progress is ensured through							
Conducting the initial interview with the student	1	2	3	4	5	6	7
Completing a student research skill inventory	1	2	3	4	5	6	7
Completing the expectations questionnaire with the student	1	2	3	4	5	6	7
Directing the student to academic support resources	1	2	3	4	5	6	7
Keeping a log of meetings and decisions	1	2	3	4	5	6	7
Supporting progress assessment with reasons	1	2	3	4	5	6	7
Encouraging the student to publish along the way	1	2	3	4	5	6	7
SoM research profile is raised through							
Including research in the school vision statement	1	2	3	4	5	6	7
Publicising staff research	1	2	3	4	5	6	7
Publicising student research	1	2	3	4	5	6	7
Publicising student theses topics	1	2	3	4	5	6	7
Presenting at quality conferences	1	2	3	4	5	6	7
Publishing in high calibre journals	1	2	3	4	5	6	7
Having a visitor programme	1	2	3	4	5	6	7
Publicising seminar presentations	1	2	3	4	5	6	7

SoM research activity is increased through							
Recognising current research in the workload model	1	2	3	4	5	6	7
Working towards a balanced teaching-research workload	1	2	3	4	5	6	7
Integrating research centres with school research	1	2	3	4	5	6	7
Providing school research support	1	2	3	4	5	6	7
Developing a committee to guide research	1	2	3	4	5	6	7
Supporting internal grant applications	1	2	3	4	5	6	7
Supporting external grant applications	1	2	3	4	5	6	7
Regularly meet to discuss research activities	1	2	3	4	5	6	7
SoM ensures successful theses completions through							
Forming a committee to oversee theses completions	1	2	3	4	5	6	7
The committee assessing applications	1	2	3	4	5	6	7
The committee allocating supervisors	1	2	3	4	5	6	7
The committee approving reviewers and examiners	1	2	3	4	5	6	7
The committee reviewing supervision records	1	2	3	4	5	6	7
Scheduling dates for proposal presentations	1	2	3	4	5	6	7
Ensuring effective proposal presentations	1	2	3	4	5	6	7
Maintaining a supervisor register	1	2	3	4	5	6	7
Maintaining a research student register	1	2	3	4	5	6	7
Arranging student research progress presentations	1	2	3	4	5	6	7

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