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Exploring quality in a University: a critical systems approach

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Abstract

Since the 1990s quality management has been translocated from industry into higher education. However, there is little evidence that improvement in the core functions of universities has resulted. This study adopts a critical systems approach that is grounded in a critique of prevailing models of quality management to explore quality in a university. It examines the potential of Critical Systems Thinking enacted through Total Systems Intervention (TSI) to promote improvement. A case is made for local intervention towards improvement. The thesis is structured around the three modes of TSI, namely Critical Review, Problem Solving and Critical Reflection.

A Critical Review of Quality Management suggests that the opposition of academics to quality initiatives in general, and to Quality Management in particular, is rooted in its language and underlying image of organization. This proposition is explored through an analysis of key Quality Management definitions and concepts in relation to the university. The importance of language, metaphors and images of organization are explored. The fitness for purpose of industrial models of quality for universities is challenged.

TSI is employed in its Problem Solving mode to describe the quality problem for an academic unit within a university in New Zealand initially from the perspective of its staff and students. For them, the quality problem mainly related to better promoting learning. Analysis and reflection on the problem and context drawing on systems methodologies shaped interventions for improvement. Critical Reflection on a cycle of participative creativity, choice and implementation identified cultural, structural and environmental factors that present threats not only to quality improvement but also to the viability of the unit.

The main findings and conclusions question the appropriateness of current models of QM in the university. The thesis demonstrates key systemic problems in higher education; provides a rationale for systemic interventions; identifies pressures that make resistance to systems thinking almost inevitable; and illustrates that TSI is more appropriately used by external researchers than insider researchers. Nevertheless, critical systems approaches, in particular boundary critique, help to structure the problem of improving quality in locally meaningful ways. The challenges of using systems ideas and systems methodologies in the university context, however, are substantial.

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Chapter 1
Introduction

This thesis focuses on the issue of quality and higher education in the specific local context of a New Zealand university. This Chapter provides background information required to appreciate the purpose of the present study, the significance of the issue of quality and the perspectives brought into the study by the researcher. The research approach is outlined briefly. The final section of the chapter details the structure of the thesis.

Background to the present study

A major contemporary issue for educational organizations including universities is the maintenance and improvement of quality. This issue is tied to wider questions of the purpose of the university, accountability for public funding, autonomy and control, academic freedom and social responsibility. The management of quality is an organizational problem requiring a systematic, systemic approach to the search for solutions. The pursuit of quality is not new in higher education but debate continues over the applicability and utility of a variety of models for managing quality. The experiences of the USA, UK, Australia, New Zealand and elsewhere have demonstrated the limitations of systems for quality management based variously on: peer review; government inspection, evaluation and regulation; the translocation of manufacturing-based models of quality assurance; and the translation of Total Quality Management (TQM)[1] into the environment of educational institutions. Nevertheless, since the mid 1980s, models with their roots in business and the industrial sector have been strongly advocated as the solution to higher education's perceived 'quality crisis'. Such models have been embraced by some with interests in higher education and rejected by others. Within academic communities the concepts of Quality Management (QM)[2] and performance excellence have been variously welcomed as central to the academic enterprise, ignored and strongly resisted as antithetical to the interests and goals of those broadly concerned with enhancing the social good (Doherty, 1994a). The concept of quality and the management of quality in higher education are contested ground.

A fundamental source of the debate on the applicability of Quality Management models can be seen as a "deafening clash of metaphors" (Houston & Studman, 2001a): the incompatibility of images of organization held by participants in higher education and those held by proponents of corporate industrial models of QM as the solution to organizational problems of viability, competitiveness, efficiency and effectiveness.

This study addresses the question of the transferability of QM to the University as an organizational type.

[1] The term Total Quality Management (TQM) appeared in the 1980s as a catch-all phrase for popular interpretations of generalized models for managing quality in industry. See Chapter 3.

[2] Quality Management, with both words capitalised, is used throughout this document to denote the broad body of theory and practice that has evolved over the past century for the management of quality in corporate industrial settings. The usage is broader than TQM.

What is Quality Management?

From the literature, contemporary Quality Management can be characterised as an organization-wide philosophy and organizational culture that emphasises constant improvement of quality through every aspect of an organization's activities: it has a broad focus on achieving best practice through the implementation of a range of processes and techniques which include quality planning, quality assurance and quality control, benchmarking, and continuous quality improvement within the context of a quality focused organizational vision. QM requires an understanding of the nature of quality and of the nature of organizational systems broadly defined, and a commitment by members of an organization to work in ways that enable all people in the organization to make the greatest possible contribution to organizational goals. QM is about understanding the relationships between management practice, people and systems and attaining a prescribed balance of interactions between those fundamental elements of the organization. It is a "totally integrated, management-led effort towards improving performance at every level of the enterprise, on every aspect affecting competitiveness and customer satisfaction." (NIES, 1990)

Quality Management has its roots in industrial organizations and is derived from the discipline known as Quality Control, a group of techniques associated with ensuring reliable conformity of production from a repetitive process (Avery & Zabel, 1997). From the early 1980s, based on its perceived success and benefits in the industrial sector QM has been promoted as the solution for problems in other sectors of the economy and society including health care and education at all levels. The quality movement represents QM as a universal good based on agreed definitions, concepts and principles presented as applicable to every organization and organizational type. Many outside the quality movement, including many in higher education question both the universality and the 'goodness' of Quality Management.

The idea of the University

Universities are complex, social constructions of stakeholders. Universities are seen from educational, social, political and economic perspectives. They are seen from within by academics, students and other internal participants and from outside by employers, citizens, politicians, potential students and a wide diversity of others. The idea of the university seems to be one that is characterised by diversity and variety. Patterson (1997), for example, identifies two schools of thought on the origins of the university. The first focuses on the structure and form of the modern University as a direct descendent of the medieval university in terms of unique features such as the University's status as an autonomous corporate body; the concept of the course of study leading to the award of recognised degrees or diplomas; and structures of governance. The second school focuses on the intellectual tradition originating in ancient Greece with the notion of the university as a community of scholars (students and teachers) pursuing higher learning, dissemination and enhancement of knowledge. The relative importance and enactment of these notions have been modified over time by the realities of the political, economic and social environments of the university. The latter part of the Twentieth Century saw rapid change that prompted "a fresh round in an ancient and continuing debate about the role of the university" (Smith & Webster, 1997, 2).

There is general agreement about what the university does: teaching, research and community service. But this tripartite role of the university is a relatively recent invention. It also leaves open the question of the purpose of these activities. The idea of the university has become increasingly convoluted through the dominance of neo-liberal market ideology with its associated managerialist image of the university as a business: higher education is a consumer commodity and a service and composed of organizations like any other with consequences for students, governments and businesses as customers and of focus on timely, efficient and effective service provision (Baird, 2001). Significant tensions arise from the emergence of different ideas of the university, which draw on contrasting interpretations of the purpose of the university.

It has been argued that the quality imperative of the 1980s and 1990s raised questions about purpose, value, competitiveness, effectiveness and efficiency of higher education in the context of "the market place and revenue streams ... central to corporate quality thinking" (Ruben, 1995, 12). The normative rhetoric of QM was a preferred means of imposing market logic on other sectors of society including higher education (Dennis, 1995; Moreland & Clark, 1998).

The Research Problem

Wendt (1994, 9) in presenting a "critical tale" of the implementation of Total Quality Management in an American university identified the need to pay attention to the "philosophical baggage that travels along with the [TQM] movement" to help identify and critique "perspectives, values and changes through analysis of the language, interaction and relationships inherent to various TQM implementation processes". This is one of few critical studies of the microprocesses of TQM as a social trend as it makes its way from the cultural domain of industry to that of higher education. A major part of the methodology focused on metaphor analysis to expose dominant interests as a consequence of recognising metaphors as an artefact of ideology. The research points to the importance of metaphors in influencing responses to Quality Management amongst the university community. Wendt (1994, 36) argues further "we should continue to question, critique, and educate ourselves concerning any cultural hegemony that begins to transform and reify not only what we think, but the way we think" and "remain ever-vigilant of hegemonic practices that re-prioritise the philosophies and values of education" (39). Wendt's study points to the need to understand the particular and local as well as the general. Becher (1992), Hewitt and Clayton (1999), Newton (2000) and Spencer-Matthews (2001) all reach similar conclusions about the need for a local focus in quality initiatives and to fit interventions to the characteristics of higher education.

Some literature suggests that the gaps between the dominant image of organization in QM thinking and the dominant images of the university cannot be bridged by simple adoption of the established models of QM but rather requires a meta-method to: promote redefinition and clarification of the 'mess'[3] which is a particular university and the issue of quality in context; test the utility of QM principles, methodology and

[3] For Ackoff (1991) organizational problems are abstractions from sets of interacting issues, which he labelled as 'messes'.

techniques when critically and carefully applied; enable choice and informed decisions about applications; and promote meaningful intervention in the university as an organization.

Purposes of the Research

The present research is built on the intent of emancipatory Action Research (Carr & Kemmis, 1986; Masters, 1995). It is oriented primarily towards prompting and promoting local improvement in practice and in the understanding of practitioners in a particular university academic unit. The purpose of the research is to examine the usefulness of Total Systems Intervention (Flood & Jackson, 1991a, 1991b; Flood, 1995; Jackson, 2003[4]) as an approach to managing quality in part of a university.

Total Systems Intervention (TSI) [5] can be thought of as a meta-methodology for problem solving and improvement in complex messy organizational situations. TSI maintains that organizations are too complex to be effectively managed using one generic methodology. Rather than subscribe to any one methodology, it recognises that all methodologies have value and drawbacks and examines the best use of each methodology. TSI is a practical approach and suggests why, how and when a specific systems methodology may be useful. Flood and Jackson (1991b; Flood 1993, 1995; Jackson, 2000) provide evidence of the application of TSI to diverse private and public sector organizations across a range of industries and cultures. Thus far, it appears not to have been tested widely in educational settings.

The specific objectives of the study were, through the use of TSI, to:

- critically review Quality Management as an approach to organizational problem solving and explore its underlying metaphor and image of organization;
- capture the images of the University as an organization held by the participants in the case study site;
- compare these images of organization to those underpinning QM to clarify the degree of (mis)fit between the respective dominant images;
- if possible, use TSI to move towards the development of an approach to the management of quality that acknowledges and builds upon the particular characteristics of the university.

This research was intended to produce three outcomes:

- first, illumination of the applicability of TSI as a meta-methodology for organizational understanding, intervention and improvement to a University;

[4] As Jackson's 2003 version of TSI was encountered after the commencement of the fieldwork for this research, the research applied the earlier Flood and Jackson (1991) and Flood (1995) representations of the approach.

[5] Otherwise labelled as Local Systemic Intervention (Flood, 1996). Flood (2001) notes that TSI is an unfortunate label in the context of Action Research. This alternate terminology acknowledges that a total understanding of any system is unachievable and that total systems interventions are logically and practically impossible. Consequently, interventions should be systematic and systemic in a local context. Jackson (2000) uses the terms TSI and critical systems practice interchangeably.

- secondly and more specifically, through the application of the creativity phase of the meta-methodology a clearer understanding of the 'mess' that is the academic unit at the focus of the research;
- thirdly, at least embryonic development of an approach to the management of quality grounded in the reality of a University.

Accommodating the commitment to local improvement alongside the academic research purpose is an issue of tension and balance in the research.

The Research Approach: Critical Systems Thinking and TSI

While the study draws its intent from Action Research, it draws its methodological and conceptual framework from Critical Systems Thinking (CST). Jackson (2000) and Midgley (2000) present the most developed discussions of CST. From the Action Research and Critical Systems perspectives the goal is improvement. Understanding the situation is the key to its improvement:

> The Action Researcher becomes involved in creating change not in artificial settings where effects can be studied and reported dispassionately, but in the real world of social practice. In Action Research, the intention to affect social practice stands shoulder to shoulder with the intention to understand it. (McTaggart, 1991, 7)

From a normal scientific perspective the research goal would be precisely articulated and methods employed would include the generation of a hypothesis. Understanding the situation would be limited to the ideas incorporated in the hypothesis. I rejected such an approach as inappropriate for dealing with a social system like the university as it attempts to reduce the complex to the simple and measurable.

The study applies Total Systems Intervention (TSI) (Flood & Jackson, 1991a,b; Flood 1993, 1995; Jackson, 2000) as a practical enactment of CST and a meta-methodology for organizational improvement. TSI operates in three modes: Critical Review of methodologies; Problem Solving in 'real-world' situations; and Critical Reflection on the process and consequences of Problem Solving.

The first part of the study critically reviews Quality Management. Conclusions are presented on: the images of organization underpinning QM as theory and as theory in practice; the relationship between such images of organization and the language of quality; and the implications for QM as a system of thought and as an organizational problem solving approach. The fit of QM principles and processes in relation to the idea of the University as an organizational type is also discussed as context for the practical component of the research. The second major part of the research uses TSI in Problem Solving mode in the context of an academic unit within a large, multi-campus, multi-modal university in New Zealand.

Structure of the Thesis

This thesis explores the potential of CST and TSI by attempting to apply the ideas and approach. It presents critical reflections on QM, CST and TSI. It represents two recursions of inter-dependent study: a broader research study, and a local intervention. As it represents the outcomes of my experience of the

project, substantial parts of the thesis are written in the first person – as an "I' account. Figure 1 shows the structure of the thesis.

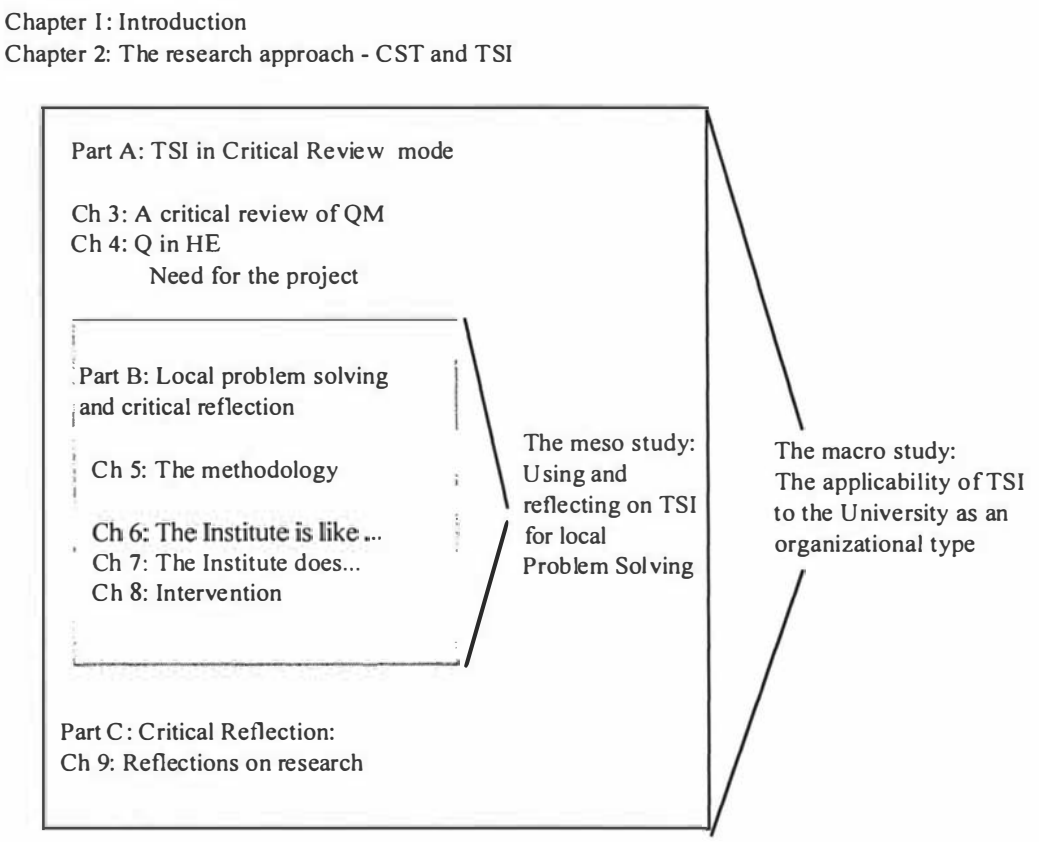

Figure 1: Thesis structure

Chapters 2 and 9 bracket the research study, respectively setting the context for it and drawing research conclusions from it. Theoretical, conceptual and practical aspects of CST and TSI are discussed in Chapter 2, which expands on the framework of ideas and methodology that I brought to this research and positions this research in relation to key Critical Systems concepts of holism, critical awareness, pluralism and improvement.

Chapters 3 and 4 present the 'literature review': the outcomes of the critical review phase of TSI. In much research at least in the sciences, the literature review is a pre-research or at least pre-fieldwork/experimentation task: it sets the context for the 'real' research. Here the literature review and analysis is a major integral part of the meta-methodology being applied through the research. The Critical Review phase of TSI is enacted through the literature review. Chapter 3 presents a critical analysis of the literature in and about Quality Management. The purpose of the chapter is to delineate QM as a system of thought and practice and to explore the images of organization that explicitly and implicitly underpin it as theory and theory in practice. The first section briefly recounts the chronological development of quality theory and practice. The next section examines the frameworks of concepts and principles, the methodologies and the methods presented by writers within the quality movement in terms of the means,

boundaries and purposes ascribed to QM. The third section explores three streams of critique, which focus respectively on practical, theoretical and ideological limitations of the approach. The chapter concludes that while QM theory moved beyond the image of the organization as business - a productive, moneymaking machine - much practice has been enacted within the framework of the organization as an economic entity.

Chapter 4 examines the problem of quality in the university. The chapter examines reactions to the proposed and actual application of corporate/industrial approaches to QM to universities. Standard techniques have been imposed. Many within universities have rejected or argued strongly against QM. It is suggested that the opposition of academics in particular to the universal good of Quality Management is rooted in the language of QM and the image of organization that underpins it. This proposition is explored through an analysis of key QM definitions and concepts in relation to the university as an organizational type. In the final section of the chapter the importance of language, metaphors and images of organization are explored further as context for the local study: TSI in Problem Solving mode.

Chapters 5 through 8 describe and reflect on TSI operating in Problem Solving mode. Chapter 5 introduces the methods and data generation techniques that I used, and reflects on ethical issues related to the study. Chapter 6 describes the case study site – the Institute[6] and its environment – mainly from the perspective of meanings ascribed to the organization by key participants in it. The metaphors used implicitly and explicitly by participants are presented. The chapter also explores the meanings given to the word "quality" by participants. Chapter 7 presents an analysis of what the Institute does and how it organises what it does. These chapters together indicate a series of potential interventions towards improvement that the participants and I identified. Chapter 8 reflects on attempts to implement some initial interventions towards improvement and the outcomes from those interventions. These chapters together are the outcomes of critical reflection on problem solving.

Chapter 9 moves out beyond the specifics of problem solving to present wider reflection on the research. The first part of the chapter reflects on the quality of the research itself and my competence as a researcher. The chapter closes the present research by revisiting the research problem, and presenting the main findings and conclusions. It also reflects on the challenges of using systems ideas and systems methodologies in the university context. The main findings and conclusions question the appropriateness of current models of QM in the university. The thesis demonstrates key systemic problems in higher education; provides a rationale for systemic interventions; identifies pressures that make resistance to systems thinking almost inevitable; and illustrates that TSI is more appropriately used by external researchers than insider researchers. Nevertheless, critical systems approaches, in particular boundary critique, help to structure the problem of improving quality in locally meaningful ways.

[6] The Institute at the centre of this project is my academic work unit: in different parts of the University academic work units carry a variety of labels – department, school or institute.

Chapter 2
The Research Approach: Critical Systems Thinking and Total Systems Intervention

Introduction

This chapter details the conceptual and methodological foundations of the study building around the arguments on theory, methodology and methods presented in Jackson (2000), Midgley (2000) and earlier representations of Critical Systems Thinking (in particular Flood & Jackson, 1991a, 1991b; Flood, 1995). Checkland (e.g., Checkland & Holwell, 1998) identifies three elements as necessary for any piece of research: a framework of ideas (F); a methodology that embodies the framework of ideas (M); and the area of concern (A), which may be a problem within a discipline or a real-world problem situation. Jackson (2000) distinguishes four types of research in terms of their focus in relation to these three elements. Within that typology Action Research focuses primarily on real world problems to produce local knowledge or improvement. Frameworks of ideas and methodology are shaped by the intent and focus of action. Within the diversity of approaches to Action Research (Bunning, 1994; Carr & Kemmis, 1986; Flood, 1998), interpretive and emancipatory Action Research makes a "clear virtue of the ability of the researcher and research process to influence and improve the situation being investigated" (Jackson, 2000, 15). The present research is built on the intent of Action Research to influence and improve the local situation in cooperation with participants.

The project draws its research approach and conceptual framework from Critical Systems Thinking (CST). Systems thinking emerged through critique of reductionism (Flood, 2001). Systems thinking is based in the view that the world is systemic and that valid knowledge and understanding comes from building whole pictures of phenomena rather than breaking them into parts. As Flood (2001, 143) notes "action research carried out with a systemic perspective in mind promises to construct meaning that resonates strongly with our experiences within a profoundly systemic world." Critical Systems Thinking as a recent development in systems thinking is committed to the systems idea. It also is committed to critical awareness, methodological pluralism and human improvement. The conceptual framework provided by CST is discussed further in a later section.

Jackson (2000, 15) states that the interpretive action researcher "must declare in advance the F and the M brought to the real-world problem situation and, later, reflect on the learning achieved about this F and M, as well as about the A. This is his contribution to the research side of action research." This chapter expands on the framework of ideas and methodology that I brought to this research and positions this research in relation to key critical systems concepts of holism, critical awareness, pluralism and improvement. Later reflections are presented in Chapter 9.

The next section of this chapter examines the relationship between paradigms and methodologies to position this research in relation to established research traditions. Jackson (2000) notes systems approaches are not social theories but concentrate on methodologies, methods[7] and models for

[7] Through this discussion 'methods' is used as a portmanteau term encompassing models, techniques and tools

intervening in the real world. An understanding of research and social paradigms helps to illuminate the often taken for granted frameworks of ideas behind the design of systems approaches. The characteristics that distinguish realist and nominalist research paradigms are discussed, as are the implications for methodology. The relationship between images of the social world and of organizations, and systems approaches to intervene in that world are also examined. CST and TSI are discussed. The three fundamental commitments of CST - critical awareness, pluralism and the promotion of human improvement - are examined. The principles and process of TSI are discussed in detail. The final section presents the justification for the use of TSI in the local context.

Positioning the research: contrasting paradigms

Any research reflects the values, beliefs, ideas and assumptions that together form the researcher's paradigm[8]. Two dominant research paradigms exist each with a contrasting ontology and epistemology - the realist and nominalist paradigms[9]. Each paradigm directs the researcher towards preferred research methodologies and techniques. Both paradigms are outlined in Table 1.

Axioms about	**Realist paradigm**	**Nominalist paradigm**
Ontology: nature of reality	Single, tangible, fragmentable, convergent [The real physical world of sciences]	Multiple, constructed, holistic, divergent [The social world]
Knowledge: the inquirer – subject relationship	Objective Independent	Subjective Interdependent
Purpose: Generalisation	Context and time-free generalisation, focus on similarities	Context and time-bounded working theories: focus on differences as much as similarities
Explanation: Causality	Real causes, temporally or simultaneous	Interactive mutual shapers (feedback and feed-forward)
Axiology: the role of values	Value-free	Value-bound

Table 1: Contrasting research paradigms

Each framework of ideas is enacted through particular preferred research methodologies. Qualitative (or 'soft') methodologies based in the nominalist paradigm, seek the "development of concepts which help

[8] Kuhn (1970) has argued even the so called hard sciences are in part socially constructed in terms of common-sense ideas held by a culture of scientists: they are influenced by the personal preferences of the researcher.

[9] Various sources use different terminology referring to the first paradigm as realist, positivist or scientific and to the second as nominalist, interpretivist, constructivist or phenomenological. The key point is that the first paradigm assumes that the world and knowledge are objective and real; the second assumes that the social world and knowledge are subjective and constructed by people.

... to understand social phenomena in natural (rather than experimental) settings, giving due emphasis to meanings, experiences, and views of all the participants" (Pope & Mays, 1995, 43).

In contrast, underlying quantitative techniques is a realist view of the world as operating with natural laws that can be discovered, described and explained by hypothesis testing. The realist research paradigm is epitomised by research in the 'hard' physical sciences but has also been applied to research on the social world. Jackson (2000) follows Checkland's argument that systems approaches arose as a reaction to the failure of the reductionism of hard science to deal with the wholeness, in terms of interconnectedness and emergent properties, of complex problems in the socially constructed social world. While theorists debate the incommensurability of paradigms, that is, the ability of those committed to one paradigm to understand any other, and the existence or otherwise of any measure to compare claims to knowledge, Jackson argues that other bases for theory building and intervention exist which have greater potential for encouraging debate and resolving disputes between different positions. The use of metaphor is one such approach.

Metaphors and images of organization

As Jackson (2000, 26) notes "metaphor is employed whenever we try to understand something in terms of a name or description which is not literally applicable to it." A metaphor relates what is uncertain or unfamiliar to known ideas or situations. CST uses a range of metaphors or images of an organization - as a machine, an organism, a brain, a culture, a political system, flux, a psychic prison, and tool of domination - developed by Morgan (1997). Systemic metaphors create sense, shared meaning and understanding of complex situations between observers of and/or participants in the system of interest. While Morgan (1997) advocates the creative use of metaphor, Lakoff and Johnson (1980, 156) have cautioned:

> Metaphors may create realities for us, especially social realities. A metaphor may thus be a guide for future action. Such actions will, of course, fit the metaphor. This will, in turn, reinforce the power of the metaphor to make experience coherent. In this sense metaphors can be self-fulfilling prophecies.

Metaphors provide a frame for problem setting and problem solving: they are generative as well as interpretive (Schön, 1993). A problem is constructed from the mess using a generative metaphor that stakeholders employ to make sense of problematic situations that are vague, confusing and concerning. A generative metaphor is a powerful organising concept that simplifies complexity. Schön (1993, 137) describes metaphors as being "central to the task of accounting for our perspectives on the world: how we think about things, make sense of reality, and set problems we later try to solve."

A generative metaphor highlights certain aspects of the mess and downplays other aspects as trivial, which allows for well-defined problems to be constructed. From what seems chaotic and vague, a clear statement of what is wrong and what should be done arises. As the mess is complex, there are potentially many different but equally valid ways of looking at the problem and problem context. A variety of generative metaphors can be employed. Schön and Rein (1995) note that most generative metaphors are based on shared cultural meanings. A metaphor is more than a description. It is a powerful organising

structure that influences how stakeholders behave. It is certainly possible that a metaphor may be partly responsible for constituting apparently irrational behaviour of stakeholder groups. The behaviour only seems irrational because stakeholders attach a different meaning than what is assumed by the metaphor. A danger of uncritically applying generative metaphors is that the normative judgements contained in a particular one may be unwittingly applied to the area of concern (Schön & Rein, 1995). This normative assessment of stakeholder behaviour obscures possible competing definitions of the 'problem'.

Critical Systems Thinking and Total Systems Intervention

The systems idea and systems thinking

While the systems idea and systems thinking (or systemic or holistic thinking) have a tradition reaching back to Plato, the concepts began to be formalised in the early to mid Twentieth Century. Multiple variations within the systems tradition can be identified, but all hold to the systems idea. A system can be seen as a network of interdependent elements and the relationships between them working together. In many cases, a system works to achieve a purpose. A system involves the following concepts and properties (Daellenbach, 2002, 272):

1) A system is an organized assembly of elements with special relationships between the elements. If the elements or relationships change, then the system changes.
2) Each element contributes to the system's behaviour and is affected by it.
3) A system exhibits emergent properties that none of its components have individually: the whole is greater than the sum of the parts. Emergence is a characteristic of the particular case.
4) Sub-groups of a system may have the above properties – they form sub-systems.
5) A system has an outside – its environment - and boundaries that determine what is in the system or not in the system. Boundaries can be seen as social constructs created by people.
6) A system transforms inputs from the environment to outputs to the environment. For social systems the inputs include political, economic and cultural norms and expectations.

Systems thinking is based in the view that valid knowledge and understanding comes from building whole pictures of phenomena rather than breaking them into parts. Critical Systems Thinking emerged in the late 1980s and through the 1990s from a period of 'Kuhnian crisis' in systems thinking. It arose out of critique of hard systems methodologies (such as those found in operations research and systems engineering) and interpretive approaches such as Checkland's (1991) Soft Systems Methodology. Checkland (1983, 1991, 1999) captures key aspects of the difference between hard and soft systems methodologies. Hard systems approaches enact the realist paradigm: systems are taken as real and amenable to manipulation through a systematic process of rational intervention involving definition of the system and it's objectives, and engineering of the system to optimise goal achievement. For Ackoff (1991), hard systems methodologies are part of the machine age and are best suited to simple problems that are part of a bygone era. Today, the world is too complex. Soft systems thinking shifted the focus

'from optimising to learning' (Checkland, 1991) and from problem solving to problem structuring. The concept of system shifted to apply to the process of people dealing with the world reflecting the nominalist paradigm. Soft systems approaches contribute to systemic understanding of situations that some people may regard as problematic (Checkland, 1999). CST recognises the existence of multiple worldviews, paradigms and methodologies that have been created within each paradigm. All of these worldviews, with their conceptual models, generative and interpretive metaphors and associated methodologies are seen as valid but some are seen as more valuable in understanding and intervening in particular situations.

Social systems such as organizations are characterised by first, the existence of highly interdependent issues, problems and dilemmas and second, the presence of people. People tend to perceive the 'same' situation from a variety of perspectives and to respond unpredictably depending upon their beliefs and values. Unpredictability contributes to the mess: in dealing with any organization, we are dealing with a complicated mess. Organizational problems require approaches that are anchored in the nominalist paradigm with its acceptance of diversity and disagreement. As Jackson (2000, 1-2) puts it

> in seeking to understand and intervene in social systems, people are inevitably at the centre of the stage. It is necessary to take into account different beliefs and purposes, different evaluations of the situation, the danger of self-fulfilling prophecies, and the sheer bloody-minded capacity of individuals to falsify any prediction made about them.

Critical Systems Thinking

Critical Systems Thinking did not appear fully formed but developed relatively quickly through a process of debate and critique to provide form to systems thinking as a trans-discipline (Jackson, 2000). Contemporary CST, despite variations in the definitions given to it, is built on three dominant commitments: critical awareness, methodological pluralism and the promotion of human improvement (Jackson, 2000; Midgley, 2000).

Critical Awareness

Critical awareness requires critical reflection on theory, methodology and methods, and the relationships between them. Critical awareness also encompasses an explicit sociological awareness because societal and organizational forces can cause systems methodologies to fall in or out of favour with researchers and practitioners.[10] A sociological awareness also points to the fact that use of certain system methodologies as a consequence of assumptions (in particular about stakeholders), has consequences for not only those who have the capacity to influence decision-making but also those affected who do not participate in problem setting or problem solving. A systems methodology may unwittingly duplicate common societal inequalities. Many methodologies do not consider the question of "who benefits?" but assume a given and

[10] In health policy research for example, the dominance of economic and biomedical perspectives has meant that qualitative techniques rarely have been used and are often described as unscientific or lacking in rigour. Ironically, it is qualitative researchers that are more likely to better understand complex issues such as hospital waiting lists. Quantitative researchers are unlikely to be aware of boundary setting issues that define a problem as a problem. See Foote, Houston and North (1999a, 1999b) for an extended discussion of the limitations of quantitative research about waiting lists.

agreed upon utilitarian objective. In such cases, the powerful may benefit at the expense of less powerful groups.

Ulrich (1991, 2000) and Midgley (Midgley, Munlo & Brown, 1998: Midgley, 2000) present an additional perspective on critical awareness[11]. Midgley (2000, 7-8) argues "... there is no such thing as a genuinely comprehensive analysis, so the defining feature of systems thinking is reflection on the *boundaries* of inclusion and exclusion" [italics in original]. Boundary judgements define what is considered relevant (and conversely what is not relevant) and the assumptions that make up social systems (such as a university). Midgley (2000, 138) in reviewing the ideas of Churchman, presents the foundations of a theory of boundary critique:

> ... boundaries are constructs, and may therefore be placed in a variety of different places, bringing forth markedly different 'realities'; they are associated with values, in that different values (associated with different ideas of improvement) may result in boundaries being constructed in different places; participation from a variety of stakeholders is important, because different stakeholders bring different insights to bear; and even our most cherished ideas should be subject to critique from time to time to test their worth in the light of other value systems.

Midgley (2000, 135), reflecting on the intimate connection between boundaries and values, argues that boundary critique "... is essential if we are not to simply take for granted assumptions flowing into interventions".

A possible criticism of the research presented here is that it incorporates the viewpoints and boundary judgements of potentially important stakeholders such as senior University managers, the general public and politicians, only superficially. Yet, as Flood (1999, 70) points out, bounding the research in this manner is still systemic and inevitable:

> ...*systemic appreciation is an ever-expanding exercise* [italics in original].... Inevitably, to be pragmatic, systemic appreciation must operate within some limits. The first task of systemic thinking, therefore, must be to bound thought, yielding a viewpoint that is both relevant and on a manageable scale.

The present research focuses on the interests of day-to-day participants in the Institute, as these stakeholders are most likely to be able to affect and be affected by local improvement.

Methodological Pluralism

Pluralism has come into favour in the systems field for three reasons. Firstly, critique has taken place to demonstrate the advantages and limitations of different methodologies and methods. Secondly, much contemporary thinking rejects totalising discourses that claim to provide the one true way. Thirdly pluralism seems to be necessary, as it seems to work. Rather than promoting a given systems methodology as the answer, CST recognises the opportunity that a diverse range of systems

[11] Both Ulrich and Midgley acknowledge the seminal influence of C. West Churchman on their work around the concept of boundaries. Ulrich's thinking about boundaries was initially presented in his 1983 work *Critical Heuristics of Social Planning*. While not sighted in the course of the research reported here, the significance of this work is acknowledged. Midgley (Midgley, Munlo and Brown, 1998; Midgley, 2000) clearly acknowledges that his own work extends on the work of Ulrich.

methodologies and methods presents. Rightness becomes a matter of appropriateness, as certain systems methodologies are better suited to certain problem contexts. As a result, CST turns diversity into a strength.

Jackson (2000) identifies what he considers three proper streams of coherent pluralism: "methodology selection" which matches one whole methodology to a problem situation; "whole methodology management" where several methodologies based in different paradigms are employed together in the same intervention; and "multiparadigm multi-methodology" where methods from varying paradigms are brought together in new combinations in an intervention. Jackson acknowledges the criticism that the first presentation of TSI with its reliance on the System of Systems Methodologies (Flood & Jackson, 1991b) favoured 'whole methodology management' and failed to appreciate the flexibility offered by selection and combination of methods.

The coherent pluralism proposed by Jackson (2000, 387)

> ... needs to employ a meta-methodology to take maximum advantage of the benefits to be gained from using methodologies premised upon alternative paradigms together, and also encourages the combined use of diverse methods, models, and techniques, in a theoretically and methodologically informed way, to ensure maximum flexibility in an intervention.

Improvement

CST's third commitment to human improvement is directed towards "bringing about those circumstances in which all individuals could realize their potential" (Jackson, 2000, 376). Many critical systems thinkers have come to recognise that local improvement is a more realistic goal than the earlier commitment to the universalist position of 'emancipation'. Jackson emphasises the need for 'ethical alertness' as pluralism is likely to lead to contradictory proposals for change. A decision between possibilities can only be made on ethical grounds.

Total Systems Intervention: Critical Systems Thinking in action

TSI was developed as a practical face of CST. Total Systems Intervention was initially developed as a meta-methodology for problem solving in complex messy organizational settings through an iterative process of creativity, choice and implementation (Flood & Jackson, 1991a,b; Jackson, 2000). Flood (1995) reconceptualized TSI as operating in three modes - Critical Review, Problem Solving and Critical Reflection (see Figure 2) - each operating through the three phases: creativity, choice, and implementation. Jackson (2000) argues that Critical Review is simply a restatement of the need for critical awareness and that critical reflection is under-developed but offers promise if properly specified to guide the research aspect of TSI. Nevertheless, Flood's (1995) model provides a useful framework for the current research.

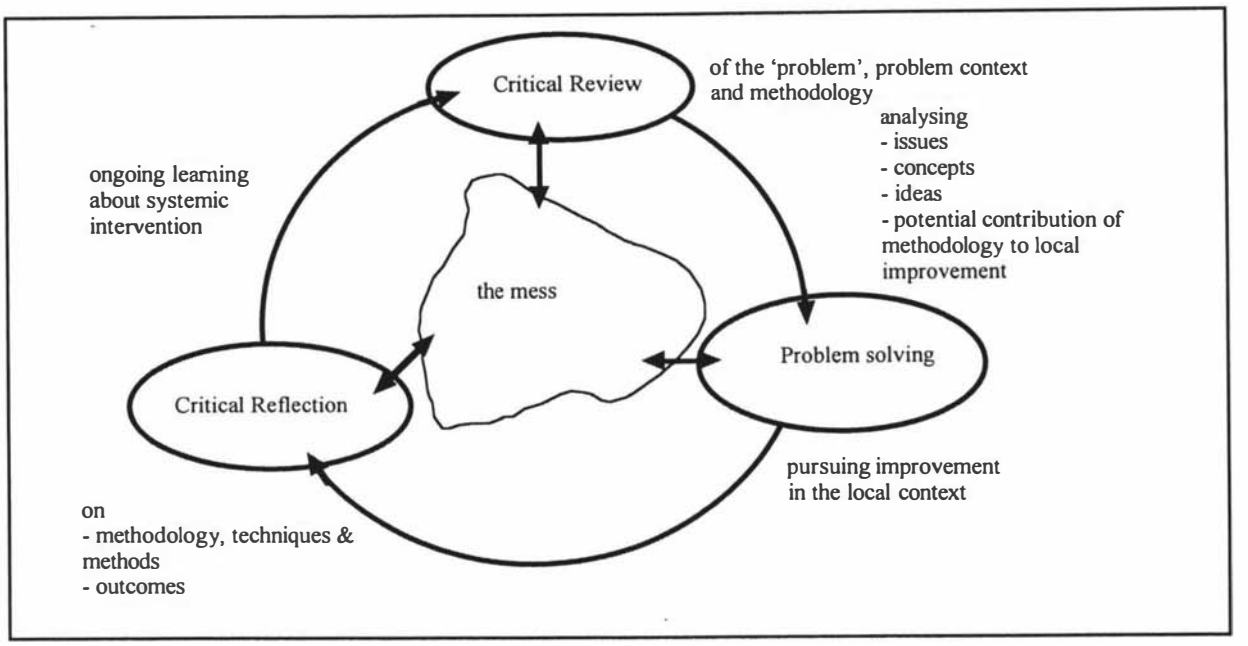

Figure 2: The three modes in TSI

The philosophy underlying TSI is, of course, CST. Jackson (2000, 368-369) identifies seven principles embedded in TSI in its problem solving mode, which he argues have stood the test of time and practice. These are reproduced below[12].

> Organizations are too complicated to understand using one management model, and their problems are too complex to tackle with quick fixes
>
> Organizations, their concerns issues and problems should be investigated using a range of systems metaphors
>
> Organizational issues and problems highlighted by the metaphors can be linked to appropriate systems methodologies to guide intervention
>
> Different systems metaphors and methodologies can be used in a complementary way to highlight and address different aspects of organizations and their problems
>
> It is possible to appreciate the strengths and weaknesses of different systems methodologies and to relate each to appropriate organizational concerns and problems
>
> TSI sets out a systemic cycle of inquiry with interaction back and forth between the three phases
>
> Facilitators and clients are both engaged at all stages of the TSI process.

These principles have guided the research reported here. The next section describes the process of TSI.

TSI: Three modes and three phases

The Critical Review mode evaluates the potential contribution of various 'problem solving' methodologies and methods to systemic interventions. Problem Solving deals with the selection and practical application of methodologies and methods to particular circumstances. Critical Reflection

[12] Flood (1995) identifies four principles: being systemic; achieving meaningful participation; being reflective; and being emancipatory. Jackson (2000) discusses the changing focus of CST/TSI from emancipation to human improvement.

structures learning about the appropriateness and effectiveness of the Problem Solving mode. The phases within the modes are described in detail below in the context of Problem Solving.

In Critical Review mode a methodology, and its associated methods, is reviewed. In the spirit of pluralism, arguments of methodological superiority are regarded as unhelpful as they detract from the important contributions that various methodologies and methods can make to securing improvement. Methodologies and methods should be seen as complementary. The area of concern - the problem and the problem setting – and the paradigm that underlies each methodology should inform choices of methodology and methods for problem solving. Critical Review enables theoretically informed choice. Critical Review in the case of this research focuses on Quality Management as philosophy and practice exploring its purpose and concepts, methodology, methods and the focus of action. The review illuminates the nature of QM as a problem solving approach (and the metaphors and paradigm underpinning it), to assist clarification of Quality Management as a systemic intervention.

Figure 3 summarizes the phases within the Problem Solving mode. The task of *creativity* is to help participants think about their organization and its issues. The creativity phase begins with the realisation that, while problem solvers construct neat tidy problems with obvious solutions, the notion of a problem is misleading. Because it is more productive to think in terms of "messes" - sets of interacting issues - the creativity phase seeks to surface as many issues as possible that may need to be managed. The tools include idea generating techniques and systems metaphors as image generating tools. The phase begins with the simple question of "what is the organization like?" Here, a variety of metaphors or ideas will be surfaced. Alternatively the metaphors suggested by TSI can be used to enrich or challenge perceptions, which hopefully results in synthesis and resynthesis of an understanding of the problematic situation. The intent is to clarify the nature of, and relationships between, the boundary judgements implicit in the participants' metaphors. The outcomes are a rich understanding of the metaphors of the organization, boundary judgements and associated issues that may be pursued in later phases, and illumination of alternative perspectives on the organization through the use of different metaphors. Creativity should help the organization avoid unconsciously falling victim to self-fulfilling prophecy.

The task of the *choice* phase is to choose appropriate systems-based methodologies and methods to suit the organizational images, issues and problems revealed in the creativity phase. The outcome of the choice phase is a selection of methodologies and methods to apply to the organization's problems and issues.

The task during the *implementation* phase is to develop specific interventions for change. The outcome of TSI is coordinated change in those aspects of the organization seen as most critical to its operation. An intervention will cut across the mess causing it to change. The 'new' mess may require new creative thinking or lend itself to new choices of intervention. And so the process continues. TSI is iterative. Management is not a simple process of problem solving but rather an iterative process of 'mess management' where intervening in the mess alters the nature of the mess. The 'mess redefined' through

creativity and choice indeed may require different interventions to the 'mess undefined' to which TSI was originally applied.

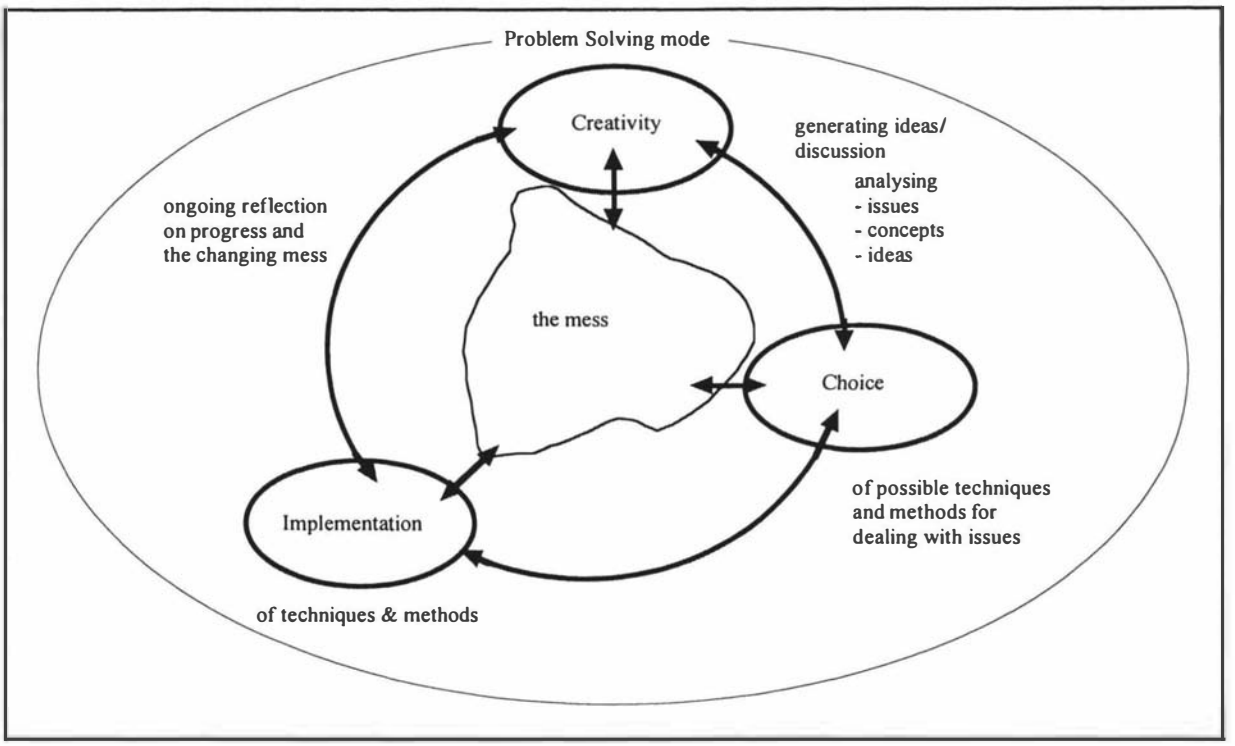

Figure 3: Phases within Problem Solving mode

Flood (1995, 227) presents the Critical Reflection Mode of TSI as a process for evaluating the use of and outputs from tools, methods and methodologies "in the circumstances": it is reflection on specific actions and achievements in a given context. Jackson's (2000, 393) constitutive rules for critical systems practice can usefully be employed as a framework for critical reflection reframed as a series of 'how did the intervention...?' questions. The main body of this thesis, through a detailed account of 'problem solving' in a particular circumstance, presents critical reflections on core questions: how did the problem solving process go? what did it achieve? why or why not?

The present research: Applying TSI within a university

A research project in large part reflects the assumptions that are made by the researcher about the nature of the phenomenon that is studied. The present research starts from the constructivist position that a university is a complex socially constructed social system faced with problems, issues and dilemmas. Quality has been identified as one problem. Quality Management has been widely advocated as the solution to the quality problems of universities. The fit between the methodology, the problem and the problem setting, however, is in dispute. Debate between stakeholders is needed to explore issues and potential solutions. In a system such as a university, agreement over key concerns is unlikely. Different stakeholder groups or individuals may bring a variety of perspectives to bear on what is generally considered to be a complex and multifarious situation. These may not be compatible with the images of

organization underpinning QM as an approach to organizational problem solving. Potentially there is a 'deafening clash of metaphors'. Flood (1995, 393) argues that TSI "... offers procedures to integrate all methods for problem solving in a process which ensures that they are employed to tackle only the issues they are best suited to". TSI potentially offers a way of navigating through the complexity of the topic of quality in a university. The research is designed to examine if that potential can be realised.

Critical Review

The first part of the research applies TSI in Critical Review mode to clarify the nature of Quality Management as a systems methodology and the fit between its dominant metaphor and the images of organization that influence thinking about the university. The purpose is to clarify what benefits QM may offer in the particular context of a university.

Problem Solving in action

The second part of the research applies TSI in Problem Solving mode. It moves to focus on a particular case. While TSI has been applied to diverse private and public sector organizations across a range of industries and cultures, it appears not to have been applied in higher education settings. The research addresses an apparent gap in the potential application of the methodology.

Selecting the area of concern: the research site

I have spent all of my working life in education and hold a longstanding interest in organizational improvement and quality in education (see for example Byrne, Houston and Thomson, 1984; Houston, 1993). When I became a member of staff of the university it was clear to me that the academic unit to which I was appointed was concerned about issues of quality. The unit had been involved in an academic quality audit and undertaken a self-review of its 'quality' processes. Little improvement had followed and the unit seemed uncertain about how to move forward. I saw an opportunity to contribute to local improvement[13]. This research investigates the perspectives of significant stakeholders to determine how their perspectives and images of organization might shape the approach taken to managing quality within the academic unit in which I work: the Institute.

Problem solving was initially exploratory and descriptive to identify metaphors or images of organization held by participants, and to describe the metaphor interplay that influences the dynamics of the organization. While there are many stakeholder groups that could potentially be included in the study, the research focuses primarily on the perspectives of staff and students as day-to-day participants in the organization. I used individual semi-structured interviews and focus groups as primary data generation methods. I interpreted the perspectives of other stakeholders through formal documents such as

[13] The decision to undertake the research in my own unit created some difficulties in gaining ethics approval for the study. Ethical considerations are discussed more fully in Chapter 5.

government policy statements and reports, the university's charter, strategic plan and policies, and public statements by other groups in various written media.

Critical Reflection: Research on quality in a University

The intentions of the research are twofold:

- first, to promote improvement of the quality of operations and outcomes of the Institute - an interpretive Action Research outcome where research is intended to influence practice in the organization under study;
- second, to test whether TSI as a meta-methodology is applicable to the organizational context of the university - a pure research outcome to contribute to the body of knowledge.

It is anticipated that the findings will be used to advance the understanding and pursuit of quality within the organization. The research also contributes to the debates on the nature of quality and quality management in education and on systems thinking and intervention.

Action Research has been described as:

> a form of self-reflective inquiry undertaken by participants in social situations in order to improve the rationality and justice of their own practices, their understanding of these practices, and the situations in which the practices are carried out (Carr & Kemmis, 1986, 162).

Within this description, self-reflection is implicitly required of the researcher/agent himself. Jackson (2000) argues that understanding of the role of the researcher or agent and the ethical commitments that they bring to the intervention is an aspect of TSI that is underdeveloped. Recognizing and managing researcher or agent 'bias' requires that the researcher engage in a good amount of healthy reflection. My starting position was explicit: informed consent is fundamental to the research, as are confidentiality and truthfulness. TSI is fundamentally research in cooperation with participants towards improvement for the benefit of participants. The present research explicitly sought to maximise benefit to the participants through improvement in the Institute. Specific ethical issues are examined further in Chapters 5 and 9.

Some critical aspects involved in this type of research are for the researcher to maintain a professional perspective and approach, and to critically review their own values, attitudes and behaviours and, as far as possible, to ensure that these personal values are made public to all participants in the interests of truthfulness and full disclosure. Such disclosure is essential to enable fully informed consent by participants. Management of researcher ethics is fundamental if the research is to follow key principles associated with critical systemic intervention:

- being systemic, especially where as in this research the researcher is part of the system in focus, requires that the researcher recognises and acknowledges their own limited perspective on the system as only one of many valid and potentially valuable perspectives;
- achieving meaningful participation and rich understanding is dependent upon informed consent by participants in response to truthfulness and full disclosure by the researcher;

- being reflective to ensure whole system understanding is impossible without being reflective about the researcher's own perspective and actions.

This thesis represents the outcome of Critical Reflection on my use of CST and TSI in the local context of my own work environment. The interactions of the researcher, the problem context and methodology are a major focus of the reflections on research presented in Chapter 9.

Chapter 3
Quality Management: a critical review

This chapter initially focuses on the changing nature of Quality Management theory and practice and the changing context in which developments have occurred. The first section of this chapter reviews the historical development of quality thinking from the perspective of time and place. Later sections examine developments within QM discourse and the critical literature about and around QM. The final section reflects on Quality Management as a systems methodology.

Changing times and places and people

The development of contemporary quality theory within the last century is well documented: from quality control through quality assurance to TQM in its multitude of variations. There is general agreement about the major stages or phases in the development of the major stream of QM thinking in terms of timing and place. Garvin (1988) presents a widely accepted chronology of the major shifts in place, which was from the USA (up to the mid-1940s) to Japan (circa 1950 to 1980) and back to the USA (from about 1980 to the present). Some (Sahney & Warden, 1992a; Seymour, 1992; Steingard & Fitzgibbons, 1993) claim that the re-introduction of QM as a major focus in American management can be precisely located to June 24, 1980 when an NBC documentary entitled "If Japan can... Why can't we" exposed a major American audience to the work and views of W. Edwards Deming. There is also general agreement on the key figures who have contributed to the development of QM as praxis, that is, an emergent body of theory and concepts building from practice (see for example Dotchin & Oakland, 1992 and Ghobadian & Speller, 1994). Key works which figure in this development are Shewhart (1931), Deming (1986, 1993) and Juran (1964, 1988). Other significant contributions came from Feigenbaum in the 1950s, Crosby (1979), Ishikawa (1985) and Imai (1986).

America and Product Quality Control: the first wave

Modern QM in its various guises has a relatively recent history. The underlying concepts and fundamental techniques are usually traced to the work of Walter Shewhart and others at the Bell Laboratories in the 1920s and 1930s. Shewhart's major contributions were: the identification of the relationship between process quality and product quality; the identification and classification of causes of process variation as acceptable (common or systemic) or attributable (special) causes; the development of Shewhart control charts as a means of monitoring the state of statistical control of variation in a process; the identification of rules to determine the appropriate response to variation arising from each type of cause; and the creation of the Shewhart or plan, do, study, act cycle (PDSA) cycle[14] as a framework for systematic process improvement (Deming, 1986; Bounds, Yorks, Adams & Ranney, 1994; Rao et al., 1996). The purpose of Shewhart's work was to reduce the economic loss from inappropriate, if well-intentioned, improvement actions based on misinterpretations of patterns of variation. The use of control

[14] Also referred to in the quality literature as the Deming and PDCA cycle – in this last form study is replaced by check.

charts, together with the Shewhart Cycle, forms the basis even today of much QM activity. Through the middle part of the Twentieth Century in the USA, development in the emerging quality discipline was focused specifically on the control of the quality of manufactured products through the application of statistical methods. Into the 1970s and 1980s, this approach, with its narrow focus and methods based firmly on the principles and assumptions of the science of statistics, remained the principal means to the singular purpose of maintaining product quality in the most economical way. While new methods and techniques such as reliability engineering and Failure Mode and Effect Analysis were developed, quality largely remained an economic problem to be scientifically managed and controlled.

Japan and organizational quality: the second wave

The post World War Two period saw substantial shifts in the primary focus of new developments in quality theory and practice. In this period from about 1950 to the 1970s new principles, means and applications for the management of quality were introduced to the receptive minds of Japanese industry, government and unions (Deming, 1986). While the first phase of advances had come largely from within a single American company, the second wave of development came from the collective and cooperative adoption and adaptation of the ideas of a few key figures by a substantial part of a whole national economy.

Deming, Juran and Feigenbaum were key figures amongst those who introduced the Japanese to an approach to management of the productive organization. This approach continued Shewhart's emphasis on improvement but expanded the focus of application beyond the bounds of the manufacturing process to all productive parts of the organization. They collectively developed new principles, assumptions, and means and techniques to achieve the new purpose of QM: ongoing organizational competitiveness, and societal contribution through superior product quality. Their work can be seen as complementary. Deming clarified the nature of the productive cycle of an organization, taught the Japanese Shewhart's principles and tools, and introduced the Japanese to modern consumer research methods. He also made clear the role of management in the process of quality improvement through organizational improvement (Deming, 1986; Bounds et al., 1994). Juran re-enforced the messages about the role of management and clarified further the relationship between quality and cost. Feigenbaum re-enforced the concept of quality as a shared responsibility across organizational divisions and levels. All three assisted the Japanese to reframe quality, and the management of quality as organizational imperatives, organization-wide responsibilities and a major national opportunity.

> Many so-called management techniques were imported to Japan after the Second World War. Of these, only quality control was fully naturalized to become Japan's very own, experience great success, and was transformed into a "new product" to be widely exported to countries overseas. (Ishikawa, 1985, 11)

Creech (1994) and Dahlgaard (1999) confirm that the development of QM in Japan followed three phases of adoption, adaptation and mastery prior to re-export. Building on the concepts of Deming, Juran and Feigenbaum, the Japanese led by the Union of Japanese Scientists and Engineers in co-operation with industry leaders and government built QM concepts and techniques into the fabric of key Japanese

industries through the education of thousands of managers, professional staff, supervisors and workers (Ishikawa, 1985). The holistic perspective adopted by the Japanese is reflected in the terminology that they developed describing the approach as Total Quality Control and Company Wide Quality Control. In both cases control is used in the broad sense of maintenance and improvement of process, rather than a narrow sense of monitoring staff for compliance (Ishikawa, 1985; Imai, 1986). The success of the Japanese in penetrating American markets in the 1970s and 1980s provided one incentive for American industry to refocus on quality (Rehder & Ralston, 1984; Bounds et al., 1994; Rao et al., 1996).

America and TQM: reinventing quality

Until 1980 the work of Deming and developments in Japan were largely ignored in the USA. However, there had been some developments in the period from World War 2 through the 1970s. The scientific techniques of quality control were refined and attention was given to the definition, classification and analysis of the costs of quality. These technical and professional developments parallelled the emergence of operational research and management science as the dominant stream of management practice in America (Barley & Kunda, 1992). The quality profession and management practice, both guided by science and engineering, sought universal rules to model rational decision-making in organizations. In the 1960s and 1970s the 'zero defects' movement linked issues of quality to those of organizational culture exploiting a normative rhetoric towards achievement of enhanced competitiveness and profitability. Quality became not only right and free, but also 'the most profitable product line we have', through focusing employee attitudes and activities, guided by management leadership, to achieve conformance to specifications through getting it right first time (Crosby, 1979).

The 1980s saw the appearance of Total Quality Management (TQM). There is little agreement on the origins of the term, which came to dominate the literature and practice of QM in the 1980s and 1990s. Rehder and Ralston (1984, 29), in an early use of the term, presented a vision of TQM built on the concepts articulated by Ishikawa, as a total corporate strategy noting "traditional American organisations cannot substitute short term quality band-aid programs for essential and fundamental changes in organisational culture and structure". In 1987 the United States Congress enacted legislation (Congress, 1987) to establish the Malcolm Baldrige National Quality Award (commonly referred to as the Baldrige Award or simply 'the Baldrige'). The criteria for the award emerged in the 1990s as the ultimate public definition of QM in America. However the content, balance and utility of the criteria have been subject to debate (Garvin, 1991; DeBaylo, 1999) and change.

The rest of the west: quality ripples

While the Japanese had been developing the ideas of Deming and Juran, developments in other parts of the world had progressed differently. In the immediate post World War 2 era, industry and governments in Europe, Britain and the British Commonwealth had shown limited enthusiasm for the pursuit of quality (Juran & Gryna, 1988; Morrison, 1990). The late 1970s, however, saw a surge of interest in systematic standards-based quality assurance. In the early stages standards were developed on a national basis with the British and Commonwealth countries playing a leading role. The movement towards a unified

European economy and multi-national projects such as Concorde contributed significantly to the relatively rapid development and adoption of common quality system standards from the 1970s onwards. This movement crystallised with the establishment of an international technical committee under the auspices of the International Organisation for Standardisation (ISO) in 1979 (Ford, 1992; Voehl, Jackson & Ashton, 1994) to develop internationally agreed standards for quality assurance. The publication of the resultant ISO 9000 family of standards in 1987 was followed by their adoption as national standards in many countries including all European Community and European Free Trade Area nations, the United States, Japan, Australia and New Zealand (Favre, 1992). Thus 1987 can be seen as a watershed year for the quality movement with two major streams of development emerging into the public arena. The ISO 9000 standards can be seen as the pinnacle of the systematic, scientific approach to managing technical quality of products and the productive process. They presented internationally agreed threshold standards for quality management systems. The Baldrige Award marked the ascendancy of the normative rhetoric of quality of management and established ideal standards for organizations to aspire to. The relationship between the two streams became a major source of debate within the quality movement into the 1990s. The next section examines the nature of QM and the theory associated with it. A later section examines the debates around QM.

Developing theory: changing focus, means, frameworks and purpose

Most commentaries trace the conceptual roots of TQM to the techniques of statistical quality control developed by Shewhart in the 1920s and 1930s (Grant, Shani & Krishnan, 1994; Reed, Lemak & Montgomery, 1996). From one perspective the development over time outlined in the previous section can be seen as simply extension. There is general agreement on the widening focus of quality discourse from the quality of product, to the quality of the production process, to quality of the management process, to the quality of the full range of processes in the producing organization (see for example Garvin, 1988; Costin, 1994; Bounds et al., 1994). This perspective is represented in Figure 4.

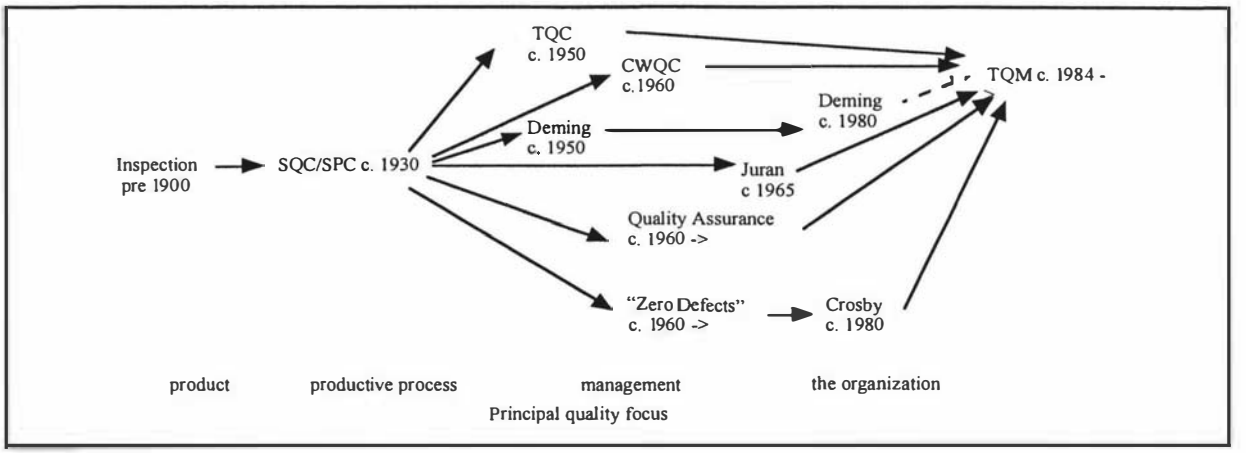

Figure 4: The widening focus of QM development

Changing means

Statistical Process Control, through the use of control charts, can be seen as the core methodology of QM. As the focus has changed the range of means, methods and techniques has expanded to encompass additional measurement and control techniques, tools for product and process improvement, and methods and techniques for management planning and control. There is general agreement that the range of quality-related methods, techniques and tools expanded rapidly particularly from the 1980s (for example, Mann and Kehoe (1994a) identify 65 "quality activities of TQM"), and that the technical sophistication of tools has increased. Most discussions of the tools of TQM include at least the established improvement and planning tools - the 'Basic 7' quality control tools (see for example McConnell, 1993) and the 'new 7 management and planning tools' (Mizuno, 1988; Costin, 1994; Dale 1994) - while more expansive lists and guides (Blakemore 1989; Brassard & Ritter, 1994) sweep in a wide variety of improvement and problem solving tools. The tools of TQM also include specific techniques such as Taguchi methods and Quality Function Deployment (QFD) which focus on product quality; techniques from production/operations management such as Just-in-Time; techniques for determining costs of quality; and techniques for organizational comparison such as benchmarking (Camp 1989). There is, however, considerable debate about many issues such as: the relationship between various tools and techniques and the underpinning principles of QM; the appropriateness of uncritically including some of these techniques within the toolkit of QM; and the potential problem of equating QM directly with the use of particular techniques and tools. Debate also continues regarding the impact of various tools and techniques on organizational performance (Dow, Sampson & Ford, 1999). These points are developed further in a later section.

Changing frameworks: concepts and principles

General agreement also exists regarding the underpinning concepts and principles of TQM and to a lesser degree the relationships between them. The concepts and relationships have been codified and institutionalised in frameworks such as the Baldrige Award criteria (NIST, various dates). In its most distilled form TQM is described as based on the three concepts of customer focus, total participation and continuous improvement (Dean & Bowen, 1994; Rao et al., 1996). Many analyses, however, add considerably to this list. For example, Dahlgaard (1999) has identified twelve clusters of concepts and principles, and Dale, Boaden and Lascalles (1994) identify eight key elements, while Martinez-Lorente, Dewhurst and Dale (1998) identify ten common dimensions.[15] Scholtes (cited in Jacques, 1996) identifies "six authentic, basic principles that lie at the heart of quality:

> Focus on the outside customer. The customer is whoever benefits from our product or service, not necessarily whoever pays for it....
>
> Understanding and managing systems. Everything is a system and we are part of it....
>
> Understanding and using data.
>
> Understanding people.
>
> Mastering improvement.

[15] However, Martinez-Lorente et al. do not distinguish between concepts, methods and techniques.

Direction and focus.

Scholtes' principles can be mapped to the values and concepts within the Baldrige Criteria (Table 2).

Basic principles of QM (Scholtes, 1996)	**Core values and concepts of the Baldrige Award**	**Baldrige Criteria for Performance Excellence: categories[16] 2006**
Leadership (implicit)	Leadership	1 Leadership
Focus on the outside customer	Customer driven quality Company responsibility and citizenship	3 Customer and Market focus
Understanding and using data	Management by fact	4 Measurement, analysis and knowledge management
Understanding and managing systems	Fast response Design quality and prevention	6 Process management
Understanding people	Valuing employees	5 Human resource focus
Mastering improvement	Continuous improvement and learning	
Direction and focus	Long range view of the future Partnership development Results focus	2 Strategic planning 7 Business results

Table 2: Core concepts of Quality Management

While there is general agreement on the core of quality concepts, disagreement on the balance and relative emphasis across these concepts, and the inter-relationships between them is clearly evident in the literature. A later section reviews the critical literature around TQM.

Changes of boundaries

In an earlier section the changing focus of Quality Management over time was briefly examined. As the focus changed, so did the boundaries of QM as a body of theory and practice, and the boundaries of the productive system to which it was applied. To some extent these changes in boundaries have reflected changes in general management and organizational theory. Barley and Kunda (1992) identified five distinct rhetorics or ideologies of managerial theories that have left their mark on American managerial thought and practice. They define an ideology as "a stream of discourse that promulgates, however unwittingly, a set of assumptions about the nature of the objects with which it deals". Three of these

[16] The numbering of each category is from the description of the criteria. Over time the sequence and relationships between the criteria and their weighting point values have changed based on, amongst other considerations, observed 'best practice' amongst Award winners.

ideologies were characterised as focused on normative control and two as focused on rational control with managerial discourse alternating between the two ideologies. Each major development in management can be seen to fit within a particular image or metaphor for the organization.

Scientific Management emerged in the early Twentieth Century at a time when the machine metaphor or image of organization dominated management thinking. The major contributors to scientific management were engineers searching for rational solutions to problems of productivity of the organization as a machine, and who promoted an ideology of rational, scientific control. Developments such as administrative management and bureaucratic theory can be seen as responses to the increasing size and intricacy of the organization as a machine. Within this dominant mechanistic image of the organization, Statistical Quality Control (SQC) focused on the quality of the manufacturing process and control of the operation of components of a technically more complex machine. Quality management was bounded by process and product specifications.

From the 1930s the Human Relations and Organisational Behaviour schools challenged the dominant machine metaphor and the assumptions of Scientific Management by introducing the socio-cultural image of the organization. This image of the organization recognises the need to manage not only the parts and the whole of the 'machine' process, but also the relationships and interactions of the people in the organization. The Human Relations perspective emphasised the importance of understanding motivation, values and attitudes that underpin human individual and group behaviour and recognised that employees are people and not just cogs in the productive machine. The image of the organization as a human system gained greater acceptance into the 1960s and 1970s. However, particularly in the United States, the rational, technical aspects of the organization and management remained at the fore of management theory and practice. Barley and Kunda (1992) note that the strongest challenges to the human relations movement came from technically trained professional managers.

Total Quality Control, the Zero Defects movement and quality assurance to varying degrees absorbed and institutionalised some aspects of the human relations/cultural rhetoric into their respective approaches to QM. These variants, however, were more profoundly affected by the development of management science and systems science from the 1940s onward. Organizations came to be seen as purposeful, open systems interacting with the broader system that was their environment. The boundaries and characteristics of productive organizations were redefined, but fundamentally the focus remained on solving problems of efficiency and effectiveness through rational means, and within the bounds of accepted economic management theory. The economic model of the firm remained firmly entrenched: the purpose of the organization remained to survive in the market and make profit. The environment was defined fundamentally in economic terms: the market was the environment.

As TQM emerged in the mid-1980s, management and organizational thinking continued to be largely defined within the economic model of the firm, and the market as the system bounded the theory and more significantly the practice of TQM. At much the same time a new wave of normative rhetoric emerged focused on organizational culture. Barley and Kunda (1992) argue that this rhetoric about the

organization as a cultural system encompassed two ideologies. One was aimed at counter-balancing systems rationalism by presenting an alternative model for organizational analysis. The second ideology was more pragmatic aiming to promote competitiveness through managers' symbolic leadership and attending to employees' values to align them with the values of the firm. Unity of identity with a strong corporate culture, able to be shaped or manipulated by management, would result in economic advantage. Quality became a catch cry of the pragmatic ideology of corporate culture as conformity to the values of management.

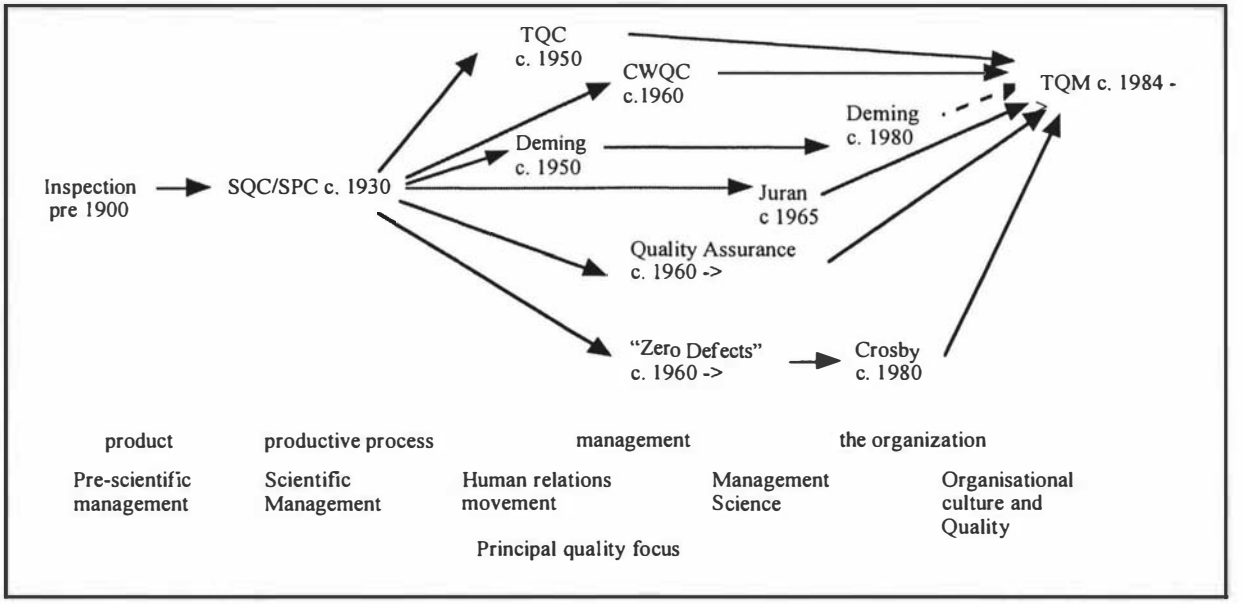

Figure 5: QM approaches and waves of management theory

Figure 5 summarizes the changing nature of QM as it interacted with developments in management theory. From a functionalist, scientific methodology for process problem solving, it morphed through the work of Deming into an approach to changing organizational values and practices and in the hands of others into techniques for sustaining managements' values of market competitiveness. Table 3 (opposite) provides a more detailed overview of the changes in the focus, boundaries and underpinning organizational images as QM evolved.

Changes in purpose

From the perspective of purpose, later developments in Quality Management can be seen as a fundamental reformulation of quality theory and theory in practice. Interestingly none of the recognised gurus of quality use the term TQM in their work and several reject the term (Martinez-Lorente et al., 1998). Deming in particular dissociated himself from the term as counterproductive (Senge, 1995) and a distortion of his work (Delavigne & Robertson, 1994; Ranney, 1996; Tribus, 1996). Deming's disavowal of TQM seems to revolve around the question of purpose. Deming, by the 1980s was questioning the continuing relevance of management theory and practices based in Taylorism and measured through short-term financial performance. He promoted profit as a means to wider ends. Similarly, Company

Wide Quality Control effectively presented a new management theory based on the contribution of the organization to the wider society, not just to the market (Ishikawa, 1985).

Approach	Focus	Boundaries of practice	Image and boundaries of the productive 'system'
Inspection	Product characteristics	Process output/product quality Product specifications Technical specialism	The productive machine
SPC/SQC	Manufacturing process/ product relationship	Economic efficiency Process and product characteristics Technical, scientific methods Technical specialism	The productive machine
TQC	Management of the productive process/ product relationships	Economic efficiency and effectiveness Design and operation of process Collective enactment of design	The economic model of the firm: profit as the goal The productive chain (supplier → producer → customer)
Quality Assurance	Management of the productive process/ product relationships	Economic efficiency and effectiveness Design and operation of process	The economic model of the firm: profit as the goal The productive chain (supplier → producer → customer)
Zero defects	Management of the productive system	Economic efficiency and effectiveness Control of process and people	The economic model of the firm: profit as the goal The productive chain (supplier → producer → customer)
CWQC	The whole organization	Socio-economic efficacy Management of the socio-technical system	Socio-technical system Society: contribution to society as the goal
Deming	The whole organization	Socio-economic efficacy Management of systems	Socio-technical system Society
TQM	Productive organization	Economic efficiency and effectiveness Process improvement	The market The economic model of the firm: profit as the goal

Table 3: Changes in focus and boundaries of QM

In the preface to 'The New Economics' (1993), Deming wrote:

> This book is for people living under the tyranny of the prevailing style of management.... It is a modern invention – a prison created by the way in which people interact.... We have been taught by economists that competition will solve our problems. Actually, competition, we see now is destructive. It would be better if everyone would work together as a system, with the aim for everyone to win. What we need is cooperation and transformation to a new style of management.

Clearly Deming argued for a re-definition of management towards a different aim or purpose, and not for the incorporation of tools and techniques within the existing boundaries of managerial practices towards competitive, profit driven, economic performance of the firm. Early approaches to quality had had relatively narrow purposes of control or improvement of existing market-oriented, productive organizations with their field of application limited to the industrial sector. The Japanese approach of Company Wide Quality Control and the work of Deming made a major break from most previous thinking to present a new purpose: the reform of management and organizations as social rather than purely economic entities. Ishikawa (1985, 97-100) makes clear the purpose of the Japanese way of quality as a revolution in management thinking. He identifies respect for humanity as a fundamental principle and also warns strongly against the trap of mistaking the tools and methods for the objective of Quality Management.

Much of the quality literature (Kanji, 1990; Ghobadian & Speller, 1994; Rao et al., 1994) cites Deming on creating constancy of purpose towards continual improvement of products and service. It is noteworthy that these sources often present a truncated version of Deming's statement. In full the first of Deming's 14 points reads:

> Create constancy of purpose towards improvement of product and service, with the aim to become competitive and to stay in business, and to create jobs (Deming, 1986, 22)

In the New Economics (1993, 51-52), Deming expands further on the issue of purpose or aim:

> The aim proposed here is for everybody to gain – stockholders, employees, suppliers, customers, community, the environment – over the long term.... Choice of aim is clearly a matter of clarification of values, especially on the choice between possible options.... It is important that an aim never be defined in terms of activity or methods. It must always relate to how life is better for everyone.

So it can be seen that much of the literature on quality starts from a misinterpretation or misrepresentation of Deming's purpose. The emergence and later institutionalisation of TQM can be seen as a separation of practice from purpose especially in relation to Deming's work. His concepts and techniques of 'quality management' were re-directed to a purpose that was not his intended purpose.

The rhetoric (the customer is always right), concepts (continuous improvement) and techniques (Quality Circles, team based problem solving and analytical tools) of QM were bounded by free market ideology and promoted as the one true way towards improvement in product, efficiency and profit within the bounds of the established image of the productive firm (Wilkinson & Wilmott, 1995). It could also be argued that the normative rhetoric of QM was a preferred means of imposing the economic model of the firm on other sectors of society. Hackman and Wageman (1995, 338) identified as one of three 'worrisome trends'

> Rhetoric is winning out over substance. The rhetoric of TQM is engaging, attractive, and consistent with both the managerial *Zeitgeist* in the United States and this country's preference for managerial solutions that smack of rationality.... What many organisations are actually implementing is a pale or highly distorted version of what Deming, Ishikawa and Juran laid out....

TQM was grasped as a means for managers to succeed in relation to existing rational economic ends.

This section has laid out a framework of changes within QM from several perspectives. These perspectives attempt to illuminate QM as a system of thought by examining its elements and the relationships between them. There are clear paths of development of focus, process and practice but from the perspective of purpose, there is clear evidence of divergence. The next section turns to the nature of the broader literature about Quality Management.

Literature within and around Quality Management: analysis and critique

The previous section presented a review of major developments in the key aspects of Quality Management reflecting on the works of the recognised founders of the quality movement. The literature on QM, however, extends well beyond these seminal works. Dotchin and Oakland (1992) noted a six-fold increase in the number of papers classified in the ANBAR abstracting service under 'quality' between 1971-72 and 1988-89. Martinez-Lorente et al. (1998), through an analysis of the ABI-Inform database, identified a burgeoning use of the terms 'total quality', total quality management and quality management in the late 1980s and early 1990s, peaking in 1993 with a decline thereafter. Interestingly, while attention has been given to the quantity of quality-related literature, there appears to have been limited critique of its quality.

The authors of one critique, Giroux and Landry (1998), entitled their review of the quality field "Schools of thought *in* and *against* Total Quality" to reflect one characteristic of the literature. It may, however, be more fruitful to consider the literature within and around quality as works from outside the field, while often critical, are not necessarily against quality. Giroux and Landry (1998) identify three critical streams in relation to TQM:

- the pragmatic stream of quality 'specialists' who critique the approaches advocated by their colleagues, and of participants in failed implementations. One argument within this stream attributes failure to lack of understanding of the 'true' nature of TQM;
- the theoretical stream of academic critique of the prescriptive nature of TQM approaches, the lack of appreciation and integration with management theory, and the overselling of the universality of TQM without due consideration of particular organizational environments and characteristics; and
- the ideological stream which examines the social consequences and political significance of the quality movement and the impact on employee life.

Much of the critical literature seeks to clarify TQM and its actual and potential value rather than just to rebut or reject it. This search for clarification is evident in all three major streams of the critical literature as indicated in the discussion below.

The literature *within* Quality Management

The seminal literature in Quality Management can be seen as creative, constructive, integrative and visionary towards building a body of thought of QM. From about 1990 the literature seems to undergo a change of form to become largely descriptive, promotional, reductionist and institutionalised focused on the justification of TQM practices. It also became defensive in the face of criticism.

Borrowing from Barley and Kunda (1992), Giroux and Landry (1998) classify the early literature of the leaders in Quality Management into two schools of rational and normative thought. Both are seen to have a common goal of customer satisfaction but each proposed a different form of control to achieve the goal. The rational school, which includes Deming, Juran, Ishikawa and Feigenbaum, avoids blaming poor quality on individuals and, from the presupposition that individuals want to do a good job, focuses on systematic examination of management systems and productive processes as the means towards quality control and improvement. The normative school, epitomised by the work of Crosby (1979) and reflected in the work of populist authors such as Peters (1988), stresses the responsibility and behaviour of employees as the source of quality with the objective of disseminating:

> ... a flawless argument to illustrate the role played by the individual in attaining quality (with management setting an example) and to stress economic rationality and the performance obligation facing companies. By means of repeated messages and appropriate incentives, the goal is to allow for the integration and actualization of this normative vision in daily behaviour. (Giroux & Landry, 1998, 188)

The failure to see this difference leads to the confusion and contradictions in the later literature in Quality Management as "the most seductive concepts and striking slogans from various authors [are borrowed] without concern for the coherence of the resulting message" (Giroux & Landry, 1998, 194).

In the 1980s, the ideas of the early writers were simplified, codified and transformed into TQM, and later simply Total Quality. Dotchin and Oakland (1992) provide an example of the extraction of 'common' precepts from the literature to synthesise and at the same time simplify what they see as the potentially confusing and irritating proliferation of theories for managers. Their intent was to create a process of TQM implementation against which the progress of a company could be evaluated. Sitkin, Sutcliffe and Schroeder (1994) argue that the monolithic, reductionist notion of TQM based on the underlying axioms of customer focus, right first time, and continuous improvement convolutes two fundamentally different sets of goals, assumptions and principles that they labelled as Total Quality Control (TQC) and Total Quality Learning (TQL). TQC focuses on doing things right, while TQL provides a means of progressing towards doing the right things. While these two aspects of TQM are complementary, they also are in tension requiring special managerial attention for fruitful co-existence. They argue that the focus on precepts created:

> ... [a] premature sense of resolution... that the quality process was not only well understood but also could be addressed through a singular set of principles.... [ignoring] fundamental incompatibilities in the principles and practices associated with the pursuit of control and the pursuit of learning. (Sitkin et al., 1994, 543)

Costin (1994) characterises the definitions and practices in the literature as an interplay between three fields and approaches: efficiency concerns rooted in process analysis; concerns about quality of working

life; and concerns about the goals of any business i.e. survival, profits, market share and sustainable competitive advantage, with the last of these the most recent in the USA and European implementation of "total quality". Implicitly TQM is a business tool. The literature of the late 1980s and 1990s is filled with references to TQM as a competitive weapon in the battle for market share and profitability (Rehder & Ralston, 1984; Fortuna, 1990; Chang, Labovitz & Rosansky 1992). Rao et al. (1996), for example, preface their book with the statement:

> The overarching purpose of a company about to embark on a Total Quality Management (TQM) program is to be more competitive. In order to be competitive, the company needs to be more productive relative to the competition. It *also* [emphasis added] needs to supply goods and/or services that are attractive to the consumer. (vii)

The findings and purpose section of the legislation establishing the Baldrige Award (Congress, 1987) places the award squarely in the context of improved productivity, lower cost and increased profitability, and America's ability to compete in the global marketplace. The legislation implicitly accepts the economic model of the firm and affirms the transferability of that model to the public sector through the mechanism of quality.

The 'popular' journals and books on QM are strongly characterised by:

- the predominance of prescriptive 'how to' guides for the introduction of TQM based on case studies of organizations that have successfully implemented some form of quality program (e.g. Stratton, 1990; Chang et al., 1992);
- extensive discussion of the use of tools and techniques for process improvement and product quality improvement (Mann & Kehoe, 1994a; Dahlgaard, Kristensen, Kanji, Juhl, & Sohal, 1998; Terziovski, Sohal & Moss, 1999);
- common acceptance and promulgation of core concepts characterising TQM (Dotchin & Oakland, 1992; Ghobadian & Speller, 1994; Nadkani, 1995);
- a fundamentally consistent implementation process - the 'cascade' model with its emphasis on top management commitment as the foundation for the introduction of concepts and practices (Berry, 1991; Sahney & Warden, 1992c; Dale & Cooper, 1994; Mann & Kehoe, 1994b)
- increasingly broad spread of application of TQM into areas beyond manufacturing, including public administration (Ehrenberg & Stupak, 1994), health care (Sahney & Warden, 1992a,b,c; Westphal, Gulati & Shortell, 1997) and education (Seymour, 1992; Doherty, 1994b; Ruben, 1995).

In much of the literature TQM is reduced to what 'quality' organizations do: TQM is a process legitimised through a literature of success. This literature is also characterised by:

- a limited perspective on the nature of the systems which are the primary focus of TQM interventions;
- limited critical comment on or evaluation of the assumptions (eg regarding the nature and purpose of organizations, organizational culture, and management) that implicitly underpin conceptions of

TQM. As discussed below, Hackman and Wageman (1995) provide an example of such critical analysis but it seems a relatively isolated beacon in a sea of uncritical acceptance.

- increasing emphasis on the benefits of TQM in relation to productivity measures (Forker, Vickery & Droge, 1996; Hendricks & Singhal, 1997; Easton & Jarrell, 1998) and more specifically stock market performance (Helton, 1995; Napach, 1997; DeBaylo, 1999; NIST, 1999-2004[17]). The use of stock value as a measure of success illustrates the strong influence of the economic model of the firm in endorsing the legitimacy and efficacy of quality.

The predominantly process focused concerns of the literature in quality can be easily separated from questions of purpose. Such a separation is reflected in the preponderance of descriptive and prescriptive case studies of application of tools to increase productivity, reduce staff, reduce cost, and increase profit. In much of the later popular literature, the holistic perspective and the associated warning against quick fix solutions presented by Deming and Ishikawa and echoed in Rehder and Ralston (1984) seem to have been lost, and pleas not to confuse method with purpose ignored. Also the emphasis on humanistic management practices, respect for humanity, and quality as a means towards creating jobs seem to have been submerged by a literature of quality as a means to profit, per se.

The literature can also be seen to contain a disavowal of Deming's observation that "as a good rule, profound knowledge comes from the outside and by invitation" (1993, 94). The literature in quality appears as a closed system with critique and external scrutiny largely excluded. It presents a monolithic view of TQM as a universally applicable philosophy based on a small number of agreed precepts focused around improvement through an array of practices. A number of potential issues with this view have been alluded to in the preceding discussion including the limited evidence of success of TQM, the lack of attention to organizational contingencies, the confusion of assumptions around the agreed precepts, and the potential dilution of purpose through a process focus. These themes are developed further in the next section, which examines the critical literature around QM.

The literature around Quality Management

As noted earlier the literature around QM can be classified into three stream of pragmatic, theoretical and ideological critique. These are briefly visited in turn in this section.

The pragmatic critique

One early aspect of the pragmatic critique was the often vigorous debate and criticism within the quality community. Some of the disagreement and debate has been based in personal differences – for example the differences between Deming and Juran (Port, 1991), while some arises from significant philosophical differences such as Juran's initial rejection of 'Zero Defects'. This debate can be seen as revolving around issues of differing focus and purpose between the rational and normative schools.

A further strand of pragmatic critique within the quality community revolves around the true nature of TQM. Creech (1994) argues much labelled as TQM is simply the grafting on of narrowly defined process improvement to existing management practice. Easton (1993) notes that even amongst high scoring Baldrige Award applicants, senior management's understanding of TQM is superficial and their primary focus remains almost exclusively on financial performance measures. Deming (1993) and Delavigne and Robertson (1994) also express this view. From a slightly different perspective, Costin (1994) asserts that the shortcomings of most TQM implementation can be traced to the professional background and orientation of those involved in their planning and implementation, who fail to integrate effectiveness, efficiency and motivational concerns. Perhaps the strongest statement of this strand of pragmatic critique is that presented by Scholtes (cited in Jacques, 1996, 6-7):

> ...when something is worthwhile, the business media and managers of business tend to grab on to it without understanding it.... Such has been the fate of TQM. It is not that TQM has been a failure. Rather TQM – that is, the USA's application of the quality movement – has, for the most part, never been tried.... The managers and writers who declare TQM dead and quality passé are those who never understood it.

Despite the apparently monolithic view presented in the popular quality press, there is evidence of significant divisions within the quality movement itself reflecting predominantly differences of purpose resulting in differences of practice.[18] Criticism of TQM in the business press in the early 1990s focuses on the lack of obvious short-term results from quality programs, despite numerous statements from the leaders of the quality movement that quality is not a quick fix solution (Deming, 1986; Creech, 1994; Reed et al., 1996). Again differences in perceived purpose can be seen.

A third strand of pragmatic critique reflects the experiences of participants in failed implementations. TQM implementations failed because those implementing programs did not understand the nature of the change and in particular the human dimensions and implications of change being proposed (Zbaracki, 1998) and confounded quality efforts with 'non-quality' interventions and gimmicks (Khol, 1996; McAbe & Wilkinson, 1998). From examining the experiences of participants in organizations implementing quality programs, Zbaracki (1998) argues that institutional forces can result in the separation of the managerial rhetoric of TQM from its reality for organizational members to create a situation where it is almost as if there were two versions of it co-existing within the organization. As managers' success stories re-enter the popular discourse of TQM they contribute to the body of evidence of its efficacy and reinforce the institutional value of TQM. At the same time, these success stories add to the image of TQM as a diffuse fad, characterised by rhetorical excess and increasingly unclear definition. As the evidence for TQM builds, the key technical and philosophical elements are diluted as managers filter out aspects that do not easily fit their previous experiences and their expectations. The holistic and humanistic framework of Quality Management is lost in activities focused on improving profit through improving process: the means become confused with the ends. TQM becomes simply the right thing to do. Beyond

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[17] From 2004, the Baldrige Index stock study was discontinued by the Baldrige National Quality Program "because it no longer accurately reflects the results, accomplishments, and diversity of the Baldrige Award recipients and site-visited organizations." (Baldrige Stock Study, http://www.quality.nist.gov/Stock_Studies.htm)

[18] In this context it is interesting to note the widespread relabelling of quality awards as 'performance excellence' awards but with little change to the criteria and models against which the awards are judged (Bemowski, 1996).

the bounds of the individual organization, two competing and almost irreconcilable rhetorical positions can be seen to have developed with theorists, on the one hand, constructing theory and definitions, and managers on the other hand constructing claims and stories of success to legitimise their commitment to TQM as the accepted way of doing things. Stories in QM increasingly bear little resemblance to theorising about and around it. This potentially problematic relationship between theory and theory in practice is examined in the next section.

The theoretical critique

The popular literature in QM largely accepts broad definitions of TQM as a management philosophy and an improvement process with little consideration of Quality Management as theory. However, in the early- to mid-1990s, TQM found its way into the mainstream of academic management literature and became a legitimate field for study in academic institutions. In 1994 the Academy of Management Review published a special issue on total quality. The issue was designed to stimulate theory development and research in the topic as:

> [Total Quality (TQ)] has generated a tremendous amount of interest in many sectors of the economy.... TQ appears to cover a great deal of the same ground as management theory.... The issues it encompasses are fundamental to understanding and managing organisations.... Total quality is a ubiquitous organisational phenomenon that has been given little research attention (Dean & Bowen, 1994, 393).

Theoretical development and critique about QM contains two major strands. The first considers the characteristics of TQM as an approach to organizational change. The second examines TQM as theory. Within the first strand of critique of TQM as organizational change, several themes around its limitations are evident:

- the prescriptive nature of the literature in TQM, particularly the assertion that organizations must change to TQM culture;
- the lack of nuance regarding implementation issues and the lack of acknowledgment or consideration of organizational contingencies; and
- the lack of reference to established management and organizational theory.

Wilkinson and Wilmott (1995, 15-16) suggest that:

> the literature on managing quality, and on TQM in particular, is distinguished by a normative thrust that largely excludes consideration of ideas and evidence that might challenge or qualify its assumptions and prescriptions.... It is simply taken for granted that quality management is benign and universally beneficial.

Quality is used to legitimise change initiatives in the name of a self-evident good. As the quality revolution of the late 1980s and 1990s gathered pace, it developed an almost evangelical character based on implicit faith in quality principles:

> Rather than debating whether or not to apply quality principles, it is time for companies to decide where and how best to apply them.... There will be no losers if all companies use the [Baldrige]

award criteria and the experience of the winners as benchmarks for their TQM efforts. (Nadkani, 1995, 96).

All companies irrespective of particular characteristics or their specific environment must follow the one true path to success. This universalisation of the approach is at odds with much contemporary management and organizational theory.

Basing their critique in contingency theory, Sitkin et al. (1994) argue that the diffusion of a generic conception of TQM resulted in the dominance of highly rational techniques and pre-packaged approaches and a move away from selectively adapting TQM to suit the specific situational requirements of a particular organization. Consequently many problems associated with indiscriminate acceptance surfaced. Reed et al. (1996) support the view of Sitkin et al. (1994) that there is a fundamental tension between control and learning requiring special managerial attention for fruitful and appropriate adaptation to organizational context. In much TQM in practice the tension between these two faces of the constructs seems to have been overlooked in the pursuit of a universal solution.

Writing in the context of institutional theory and network theory, Westphal et al. (1997) argue that, as TQM became institutionalised as the right thing to do, much TQM implementation was driven by conformity pressure rather than by technical need. In health care in the USA, early adopters chose TQM as the best of the array of possible solutions to organizational problems. Later adopters chose TQM largely in response to pressure from stakeholders to adopt TQM: demand cues were displaced by supply cues. These later adopters largely conformed to the normative pattern of quality practices introduced by other adopting hospitals to gain legitimacy benefits. In such cases the value of TQM was symbolic rather than functional, demonstrating the organization's compliance with perceived best practice in response to external stakeholder pressure to demonstrate organizational effectiveness. Westphal et al.'s (1997) research indicated that conformity was negatively associated with efficiency benefits.

Such efforts to position TQM in relation to established management and organizational theory emerged in the early 1990s, developed primarily but not exclusively by academics outside the quality movement. Within the quality movement, Delavigne and Robertson (1994) and Creech (1994) provide extended critiques of American management practices of neo-Taylorism and centralised management in attempts to clearly differentiate Quality Management from established practice and purpose of management. Grant et al. (1994) and Amsden, Ferratt and Amsden (1996) argue that TQM is antithetical to the economic model of the firm that underlies much management theory and practice. While these critiques stand TQM in contrast to dominant models of management, others have attempted to position TQM within the bounds of established management and organization theory.

Dean and Bowen (1994) note that a basic difference exists between TQM and management theory in terms of their respective audiences of managers and management researchers and consequently in the language used. Reactions to the rhetoric of TQM vary as a function of people's own beliefs and experiences. Nevertheless they identify a number of areas where TQM can be seen to be based on management theory but also others where they claim that, in light of management research, the TQM perspective must be seen as incomplete or simply wrong. These include its potential to over-emphasise

reliance on formal information analysis, the nature of human resource practices promoted and the assumption of universal applicability of key concepts.

Spencer (1994) argues that TQM is a spiritual descendant of the mechanistic model of the organization as a profit-making machine for its owners, but has moved well beyond it to incorporate elements of the organism and cultural models or metaphors of organization.

> It is not a cut-and-dried reality but an amorphous philosophy that is continuously enacted by managers, consultants, and researchers who make choices based not only on their understanding of the principles of TQM but also on their own conceptual frameworks concerning the nature of organisations. (Spencer, 1994, 448)

The ideas of Deming and Juran in particular present a shift of focus from profit to organizational survival that is consistent with the organismic/living systems model of organization. Quality management advocates, including Deming, also recognise the cultural model of organization where culture is a metaphor for shared symbols and meanings of organizational participants and in which individual goals must be recognised and respected. Profit is a means to the ultimate priority of developing all organizational members. However, when viewed as a set of procedural tools, TQM practices seem to have little common ground with the cultural perspective. Essentially the mindsets of managers and their image or metaphor of organization determine the way in which TQM is enacted. Spencer notes:

> The cultural model highlights the philosophical components of TQM and is most useful for evaluating the enactment process. It calls attention to the value judgements that underlie various choices in TQM, from the design of structure to the purpose of organisations.... This model forces organisational researchers to make implicit values explicit and to recognise that individuals, as well as organisations, have purposes that warrant consideration. (1994, 468)

In a similar vein, Dawson and Palmer (1992) argue the need to distinguish the technical, power political and cultural aspects of TQM to enable critical appraisal of the organizational assumptions clouded by the "hype and gloss of neat prescriptive post-hoc rationalisations".

Reger, Gustafson, Demarie and Mullane (1994) further examine the relationship between the individual and the organization as a cultural system. TQM often flounders because top management improperly frame it as a radical departure from the organization's past. Employee beliefs about the organization's identity constrain understanding and build cognitive barriers and opposition to radical change. Cognitive theory assumes that individuals actively construct the environment framing issues, objects and events into schemas through which new information is interpreted in attempts to integrate new data with prior knowledge. A new management initiative like TQM can only be understood through existing schemas, which are difficult to change. Beliefs about organizational identity are a powerful schematic filter of constructs that individuals use to describe the central, distinctive and enduring aspects of the organization. Radical paradigm shifts challenge the previously taken for granted assumptions about the attributes that members admire about the organization. As schemas are developed from a finite set of bi-polar constructs, TQM may introduce concepts that either have little meaning because they are not part of the existing organizational identity schema or may be in opposition to the positive pole of core constructs that make up the organizational identity. Such initiatives simply may not be understood or may be actively

opposed often by the most loyal members of the organization who sincerely want the best for it. Reger et al. (1994, 578) note:

> If beliefs about organisational identity are ignored, identity can act as a barrier to the implementation of planned organisational change that threatens it. However, if these implicit and taken-for-granted assumptions are surfaced and affiliated with change efforts, organisational identity can be a powerful source of leverage.

From the preceding review it is clear that authentic Quality Management is about much more than activities and operational control of processes. It is about recognising the complexities of organizations as interconnected systems of process, systems of structure, systems of meaning and systems of knowledge and power (Flood, 1999). At the centre of understanding of a new idea like TQM is interpretation based on similarities and differences with better-known constructs and their representation through language.

Astley and Zammuto (1992, cited in Zbaracki, 1998) note that organizational theorists and managers engage in separate 'language games' with managers generating rhetoric and theorists generating theory and that the two cannot be reconciled. Similarly Giroux and Landry (1998, 194) point out "[I]t is sometimes forgotten that the meaning given to words is as much a function of those using them as those defining them." The use of language is a major thread in the ideological critique discussed below.

In many management texts, Quality Management is identified as one method available to management (Meredith, 1992; Schermerhorn, 1996; Martinich, 1997) which while acknowledged as new and different is positioned within established frameworks of management theory. It is framed as practice with the focus on process improvement, the methods and techniques and concepts separated from the statements of purpose that underpin the Japanese conceptions of Quality Management and Deming's (1993) system of profound knowledge. Quality as practice is presented isolated from quality as theory.

Theory building is a process of modelling concepts and the relationships between them, values, language and, at least in social theory and management theory, considerations of purpose also, into a coherent body. Bringing considerations of purpose into the frame of reference creates a somewhat different picture of the development of Quality Management theory and models. Anderson, Rungtusanathan and Schroeder (1994) argue that the literature in TQM does not present theory but artefacts of theory yet to be articulated. Focusing on Deming's 14 points as such an artefact, they develop a theory of Quality Management:

> The effectiveness of the Deming management method arises from leadership efforts towards the simultaneous creation of a cooperative and learning organisation to facilitate the implementation of process management practices, which, when implemented support customer satisfaction and organisational survival through sustained employee fulfillment and continuous improvement of processes, products and services. (Anderson et al., 1994, 479-480)

Deming's 14 points as the artefact of theory provide the means for implementing theory in practice, creating synergy through the systematic and systemic enactment of all of the points towards the transformation of the practice of management. Anderson et al. (1994) note fundamental conceptual similarities between Deming's work and that of Taylor but also note that more profound differences

between the two exist when the purpose of theory is considered: Taylor developed a theory of control while Deming focused on learning and transformation.

In their review of TQM, Hackman and Wageman (1995) focus on the work of Deming, Juran and Ishikawa to examine the coherence and distinctiveness of the body of theory and practice. They identify a coherent philosophical position with explicitly stated values about the organizational context of the community and customers and about the well-being of organizational members based on interlocking assumptions about quality, employee attitudes, organizations as systems and the inescapable responsibility of top management for quality. These values and assumptions provide a coherent context for principles to guide a distinct set of interventions to improve quality. Hackman and Wageman (1995) conclude that the writings of the 'gurus' pass the tests of convergent validity and discriminant validity. "But [TQM] is close to failing the test [of discriminant validity] when one focuses on contemporary organisational practice" (Hackman & Wageman, 1995, 319). Practice has diverged from theory and the sharpest and most distinctive ideas have been diluted or redirected with "greater adherence to TQM philosophy at the espoused than at the operational level" (Hackman & Wageman, 1995, 318). A variety of interventions that are only loosely if at all related to concepts and principles have been swept into practice under the banner of quality and too little attention has been paid to the human dimensions of quality and to issues of motivation, learning and change. This apparent lack of attention to human considerations is the main focus of the ideological critique.

Ideological critique

In part, the ideological critique argues that TQM lies: while it promises employee participation and empowerment in pursuit of quality, it produces control of employees through quality. TQM is a modern repackaging of Taylorism with employee involvement a masquerade for getting workers to 'self-Taylorise' their own jobs (Dean & Bowen, 1994). Quality is no longer the goal but simply a means of forcing compliance with the entrenched goal of profit generation through the psychological and social manipulation of employees. The overt controls of line supervision and tight organizational structure have been replaced with the subtler, less overt controls of normative rhetoric of "the cult/ure (sic) of the customer" (Du Gay & Salaman, 1992). Management's responsibility to look to the future and predict customer or market needs and create product and services to meet them (Deming, 1986; 1993) has become internally-focused customer driven quality with individual employees required to take responsibility for quality through responsibility to internal customers, and subjected to the market pressure from those internal customers and peers to improve quality. No one can rationally argue against quality. Participation becomes trivialised and employees become subject to 'team tyranny' (Connor, 1997). The concepts of management responsibility for improving systems, removing barriers to joy in work and driving out fear (Deming, 1986) have been ignored or reinterpreted. Fundamental responsibilities of management have been transferred to the shoulders of employees. Management *for* quality has become management *by* quality. Connor (1997, 507) raises the possibility that "most TQM enthusiasts really just don't care about the people who do the work – they care about customers, they care

about process improvement, they care about cycle time, they care about performance, but people are only a means to an end."

Postmodern critique of TQM (Steingard & Fitzgibbons, 1993; Bensimon, 1995; De Cock, 1998; Lawrence & Phillips, 1998) sees TQM in practice as an instrument for enacting the machine metaphor of the organization, usually at the expense of worker's individual dignity (Connor, 1997) and as ignoring philosophical, moral and political discourse (Wilmott & Wilkinson, 1995). TQM is a totalitarian, homogenising and de-humanising ideology that subordinates the individual to the organization and the profit motive. Much practice of TQM is characterised by co-option of terms and means, and their application to pre-existing purposes inconsistent with the vision of the creators of the quality movement. TQM as practice, tools and techniques for continuous improvement has become separated from the philosophy of the Japanese approach and of Deming. Deming (1986, 1993) argued for a new model of management focused on leadership of the productive organization as a societal entity. What has emerged is predominantly a new method within the dominant model of management and the dominant image of the organization as an economic entity: the money making machine.

Quality management as a system of thought and practice

The first section of this chapter considered the chronological development of quality thinking from the early part of the Twentieth Century. The second laid out a description of changes within the field of QM from the perspectives of focus, of means and methods, of conceptual frameworks and boundaries, and finally and perhaps most importantly from the perspective of the purpose attributed to Quality Management. These perspectives attempt to illuminate QM by examining its defining characteristics as a system of thought and practice. There is a clear path of development of focus and methods within QM, but an apparent disagreement over boundaries and a diversion of purpose from the mid-1980s with the emergence of Total Quality Management. The third section examined the literature of and around quality and the reabsorption of total quality management into the established paradigm of management based firmly in the image of the organization as a money-making machine operating for the benefit of its owners. The importance of language was also discussed.

Kuhn (1970) observed that three stages occur in a paradigm shift: normalcy, anomalies and replacement. During the stage of anomalies, theories, techniques or events challenge the normal assumptions about a field of activity. The first responses to anomalies are to ignore them or explain them away, followed by attempts at absorption into established practice and the normal framework of concepts, values and behaviours. Bounds et al. (1994) argue that TQM represents a state of anomaly in management: attempts have been made to subsume the concepts and techniques of QM into the dominant paradigm of neo-Taylorist, managerial capitalism in service of the economic model of the firm. In 1992, Ford noted in relation to the deliberations of the ISO technical committee responsible for the development of the ISO 9000 family of standards that "we are still struggling with definitions and our latest problem term has been Total Quality Management – is it *Managing Quality* or the *Quality of Management*". To this could be added the third interpretation of management *by* quality. It could be argued that what emerged is

predominantly a new method within the dominant model of management and the dominant image of the organization as a money-making machine, disguised by a rhetoric of customer focus, improvement and empowerment.

C. West Churchman, a founder of operations research, employed systemic thinking to critique traditional operations research. Churchman's systemic thinking is about ethics, efficiency and effectiveness, which are all reflections and measures of the purpose and meaning of the larger system and extends critique beyond considerations of technique. Ethical alertness is a key element of his systemic thinking as are the concept of purposefulness and the conditions that must be fulfilled for a system to demonstrate purposefulness. Churchman relentlessly pursued critically reflective and moral practice to advance humanity (Flood, 1999). Ulrich (1991), following Churchman, insists that social systems be adequately designed to become purposeful systems - otherwise they are likely to serve people and purposes other than those intended. This same systemic awareness focused on purposefulness, humanity and social consequences has guided this critique of systems of thought about quality and Quality Management through consideration of purpose as well as of frameworks of principles and concepts, of means (methods, techniques and tools) and of the focus of activity.

Quality management began as simply technique with a clear focus on product and process. It was firmly embedded in the machine metaphor of organization. In the second half of the Twentieth Century, it developed to encompass considerations of structure, culture and power in organizations, and leaders of the quality movement attempted to break the dominance of the machine metaphor and its enactment through Taylorist management practice. They also raised important questions about the purpose of organizations and the purpose of management representing organizations as part of society rather than simply part of an economy and management as a process aimed at human betterment. However, the leaders in the field can be seen to have pushed their conceptualisations beyond the bounds of understanding of most managers, creating a state of anomaly in the managerial paradigm. While in a few cases breakthrough to a new paradigm was achieved, in general the concepts and techniques of Quality Management were reabsorbed into the dominant management paradigm and re-interpreted in terms of its underpinning image of organization. TQM can be seen to have become used by managers in their own political struggle and on a grander scale as part of a larger hegemonic project presenting market relations as an ideal to be overlaid on social relations: a virtuous discourse to exploit society for the benefit of capital. The practices of QM have been separated from the intended purposes of the leaders of the development of Quality Management as a system of thought and subsumed to serve people and purposes other than those intended.

While Deming's last published work explicitly addresses a broad 'systems' focus (Deming, 1993), most writings on quality tend to provide a narrowly functionalist, organismic or open system explanation of the nature of an organization as a system and little or no exposition of the nature of systems thinking. The apparent emphasis on systems could be seen as a thin veneer covering a fundamental core of management beliefs and practices which remain focused on managing people as cogs in the productive machine: a normative rhetoric overlaying a rational view of the profit motive as organizational purpose.

Hackman and Wageman in 1995 observed:

> Research is not providing the corrective function... that it could or should.... Too much of the TQM literature consists of anecdotal case reports or simplistic before-and-after evaluation studies that may be of more use politically in promoting TQM (or, for skeptics, in debunking it) than they are in building knowledge about TQM processes and practices (Hackman & Wageman, 1995, 339).

Giroux and Landry (1998) note that the term TQM is charged with so many meanings that the place of quality itself is being increasingly reduced and argue for Quality Management to be reframed and removed "from the hands of an evangelical and universalist discourse which leaves little room for discussion and real participation." However, Zain, Dale and Kehoe (2001, 606), in a review of doctoral research on TQM in the United Kingdom, conclude that there was little evidence of researchers challenging the basic concepts of quality, and statements that the beliefs underpinning it "are not backed by academic research.... was about as acrimonious as the researchers got in terms of challenging accepted understanding and wisdom in the field." Leonard and McAdam (2001) note "many fundamental questions and issues remain unresolved" with a "paucity of rigorous grounded theory building research in TQM". This chapter points to the contested nature of Quality Management. Higher education is one particular field in which QM has been subject to experimentation, debate and critical analysis in terms of its purpose, its assumptions about organizations and the applicability of its universalist discourse. The next chapter examines the literature on quality and higher education as a contribution to debate about the universal goodness of QM.

Chapter 4
Quality and Higher Education

Introduction

> 'Quality' and 'quality assurance' are recent imports into the university vocabulary from industry. (Anderson, Johnson & Milligan, 2000, 5)
>
> For the participants in the education process [quality] always has been important although frequently taken for granted. (Harvey & Green, 1993, 9)
>
> ... quality as ideology is being leveraged into higher education by the state.... In the USA, quality as a project is engendered mainly by the market, but the generalization holds for most other countries. (Barnett, 2003, 90)

This chapter reviews the literature on approaches to managing quality that have emerged within higher education, and responses to the promotion of industry-based approaches to QM as the solution for quality problems in higher education[19]. The range and diversity of responses to the 'quality imperative' in higher education internationally reflect and in many cases amplify the tensions and dilemmas of the broader quality movement. The quality imperative raises questions about purpose, value, competitiveness, effectiveness and efficiency, control, accountability and improvement. Within academic communities the concepts of QM have been variously welcomed as central to the academic enterprise, ignored, and strongly resisted as antithetical to the interests and goals of those broadly concerned with enhancing the social good (Doherty, 1994a). Much of the literature on managing quality in higher education, which dates largely from the mid-1980s, chronicles responses to calls from governments, notionally on behalf of the broader society, for greater accountability for the utilisation of public funds. Since at least the 1980s there have also been increasing demands for universities to respond more effectively to the demands of industry and the economy. However, not all of the quality-focused initiatives have derived reactively from outside pressure: the academic community has traditions of professional and peer review to maintain professional and academic standards. But as Harvey and Green (1993) note, quality in higher education has frequently been taken for granted.

Reviews of quality management within higher education by governments and academics have discussed the limitations of systems for academic quality management based variously on: peer review; government inspection, evaluation and regulation (Harman, 1998); the translocation of manufacturing-based models of quality assurance (Harvey, 1998); and the translation of immature Total Quality Management models into the educational environment (Koch & Fisher, 1998). Harman (1998) summarised the international situation noting that a variety of quality assurance and quality systems do exist in many countries and that they are becoming an important aspect of the management processes of universities. Most of these initiatives are conducted at a national level. According to Harvey (2002) there has been increasing uniformity of method towards a dominant model of delegated accountability and quality monitoring as a pragmatic response to government requirements to demonstrate value for money and "fitness for purpose", although just what purpose and what constitutes fitness is rarely clear. The links between accountability mechanisms and improvement remain unclear and contested (Dill, 2000). Key issues that

[19] Houston and Studman (2001a & 2001b) present early versions of parts of this chapter.

appear yet to be resolved include the definition of academic quality, the relationship between control and improvement, the nature of improvement in higher education and the applicability and transferability of key QM concepts into educational organizations.

At the centre of understanding of a 'new' idea like quality, and consequently its utility in higher education, is interpretation based on similarities and differences with better-known constructs and their representation through language. Various authors have noted the influence of "linguistic markers" (Ruben, 1995), "the birthright and language of quality" (Seymour, 1995) and "jargon and the professionally tantalizing, somewhat exclusive symbols" (Kells, 1995) on the reactions of academic communities to QM. Others have commented on the metaphors or images of organization that underpin the language of quality (Lindsay, 1994; Schwartzman 1995; Yudof & Busch-Vishniac 1996) and the shades of meaning that they impose. However, little research seems to have grown out of these speculations. The impact of language and its entailments nevertheless is central to the pursuit of authentic quality improvement in higher education, which potentially depends on the development of definitions and interventions that reflect the interests and concerns of those in the sector.

The next section examines the imperatives for quality and associated definitions of quality in higher education. The chapter subsequently provides an overview of the application of QM in higher education systems. Analysis of the concepts of QM in the context of higher education is also presented. The last part of the chapter draws together key threads from the literature review presented in this and the preceding chapter and introduces the rationale for further research in this area.

Quality and higher education

> The prime need is to discover the realities under the labels, i.e., the deeds, activities, or things which the other person is talking about.... If communication is purely through labels, it is easy to be deluded into believing there is an understanding despite the fact that each of the parties literally does not know what the other is talking about. (Juran, 1988, 2.13)
>
> Quality is not a unitary or unproblematic concept. (Lindsay, 1992, 161)
>
> What counts as quality can never be neutral: it reflects certain kinds of interests... behind any idea of quality stands a tacit idea of higher education (Barnett, 2003, 94-95)
>
> Each [stakeholder has] a different perspective on quality. This is not a different perspective on the same thing but different perspectives on different things with the same label. (Harvey & Green, 1993, 9)

In industry the concern for quality and the development of QM arose from within. Individual companies and people within them identified the need to do right things right themselves and then do them better to maintain and improve their viability in the market. In contrast, there is substantial agreement that the quality imperative in higher education came from outside and was based not on a recognised need for improvement but pressure from the market and from government (see for example Fry, 1995; Idrus, 1996; Salter & Tapper, 2000). The quality issue can be seen as a further manifestation of the apparent post-World War Two crises of higher education (Tight, 1994). Debates have raged over the relationship of higher education to society with common themes of the moral and practical purpose of the university, its

relationship to industry and society and the strains associated with expansion towards a mass system of higher education in a constrained funding environment. Higher education has been caught between the "twin pincers of expansion and economy" (Tight, 1994, 371) and the debates in the late 1980s and early 1990s came to focus on the notion of standards in the USA and of quality in the UK and closely related systems such as Australia and New Zealand. The 'crisis' of quality became closely identified with demands for responsiveness, accountability and better, more business-like management.

Critics argue that neo-liberal governments of the new right in several countries, rolled out quality and QM to support the ideology of enterprise, individualism, competition and the free market (Kirkpatrick & Martinez Lucio, 1995; Wilkinson & Willmott, 1995). In the UK, the normative rhetoric of QM was a preferred means of imposing the free market model on higher education (Chaston, 1994) without the final step of full corporatization or privatisation of institutions. In the USA it was a mechanism directed at improving the management and responsiveness of education to industry. Harvey (1998) has argued that the politics of quality have been dominated by macro and micro agendas towards legitimising changes in sectoral structures and funding, focusing on value for money practices, reducing the autonomy of higher education institutions, and questioning the extent to which they produce work-ready graduates. Dill (2000) argues that quality audit regimes were "designed to achieve institutional reform, i.e. to alter the underlying rules or incentive structures" (2000, 213) as a means of capacity-building in the context of market oriented policies by realigning the normative web of accountability. This political agenda of others outside higher education has contributed to the negative view of quality amongst academics.

Nevertheless, industry offered a rhetoric of concepts and models that was levered into higher education without vigorous challenge. Many readings of the applicability of quality to higher education accepted that the principles of QM provide an "accurate, complete, and neutral representation of the elements of a management philosophy that has the power 'to cause quality'" (Bensimon, 1995, 594-595). The rhetoric and postulates of QM – that quality is defined by customer satisfaction; quality is the reduction of variation; and quality must be measurable – were accepted, as was the simple cause and effect logic that QM causes quality. But as Baldwin (1994, 125) notes "... to impose a foreign language on a culture is to impose a foreign worldview, as a language shapes reality for those who use it." At the core of the quality debate is the definition of the term quality itself.

Defining quality of higher education

> In higher education, the vocabulary of TQM brings assumptions of equivalencies.... (Schwartzman, 1995)
>
> ... the appearance of neutrality in determining quality standards by consensus, bureaucratic rules or external customers effectively conceals that these standards reflect the preferences of an individual or group with the authority or power to establish them as objective. (Bensimon, 1995, 601)

In the industrial/business environment there is substantive agreement on core aspects of the definition of quality as the basis for QM: user-based definitions of quality have gained pre-eminence[20]. Kruithof and

[20] There are of course alternate, competing definitions of quality that have largely been discarded or subsumed under customer-based definitions. See for example Garvin, 1988; Harvey & Green, 1993; Reeves & Bednar, 1994.

Ryall (1994, 20) provide the following definition which distils the essence of the industrial idea(l) of quality: "Quality is consistently meeting the continuously negotiated expectations of customers and other stakeholders in a way that represents value for all involved."

The broad issues of who decides what quality is and against which criteria are largely resolved: customers decide against their expectations and the concept of value in a market transaction. In some popular representations this has been naively abbreviated to 'the customer is always right'.[21] Scott (1999) asserts that 'the customer is always right' is not a fundamental tenet of marketing which aims to achieve the objectives of the supplier organization as well as the customer. The issue of quality in relation to organizational objectives and purpose is explored later.

Customers? What customers?

> No! This is not a shop (participant Te3)[22]
>
> Customer satisfaction is probably the most important element of total quality management.... It is generally assumed that students are the customers of the institutions they attend (Sirvanci, 1996, 99)

In higher education, the concept of customer-defined quality is problematic. Put simply, the core issue is: does the concept of customers fit higher education? If it does, then who are they, are they the right judges and are their expectations and perceptions the right criteria for judging quality in higher education? Identifying 'the customer' has been identified as the "pre-TQM question of the goals of education" (Parker & Slaughter, c. 1994). Harvey and Langley (1995) note that multiple groups could all lay claim to the title of 'customers' of higher education and caution that "to accept the claims of one group to the exclusion of others is to risk oversimplification". Universities have responsibilities to many groups, which often have different and potentially conflicting expectations of the university (Reavill, 1998[23]; Yudof & Busch-Vishniac, 1996). Figure 6 (opposite) attempts to map some of the key interested parties in higher education and the perspectives from which they see the role of the university. While incomplete, this representation points to the complexity of the context of environments and expectations in which universities operate. The university operates in a network of interlinked environments with interested parties seeing the university from economic perspectives (employers, industry groups), from societal perspectives (families of existing and potential students, community organizations) and from educational perspectives (academic disciplines, other education providers). Other interested parties bridge across these environments (for example, professional bodies bridging educational and economic perspectives), while yet others try to bridge multiple perspectives and positions. For publicly funded universities, like those in New Zealand, the government as the primary funder of higher education is a crucial stakeholder. Some external interested parties see the university primarily in local contexts, while others see it in

[21] In industry customers are generally readily identifiable, although the limitations of customer driven models is being recognised and accommodated in the development of stakeholder models (Rowley 1997; Foley, 2000).

[22] Quotes referenced as 'Ac#', 'Ad#' or 'Te#' are drawn from transcripts of interviews with respectively Academic, Administrative and Technical members of the Institute's staff who participated in interviews as part of this research.

[23] Reavill (1998) for example identifies twelve stakeholders but treats the university and its staff as a single entity.

national and international contexts. Those within the university also are crucial stakeholders attempting to accommodate and respond to the array of external expectations: in the language of QM they are internal customers.

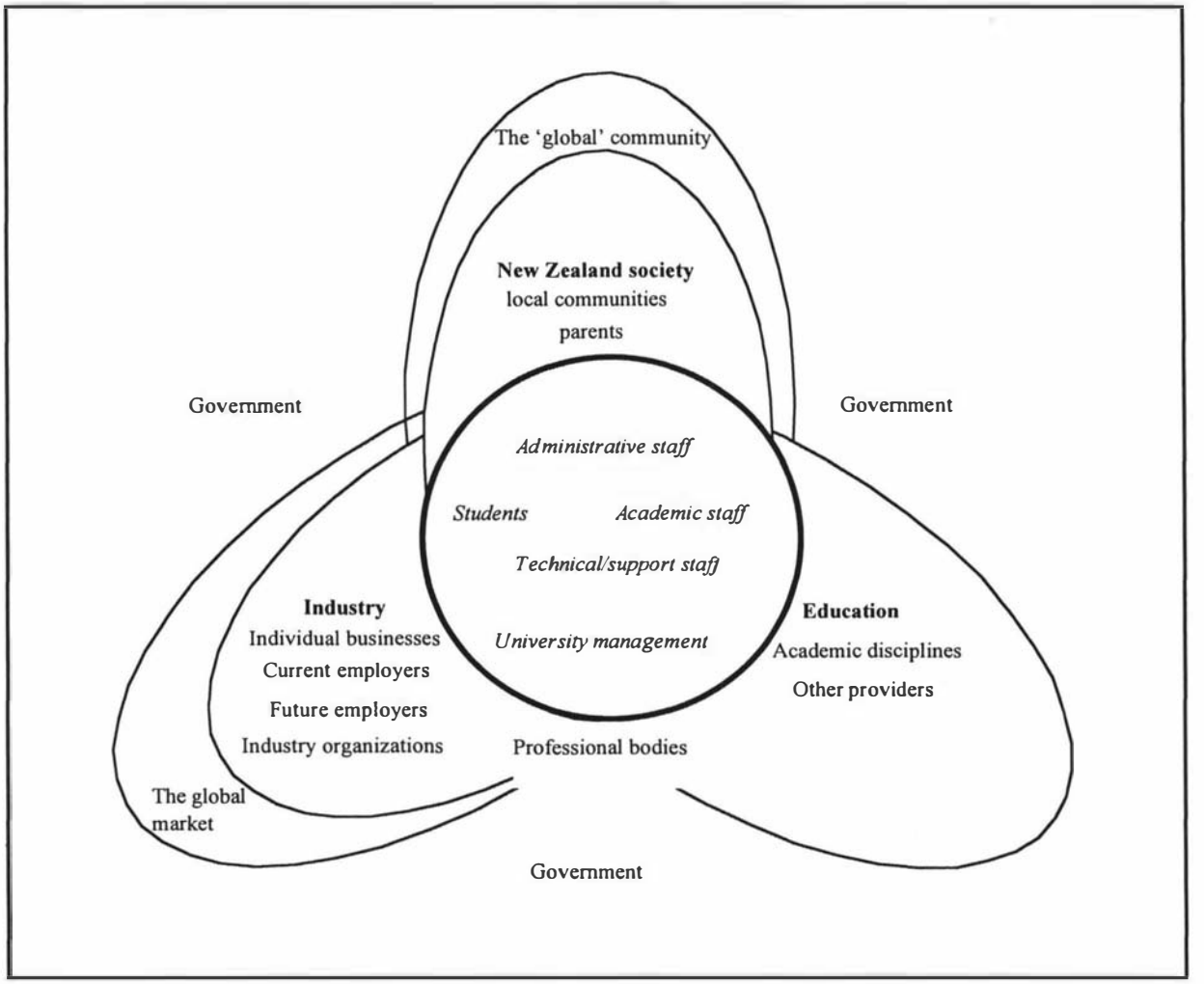

Figure 6: The University, its environments and those it serves

Nevertheless, despite cautions about the dangers of oversimplification, much of the literature on quality in education focuses on the student-as-customer.

Student-as-customers

Students are direct recipients of services and beneficiaries of learning opportunities provided by the university and simultaneously proxies for parents, for future employers and for civic society who pay for (directly and indirectly through taxes) and potentially benefit from those services and opportunities. If it is accepted that students are customers, then are they in a position to judge quality?

Grönroos (1982) identified and separated two critical aspects of quality in service environments: technical quality (what is provided) and functional quality (how it is provided). In many service environments

including universities, technical quality is invisible to the recipient of the service and is assumed or taken for granted. Recipient experience and perceptions predominantly relate to functional quality. Hau (1991) and Sirvanci (1996), for example, conclude that students are the primary customers for the delivery of a course, but not for the content of the course: they are able to assess the functional quality of course delivery but are not the best judges of the technical quality of content. Tannock and Burge (1992) note that students are naïve customers. The positioning of the student-as-customer places judgements about quality in higher education in the hands of naïve customers and downplays or at least largely overlooks the professional, technical expertise of academics. As Scott (1999, 194) notes, "The corollary of student-as-customer is the academic-as-service-provider". This latter concept carries entailments of downgraded status of academic work from profession to presentation and processing, and of academics in their teaching role from educator to entertainer. The concerns of academics regarding the concept of students-as-customers may be as much about its entailments and implications as the concept itself.

The market as customers

> Like it or not, our economy and the businesses that compose it are, like our students, the customers of higher education (Swenson, 1998, 2)

In the USA from the late 1980s, Quality Management under the guise of TQM began to be adopted by universities. Many of these developments were initiated as industry/university partnerships with successful TQM companies partnering and mentoring universities and colleges (Ruben, 1995; Mergen, Grant & Widrick, 2000). A significant part of the industry driven agenda aimed to better match the outputs of universities to industry needs especially the characteristics, skills and values expected of graduates by employers. Implicitly and in some cases explicitly, as graduates are the product then students are positioned as and reduced to work-in-progress (Sirvanci, 1996; Karapetrovic & Willborn, 1997; Karapetrovic, 2001). The teaching and learning function of higher education is fitted to a processing or manufacturing analogy. The university performs incoming quality inspection on raw material (prospective students) accepting only those who exhibit the appropriate entrance requirements. Once admitted, students progress through the various value adding processes (teaching and learning experiences) of their study in the same way as material flows through a manufacturing process. Value-added (student achievement) is inspected periodically. Final inspection and certification (graduation) confirms that all specifications have been met. The graduates, as product, carry a certificate of compliance (a degree) and a brand name into the job market. Graduates then compete for jobs like products in shops compete for customers. Industry and other employers are the final customers for the university's finished product. The likeness to a manufacturing organization seems obvious, but unlike raw materials and products, students are people participating in the education process. Students as people can be accommodated by minor adjustment to the production model: both students and academics are makers of the product (knowledge): students are internal customers - the labourers of the learning process (Sirvanci, 1996). They are not passive recipients of education; they are actively involved. In addition to exerting effort, they must have the necessary skills, disposition and motivation to succeed in this role.

Students' efforts and contributions are essential to determining the quality of the institution's product: the industry-relevant capability of graduates.

Concerns about customers

Various idealised pictures apply particular boundaries in attempts to generalise about students mainly in a 'production' image of higher education as teaching (e.g. Karapetrovic, Rajamani, & Willborn, 1996, 1997). The focus predominantly is on the relationship of students to the teaching process, with a variety of definitions of product. However, the student's position as a participant in education is complicated and depends on which aspects of the system are under investigation. Sharrock (2000) for example notes that on any one day a student may wear all of Mintzberg's 'four hats' as a customer, client, citizen and subject. The difficulty in identifying the relative position of students in relation to the concepts of 'the customer' and 'customer focus' points to the complexity of the educational context. The application of customer-focused definitions of quality seems problematic without some linguistic slippage or manipulation in several directions - redefinition of the customer, redefinition of student and redefinition of the education process.

Many in higher education ascribe to the view that good teaching is based on concern for the growth of the student[24] and that this moral dimension is absent from the customer/supplier relationship motivated by profit (Baldwin, 1994; Luizzi, 2000). The student-as-customer distorts the fundamental nature of the academic-student relationship which

> ... involves covenant, the highest form of interaction. Teaching is not directly dependant upon fee for service (although it has sometimes been), but upon tuition that is paid to establish a special community to which both teachers and students belong.... (It is not) merely contractual or commercial. (Long, 1996, cited in Luizzi, 2000, 361)

The student as work-in-progress distorts the relationship even further. A goal of most universities is, or should be to promote life-long learning amongst both students and staff. Crucial relationships exist between quality of outcomes and the defining characteristic of the relationships between staff and students as participants in learning. As Luizzi (2000) concludes, the business model of relationship fails to capture the nature of specific roles and obligations and responsibilities in this particular case. The concept of 'student-as-customer' can be seen to apply if the system that is a university is reduced to simple teaching transactions and the provision of student services but this reductionism violates a second principle of QM: 'understanding and managing systems' is the focus of a later section. The position of students is complex in relation to the university and ambiguous in relation to the concept of customer focus: the clear-cut precepts of quality start to break down (Ewell, 1993; Houston & Studman, 2000).

[24] Harvey (1998, 2002, Harvey & Green, 1993) advocates strongly for quality as transformation: enhancing and empowering the student as a whole person.

Fitness for purpose

> [U]niversities should be first and foremost centres of a certain type of learning.... communities of learning devoted to the pursuit of significant truth, as an end in itself, and, as such, fulfilling a central cultural and ethical role for society at large. (Coady, 2000, 6)

Another shorthand industrial definition of quality is fitness for purpose - a modification of Juran's definition: fitness for use (Juran, 1988) - which has been adopted by state sponsored systems of quality audit and assessment as this allows institutions to define their purpose in their mission and objectives, so quality is demonstrated by achieving these (Woodhouse, 1996, 2003). It is noteworthy that in the industrial context, 'fitness for purpose' is a definition that explicitly accepts a market relationship with 'fitness' defined mostly by the customer. Effectiveness of such systems requires the identification of the 'customers' of the university and the identification of the processes that affect 'customer' perceptions of the fitness of the products and services provided by the university. Most systems accept government as the nominal customer or proxy for other unidentified customers[25].

Exploring 'local' definitions

The critical literature argues that the advocates of QM have ignored or discarded alternative definitions of quality that may be more appropriate to education (Harvey & Green, 1993, Harvey, 1998). Lindsay (1992, 162) noted that "the "quality debate" has regrettably not generated a conceptually sophisticated and innovative attack on the elusive notion of quality in higher education." The critical literature around the 'quality movement' points to unresolved tension in quality theory and practice between the dual purposes of control or of improvement and learning (Sitkin et al. 1994; Reed et al. 1996). Similar tensions are evident around the issue of quality in higher education. However, the discussion that might promote attention to Elton's (1992, cited in McKay & Kember, 1999) 'quality Es' – enhancement, empowerment, enthusiasm and excellence – has been overshadowed by compliance with others' definitions of his 'quality As' – assurance, accountability, audit and assessment. Imposed definitions and associated technologies of control have achieved pre-eminence. Harvey (1998, np) notes "there is little analysis of the rationale behind the methods [of quality monitoring] because there is little exploration of what 'quality' is in a higher education context". Quality has become mired in instrumental responses to the accountability expectations of 'powerful others' and demonstrating 'fitness for purpose' without much debate on the meaning of fitness, clear identification of purpose or exploration of the complex interrelationships that ultimately impact on key stakeholders within the university. In practice quality as compliance is winning out over quality as learning and transformation.

Such pre-eminence of compliance, however, does not discount the validity of Harvey and Green's (1993) observation that:

> ... looking at the criteria different interest groups use in judging quality rather than starting from a single definition might offer a practical solution to a complex philosophical question.... because it recognises and acknowledges the rights of different interest groups to have different perspectives.

[25] In the UK and Australian cases the audit process to evaluate fitness for purpose has been linked to contestable government funding: the government pays and hence is the customer.

Compliance with the definitions of external others largely ignores the views of those in the organization who are positioned as the affected but not involved (Ulrich, 1991). It can be argued that authentic local improvement – the original purpose of much industrial quality theory and practice - is dependent on the negotiation of definitions and meanings that resonate with and reflect local reality. Without such negotiation, systemic understanding is unlikely. Emergence and interrelatedness are fundamental ideas of systems thinking. From a critical systems perspective, valid knowledge and meaningful understanding - the basis for improvement - comes from building up whole pictures of phenomena, not by imposing others' views. An emergent property arises from the interactions of a system as a whole rather than a few parts in isolation. Emergence is a characteristic of the particular case. Quality can be seen as (a judgement about) an emergent property: of a particular product, a particular process, or a particular organizational type. Hence the imposition of definitions of quality developed elsewhere for other purposes is most likely to prompt ritual responses or performances of compliance (Jackson, 1997a; Barrow, 1999; Harvey, 2002) rather than real exploration of the nature of higher education, the meaning of quality in the particular context and the nature of authentic local improvement.

Regulating quality

> [T]he imposition of a top down model of accountability instead of an exploration of how quality is really improved or how improvement is impeded at the operational level that makes [academics] feel it is a burdensome but pointless process. (Harvey, 1998, np)
>
> [T]he logic of academic audits relies on an underlying but difficult to prove assumption – that an improvement in quality assurance processes will eventually lead to an improvement in academic outcomes. (Dill, 2000, 223)

'Quality' practices of institutional and program assessment, evaluation and accreditation have long histories, particularly in the USA[26] but also elsewhere. Traditional approaches were predominantly systems of professional collaborative regulation (Jackson, 1997a) based on professional judgement where the institutions and external authorities and agencies collectively agreed on what was to be regulated, the benchmarks and criteria to be used: the "limits of diversity" (Jackson, 1997a, 124). In the USA, the regional accreditation bodies historically used an assessment process focused on inputs and resources to determine which institutions deserved accreditation (Dill & Massy, 1996). Later the focus moved more to outcomes assessment, but this approach also had limitations. The systems of institutional accreditation were parallelled by systems of professional accreditation of programs. In the UK and closely related systems, universities in particular were self–regulating and programs were self-accredited with some collaborative regulation of professional programs. In most systems from the early 1990s, the shortcomings of professional models of regulation were highlighted and pressure applied towards "shifting the balance from a regulatory regime, which was firmly located in the professional domain, into a regime which is progressively moving towards the administrative and market oriented domains" (Jackson, 1997b, 167). The source of 'legitimate' judgements about quality moved increasingly from academics to administrators and customers. As Jackson notes, "regulators create their own definitions of quality and exert control over those being regulated through the promulgation of such notions through

[26] Institutional accreditation in the USA dates back to the 1880s (Kimmell, Marquette & Olsen, 1998).

codes of practice, good practice guidelines and criteria for review and evaluation" (Jackson, 1997b, 174). Industry standards and frameworks for quality systems provided one basis for an instrumental response to calls for assurances of academic quality.

Using industry frameworks

In the USA in the 1990s, many universities and colleges explored and adopted the concepts of TQM as expressed in the Baldrige criteria and framework as an adjunct to established accreditation processes[27]. Some universities in the UK have explored the use of the European Framework for Quality Management – an equivalent to the Baldrige (Pupius, 2001). However, in British-modelled systems, academic quality assurance predominantly has used either generic quality system standards, such as the ISO 9000 series, in some cases adjusted for education[28] or education specific criteria modelled on industrial standards. As well as case studies of 'successful' application of the generic ISO 9000 standards by individual institutions (see for example Solomon, 1993; Storey, 1994; Stott, 1994), the literature contains strong advocacy for their use (Karapetrovic, 2001). Moreland and Clark (1998) argue that the ISO 9000 standards provided a means for management and staff in higher education to make sense of changing contexts. Both performance excellence frameworks and standards eased the shift to bureaucratic, administrative regulatory systems oriented to market needs.

Performance excellence criteria[29]

In 1995, a trial version of the Baldrige Criteria for education was introduced to interpret the generic principles and conceptual framework of performance excellence to the particular context of education. The rationale was that the same framework is adaptable to the requirements of all organizations, including education institutions. The adaptation to education was largely a translation of the language and basic concepts of business excellence as the model "[provides] a common framework *for all sectors of the economy*" (NIST, 2001, 4, emphasis added). The Baldrige is the current epitome of the pursuit of a universal solution to 'the quality problem'. The model consists of criteria that are built upon core values and concepts that reflect "embedded beliefs and behaviors (sic) found in high-performing organizations" (NIST, 2000). The criteria provide a model of excellence against an ideal benchmark rather than a threshold standard. Organizational conformance with the benchmark criteria is assessed by experts and reduced to a score out of a possible one thousand points. An increasing score over time is an indication of improvement towards the ideal excellent organization. As with the ISO 9000 standards, the performance excellence model assumes that improved management systems will result in better performance in serving customers.

[27] The Baldrige criteria were initially introduced as a framework for assessing organizational quality to focus attention on quality improvement. Through the life of the framework, the terminology moved away from 'quality' to 'performance excellence' as the quality label lost popular appeal. The nature of the criteria, however, remained substantively unchanged.

[28] For example in Australia the Standards Association created an interpretive guide for the ISO 9000 series in education in the mid-1990s.

[29] The discussion in this section has been presented previously in Houston (2002).

The education version of the Baldrige Criteria can be seen as a major attempt to transfer the codified values and concepts of TQM/performance excellence from industry to education and to fit education to the image of organization implicit in the awards criteria – one based on effectiveness in the market. It is noteworthy that the Baldrige Education Criteria for Performance Excellence (BECPE) have as their focus "...the real needs of students. Such needs *derive from the requirements of the marketplace* and the responsibilities of citizenship" (NIST, 2001, 1, emphasis added). The image of education organizations including universities in the BECPE is based in a particular set of assumptions and boundary judgements about the purpose of education: assumptions of education as a business competing in and serving the market like any other. The focus is on the universal commonality of embedded beliefs and behaviours found in and around business organizations. Organizational uniqueness is downplayed. This image is largely imposed from outside by external stakeholders.

The BECPE is caught in two tensions - between ethics created by boundary judgements and between the unique and the general[30]. Versions of the criteria since 2000 recognise the importance of the specific requiring an organizational overview that sets the context for but is not part of the assessment and noting "...these requirements need to be interpreted in terms of your specific organizational mission." However, even the requirements for the organizational overview embody the assumption that educational organizations function competitively in market contexts. Further tension is exposed when the questions are asked 'who does the organization serve?' and 'how does it serve them?' The BECPE acknowledges and distinguishes "for purposes of clarity and emphasis" between students and other stakeholders as

> ... the key beneficiaries of educational programs and services.... Requirements for current students are more concrete, specific, and immediate...
>
> Many of the needs of businesses and other stakeholders are actually needs that must be addressed in your organization's educational services for students. The Education Criteria place primary emphasis upon such needs ... (NIST, 2001, 8)

The tensions here are between 'learning-centred education' and *learner*-centred education: between the requirements of external stakeholders and the needs of students. The key characteristic of learning-centred education is "a focus on key transitions such as school-to-school and school-to-work". Students are served by quality learning transactions: others are served by the quality of outcomes. 'Good' education of students can be seen as an instrumental means towards meeting the needs of others rather than an ethically defensible purpose in its own right.

Elements, interrelations and emergence: the limits of excellence

The Baldrige criteria adopt a particular narrow, partial and prescriptive systems view that predetermines emergent characteristics. The Core Values and the seven categories form the building blocks of the system. The Criteria stress a particular cause-effect thinking and a process orientation. The elements of the system, interrelationships and outcomes are specified. An 'excellent' organization is one that complies most closely with the predetermined model. The specified concepts and interactions are

[30] The existence of education and health variants of the criteria of itself can be seen as an acknowledgement that all organizations are not the same.

assumed to be appropriate irrespective of organizational purpose or specific practices. However, Winn and Cameron (1998), from a study empirically testing the fit and validity of the Baldrige model to educational organizations, conclude that while the dimensions seem appropriate, all of the assumed relationships in the model are not significantly related. Thalner (2005) notes that a model developed outside education had greater credibility with external stakeholders, but may not account for the unique elements of educational culture. Doerfel and Ruben (2002, 16) note that the Excellence in Higher Education (EHE) program in the U.S. "uses language familiar to the culture of higher education" and that "the challenge is to differentiate *substance* from *superficiality* in ... efforts to advance the quality of work of our academic and administrative programs, departments and institutions."

Several New Zealand universities have explored the application of performance excellence criteria as members of the New Zealand Business Excellence Foundation (NZBEF)[31]. One case study noted that the "most obvious benefit of applying Performance Excellence Criteria was the time saved in developing and agreeing upon a reporting framework" (Carroll, 2000, 16). An assumption was made that "the unique characteristics and traditions of a university are not compromised by the reporting format" (Carroll, 2000, 15). However, the use of the criteria appeared to compromise the ability to present university functions in a way that meaningfully reflected their integration and coordination (Paewai & Houston, 2001). This suggests that the model cannot capture the complexity of a university. The model seems to be caught betwixt and between: images of business and of education; the needs of students as future employees and the needs of students as individuals; service to the market and service to society; the search for universal models (based in business) and the recognition of the unique; prescription and adaptation; reductionism and holistic systems thinking.

The discussion presented here suggests that the performance excellence model presents a severely limited perspective on the nature of systems. The application of a business-driven framework and acceptance of the underlying assumptions therein requires careful consideration. Simply stating "the advantages and overall purposes of evaluative frameworks are... assumed as generally accepted" (Carroll, 2000, 1) should not be acceptable in universities - organizations with a fundamental role of critical evaluation.

The BECPE does not sufficiently recognise the particular purposes of higher education as leader in society, servant to society and visionary for society (Baird, 2001). The Baldrige model provides an instrumental, functional approach to organizational assessment that builds upon a particular, partial image of the organization. The framework takes for granted the questions of why different organizations exist, in what context, and for whose benefit and instead accepts organizations as bounded by the values of the economy and market. The positioning of education as supplier to the market unduly emphasises the likeness to business and can "invite inappropriate comparisons which ignore cultural contexts as well as ... the very nature of the business itself" (Gates & Cooksey, 1996, 12). For Karmel, universities embrace

> ... multiple activities (many disciplines or departments), each of which has multiple objectives (teaching at various levels, research, consulting, community service). The outcomes of these

[31] The NZBEF uses the Baldrige criteria unchanged in its awards process.

> activities cannot be readily added together, so there is no simple measure of success of a university as there is of a business (profit, market share, asset value) (1990, 332).

To Karmel's list of simple measures of business success can be added a score out of a thousand points: a measure of excellence. Beyond basic issues of measurement, there are as Porter, Rehder and Muller (1997) assert, fundamental differences in the value systems between higher education and business. Universities, with their underpinning values of academic freedom (embedded in New Zealand legislation), collegiality and professionalism, fit at best uncomfortably within the mechanistic metaphors dominant in business models of quality.

International Standards

The ISO 9000:2000[32] family of standards for quality management systems are built around a "process model" that is defined as "the systematic identification and management of the processes employed within an organization and particularly the interactions between such processes" (Standards New Zealand, 2000, 2). The fundamental focus of the standards is consistency and reliability of process with some emphasis on process improvement. The ISO 9000 family provides threshold standards for quality system performance as the basis for certification. The standards note that 'people at all levels are the essence of an organization and their full involvement enables their abilities to be used for the organization's benefit'. People fulfil instrumental roles within the system of process. The standards assume unitary perspectives on knowledge-power and structure with ultimate power vested in 'top' management, and on purpose and meaning: to meet customer requirements. The standards are not product standards but assume the existence of agreed product specifications. They embody the assumption that effective quality management systems will produce quality outcomes. A hallmark of the use of such standards is the audit process. The standards require that the organization has processes in place to undertake internal audits of its management systems, and certification against the standards requires that the organization open itself to an independent third party audit. At the national level in the UK, Australia and New Zealand, while the ISO 9000 standards were not adopted, the audit process became the basis for the regulation regime.

Using industry methods of regulation: Audit

> [T]here is a danger that a focus on conforming to external assessments may encourage a "culture of compliance" in which the production of high quality documents, policies and procedures substitutes for the development and dissemination of new knowledge designed to improve the core processes of teaching and learning. (Dill, 1999, 134)
>
> Essentially, the external quality audit was instituted to address the growing demands of governments. (Meade, 2001, 2)

In Australia and the United Kingdom, government has imposed third party audit processes. In New Zealand with the establishment of the Academic Audit Unit in 1994, third party audit lies largely with a

[32] The ISO 9000 standards have undergone two major revisions since their introduction, once in 1994 and again in 2000. Each revision is identified by the year of its release. The AN/NZ prefix to the title indicates a standard has been adopted as a joint standard by Australia and New Zealand.

body established by the universities themselves. Reviews by Anderson et al. (2000), Dill (2000), Meade (2001) and Harvey (2002) have all clearly identified substantial commonality of process, if not of terminology[33] or impact, in such systems. An independent national audit agency administers the external audit process, which is guided by clear terms of reference and a comprehensive manual (see for example, Jennings, 2002). The common basic process elements are: self-audit or self-assessment by the institution; peer review or audit by an expert panel appointed by the agency; and the use of statistical or performance indicators. The panel makes judgements about the robustness of organizational quality systems and mechanisms based on supplied documentation and interviews with university stakeholders. Harvey notes that the external panel often hears "a story that reflects the formal organisational process. However, formal structures may not match the reality of the living and dynamic organization that is the university" (Harvey, 2002, 259). The results are presented in a report that typically is a public document, at least in the New Zealand system containing recommendations for improvement. Each University is responsible for identifying appropriate responses to the recommendations.

The New Zealand experience

The New Zealand Vice Chancellors' Committee established the Academic Audit Unit (NZAAU) in 1993 in response to requirements of the Education Amendment Act[34] (NZ Government, 1990) and to pre-empt the imposition of a quality monitoring system based outside the university sector. The NZAAU has conducted three national rounds of academic audits and its operations and impact have been formally evaluated (Meade & Woodhouse, 2000). The New Zealand experience illustrates the tensions between the dual purposes of accountability and improvement inherent in such systems. As Meade and Woodhouse (2000, 20) note "All quality assurance agencies are expected to fulfil two barely compatible roles, namely, to assist the institutions to improve their operations and to report to the government of society on the current state of those operations." The NZAAU aims "to achieve accountability through improvement" (Meade & Woodhouse, 2000, 20). The Unit's website asserts:

> The audits of universities have assisted each university to improve and develop its own quality assurance and quality enhancement processes.

It also provides a cautionary note:

> There is a danger of external audit being considered as an end in itself, as an exercise in compliance. The Unit is taking initiatives to demonstrate to universities the Unit believes:
>
> * that audit must be about facilitating and assisting enhancement,
> * that audit is just one ingredient in a university's programme,
> * that audit must complement other quality improvement activities,
> * that audit reports must assist universities in improving their own programmes,
> * that audit must add value to their own processes.

[33] Audit, assessment and review seem to be used interchangeably to describe essentially the same activities.

[34] Referred to elsewhere in this thesis as "the Act".

> The contribution of the Unit is long-term, and adds value to society only if it plays a useful and practical part in improving the quality of the working and learning environment in which staff performance and student learning is enhanced. (http://www.aau.ac.nz/, accessed 23/3/04)

Jennings (2002, 3) notes the challenge faced by the NZAAU:

> ... the Unit emphasises institutional self-review; it also emphasises quality improvement as the most effective means of achieving accountability. The Unit is required to make judgements about the scope and effectiveness of an institution's quality assurance procedures and practices, and their relation to nationally and internationally accepted good practices.

The review of the Unit's impact noted that the first round of audits had been "effective in encouraging a culture shift in the universities with respect to quality matters though penetration has been uneven across the sector" (Meade & Woodhouse, 2000, 21) but also that "awareness of and interaction with the NZAAU has not penetrated deeply to the average academic or student" (Meade & Woodhouse, 2000, 25). The unit, perhaps more so than its international counterparts, seems to have successfully negotiated the acceptance of audit processes but has been no more effective in promoting authentic improvement in the quality of core productive processes of teaching and learning or of outcomes.

Critique of audit systems

Internationally, there is agreement that audit processes have raised awareness of quality and systems and increased communication and transparency of accountability (Carroll, 1997; Dill, 2000; Anderson et al., 2000). There is far less conviction that improvement, beyond increased communication, has followed. While Meade (2001) identified several case studies of improvement prompted by audit, evidence put forward to demonstrate the impact of audit is often written "by those engaged in and responsible for quality assurance activities" (Dill, 1999, 146). Inglis (2000, 426) argues strongly that the "vacant rituals of quality assurance" have no grounds in empirical knowledge and that there is no way to know when it is effective. Audit as a technology of surveillance is removed from considerations of ends and values. Meade (2001) notes that even supporters have begun to ask questions about the efficiency and effects of audit.[35] Little headway seems to have been made in gaining meaningful involvement from academic staff (Dill, 1999). The tensions between control and improvement and between the rhetoric and reality of quality (Zbaracki, 1998) are also evident in higher education audit approaches.

Audit processes focus on systems of structure and power: the formalised rules of quality assurance and the relationships between management and those managed. The publicly espoused mission or purpose of the organization expressed in management language of performance becomes the benchmark of quality mediated by the process of the audit agency. Harvey (2002) and others have noted that audit processes pay little attention to educational processes, educational theory or student learning. Quality and quality audit can be seen as instruments of an ideology that attempts to redirect the notion of quality towards the ends of external others rather than exploring the complexities that ultimately impact on key internal stakeholders in the processes of teaching and learning and research. Rather than examining 'real' quality

[35] Harvey (2002, 259) notes that "in the UK millions of pounds are spent every year to discover that, on the basis of the teaching quality assessments, fewer than 1% of courses are failing."

of educative processes and outcomes, the agendas have been directed towards quality assurance practices of higher education institutions to strengthen external influences – particularly the market – on the shape of the organization (Dill, 1999; 2000). Audit processes in higher education reflect the dominance of quality management as a technology of control rather that improvement.

Using quality tools for improvement

> If the essence of education is teaching and learning, concentrating improvement efforts on a college's administrative and support functions will only superficially affect what happens in the classroom. (Wolverton, 1993)
>
> Teaching is an activity of underrated complexity. (Hinchcliff, 1997, 178)

Improvement is a fundamental tenet of Quality Management. The focus of authentic quality improvement is the reduction of variation in core productive process and the product of the organization towards compliance with predetermined specifications. TQM promotes a variety of practical frameworks and tools for systematic process improvement. These methods predominantly support the measurement, analysis and refinement of well-structured, mechanistic processes.

The early adopters of TQM in American higher education used quality tools for improvement predominantly in administrative, service and support functions (Likins, 1993; Wolverton, 1993; Ruben, 1995; Koch & Fisher, 1998). The literature includes a stream of case studies of such applications (see for example Anderson, 1995; Melan, 1998; Montano & Utter, 1999). However, there is much less evidence of their use in improvement of the core productive processes: teaching, research and community service. The literature is largely silent on the use of recognised quality improvement tools in relation to academic functions. Thalner (2005, 39) notes "examples of academic department [quality improvement] initiatives are few and far between possibly because faculty resistance and the unique culture of higher education are not insignificant obstacles." Vazzana, Elfrink and Bachman (2000, 73), from a large scale longitudinal study of TQM processes in USA business colleges, note less than 25% of institutions used the 'scientific tools' in relation to teaching and learning concluding that it is "possible that academic processes do not lend themselves readily to the same techniques used in industry." Similarly Srikanthan and Dalrymple have hypothesised the tenuous fit of TQM models with the "core operation: education" (2002, 216) and the "core thrust of a university: learning" (2005, 69).

Simply put, the tools do not match the nature of learning and teaching processes. Use of QM process improvement tools assumes that product characteristics can be precisely specified in measurable terms and that reducing variation in the production process will reduce variation around the target values for product characteristics. Equally it assumes that for the production process best practice can be agreed and defined, stage-by-stage, with clear, measurable performance specifications for each stage, and that variation in the characteristics of inputs to the process can be defined and controlled. The learning and teaching process cannot be easily characterised in this way: it is far more complex. Each student as an input to the process is unique. While minimum requirements can be set for the 'product' – the 'transformed' student – each graduate remains unique. The purpose of higher education, rather than

conformity, should be to extend each individual student towards realising their own individual potential. Also the processes appropriate "to teach and assess students in the manner [universities and their staff] consider best promotes learning" (NZ Government, 1995, 167) so that the university fulfils its legislative and ethical obligations of academic freedom are contested and value bound (Hinchcliff, 1997).

Critical Reflection on QM in higher education

> I cannot trust any business metaphor as a path that will lead us, through education, to a more humane society. (Sztajn, 1992, 37)

Critical Systems Thinking and TSI embody three fundamental commitments to critical awareness and reflection on methodology, to pluralism and to improvement in terms of "bringing about those circumstances in which all individuals could realize their potential" (Jackson, 2000, 376). Boundary critique provides a means to reflect on the otherwise potentially taken for granted assumptions that bound problem contexts, problem definitions and choice of interventions (Midgley, 2000).

TSI draws on the interpretative insight that it is more meaningful to think of systems as particular ways of seeing the world (Flood & Jackson, 1991). Flood's (1996, 1999) four systemic "windows" allow for a deepening systemic appreciation. Any organization can be viewed as a system of systems. Following Flood (1999), every organization can be seen as containing systems of process (how things are done), systems of structure (how functional elements of the organization are related; the formal rules), systems of meaning (how people see the purpose and values of the organization and their role in it), and systems of knowledge and power (how influence is based, distributed and used). The four windows cannot be divorced from one another (Flood, 1996). Structure and process, for example, place real constraints on how stakeholders construct systems of meaning. Similarly knowledge-power and the meaning that stakeholders form about situations impose certain ways of behaving. In any given case the interactions of these systems and the boundaries placed around the organization contribute to the particular, arguably unique, emergent properties that define the organization or organizational type. The imposition of definitions of properties, such as quality, developed elsewhere for other purposes is unlikely to prompt exploration of the nature of higher education and authentic local improvement.

Business as a system

In considering a business as a system, the market is its primary environment and largely defines its boundaries. The purpose of a business is survival in the market. Market orientation is a (perhaps the) defining emergent characteristic of a business: it influences systems of meaning, promotes particular systems of process and structure, and assumes particular distributions of knowledge-power. This particular system of systems is implicit in QM, which focuses attention on systems of ordered mechanistic process and to a lesser degree systems of structure, but largely assumes and accepts systems of meaning and of knowledge-power that privilege the values of managers and external stakeholders. Systematic frameworks for QM, while acknowledging the dynamic complexity of the market environment, attempt to impose a specific cause and effect and implicit command and control order on

the detail complexity of organizations towards satisfying market needs. The language of quality is the language of business and the market.

The university as a system

The nature and role of the university in New Zealand is embedded in legislation that also defines the university's environment[36]. The university is positioned as an institution in and of society rather than the market. Its primary purpose is to contribute to society in specified ways including contributing to the economy. The university strives to balance the immediate needs of students, employers, and the local community with a long-term perspective of the higher education, research and developmental needs of society.

	Business	**The university**
The environment	The market	Society
Systems of process	Unitary, prescribed, mechanistic Production focused Conformity, consistency and reliability emphasised	Pluralist, contested, interpretive Knowledge/learning focused Exploration and diversity emphasised
Systems of structure	Hierarchical Mechanistic, tightly coupled Localised teams	Hierarchical and collegial Organic, loosely coupled Local and dispersed teams
Systems of meaning	Serving the market Customer satisfaction Contractual relationships Profit – shareholder value Focus on organizational goals	Serving society and individual learning needs Higher learning Covenant, gift and contractual relationships Contributions to communities of learners within society Focus on individual **and** organizational goals
Systems of knowledge power	Unitary Positional - managerial knowledge privileged top down	Pluralist Expertise based - academic **and** managerial knowledge and expertise in tension Dispersed networks

Table 4: The University and business as systems

[36] The New Zealand legislative environment is discussed further in Chapter 6.

Universities with their underpinning values of academic freedom and collegiality, and their diverse processes of teaching, research and community service at best fit uncomfortably within the machine metaphor that has dominated quality practice. Table 4 provides a brief comparison of significant differences between the university and business.

QM is applicable to those parts – the administrative and service functions (Srikanthan & Dalrymple, 2003, 2005) - of university systems that map comfortably to the image of business. It offers much to those in the university who subscribe to the image of the university as business: a conceptual framework and methodologies for promoting better, more business-like operations and managerial control; techniques for accountability to nominal customers; and methods for the improvement of predominantly mechanistic support and service functions. It sits within the functionalist paradigm: it builds fundamentally on the image of the organization as a productive machine. It seems to offer far less to those who subscribe to the image of the university of learning (Bowden & Marton, 1998) and whose interests lie in improving learning in and for society.

Towards authentic academic quality

> Education processes are not likely to be caught in simple judgements... they are much more likely to be caught in a careful discrete and sensitive characterization of an institution's or a department's *particular* qualities and that would be outwith (sic) the limits of the methodology [of audit]. (Barnett, 2003, 98)
>
> Feel free to come up with new and creative metaphors for schools that might help us better understand this complex social institution of ours. (Sztajn, 1992, 37)

This chapter has examined the application of industrial QM to higher education. Questions around application are not simply issues of method but of the nature and purpose of the university. Quality management can be seen as an instrument of neo-liberal market ideology with its associated managerialist image of the university as a business: higher education is a consumer commodity and a service and composed of organizations like any other with consequences of students, governments and businesses as customers and of focus on timely, efficient and effective service provision (Baird, 2001). Standing in contrast to the university as business in the market is the university of learning for society. This alternative image is based on assumptions, values and boundary judgements around the distinctive nature of the university. The otherwise assumed similarity to business is downplayed and the role of the university as a societal organization of learning emphasised. This image is one held by some of those inside the organization.

"A hospital, and my life, is more than just a business" (Handy, 1997, 2). The same can be said for New Zealand universities. The Act defines the university's environment and its boundaries. The New Zealand university is embedded in a different environment from business: it is primarily an organization of society rather than in the market economy. Its primary purpose is to contribute to society through learning. Effective functional and financial management and the creation of operating surpluses or profits are means, not ends for the university. The university displays different emergent characteristics - of quality -

from a business. Significant tensions arise from the emergence of different boundaries, which draw on these contrasting images of the university and its purpose.

Quality management has developed as a ritual response for managing these tensions. Most quality regimes focus on monitoring for accountability to government and the market, using mechanisms drawn from industry. Most mechanisms reflect and serve the interests of powerful others: academics and students within the university are positioned as the affected but uninvolved. In such circumstances real, local improvement is unlikely. Some mechanisms, audit for example, acknowledge the need for improvement in outcomes – an espoused fundamental purpose of QM - but do little to promote it. Harvey (2002) notes that quality monitoring is a useful tool and can be a significant spur to organizational self-reflection. "However the long term effectiveness is entirely dependent on the establishment of internal procedures and development of a culture of continuous improvement" (Harvey, 2002, 257-258).

As a consequence of the predominance of ritual, fundamental questions of quality in higher education remain unresolved and improvement in core processes incidental. Some early responses to the quality imperative were cautiously receptive: "To the extent that [the quality approach] guides us to a better understanding of our most primary process, teaching and learning, ... the contribution to academics can be significant" (Ruben, 1995, 189). That contribution has yet to be realised beyond some localised examples as the quality approach has not successfully engaged with the culture(s) of academics and local meanings of quality. As Barnett (2003, 98) notes, to develop virtuous, authentic quality the challenge is: "to encourage the formation of a *transparent* culture of self-willed caring about quality such that concern for quality permeates the constitution of academic activities, processes and relationships".

The discussion presented in this chapter points to the importance of purpose, values and boundary judgements and images of organizations in determining the transferability of concepts and methodologies between organizational types. QM is tied to a particular problem context – business, market performance and the functional language of business – and a clearly defined problem: quality for customers. As a methodology it fits less well in the different problem context – the university, service to society and the language of education – and the ill-defined problem: quality education and learning. The next chapter outlines the methodology for the phase of this research, which explored the development of a locally appropriate approach to questions of quality in the university.

Chapter 5
Local Intervention: Approach and issues of Problem Solving mode

Introduction

This chapter describes the approach employed in the Problem Solving mode of TSI – the fieldwork for the research. The previous chapter critically assessed the appropriateness of QM and its underlying metaphors to a university. This chapter describes the process designed to explore images of the Institute and to clarify perceived quality issues and possible means to their resolution. Issues specific to this research and the methods used to generate ideas and images are discussed in this chapter. Reflection on boundary judgements and their interconnectedness to value judgements reinforces the importance of ethics and ethical choices in research and intervention in social systems (Ulrich, 1991, 2001; Midgley, 2000). Ethical considerations of the present research are discussed. The chapter concludes with a brief reflection on my role as the researcher or agent in intervention.

The present research starts from the position that universities are complex, social constructions of stakeholders. Universities are seen from educational, social, political and economic perspectives. They are seen from within by academics, students and other internal participants and from outside by employers, citizens, politicians, potential students and a wide diversity of others. Different stakeholders (groups or individuals) are likely to bring a variety of perspectives to bear on what a university is like and the issues that it faces. Rather than seek agreement, the research design sought a variety of stakeholder perspectives. Figure 6, in the previous chapter, illustrates the diversity of stakeholders with an interest in the university. The variety of interests in and views of the university inevitably leads to the realisation that any viewpoint is restricted. Debate between stakeholders is needed to explore issues and promote ethical reflection on possible solutions and their consequences. However, it is impractical, if not impossible, to embrace every viewpoint. As a result, to make the present research manageable, some stakeholder viewpoints are excluded.

Recognition that QM concepts and methods (with no clear methodology to link them) are based on a dominant functionalist paradigm and machine-like metaphors raised a number of questions: do stakeholders such as academic staff and students share the same primary concern of resource efficiency as proponents of QM? If not, what are stakeholders concerned about? What would the quality problem be like and how might it be managed if it was based on a different metaphor? It becomes apparent that the viewpoints of key stakeholder groups and the interplay of those viewpoints need to be considered.

Selecting the research site

As discussed in Chapter 2, this research arose out of my commitments to education and local improvement. The research site is the Institute in which I work. While the university has high-level structures and processes in place to promote quality, there seemed to be little local effect within

operational academic units from the university activities[37]. The lack of local impact was confirmed through initial interviews with staff in the Institute. I saw the opportunity to undertake this research as a means to contribute to local improvement. A second practical consideration influenced the decision to focus on a single academic unit: the prospect of undertaking research on 'the university' was daunting given the size and complexity of the organization and constraints of time and resources on the research. Hence, the research site – the Institute in which I work - effectively self–selected.

Gaining access and formalising my role

While in one sense access to the Institute was unproblematic – I was a member of staff in the Institute with daily involvement in its life – formalising access as a researcher proved challenging. Gaining ethical approval for the research took several months of negotiation with the University's Human Ethics Committee, despite in principle agreement from the Head of the Institute obtained early in the planning phase of the research. Early in the fieldwork stage I met with the Head of Institute (HoI), who formally endorsed the research and informally agreed to a protocol of engagement with the research. The HoI's support, however, was not tested. Before the protocol could be formally adopted, the HoI resigned and was replaced by an acting Head. The Acting HoI (A/HoI) was briefed about the research. He also expressed support for the research, agreed to staff involvement in initial interviews but voiced some reservations about the extent of staff involvement beyond initial data generation and that he would be concerned if "the methodology became all consuming". The A/HoI agreed to the relationship with me as researcher represented in Figure 7.

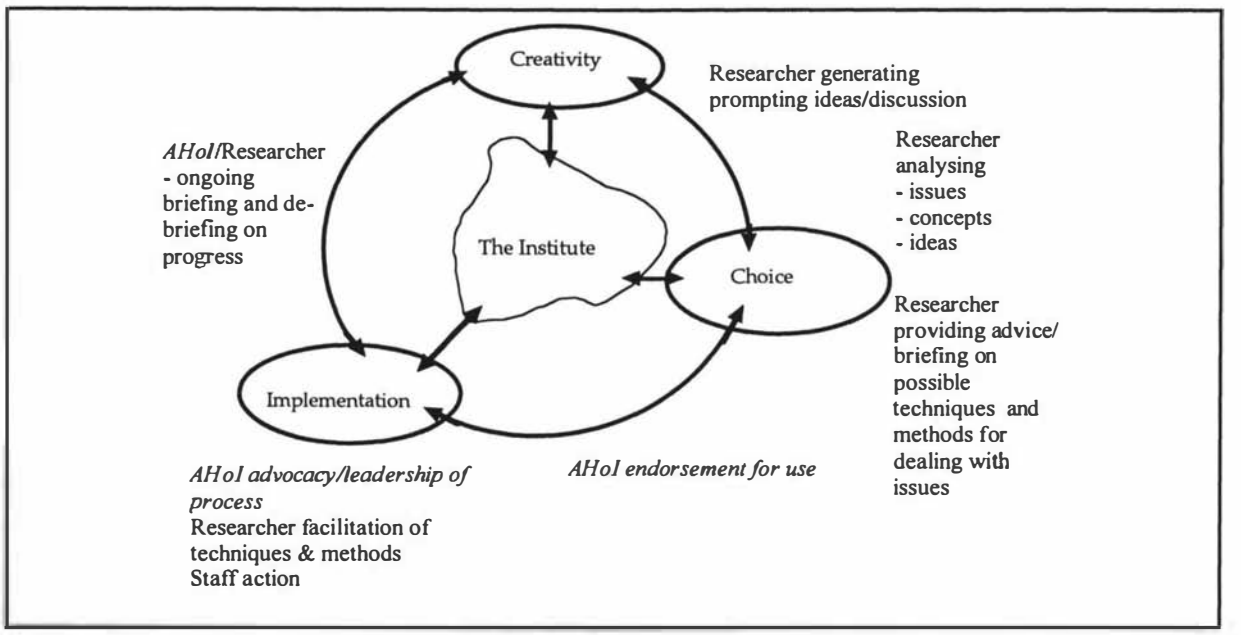

Figure 7: Agreed roles in the research

[37] These observations are based on my experience as a member of the University's Quality Management Steering Group and as a staff member.

The agreed relationships and the A/HoI's reservations framed an approach to the research that involved a mix of foreground, visible activity (interviews with staff and progress presentations to Institute seminars and staff meetings), mid-ground activities (facilitating small scale immediate interventions) and background work (analysis of data and identification of possible interventions). As the research developed the A/HoI on several occasions used me to facilitate Institute responses to reports and initiatives from higher levels of the University that were likely to impact on the Institute. During the tenure of the A/HoI considerable progress was made in the creativity phase, analysis of data, and reporting of initial findings back to the staff of the Institute and some small-scale interventions. Before any major interventions could be proposed a new permanent Head of Institute was appointed. A further round of briefing was done and again 'in principle' support for the research was negotiated.

Selecting participants from stakeholders

According to Ulrich (2001) reflecting on the justification of boundary judgements is ethically and theoretically important. By understanding who (and as a result what) is excluded, the limitations of the present research can be identified. Likewise, the ethical implications of excluding certain stakeholder groups can be reflected upon. Employing some of Ulrich's Critical Systems Heuristics questions helps to reveal the normative content of the decision to focus largely on the viewpoints of internal stakeholders. Two critical heuristics questions are particularly relevant. First, what is (ought to be) the purpose of the present research? Second, who is (ought to be) the beneficiary of the research?

To recap briefly, the purpose of the research (detailed in Chapter 2) was to contribute firstly, to theoretically based and ethically defensible local improvement and secondly to the bodies of knowledge about TSI as a meta-methodology and about the university as an organizational type. To make the research locally relevant and manageable, one academic unit – the Institute - was selected as the research site. Figure 8 provides an initial representation of what the Institute does, which helps to identify key stakeholders.

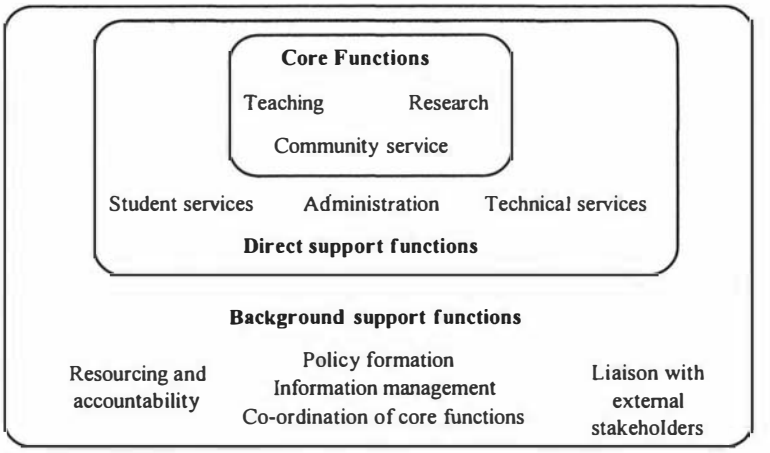

Figure 8: The functions of the Institute

This superficial picture of functions can be readily transformed to identify key stakeholders and participants in the Institute (Figure 9). Teaching and research most directly involve academic staff and students. Academics and other staff also participate in community service activities. The Institute's technical, administrative and managerial staff work in partnerships to support the core productive functions.

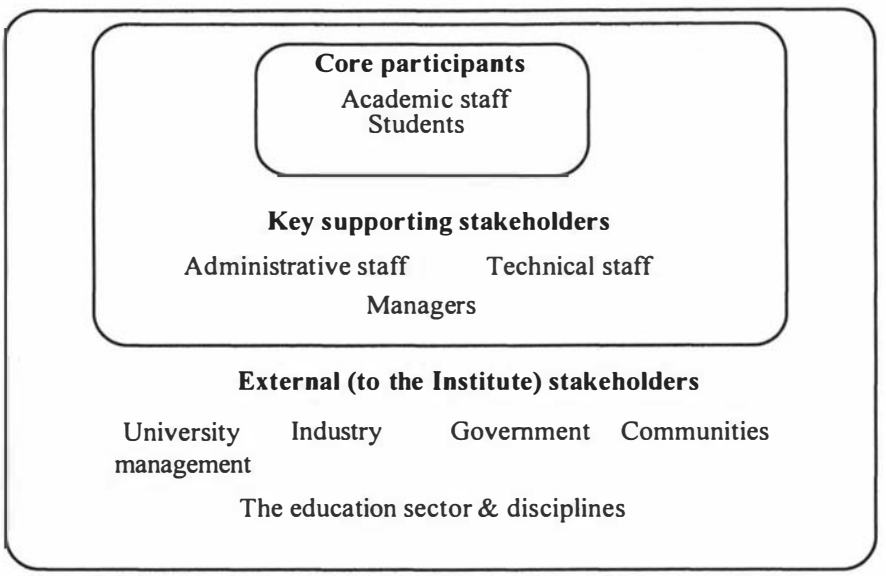

Figure 9: Key participants and stakeholders

Two major beneficiaries of the present research are identified here: the Institute's staff and students. Interestingly a key potential beneficiary of the present research – me as the researcher - is not specifically identified in Figure 9. The research provided me with the opportunity to pursue my long-standing academic and practical interests in quality and in education towards a formal qualification. Also I have a long-standing commitment to improvement. From my position as a member of staff in the Institute, the research provided a means to promote local improvement. As a result, both the research site and stakeholders were chosen as they were of immediate interest to me. Local improvements would potentially directly benefit the staff of the Institute who are directly involved in its day-to-day management and operations. Consequently all staff in the Institute were invited to participate in the research. Initial contact with individual staff members took a variety of forms: direct personal invitation, group briefings with general invitations extended to participants and written invitations distributed by mail. All staff were provided with a written information sheet and protocol for staff participation (see Appendix 1a).

For Ulrich (2001), no research design is rational unless the views of the "affected but not involved" are considered. Students as a group were selected on this basis. Students are a major part of the Institute as internal participants and are directly affected by decisions and actions but are marginal to decision-making processes. Failing to include students would have provided a very partial picture of what the Institute is like for day-to-day participants in it.

For most stakeholders outside the Institute, the benefits of the research are far less direct. Their interests can be seen to lie mainly in the outcomes of the Institute's operations and its contributions to the wider university and communities. Local improvement provides a means towards those ends. The views of these groups, however, have not been ignored. Various artefacts of their interests – mostly documents – were considered in establishing the context for the local data generation and intervention. Consequently the research has a very local focus with the initial boundaries drawn around the Institute as an operational unit and participants drawn from within it.

Local Action

Creativity: Generating ideas

> If we have not asked the right questions we will not understand our answers properly; that is, they will not mean a lot. (Ulrich, 2001, 7)

The first part of the research was designed to get participants talking about what the Institute is like. The intention was to bring to the surface concerns, issues and perspectives on the nature of the Institute, what it does, how and how well. My role was to prompt reflection. The research design approved by the Massey University Human Ethics Committee proposed the use of semi-structured interviews and focus groups as data generation protocols – methods for encouraging creativity in thinking about the Institute and the issues that it faces.

Semi-structured interviews

Interviews are a commonly used method of data collection in qualitative research (Yin, 1994). The aim of the semi-structured interviews adopted for the first phase of this research was to obtain a close understanding of how staff see the Institute and the quality issues that it faces. Six staff were initially invited to trial the interview approach. I began these initial interviews by asking participants what the Institute was 'like' and what they saw as some of the key issues facing it. Questions were also asked about what participants saw as potential improvements to the Institute. When a metaphor was explicitly used, I prompted the participant to provide further clarification. Ideas and concepts that emerged from the initial interviews were incorporated into the schedule for later interviews. The final interview schedule that developed as the interviews progressed is included as Appendix 1b. Twenty staff consented to participate and were interviewed. The interviews lasted anywhere from forty-five minutes to one and half hours. All interviews were tape recorded (with the interviewees' permission). I transcribed each at a later stage.

Focus groups

Focus groups present a fast, economical way to collect images and ideas from participants. The Institute has some four hundred students and conducting individual interviews with sufficient students to gain a rich understanding of their perspective was seen as impractical. In a space of one or two hours in a focus

group, however, the viewpoints of group members could be sounded out. The group effect was expected to encourage the creative thinking needed to generate ideas and develop metaphors reflecting the participants' concerns. The focus groups were seen as a means to apply at least some of the range of idea- and image-generating methods identified by Flood (1995). Prior to the focus groups students were introduced to the idea of metaphors, systems ideas and the research through seminars presented as an adjunct to their studies. Once the introductory seminars were completed, attendees were invited to participate in the subsequent group session structured around a series of broad questions, namely: what is the Institute like? What does quality mean to students and to staff? What is the most important work the Institute does? What should happen to improve quality? It was made clear to the students that their participation was completely voluntary and they were free to attend or not as they saw fit. Most chose to participate and several were openly appreciative of the opportunity to express their views. Twenty-four students, all in their third or fourth year of study, participated in focus groups.

Documents

Many supporting documents were collected from the Institute, the University and government and other external organizations with an interest in issues of quality in the university. The reports of the Tertiary Education Advisory Commission, the Tertiary Education Commission (TEC) and the New Zealand Academic Audit Unit provided particularly useful policy and organizational context. Annual reports, strategic plans and other formal publications from the University, the College and Institute provided an official view of the nature of the unit and its immediate institutional environment.

Analysis and representation: linking creativity to choice

Chapter 6 presents my analysis of participants' perceptions of what the Institute is like and the quality issues and challenges it faces. It also outlines participants' ideas of what should happen to improve the place. It begins to link creativity and choice by structuring issues, concepts and ideas. While TSI proposes the use of various idea and image generating methods (Flood, 1995), it provides little guidance on the analysis of the data produced through their use. An initial reading of each interview transcript enabled me to understand the interviewees' comments in context. A process of constant comparison identified clusters of responses from the interviews.

Identifying metaphors and issues

Interviewees were asked a number of initial open-ended questions such as "what is the Institute like?" and "How would you describe the Institute to someone who had never been here to give them a feel for what it is like?" These questions in some cases prompted the direct use of metaphors but in others the images were less explicit. More directed prompts from me elicited either explicit acceptance [the Institute as a family] or rejection of particular images ['this is not a well oiled machine'; 'this is NOT a shop!' - in emphatic response by several staff to the question 'does the Institute have customers?'].

The presentation of stakeholder perspectives is structured around Flood's (1995, 1999) four systemic 'windows' of meaning and knowledge-power and process and structure, which he says allow for a deepening systemic appreciation of the problem context. While Jackson (2000) is critical of Flood's earlier (1995) representation of his 'system of systems' as a retreat to "organizations-as-systems" functionalism, these systemic windows are employed in the present study as interpretive heuristics to organize participant perspectives on the organization rather than to provide a functionalist description of the organization-as-system.

Identifying potential interventions: the choice phase

Participants in interviews, amongst other questions, were asked what should be done to improve quality in the Institute. Most were able to indicate areas for change. Few were able to pinpoint ways to promote or enact desirable change. My role in this part of the research was to try to identify methodologies and methods to address the identified issues and areas for change. Both the System of Systems Methodologies (Jackson & Keys, 1984; Jackson, 1987, 2000) and Flood's systemic 'windows' provide mechanisms to match critical issues with potential methodologies and methods for intervention towards improvement in particular problem contexts. At least two possible approaches to using these mechanisms presented themselves: a fully participative process based on extensive briefing of participants on the characteristics of a wide variety of systems methodologies leading to analysis and collective choice; or, at least initially, an expert/researcher driven process of filtering/concentration of issues and matching of potentially useful methodologies with briefing on and choices made from a short list of preferable methodologies for intervention. I adopted the second approach largely in response to the A/HoI's concerns about the research potentially making excessive demands on staff time.

Analysis of the interview transcripts pointed towards dominant perspectives and metaphors and underlying assumptions held by participants which could be worked through to identify potentially valuable methodologies for intervention. Participants, for example, pointed to: issues of information flows and vertical and horizontal blockages within the Institute; issues of shared identity, common purpose and "getting people working together" for the Institute; and the lack of common values and behaviours within the Institute. These issues pointed to metaphors of the brain and organism, coalition and culture respectively. Common agreement was evident on the complicated nature of interactions and activities within the Institute as were differences over the most important work of the Institute. The problem context was accepted as 'complex' and having both unitary and pluralist values in some tension. Intuitively Beer's (1984[38]) Viable Systems Model (VSM) with its focus on essential functions and communication, and Rich Pictures drawn from Checkland's Soft Systems Methodology (see Checkland, 1991, 1999; Jackson, 2000) seemed at face value potentially useful methodologies for this problem context. As issues of vision, values and future viability came to the fore, the potential benefit of a future focused planning methodology such as Ackoff's (1984, 2002) interactive planning became apparent. Theoretical justification followed from apparent utility and fit with the local context. In Chapter 7, Beer's Viable Systems Model is used to analyse the Institute's systems of process, to identify key points for

[38] In this paper Beer reflects on thirty years of development of the methodology.

potential interventions to improve information flows and communication to shape and guide what the Institute does and how it does it. The use of rich pictures and idealised planning are discussed in Chapter 8.

Moving towards possible interventions: linking the Institute, choice and implementation

Informed choice is necessary to shape intervention for improvement. Part of my role as researcher was to inform participants both formally and informally about what might be done towards systematic, systemic improvement. Following an initial group of interviews, I presented a research seminar for Institute staff, outlining findings to that point and introducing methodologies and techniques that might be used to advance the research towards interventions and implementation (Appendix 2). The seminar generated additional interest in the project and an invitation for me to provide further briefings for groups of staff. Some individuals took the opportunity to volunteer to be interviewed to enable their views to be heard.

Conversations with key informants also provided a link between background analysis and potential interventions. Many informal conversations occurred but the precise number was not recorded. In most cases, what I considered key points were recorded in brief working notes. A number of direct practical interventions were prompted effectively by comments made in passing. As a consequence of one such conversation, one member of staff prompted the A/HoI to re-activate regular staff meetings and briefings to promote better communication within the Institute. Discussions with the Institute's Development Manager and Development Officer - over a Rich Picture of the 'student recruitment and retention' problem[39] - about emerging perceptions in relation to attracting and retaining students prompted them towards redirection and re-formulation of marketing initiatives. Similarly conversations about this research, in conjunction with University initiatives focused on improving students' First Year Experience, provided a spur for a group of interested academic staff to apply successfully for a grant for work towards reforming the first year curriculum.

Implementing interventions: facilitation

In Chapter 8, a substantial structured intervention based on Ackoff's Idealised Planning is described. The prominence of issues of direction and viability indicated the need to focus on the strategic future of the Institute within the bounds of wider College and University initiatives. Prompted by the Institute's Development Manager, the HoI endorsed a strategic planning workshop using Ackoff's idealised design jointly facilitated by the Institute Development Manager and me.

A note on interactions: other paths to intervention

While the preceding discussion deals with phases and linkages linearly, it is only a partial description of the real experience. TSI/Critical Systems Practice is not a linear process, as this application demonstrated.

[39] See Figure 21, Chapter 8.

The simple act of providing people with an opportunity to speak their minds prompted some to implement changes within their own areas of influence because what needed to happen was clear. In at least two additional cases participants took it upon themselves to prompt action. However, it is impossible to say whether these interventions may have happened without the current research to [apparently] prompt them.

Issues around methodology

Credibility

There are long standing, significant debates about whether concepts of reliability and validity have meaning in the context of qualitative research and intervention (see for example Goetz & leCompte, 1984; Easterby-Smith, Thorpe & Lowe, 1995). It can be argued that credibility of outcomes and trustworthiness of approach, though rigorous design and action, are more meaningful terms in this context. Qualitative research does not attempt to make empirical generalisations but rather analytical generalisations that add to a body of knowledge. A good qualitative study according to Pope and Mays (1995, 43) will "take care to describe the context and the particulars of the case study and to flag up for the reader the similarities and differences between the case study and other settings of the same type".

Credibility can be ensured through triangulation where a number of independent data sources and data collection methods are used to generate data. Convergence of data strengthens the validity of findings and conclusions reached. Another practical way of assessing the credibility of qualitative research is to consider whether the findings and conclusions resonate with what is already known about the social phenomenon and whether participants think the research account is a reasonable explanation of the social phenomenon. Knight and Trowler (2000, 70) refer to the "reliability of recognisability". Asking participants to comment on the research can increase credibility of outcomes: a naturalistic account "must be recognised as a possibly true account by those whose activities it describes" (Carr & Kemmis, 1986, 91). Drafts of chapters of this thesis were shared with three members of the Institute's staff: one a supervisor of the research, another experienced in systems methodologies, and the third a relatively new arrival in the Institute but with much experience of universities. All agreed that the work provided a reasonable, recognisable account of the Institute and the issues and challenges facing it. As part of focus group discussions with students, the Rich Picture of the student recruitment and retention problem was talked through and students acknowledged that the picture was a reasonable account that gelled with their own experience and understanding. Students provided some insightful additions and refinements that are discussed in Chapter 6.

For qualitative research to be rigorous, all research phases such as data generation and analysis need to be conducted in a systematic yet reflective manner. In practice, a study is thought to be rigorous if its design, data collection protocols and analysis methods are clearly described and can be followed by independent researchers. Credibility and trustworthiness of qualitative, action-focused research largely depend on the ethical commitments that the researcher brings to the research and their ability to reflect critically on their role. Throughout the research process the researcher needs to reflect on the appropriateness, clarity, comprehensiveness, integrity and significance of the work. Such reflection is embodied in this thesis.

Ethical issues

The following general ethical principles for research with human participants were considered in the design and conduct of the research (Massey University Human Ethics Committee, n.d.):

- Informed consent;
- Confidentiality;
- Minimising of harm;
- Truthfulness; and
- Social Sensitivity.

These principles recognise that the researcher is typically in a position of power over less powerful groups involved in a research study and must fully protect and respect the basic rights of individuals and ensure impartiality and fairness in dealings with participants in the research. Such principles are designed to ensure that the researcher as a minimum does no harm to participants through 'doing right things right' (Jacques, 1999). Considering ethical behaviour as 'doing right things right' focuses attention on three questions:

What should we do?

How should we do what we should do?

Why? Who benefits? [And the corollary of this: who might be harmed?]

While codes of ethics may fundamentally seek to minimise harm, TSI seeks to maximise benefit to the participants through local improvement. TSI embodies principles of meaningful participation (to develop rich understanding from the perspectives of the participants), critical reflection to achieve systemic understanding (including social understanding) and improvement for and by participants. TSI is fundamentally research in cooperation with participants. Determination of ends has ethical implications particularly since the interests of the powerful are often served at the expense of the less powerful. For any research to be ethical, it must be clear about whose interests are being served. Only then can ethical issues such as minimising harm and informed consent be properly considered[40]. As noted earlier, the research was intended to serve my interests and those of staff and students in the Institute.

Ethical issues specific to the study

Ethical issues significant to the present study varied according to the stakeholder group. Few ethical issues arose when academic staff were interviewed simply because these groups were already in positions of power, and were in a position to decline to participate in the research at any stage. Similarly, non-academic staff were able to decline to participate without fear of repercussions. Students, however, were potentially vulnerable in the researcher-participant relationship, particularly as they may have feared

[40] Flood and Romm (1995) argue for the *oblique* use of methods, which promotes the deception of participants for the greater good of elevating emancipatory interests. In such applications, the issue of benefit of outcomes is privileged over process issues of complete truthfulness and fully informed consent. The complex ethical implications of interventions designed to obliquely address issues of coercion/power are not pursued further here.

retribution from the Institute if they chose not to participate. To minimize possible ethical issues, the research design was subjected to ethical scrutiny by the researcher's supervisors and the Massey University Human Ethics Committees. No fieldwork was undertaken until ethical approval was obtained[41]. Every staff member as a potential participant was sent an information sheet that detailed the nature of the research and their potential involvement. Participants were also encouraged to contact the researcher or his supervisors if they had any questions or concerns about the present research. Staff participants were asked to sign a consent form. Students who chose to participate in the focus groups gave verbal, group consent for use of the data generated. Anonymity was assured through the process of recording and analysing the data, which did not identify particular individuals as sources of comments or contributions.

The role of the researcher

Issues that remain on the research agenda around Critical Systems Practice/TSI include the role of the researcher/agent and the ethical commitments they bring to the research/intervention (Jackson, 2000; Kay & Halpin, 1999). My ethical commitments in this research have been outlined above. They reduce to the essence of doing right things right towards local improvement in quality education. Chapter 9 includes critical reflections on my role as researcher in this particular case.

Summary

Ultimately the aim of critical systems practice/TSI/action research is to secure improvement. What improvement did the present research hope to secure? The overall research was designed to test the potential of Total Systems Intervention as a meta-methodology for organizational understanding and improvement of part of a University. My hope was that the systems idea and approach would help to promote improvement and at least embryonic development of an approach to the management of quality grounded in the reality of a University. The underlying hope for the local fieldwork part of the research was at the least to promote thinking about quality improvement for the Institute as an educational organization. This hope implicitly built on my commitment to education and learning.

This chapter has outlined the process planned to generate a rich understanding of the local situation through the eyes of participants, identifying potential areas for intervention and to facilitate improvements focused on important issues of quality. It also touched on key issues affecting the implementation of the plans. Gaining ethics approval for undertaking insider research for a PhD proved challenging. The research was interrupted by changes of occupant in the Head of Institute position. Whether the use of TSI in problem solving mode reported in this and the following chapters was a fair test of the methodology is revisited in Chapter 9.

[41] Submission of the application for ethics approval coincided with a major, contentious repositioning/restructuring exercise in the University. Ethics approval was significantly delayed by concerns that could be seen more as related to contextual issues than ethical considerations about the research per se. These issues are revisited in Chapter 9.

Chapter 6
The Institute and Quality – environments and images

Introduction

The previous chapters indicate that quality in higher education is a mess: a complex set of interacting issues of concern to a number of stakeholder groups. It therefore is misleading to talk about the "quality problem" even though most policy makers have done so and used a problem-solving framework towards consolidating control and accountability. A problem is abstracted from the mess using a generative metaphor that stakeholders employ to make sense of problematic situations that are vague, confusing and concerning. The productive machine and the university as a business are such generative metaphors: they are powerful organising structures that influence how stakeholders behave (Parker & Jary, 1995). Failure to see this has meant that policy makers and researchers are unclear on how metaphors influence how an issue is characterised. Students are seen as 'customers' needed to ensure the generation of revenue and at the same time as little more than the analogue of manufacturing work-in-progress, which is required for efficient utilisation of scarce resources. Another danger of uncritically applying generative metaphors is that the normative judgements contained in the metaphor may be unwittingly applied (Schön & Rein, 1995). This normative assessment of stakeholder behaviour obscures possible competing definitions of quality in the university. Real appreciation of the quality issues requires exploration of what the university, and for this research, the Institute is like. This chapter attempts to uncover alternative perspectives by considering stakeholder accounts of what the Institute is like, its environment, its framing boundaries and the issues that it faces. Participant images are important for two reasons. Firstly, they help to illuminate perspectives on the nature of the university as an organizational type. Secondly, and more importantly for this research, they help to inform collective reflection and identify problems as a precursor to collective action.

Stakeholder accounts of the Institute are reviewed through the two systemic windows of meaning and knowledge-power. The chapter begins with the simple observation that the Institute operates in a resource-constrained environment and introduces what might be termed "bounds to process" – selected aspects of the broader university system that is a framing context for the Institute. The focus of the chapter then shifts to issues about academic cultures and managerial authority and influence, and how these are seen to interact and impact on operational policies and activities. The last part of the chapter draws out participant images of what the Institute should be like and what should happen to move it closer to their ideal. These images provide the context for closer analysis of systems of structure and process in the next chapter. Together these analyses contextualize and focus the choice of potential interventions for improving the quality of what the Institute does and how it does it. The purpose of the chapter is to make explicit the boundary judgements that have guided and shaped the problem solving interventions within this research.

The New Zealand university

It can be argued that almost everyone in New Zealand, as in all modern western societies, knows what a university is, what it does and what it should do. There is general agreement about what a university does: teaching, research and community service. Yet the tripartite role of the university is a relatively recent invention. The medieval university (and its precursors) was in the terms of Bowden and Marton (1998) "the university of teaching". The purpose of the community of teachers and students was to develop the intellectual skills of the students and to prepare them for roles as citizens. The Nineteenth Century German model of 'the university of research' was based on the idea of university education as the disinterested pursuit of knowledge with no obligation to apply that knowledge to useful ends: the community of teachers and scholars was seen to exist for the sake of scholarship. The relative importance and enactment of these notions of the university have been modified over time by the realities of the political, economic and social environments of the university. Both the university of teaching and the university of research remain accepted images of the university and both are reflected in New Zealand universities and specifically in the Institute. Current thinking on the nature of the New Zealand university system is discussed to provide a frame of reference for exploring what the Institute is like.

In the New Zealand context, as noted previously, the role and nature of the university is embedded in legislation with its unique role and character defined and protected by the Education Amendment Act, 1990. The university is the "critic and conscience of society", acting as a "repository of expertise" concerned with "advanced learning" where "research and teaching are closely interdependent" (NZ Government, 1990, s162). The nature of that interdependence is left unexplored beyond the statements that "most [of the university's] teaching is done by people who are active in advancing knowledge" (NZ Government, 1990, s162) and that a degree is awarded following a course[42] of advanced learning that is "taught mainly by people engaged in research" (NZ Government, 1990, s254). The Act also defines and protects academic freedom as a special characteristic of universities.

> "academic freedom" in relation to an institution, means [in part] -...
>
> (b) The freedom of academic staff and students to engage in research: ...
>
> (d) The freedom of the institution and its staff to teach and assess students in the manner they consider best promotes learning" (NZ Government, 1990, s161)

The operation of the university within the legislative context continues to be shaped by changing government policy. The New Zealand higher education sector experienced major governmental reforms in the late 1980s and 1990s with particular emphasis on increasing accountability, competition and contestability (Astill, 1999; Patterson, 1996) and fostering excellence through competition (Curzon-Hobson, 2004). The State Sector Amendment Act 1988 resulted in university Vice-Chancellors becoming Chief Executive Officers with university Councils assuming a board of directors role rather than a management role (Astill, 1999). This marked a move away from university management by Councils with an increasing vestment of managerial responsibility in the Vice-Chancellor. Prior to 1998, university Councils held the responsibility for employing staff. With the introduction of the State Sector

[42] Course is used throughout this thesis to refer to a program of study undertaken by a student to achieve a formal qualification from the university.

Amendment Act 1998, Vice-Chancellors were given more executive powers than their predecessors and assumed the role of the employer. Managerial knowledge was privileged at the highest level.

The introduction of student fees and loans with a corresponding push to increase the numbers participating in higher education represented significant change in the university environment. The significant change for universities was not to the way they were funded from government (although annual funding cycles were introduced), but rather the emergence of a more competitive environment with the bulk funding of polytechnics and private providers. New Zealand universities were now operating in an environment very similar to the private sector (McCulloch, 1993).

More recently, the significant limitations of a model of higher education built on a quasi-market model driven by student (customer) preference and characterised by competition and decentralisation have been recognised by government and a new policy framework for the higher education sector has been introduced that at least partly re-asserts the societal responsibility and role of the university (TEAC, 2001). Current government strategies for the tertiary education sector are framed in terms of its contribution to the 'knowledge society' (e.g., Ministry of Education, 2005). The framing documents are replete with references to quality and the associated notion of excellence. While the Tertiary Education Strategy (TES) reaffirms the university's "overall purpose to advance, maintain and disseminate knowledge" (NZ Government, 2002), Curzon-Hobson argues the framework fails "to explicitly engage with the notion of higher learning and its pedagogical foundations" (2004, 217) in the specific context of the university, with the potential unintended consequence of marginalising "critical engagement between teachers, learners and knowledge" (2004, 223). The interdependence of research and teaching is presented as a dependent relationship with quality learning in some undefined way following from research: "unsubstantiated blurring... between what pedagogy and research can provide for the learner" (Curzon-Hobson, 2004. 221) is substituted for clear conceptualisation of interdependence. In contrast, the focus and form of the research function is explicitly identified in the TES as the differentiating characteristic of the university and the strategy established a mechanism to measure and financially reward research performance – the Performance Based Research Fund (PBRF).

The translation of the concept of the university and government policy into practical actions is mediated by policy, rules, regulations and administrative instructions set both within and outside each individual university. Key agencies lying between government and the universities include the New Zealand Vice Chancellors' Committee (NZVCC), which represents the interests of New Zealand's universities. Quality assurance features significantly in the Committee's activities:

> Quality assurance is an ongoing process that ensures the delivery of agreed standards. It uses evidence to check that goals are being achieved and that goals and practices are being reshaped to bring about improvement. To be meaningful it needs documented standards and best practices; the often-quoted yardstick is "fitness for purpose".
>
> The NZVCC exercises quality assurance in two different but complementary ways. Its standing committee, the Committee on University Academic Programmes (CUAP), is charged with setting up and applying inter-university course approval, accreditation and moderation procedures.
>
> The New Zealand Universities Academic Audit Unit (NZUAAU), established by the NZVCC, is an independent body, the chief function of which is to support New Zealand universities in their

> continuing achievement of standards of excellence in their academic responsibilities in research and teaching. (NZVCC, http://www.nzvcc.ac.nz/default.aspx?l=1&p=5)

The government established the Tertiary Education Commission (TEC) to work with the whole tertiary education sector to implement the TES primarily via financial allocation and accountability mechanisms:

> The TEC is responsible for funding the Government's contribution to tertiary education and training offered by universities, polytechnics, colleges of education, wananga, private training establishments, foundation education agencies, industry training organisations and adult and community education providers.
>
> The TEC works with the tertiary education sector to improve the strategic use of resources, enhance strategic capability building and to implement the Government's Tertiary Education Strategy (TES). (http://www.tec.govt.nz/about_tec/who_we_are.htm accessed 9/2/2006)

One aspect of TEC's function is administration of the PBRF, which produced de facto definitions of appropriate research[43]. The impact on this project of responses to these policy instruments as environmental perturbations, is discussed in Chapter 9.

These Acts and policy instruments together largely set the boundaries of the New Zealand university and a New Zealand university frames the Institute.

Massey University and quality

This research was conducted in one of New Zealand's eight public universities. Massey University comprises three separate campuses plus a significant distance student population, enrolling slightly more than 20,000 full-time equivalent students (40,000 students overall). Over 1200 academic staff are organised into more than 40 academic departments with additional non-academic support staff bringing total staffing to approximately 2500; some non-academic staff are located in the academic departments, but most are organised into either multi-campus or campus-based service units that support the departments. Not unlike other universities, Massey has undergone significant changes in recent years including devolution of budgets and accountability from university to unit level; mergers with two other institutions (a college of education and a polytechnic); a major restructuring at the end of 1997; and repositioning and staffing reallocation in 2000 which was accompanied by the loss of a large number of jobs. In 2000-2001, the University experienced a particularly unsettled and adversarial industrial climate following budget cuts affecting nearly 300 staff including the loss of more than 100 positions. Visible public protests, internal controversy over the decision-making processes, and immediate and longer-term negative effects on staff morale were associated with these events (Meyer & Evans, 2003). The balance between managerial decision-making and collegial, academic decision-making was reviewed and reformed as a consequence of the dispute (Meyer, 2007).

[43] The PBRF assessment exercise required each eligible staff member in qualifying tertiary providers to prepare a research portfolio. Peer review panels assess portfolios, and each academic is rated on the quality of their research contribution. Individual results are aggregated with other research performance data to create ratings for each participating institution. Performance in the exercise influences future research funding to the institutions.

The University's Profile[44] 2006-2008 (2005a, 69) notes:

> Massey University is committed to continuous quality improvement in relation to its primary functions of teaching and learning, research and other contributions to society.... It has a commitment to quality assurance and quality improvement not only in terms of its core activities (teaching, research and community service), but also in terms of the infrastructure, administrative and support services that underpin them.
>
> Organisationally, responsibility for continuous quality improvement lies with every staff member at the University.

Administrative responsibility for academic quality is delegated to the Office of the Assistant Vice-Chancellor (Academic)[45], which "guides the University through the development of academic policies, procedures and quality systems for the delivery of programs." At all levels of the University's strategic planning, public commitments are made to quality, excellence and improvement[46], with the most precise definitions of the university's approach to quality offered through the Quality Advancement webpage:

> As a process, Quality is defined as planning and implementing a cycle of continuous improvement. At Massey University, the approach to Academic Quality Advancement is based upon:
>
> System Evaluation: Recognition that 'quality' is systemic and systems, processes, procedures and the interrelationships between them are equally important.
>
> Open Communications: Evaluations and the identification of areas for improvement proceed in an open manner. The importance of consultation and closing the feedback loop is not underestimated.
>
> Data Gathering and Information Management: Emphasis is on gathering accurate information that is valid with an equal focus on quantitative and qualitative data.
>
> Maintaining a Focus on Improvement: The Academic Quality System is a living entity that will evolve and change over time. There is recognition that there are no 'quick fixes' and many of the outcomes from improvement strategies will only be revealed over a period of years. (Quality Advancement at Massey University //quality.massey.ac.nz/index.html)

Much of the improvement activity initiated and coordinated by the staff of the office has been in response to observations and recommendations arising from audits conducted by the NZAAU.[47]

While the Office of the AVC(A) coordinates university wide quality systems, the Profile notes that each Pro Vice-Chancellor is responsible for quality assurance within their college. Colleges are the major functional units of the University.

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[44] The profile is one of several planning and accountability documents that the TEC requires the university to produce as part of its planning cycle.

[45] The Office of the AVC(A) has a professional staff of three: the Academic Policy Manager, Academic Manager and the Academic Quality Manager.

[46] The word quality appears 98 times in the University Profile 2006-2008, excellence 66 times and quality improvement appears four times.

[47] Massey University has participated in three audit rounds: a comprehensive audit in 1996-7 and two theme audits in 1999-2000 and 2003 (see http://quality.massey.ac.nz/Audithome.html for details of the audit processes and outcomes).

The College

> The College is committed to being a first-class research-led institution providing educational experiences that are informed by research and scholarship of the highest international standing.
>
> The key strategies for the College for the period 2003 – 2005 are:
>
> > Growth in revenue derived from teaching....
> >
> > Enhanced standing in research and scholarship, leading to increased 'external' funding....
> >
> > Enrolling a greater proportion of 'the best' students.... [48]
>
> (College Strategic objectives 2003-2005, 1-2)

The Institute was created at the end of 1997, in a period of turbulence in the University. Many structural changes were implemented over the 1996-1998 period including a restructuring of nine faculties into four Colleges. Newly created Colleges formed sub-units variously named as Departments, Institutes and Schools replacing the previous departments. A Pro Vice-Chancellor (PVC) with executive powers over the academic units within the College headed each College. The Pro-Vice Chancellor of the College containing the Institute developed a matrix management structure. The PVC declared publicly his agenda of structuring the College as a collection of research-focused institutes. Responsibility for design, planning and quality assurance of teaching programs and courses, previously linked to faculties and departments, was decoupled from the institute structure and vested with Academic Directors and Program Coordinators occupying 'staff' positions reporting to the Office of the PVC. These positions, while responsible for program quality, have no direct structural links to the staff that actually teach in the programs: these staff are responsible to heads of institutes. For the institutes, research was declared the privileged activity. Promotion and marketing of academic programs was centralised at the College and University levels and removed from the direct control of institutes. At the same time, academic staff within institutes remained responsible for the detailed design and delivery of papers[49].

The Institute is...

Parts thrown together

> ... there was no management of how the groups faired or got together within that group. (Ac6)[50]
>
> ... four groups were put in the same buildings and the institute label thrown over them and that was the end of any effort to create an identity (Ac1)
>
> ... we still had the same directions we had – there's no bonding or overlapping. (Te3)

The Institute was created by the agglomeration of staff from four previously separate departments from two different faculties (A and B). In the reorganization some former departments were split with some

[48] While each of these strategies is expanded, they are the only ones identified for the period.

[49] A paper [or subject] is a specified administrative and educational unit of curriculum broadly defined by level of study and quantity of student work (point value).

[50] Quotes referenced as 'Ac#', 'Ad#' or 'Te#' are drawn from transcripts of interviews with Academic, Administrative and Technical members of the Institute's staff respectively.

staff joining the Institute while others were incorporated into other academic units. Parts of the previous Faculty A had an extended tradition of commitment to teaching with substantial effort directed towards the promotion of undergraduate programs (undertaken personally by the Dean of the Faculty and academic staff), attracting undergraduate students, mechanisms to monitor student views and well-being including student liaison committees and a system of staff mentors for undergraduate students. A substantial proportion of the staff who came into the Institute from Faculty A strongly adhered to an ethic built around student learning promoted through good teaching. Notably, many of these staff had come into the faculty from positions outside the university system in industry and elsewhere. For this group, industry consultancy was seen as an important if minor task; research was of marginal importance and the realm of others. A smaller part of this group of staff, mostly more recent appointments, had followed a more direct academic path from undergraduate study to graduate research to staff appointments into the faculty. This second group had been predominantly co-located in a department that saw itself as part of the university of teaching and also the university of research. The boundary judgements of (most) staff from Faculty A are represented in figure 10[51] and the following quote:

> It is pretty self-evident. The Institute is about teaching and educating students: that is our primary goal and focus. (Ac2)

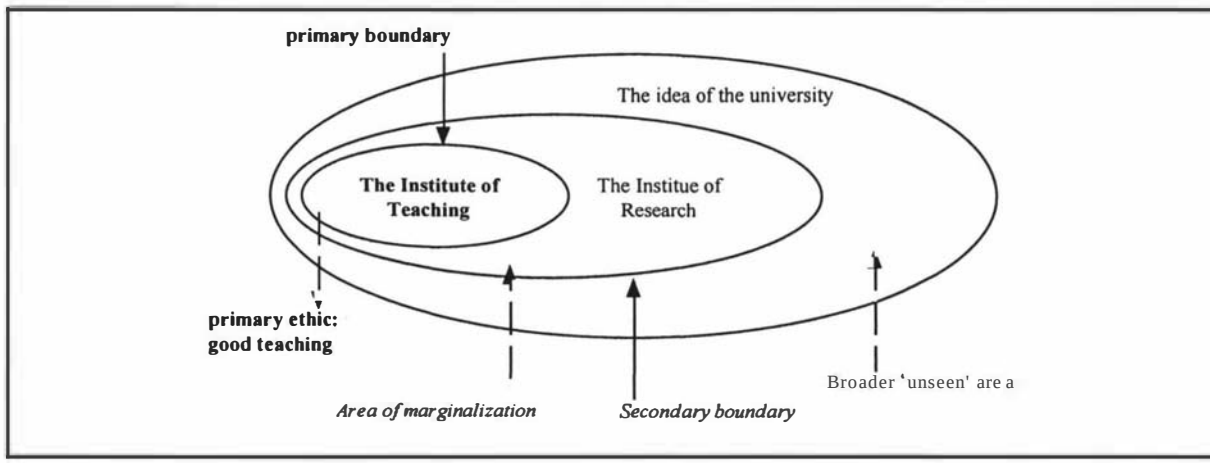

Figure 10: The Institute and university of teaching (and research)

For staff from Faculty A, 'good teaching' was the driving value or ethic of their work and the work of the 'Institute of Teaching', while research was a marginal, secondary activity to be accommodated when their commitment to students, student learning and good teaching had been fulfilled. Faculty B had for some

[51] Figures 10, 11 and 12 were developed following Mdgley's process of boundary mapping which is designed to explore situations where there is potentially a conflict between different groups who have different ethics relating to the same issue and consequently make different boundary judgements. In such situations the narrower boundary is the primary boundary: the wider boundary is secondary. A marginal area lies between the two. The way in which the situation is stabilised depends the value attributed to the marginal area as either sacred (valued) or profane (devalued). The attribution of profanity hardens the primary boundary, while the attribution of sacredness brings the secondary boundary into focus. The whole process is overlayed with social ritual that papers over rather than addressing conflict. The observation of ritual can help to illuminate ethical conflicts in relation to marginalisation (Midgley, Munlo and Brown, 1998; Midgley, 2000).

years been evolving towards a pragmatic form of the image of the university of research through a combination of preference and pressure. The staff who came to the Institute from Faculty B privileged research: a position that echoed the formal, structural rules on which the College and institutes were based. Teaching was something that needed to be done.

> ... [teaching is] not what people hold dear to their hearts.... People generally see teaching as a responsibility - even for many of them an enjoyable responsibility.... it's the means by which the organization earns its 'bread'. (Ac1)

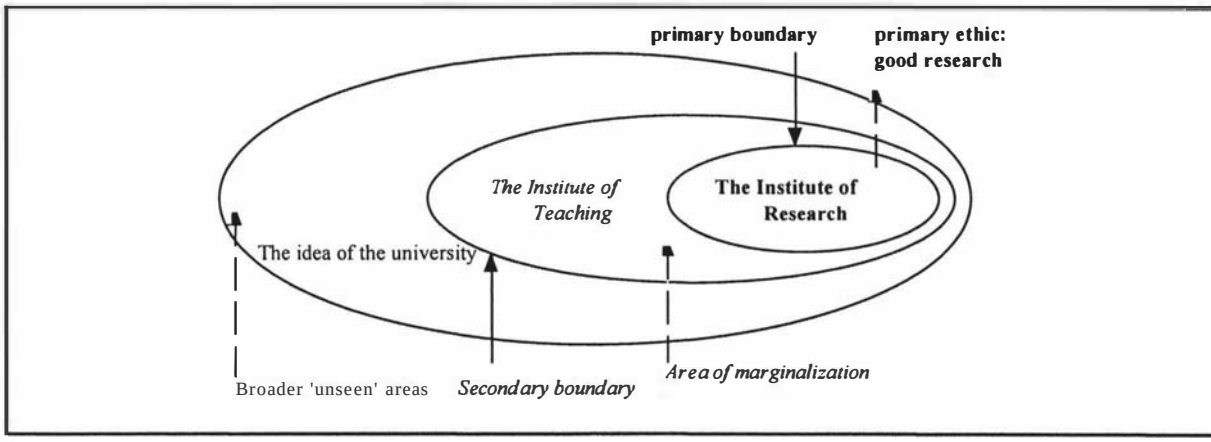

Figure 11: The Institute and university of research (and teaching)

For staff from Faculty B 'good research' was the driving value or ethic of their work and the work of the 'Institute of Research', while teaching was a marginal, secondary activity to be accommodated around their commitment to research and to the community of the research discipline, if possible (see Figure 11).

The creation of the Institute brought together different ethics in the one organizational unit. While many academic and support staff adhere to the ethic grounded in the university of teaching, senior academic managers within the Institute promoted and privileged policy and action that focused on the ethics of the university of research and academics-as-researchers.

> We've been given this goal of being a research institute and at the same time having teaching responsibilities. (Ac27)
>
> The Head of Institute has driven research as something for academic staff to do. (Ac2)

The interactions between these ethics and the consequences are the subject of a later section.

Resource constrained

> When you've got students pouring in and your greatest problem is what to do with them – it's easy to see and feel your self worth. ...with a falling roll and desperately trying to find students that's totally different. (Ac4)
>
> ...we don't have many students – which is a shame. You're worried all the time. Other stuff comes along like outside contract work but I always have the feeling that that's not what I'm here to do. It brings in cash but I'd rather be spending my time with students. (Te1)

> I think the problem we have is the student numbers going down is a depressing factor for everyone and makes people wonder if their jobs are going to be safe and that does put people into survival mode. (Ac2)

The Institute operates in a resource-constrained environment. Base funding from government - mediated by allocation decisions by the University and College - is linked to and dependent on student numbers. As undergraduate student numbers have declined the Institute has been under budgetary pressure. At the same time, the Institute has responsibility for a defined and increasing quantity of teaching activity. The number of 'paper offerings'[52] that the Institute provides determines the teaching workload. The two factors of student numbers and paper offerings are decoupled as the requirement to offer a paper is determined by course curriculum structures established in university regulations, and not by direct student demand. A threshold measure determines if a paper offering should occur: if one student needs to take a paper in a part of a prescribed course[53], then the paper must be offered. While undergraduate student numbers have been in decline, paper offerings have increased as shown in Table 5, partly as a consequence of courses being introduced in new locations. In most cases new course offerings have attracted only a few students and limited income but created additional teaching workload.

	2000	2001	2002	2003	2004
EFTS Undergraduate	n/a	427	368	357	410
Total	450	527	447	455	512
Paper offerings (approximate)	n/a	n/a	255	261	270

Table 5: EFTS and paper offerings

Research provides a second but largely unpredictable and uncertain source of income. Most research income is dependent on successfully competing for external research contracts. As Table 6 shows, the relationship between the number of projects and the revenue from them is not linear.

	2000	2001	2002	2003	2004
Externally funded research projects	34	34	27	41	
Research revenue (million $)	1.638	1.302	1.116	1.324	1.243
% of total Institute revenue	N/a	16	16	18	14.7

Table 6: Research projects and revenue

[52] A paper offering is the delivery of a paper to a specific group of students in a particular mode (internal, extramural or block), at a particular location during a particular teaching period –Semester 1, Semester 2 or Summer School.

[53] A 'part' of a course is the prescribed combination of papers for a full-time year of study towards a qualification, e.g. Part 1 is the papers that must be undertaken by a full-time student in their first year of study.

The financial viability of the Institute is intimately linked to its ability to attract and keep students. An internal report produced in 2000 concluded:

> ... increasing the number of students on our current under and post graduate programs is by far the most lucrative activity staff can involve themselves in whilst the Institute is in the current situation.

A focus on attracting and keeping students was recognised as critical to financial survival and several marketing initiatives were begun, but student numbers continued to decline. The issues appear to be more fundamental than 'poor marketing'.

Is the Institute doing the right things right?

This research was partly prompted by doubts and disquiet – both my own and those of others - about whether the Institute has been doing the right things and doing them right: a generalised lay definition for quality. The structures and processes put into place for the Institute seemed not to focus on producing quality outcomes. Structure and process place real constraints on how stakeholders construct systems of meaning. At the same time, processes and rules are created, interpreted and enacted by people in and around the Institute. Systems of meaning arise from interpretations of process and structure that are influenced by culture, values, norms and established practice. Bowden and Marton (1998, 15) note that:

> Since collective consciousness is, to a large extent, an awareness of different and complementary ways of seeing, we need to develop a richer, more flexible understanding of the world around us with greater potential for new ways of seeing to evolve, without blurring the precision of specialized, particular ways of seeing.
>
> This line of reasoning presupposes respect for different and complementary views of phenomena or situations, whether these views are expressed by students or by our colleagues. This celebration of diversity and variation is closely linked to the ethical stance that although certain ways of seeing certain things are more powerful than others in certain situations and in relation to certain criteria, all the different ways not only contribute to the richness of our world, they constitute that world.

This argument points to the value of the systems approach and to the importance of boundary critique. The systems of meaning that stakeholders bring to their understanding of and actions in the Institute contribute to the development of stakeholder specific action areas that "determine ... the client, issues, dilemmas of concern and purposes to pursue" (Flood, 1999, 92). These action areas act as frames, which both are constructed by and help construct meaning. They play a similar role to that which generative metaphors play in the problem setting process (Schön & Rein, 1995). The following sections explore systems of meaning through participants' perceptions of 'what the Institute is like', 'the most important work that the Institute does', 'how well it does it' and 'what it should do'.

For staff, the Institute ....

is about people

> I enjoy working here because of the people more than anything else. (Te3)

When asked to describe what the Institute is like most participants immediately focused on the diversity of people in the place and interactions between them. Interpersonal interactions were generally seen as benign, informal and relaxed. People are generally friendly and cooperative. One participant described the interpersonal environment as: "... adult. Most people are not into the childish games you get in some places" (Ad4). Most people were seen to be "generally supportive of one another - wanting to do a good job, wanting to be helpful" (Ad5). Some participants without prompting explicitly used the metaphor of family:

> It's a little bit familyish – in the sense there's a lot of interaction between people – some of them easy, some of them less easy. (Ac1)
>
> ... it's a reasonably happy family, which perhaps amazes you. There are a few little outcasts but you always have the drunk uncle at the wedding. (Ad2)

When others were asked if 'the Institute is a happy family', responses varied from tentative acceptance to rejection:

> yes – to a certain degree – not everybody is like that .... (Ad5)
>
> [people don't] necessarily run around praising each other. There's not a feeling of 'lets all join together'. I don't think we're an unhappy family ... [but] everybody seems to want to hold on to their individual bit. (Ad3)
>
> There are some people who want to be alone in their own corner but nobody could do much [about them] wherever they were. (Te2)
>
> No. We get along socially reasonably well but no-one is making any effort to do anything extra-curricula and if they do many of us don't attend anyway. We don't seem to gel socially. (Ac27)

A recurring unprompted theme was references to academic staff as groupings or collections of individuals

> ... all having different spheres of interest. (Te1)
>
> ... with not a lot of cross-disciplinary interaction or interest in many cases. I think from that point of view we've actually moved backwards and I don't necessarily like this individualistic attitude by many of the staff in terms of their research. (Ac4)
>
> ... largely composed of middle aged males, a bit less energetic than it should be, not really functioning as an institute per se. I sometimes think we're not all on the same team. I don't think we really have a sense of belonging (Ac5)

Part way through the interview process, one contributor made an observation characterising the Institute's academic staff as a "community of engineering educators". That comment did not ring true to me as an interpretation of what the place was like, so the concept as a possible description of how academics saw themselves was subsequently put to participants. Technical and administrative staff mostly doubted its appropriateness revisiting the themes of individuality and isolation, and questioning whether in fact academics saw themselves as educators:

> I would find that description inappropriate. I don't think our disciplines interact enough to fulfil that description: I don't think within the disciplines they would either. (Ad4)
>
> No... sad but it is a fact - I don't think it happens that way. Giving lectures – does that make them educators? I don't think so. (Te2)
>
> I'm sure [academics] see themselves as educators – as a community: I'm not sure. I suppose they are – they're all gathered together in one building – is that all a community is? It doesn't quite strike home. It's not a real sense of community (Te1)

Academics also provided a spectrum of, in some cases, contradictory responses.

> Some do, but the fact that I could specifically name those people suggests that they're in the minority. (Ac1)
>
> No. It comes back to the faction thing but within some of the factions it might be true. (Ac22)
>
> We're closer to being a community than not being a community. We're a fairly diverse –it's like any community – you get on with some better that you get on with others –outright fights with some people – there are some mongrels amongst us. (Ac27)
>
> Some of us do, some won't. ...There would be a few who wouldn't see themselves as educators. (Ac5)
>
> It's a community of educators – that's closer to the truth. We do see ourselves as educators. As a team of people we are here as educators primarily not as engineers educating. (Ac4)
>
> Most see themselves first as engineers or technologists but most also see themselves as educators. If I take my own perspective I regard myself as an engineer primarily and foremost. But I also regard myself as an educator and open to different ways of trying to get across different aspects of the teaching that I do. (Ac2)

Much has been written about academic cultures and values (Silver, 2003). Sharrock (1998) has argued that universities contain five 'tribes':

> Students, who are traffic through the place – they're here on their way to some other destination
>
> Academics as teachers, who work <u>in</u> the place for students
>
> Academics as researchers, who work <u>out of</u> the place for themselves, their discipline and others
>
> Support staff, who work in the place for their 'boss' or other clients
>
> Managers who work in the university for the University.

I invited staff to share their responses to this possible description of how staff and students relate to the Institute. Virtually all initially agreed that it is an accurate description of the place and that all of the 'tribes' were identifiable in the Institute, although one staff member rejected the image completely: "I don't really see the tribal metaphor suitably describes the behaviour characteristic to me. It actually begins to induce a sense of win-lose, competitive savage"(Ac3). For others it is "a controversial but reasonably true reflection of the way that academics work" (Ac4) and "the word tribe is very well used" (Ac6). On reflection several modified their initial reactions noting limitations of the representation:

> Like any classification it works for some things and not for others and it implies the lack of ability to be in more than one or to move across at different times. What you will find is people who move between those classifications depending on the time of year, of point of career. (Ac27)

Several noted particularly that in relation to academic staff that many 'bridge across' the two tribes:

> I can identify [academics] who sit in each camp and I can identify people who sit in between or bridge over – one foot in each camp. (Ac2)
>
> I don't think it is an 'either/or' – Academics do bridge the gap: I'm part of both (Ac4)
>
> When I think about researchers ... I think they are equally committed to their undergraduates and their post graduate students. So they would have to sit in both camps and bridge across. (Te1)

At the same time there were clear patterns of responses in people's perceptions about which tribe and their values are dominant in the Institute. Academic staff consistently commented on the dominance of

the academic-as-researcher ethic. Administrative and technical staff saw both the managers and researchers as dominant. All identified common structural causes for this perceived dominance:

> The difficulty comes through the promotion system. (Ac5)
>
> The research side predominates [among academics] because it has to if you want to climb the scale.... (Te1)
>
> You've got to do research more than teaching to get anywhere. (Ad1)

There was also a consistent view of the consequences of the dominance of the academic-as-researcher ethic:

> ... you get conflict over research for their own promotion and own gain. (Ad4)
>
> ... the majority of people are doing individual work. I'm not sure if it is strengthening the Institute or not. Everybody is pulling in their own direction and the Institute in the middle is being stressed. (Te2)
>
> ... unfortunately it's not a coordinated approach. Here we've got individuals pursuing their own interests – little pockets of disjointed research. .... It's not doing anything for the Institute out there in the big wide world of the private sector. It's not being used to attract students. (Ad3)
>
> ... my first experience at the university was one of collegiality and consultation and I really enjoyed it. ... I was part of a good team that felt good to be working with that included the management.... Now I don't feel that, I don't feel that team. ...it's just not such a good feeling at all. (Ac6)

Individual research-active academics were seen to benefit from the dominance of this ethic, while the Institute and collective culture do not.

does the important work of ...

For the clear majority across all groups, immediate strong responses focused on teaching and preparing students for their futures as the most important work that the Institute does.

> Our role is to educate. ... That's the reason for being here. (Ad4)
>
> ... if we're not here to teach students then I can't see what point we have to be here. (Ad5)

This was seen as the area where the Institute as a place of learning can have the greatest impact on the greatest number of lives. There, however, were differences of emphasis on the boundaries around the nature and scope of preparation that the Institute should be responsible for. While some focused on preparation for work and contributing to the economy "... so that they can go out into the workforce and be immediately useful" (Ad2), others took a wider view: the most important work is "very successfully preparing young people to go out and contribute to society" (Ac22).

Most acknowledged that research is also important but not as important as teaching and serving students, while others acknowledged that:

> ... teaching, research and maintaining external links] are all of equal importance to the Institute: that's what we do. Some will think teaching is the most important by a long way, others will say that about research which is good for the Institute because it shows we have diversity of interest and talent. (Ac5)

Some wider perspectives were also offered on the Institute's most important work: "... continues to learn. The Institute as a body of people continues to learn and apply our knowledge through its teaching and research" (Ac3). Clearly there are differing values, beliefs and attitudes in play within and around the Institute. It is not an environment that is likely to be positively influenced by interventions that assume a unitary culture.

lacks direction

Most respondents were clear about the consequences of the interactions of the multiple views of the Institute: the Institute had not achieved its potential. The Institute had not successfully negotiated its own place and future direction and was seen by several as marking time and surviving on reputation:

> ... it has *an air of a slightly degenerated colonial institution* – something that has been greater in the past and is less than what it was. It doesn't quite have a purpose or direction other than just continuing because it's there. (Ac1)
>
> ... a bit less energetic than it should be, not really functioning as an Institute per se. I sometimes think we're not all on the same team. I don't think we really have a sense of belonging. (Ac5)
>
> .... there's no desert island – no-one can see the island: it's either sunk or we're all just too far away. ... 'rudderless ship' springs to mind. (Ac3)
>
> The strategy is not clear, the target's not clear, If people can't see the target how can they hit it? You can't reach the island unless you know where it is. (Ac5)
>
> [The Institute]'s dysfunctional. It has no specific focus. .... At the end of a day here, you would have no feeling of aim, objective or purpose – no feeling of the linkages between staff members. (Ad3)
>
> I don't think there's been any direction ever. (Te3)

When questioned further about the vision and direction the responses were unanimous: the vision has not been clear or collectively negotiated since the creation of the Institute.

> The first HoI thought he was developing a vision but it was never played out then restructuring the only vision was 'chop a few people out' (Ad5)
>
> We seem to take 90 degree turns quite often. If we have a vision statement, I haven't read it. (Te1)

The Institute had established formal vision and mission statements, but very few respondents made any reference to them. Some were aware of various official documents but noted substantial reservations:

> We've got a mission statement and a ten-year plan... but I don't think we have the same ownership of that vision that we used to have. It may just be that we haven't sat down as a big group and talked it over. ... (Ac4)
>
> But I wonder how many could actually tell you what it is – how many have really read it. Is it too complex? I don't know.... It could be anybody's. (Ad2)

Since its creation the Institute has had three Heads and some extended periods with the position occupied on a temporary, acting basis. The lack of continuity in leadership from the Institute's senior position and the differing styles of the various occupants were commented on by most participants:

> At the [creation of the Institute], I thought [the academic groups] could fit well together but they needed leadership and that was what they didn't get. (Ad5)

> The previous HoI wouldn't have placed much importance on views of those working for him. (Ac22)
>
> Head of Institute wasn't good at staff forum type communication. (Ad4)
>
> I think we've [had] uninspired leadership. (Te1)
>
> ... we've been politically weak.... we're not doing the internal politics of the university very well. I don't think the previous HoI was very good at the internal politics. (Ac27)
>
> The previous HoI was too much keep the ship on course, rather than 'where should we be going?' – 'a good employee' might explain it or just someone struggling with a complex problem at that time. (Ac22)

The Institute has not successfully developed a clear collective identity and direction for itself nor projected itself effectively beyond its own boundaries. The interests of individual academics consequently dominate the culture of the organization: for many, to the detriment of the Institute as a whole. Most respondents saw this as detrimental and an impediment to the pursuit of quality in the place.

For staff, quality in the Institute means...

Earlier chapters have reviewed the literature on Quality Management (Chapter 3) and particularly in relation to higher education (Chapter 4). An argument was developed indicating the need to explore local, contextualised definitions of quality as these have potentially profound implications for the management of quality. To re-cap briefly, industrial QM encapsulates and is built on:

- the central importance of a highly developed and publicly articulated customer focus;
- participation by people to achieve real control and improvement of critical processes/systems;
- management commitment, leadership and modelling as the catalyst for organizational change;
- the need for clearly articulated organizational purpose and directions as the basis for planned, systematic improvements; and
- a focus on changing organizational culture towards collaboration and teamwork, not just the application of techniques for process control and incremental improvement.

From the preceding discussion, it is apparent that several of the defining cultural characteristics associated with QM – leadership, organizational purpose and collaboration and teamwork - were seen as underdeveloped in or absent from the Institute. These observations were provided largely without prompting and without the conversation being explicitly steered towards issues of quality. When asked to comment on quality in the context of what the Institute does and how it does it, most respondents immediately and, in some cases, very forcefully rejected the notion that the Institute has customers, particularly in relation to teaching. "It just philosophically describes a completely different relationship to that which I think is beneficial to the students" (Ac3). "This is not a shop! I don't like that word, I don't like that word at all: it's a horrible word. ..." (Te1). Some saw the term far more neutrally as recipients of a service, and as an acceptable but partial description of the relationship with students. The concept of customer is clearly problematic in this context. Teaching as the Institute's most important work framed initial discussions of quality.

in relation to teaching

Almost half of the responses focused most immediately on quality of outputs and outcomes: the ability of graduates to perform in the workforce with two extending to include positive employer feedback as the measure of quality.

> [Quality is] when employers come back and say 'those graduates of yours are pretty good, the sort I want in my company'. (Ac5)
>
> ... getting feedback that these are such positive people – they know lots of stuff but they're also prepared to roll their sleeves up and learn more and get stuck in as part of a team – in other words happy people. (Ac6)

Other responses focused more directly on quality as the effects on students as individuals:

> ... who leave here with good memories of the place and experience and a reputation that facilitates their employment or self-employment – hopefully at a level that continues to challenge them and keep them good humoured. (Ac3)
>
> ... thinking educated students who have a value to society. (Ad4)

Quality was defined predominantly in terms of outcomes and outputs: the value added to or gained by students. A few respondents also commented on important aspects of the student experience:

> It's important to develop a good esprit de corps within the group – a sense of belonging to the Institute and program. (Ac27)
>
> ... the teachers we have here – the lecturers understand where the students are coming from and teach them accordingly to get them through to the level that's appropriate for their subjects. (Ac2)

Others raised issues and reservations around the process of learning and teaching:

> ... the standards, the peer review of teaching outputs are being done well enough – those things happen almost automatically. ... the teaching environment and teaching methodologies - do we make the most of best teaching methods... I'm sure we don't. (Ac1)
>
> The mode of delivering is very important – especially the use of technology - not the use of old brown transparencies. (Te2)
>
> ... we're resting on our laurels in terms of education. (Ac6)
>
> ... we're not doing the right things right – the outcomes we're producing for students are OK because they've been based on reasonably good interactions in the past but we can't just sit back and let it drift. (Ac27)

On one aspect the responses were close to unanimous: the Institute is not seen to have a culture of improvement in teaching. Teaching quality was seen to be under control but not being advanced systematically.

in relation to research

The definitions/perspectives of quality in relation to research crossed spectrums of research as output of new knowledge and quality as peer approval, through research as problem solving and quality as satisfied research clients, to research as a collective learning process and quality as "groups of people who are enthusiastic positive and happy ...working well together and as a result of that good outcomes of research come" (Ac6).

Notably research as product and quality as 'peer approval' and the "number of insights one gains that enable breakthrough solutions" (Ac27) were identified with 'fundamental research' and several staff across all groups suggested strongly that this is not what the Institute does or should do: "we're much more applied" (Ad4).

The most commonly expressed view was that research is applying sciences and technology to solve problems, quality is research that has been competently handled and shows significant benefit to the customers of that research and the measure of quality is "how useful or otherwise our research is to political or industrial customers" (Ac1). The indicator associated with quality research or the more commonly used synonymous term 'consultancy' is "demand from industry for our services" (Ad4), companies coming back for more research and "how much money we can attract" (Ac5).

in relation to other aspects

Comments about quality also drew other dimensions of the Institute into focus with quality issues raised in relation to the buildings and equipment and the general environment that the Institute offers for staff and the general quality of work. Links were also made to concepts of viability and meeting the University's financial expectations of the Institute. External perceptions were also mentioned as an important dimension of quality with the need to project the Institute's points of difference. The network of aspects and interconnections contributing to quality were captured in two incisive comments:

> Quality depends on a structure that supports both teaching and research equally well. If you've got happy staff who are excited and fulfilled in what they're doing so far as research and teaching is concerned and you've got students who are motivated and happy and so on as a result of that, then I think you've got a quality product. (Ac6)
>
> Quality is an all-encompassing attitude. (Ac3)

Quality in the local context of the Institute is seen as fundamentally grounded in the attitudes and values that people bring to the place and the meaning that they bring to their work.

Tensions and challenges around meanings

What is notable from the stakeholder accounts is that while there is broad agreement that quality is a concern, there is little agreement between stakeholders about what exactly the issues are or how they should be resolved. Such disagreements reflect different images of the organization, its boundaries and its key functions informed by the various interests and values of stakeholders. Exploring and clarifying boundary judgements is a prerequisite for deepening systemic appreciation as West Churchman notes: "the systems approach begins when you first see the world through the eyes of another" (cited in Flood, 1999, 63).

Tensions can arise from the existence of multiple boundaries, which create different ethics, defined as "values in purposeful action" (Midgley, 2000, 143), that draw on different interpretations of the purpose of the organization. Given multiple ethics and the possibility that the nature of the problem is contested, no single perspective is sufficient to grasp the complexity of the system.

In terms of Midgley's (2000, 143) argument on boundaries, the 'institute of research' constitutes the narrower primary boundary in which the institute is organised: it is formally framed by the 'college of research'. The College attempts to structure some of its subsystems – the institutes - in its own preferred image by overemphasising its own importance as research-led and researcher-centred and downplaying other contextual considerations and possible boundaries. The allocation of resource, effort and recognition accords with the values and interests of the academic-as-researcher in the 'institute of research'. The most effective and valued use of resources is to support research projects. The broader, secondary boundary – the 'institute of teaching' - encompasses the interests and values of the academic-as-educator. Both groups value research: it is sacred. However, conflict arises over teaching and in particular undergraduate teaching. For academics-as-educators teaching is a valid activity and student learning is a valid outcome. Some academics-as-researchers devalue teaching as a distraction from research:

> ... most people take their formal commitments fairly seriously and turn up when they are supposed to. Having said that, it doesn't stop people going overseas when they want and ignoring that. (Ac22)

In the language of the Institute, academic staff have teaching 'workloads' and pursue research 'opportunities'. The academic-as-educator ethic is devalued and discounted: teaching is a marginalised activity in some cases off-loaded to graduate students (apprentice researchers) as a means for them to supplement their income. Requests to appropriately recognise teaching and those who make them are declared profane.

> I think there is a tension and conflict for two reasons: depending on the choice that you make as to where to put your energies it influences a number of other things. If you put your energy into teaching then you tend not to get the sort of recognition that management is looking for from the University's perspective.... those who are getting out the research papers and putting a lot of effort into research in some cases – not all – but some put very little time or effort into their teaching. (Ac27)
>
> I think the way it's managed at the moment separates people – because the people who research get the credit and those who teach don't get much credit at all – it tends to split people into two camps. (Ad5)

Most people saw the undervaluing of teaching as an issue spanning beyond the Institute.

> I think that [teaching is] undervalued is a university problem not an Institute problem – I suspect we're no worse or no better than any other group. (Ad4)
>
> ... whatever the university says about teaching being valued, they don't do very much about it in terms of promotion. (Ac4)
>
> You know that every hour you put into [teaching] is another hour you could put into your promotion or salary application – that's not going to count for anything on that. That's a bit soul destroying really. (Ac6)
>
> Staff are expected to do 30 hours of courses on teaching: that's the extent we insist on training for them. We have SECAT[54] for giving feedback on teaching abilities – we have small numbers of

[54] Student Evaluation of Content, Administration and Teaching (SECAT) is the University's instrument and process used to obtain student opinions about their educational experiences.

> teaching awards – usually at Institute level or lower – we have no serious desire to promote people on their teaching abilities. ... (Ac5)

Conflict between different ethics is managed through ritual rather than real acknowledgement of the university of teaching. Language rituals are evident in the College-level rhetoric of "research-led teaching" without definition of the term, and the rhetoric of the university's promotion systems where nominally "teaching and research are defined as equally important" (Massey University, 2000)[55] but where the predominant perception is that they are not.

The methods used in the allocation of academic staffs' time between teaching workloads and research opportunities can also be seen as a ritual activity: the method applies a formula to quantify nominal loads with little formal consideration of staff teaching expertise or interest. The trajectory followed by responsibility for allocation of teaching loads is noteworthy and, perhaps, indicative of the importance attributed to the task. When the Institute was first established that responsibility was held by an associate professor. It then passed to a senior lecturer. At the time of writing, allocation of teaching responsibilities lies with a member of administrative support staff who applies the formula. This stands in stark contrast to the identification and exploitation of research opportunities, which is seen as a key academic responsibility and role of the Head of Institute.

The department's teaching awards also can be seen as a ritual: while the awards were established to recognise teaching excellence, for the first few years of their operation the recipients received funds specifically earmarked to support research. Several participants noted the irony of that situation. Quality of teaching is monitored through a University-wide standard method of student evaluation of teaching, Data is collected, collated and distributed but rarely acted upon. Acknowledgement of good teaching is rare. Formal activities to improve teaching are also rare.

The rituals acknowledge but fail to resolve two tensions arising from the differing boundaries. The first tension is that academics-as-teachers and academics-as-researchers value different professional practices, different outcomes and different forms of recognition of success. For academics-as-teachers the measure of success is student achievement. For the academics-as-researchers the measure of success is personal contribution to the body of knowledge and recognition by their peers within the discipline. The rhetoric and ritual of promotion systems, student evaluation of teaching and teaching awards paper over the tensions. The second tension arises out of core academic values: autonomy and academic freedom. Academics are able to practice in ways that best represent their interests; consequently, neither another academic nor other non-academic "expert" is able to dictate how an academic may practice. As defined in legislation academic freedom has multiple dimensions, but academic freedom associated with research is privileged. Yet when the underlying boundary judgements are considered, the notion of research expertise as an organising principle becomes problematic. On further reflection, research "expertise" does not

[55] It is notable that by 2004 the wording had changed to read "teaching and research will be given primary importance" (Massey University, 2004).

represent a sufficient means of organising the activities of the Institute when issues such as efficiency, effectiveness, fairness and future viability are examined.

Discussion

Intersecting interests at the interfaces of teaching and research seem to be recognised only through the College-imposed rhetoric of "research-led teaching". But these intersecting interests potentially offer an alternative focus for establishing a shared ethic as a common underpinning for the work of the Institute. In practical terms, the intersection of teaching and research is important (Figure 12).

The institute of research is dependent, particularly financially, on the institute of teaching for continuity. The Institute's primary source of income is teaching: the Institute's technical and administrative staffing and infrastructure is funded predominantly from teaching related income but provides support to research. The institute of teaching also supports the institute of research by preparing, nurturing and encouraging potential new entrants to it: new graduate research students are taught 'the fundamentals' of knowledge in their undergraduate experience and are inculcated with the frameworks of understanding of the discipline on which the work of the institute of research builds. The institute of teaching also introduces students to the process of research. Teaching provides continuity of resources and infrastructure to counter the uncertainty of income of the institute of research. This highlights the socially constructed nature of the institute of research.

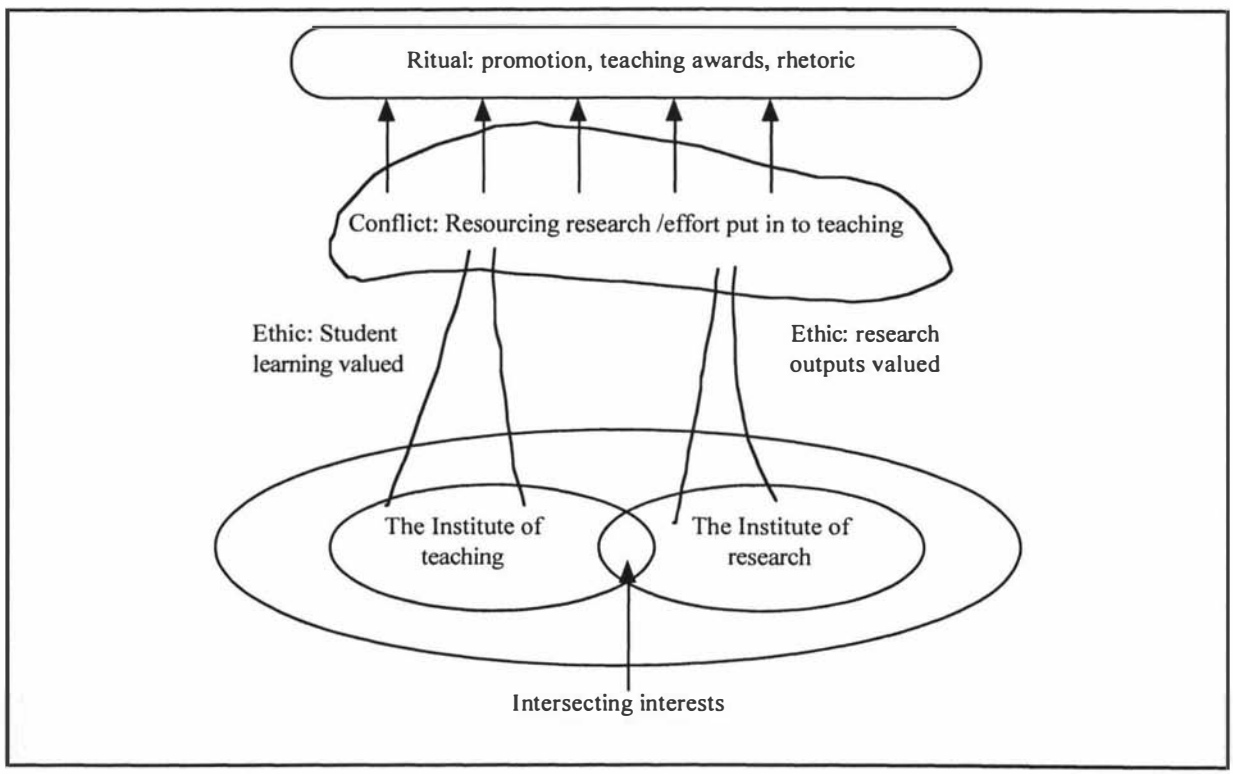

Figure 12: Intersecting interests - an alternative focus point

In Ulrich's terminology, academics-as-teachers, and potentially students in the Institute, are the affected but not involved: others make decisions about them. Such a system is coercive despite the ritual and rhetoric around the importance of teaching. Resource allocations and rewards strengthen a researcher-centred operation by marginalising teaching as a legitimate and valued activity, hence marginalising those staff who adhere to the ethic of academics-as-teachers.

The defining public statements of the purpose of the Institute (at the commencement of this research) were contained in its strategic plan:

> [The Institute will...]
>
> - achieve recognition nationally and internationally through the production of application oriented intellectual property, the education of outstanding graduates, and the delivery of client driven continuing professional development courses.
> - continuously improve our research, teaching, technology transfer, management skills, and support systems. (Institute Strategic Plan, 2000)

These goals of the Institute were to be achieved through functions of research and teaching and through continuous improvement. As noted above, however, participants unanimously agreed that the Institute did not have a culture of improvement. Equally most were either unaware of or uncommitted to these public declarations of purpose. Most participants suggested that despite public declarations of commitment to teaching and research, the reality was that research was being promoted as the pre-eminent activity.

If as argued above the system privileges research and acknowledges the place of teaching only through rhetoric, do the perspectives of students support this view? How do students see the place?

For students, the Institute is...

As noted in Chapter 5, several focus groups were held with students in their later years of study to gain their views on what the Institute is 'like'. Students were given some thinking time to note down their responses to framing questions and then invited to share their observations and discuss and expand on the contributions made by members of the group[56]. For a small number the place is: "just a university"; "where we have a computer and library etc. facilities available. Doesn't involve much interaction or further deeper communication". Others presented striking, far less neutral images:

> ... a machine where cultural mannerisms are forced upon students to conform with standards set by the University.
>
> ... a big money grabbing machine for churning out professionals.
>
> ... a money making machine ... we are shoved in one end, after being extracted of cash, given a study guide, told to buy and read a book and then are tested on it. Lecturers rarely add any value to the knowledge available in the textbook.... Then we are sucked out the other end, exhausted, disillusioned and sometimes none the wiser....
>
> ... more interested in saving money than providing choice/appropriate courses.
>
> ... an unorganised circus, with little communication across campuses and between staff and students.

[56] The comments presented in this section are drawn from the written contributions of students. Underlining and capitalization for emphasis is reproduced from the comments.

> ... a sheltered workshop for academics that could never work in industry because they have no people skills (not true of all).
>
> ... a paper printery where the staffs' top priority is their research and publications, students are an inconvenience and teaching something they have to do as part of their job descriptions.

The students strongly suggested "the place is in denial", "on a downward spiral", "... a sinking ship. Not satisfying students means they don't give a good impression of the place to possible new entrants." The language used by most students was emotive with the place described as "dysfunctional"; "disorganized, non-communicative, uncaring, unethical"; "unorganised & vague". It was described as "not fully aware of the value of its students. It needs to help its clients more instead of making them feel like income and that's about all". There was a clear theme of the need for "more organization by the organization." Several participants expanded on the dominant theme of disorganization particularly, and unsurprisingly given the main focus of their experience, in relation to their courses of study and individual papers within courses.

A substantial strand of criticism related to the ineffectiveness of communication channels between the Institute and students. While two acknowledged that mechanisms were in place for staff-student liaison, one of them observed "the COMMITMENT is not there". Most others seemed unaware of the communication systems in place identifying the need to have "a pathway for discussion about complaints about papers available, and that these are followed up". The issues of commitment, or lack of it, to quality of student learning was a significant issue for students.[57]

Quality is about the most important work - learning

In response to questions about quality for students, most commented in terms of what their courses should be like in contrast to what they perceived they were experiencing. Again issues of commitment were prominent and underlying themes of unfulfilled promises and unclear expectations dominated the discussion in the groups. Quality is:

> ... provid[ing] education in a systematic and organized manner with assistance provided where required"
>
> ... the university fulfilling its commitments to provide practical and theoretical learning
>
> ... students knowing what is expected of them and then being set reasonable, achievable goals that don't change in the brief or weighting during completion
>
> ... to come away feeling they were seen as a person, as an individual - not as someone inferior.

Themes of clarity, balance, consistency, adding value and integration recurred throughout both the written comments and the group discussions.

Many students noted than in terms of the most important work for staff a tension exists between teaching and research. A few commented exclusively on teaching and the need for improvement in that area, but

[57] An experience after one particularly vocal focus group provided validation of the student views on this issue. With the students' permission, I briefed key staff on the dominant issues raised by the group. The response from several staff members was to downplay the concerns as "whingeing" by a few disaffected individuals.

most commented on the need for staff to do research to "ensure that what they are teaching is current and valid". Some of the more critical contributors noted that the "actual focus of staff is personal research".

Participants provided wide-ranging suggestions for improvement from "flatten the place and start again!" to "provide faster computers" to specific items such as "staff delivering what it says in paper outlines". Communication, professionalism and cooperation, and promoting student participation for active learning all featured as areas for improvement.

While only relatively small numbers of students participated in the focus groups and this account could be criticised as presenting the views of the disaffected, the student views were notably consistent with those of staff. The parts of the place were not seen to be functioning well together.

Is the Institute a well-oiled machine?

> No, I don't think the continuity is there, the machine doesn't work quite perfectly. (Ad2)
>
> Rather a collection of dissociated parts ... – many of which seem to be totally isolated entities (Ac22)
>
> ... it is so broad that people don't know what other people are doing. (Te2)

As noted earlier in this chapter the Institute's approximately 50 academic staff in 2004 taught into approximately 270 paper offerings[58]. Teaching and teaching-related responsibilities nominally form the bulk of the workload for most academic staff. In the same year, staff provided research and consultancy services to many organizations and undertook substantial research projects. Given the quantity and diversity of work done, the bounds to process and issues around purpose and meaning, it is unsurprising that some see that the machine does not work perfectly. Some staff indicated that issues around what the Institute does and how it does it originate from the organizational rules influencing the design of the machine:

> ... the responsibility for academic quality is separated out from the Institute, and so it comes down more to individuals addressing those issues than it being a collective responsibility of the Institute. That comes down to the structure that has been put in place from the college, which causes that lack of direction. (Ac2)
>
> ... the rub is research-focused Institutes (Ad4)

If there are perceived problems with the design and operation of the machine, how might they be clarified, structured and solved?

To improve quality

Participants were keen to offer their opinions on what should be done to improve what the Institute does and how it does it. Some suggestions were pragmatic responses to immediate concerns about viability and focused on better marketing to attract more students: "We need 'wizzy' stuff to produce a leading edge

[58] That these figures reflect the best information available but can be approximations only points to some of the challenges in operating the machine.

image" (Te3). Others mostly related to redefining what the Institute should be producing and how it should be producing it.

> We should be educating people to define the nature of the job – that's success, that's quality. (Ac3)
>
> We've got to develop the opportunity for students to learn and it has to be a two way thing –it is time consuming but one of the ways students really learn is through communication with lecturers in a learning relationship. (Ad5)

A fundamental concern was to improve communication and information flows in the Institute to "get the right people talking" (Ac1).

> The only way we can move forward is by getting people together. (Ac22)
>
> ... leadership from the top and communication. [I]t would help us to do better if people talked about things more. (Ad5)

Participants intuitively recognised the inseparability of systems of meaning, systems of structure and systems of process. They noted that a change in culture towards getting people talking is at least partly dependent on the creation and promotion of formalised opportunities and forums for people to have input to planning, exchange information and ideas and learn together. The way the Institute has functioned has not encouraged such interchange. Critique and reflection occurred outside formal processes and structures. Staff meetings had become very rare events in which the staff were expected to be passive recipients of information until they ceased completely. One staff member noted "to embrace quality management you first have to critique where you are" (Ad4). However, neither structures nor processes in the Institute were seen to accommodate let alone encourage or foster such critique towards improvement. The Institute's systems of structure and process are the focus of the next chapter.

Chapter 7
The Institute does

Introduction

The previous chapter provides an account of participant views of what the Institute is like predominantly in terms of people and the meanings they associate with the place. Participants noted concerns about the viability of the Institute if it continued uncritically with business as usual. While it is a nice adult place to work with good people it was seen as dysfunctional: a rudderless ship carrying individuals largely intent on doing their own work rather than sailing the ship and likely to founder as a consequence. Issues of direction, communication and information, structure and process were identified as affecting and being affected by the organizational culture and systems of knowledge-power. Suggested interventions towards improving quality predominantly related to improved communication and opportunities to learn. One participant, echoing the sentiments of Bowden and Marton (1998), noted "[the most important work is that] the Institute as a body of people continues to learn." (Ac3) What should happen to promote learning, viability and quality in this context? If there are perceived problems with the design and operation of this intelligent machine, how might they be clarified, structured and resolved? Stafford Beer's Viable Systems Model provides a mechanism for modelling of an organization as an intelligent information processing system. This chapter introduces Beer's model, then applies it to the Institute to identify possible interventions to improve the quality of what the Institute does and how it does it. The diagnosis identifies several challenges to the viability of the Institute.

Diagnosing process, structure and viability

Beer's (1981, 1984) Viable Systems Model (VSM) is an approach to organizational design that focuses on the relationships between functions, structure, information and organizational learning. As Beckford (1998, 289) notes "an organization is considered to be viable when it is capable of survival in a given environment and capable of learning and adaptation to changes in that environment". Learning is fundamentally about communication and using information effectively. In brief, the VSM presents a model of any organization as a functional, information-processing network. A basic argument of Beer's work is that any organization is essentially about information processing towards viable continuation and growth. Beer's model can be used in descriptive, diagnostic and prescriptive modes, i.e., to show the organization as it is, to compare it to the ideal and to identify interventions to rectify organizational faults. In the following discussion, the model in descriptive and diagnostic mode is applied to the Institute as described in Jackson (2000).

Within the model, the effective use of information connects five interrelated functional systems:

- System 1: Implementation - the parts of the organization that do what the organization exists to do - uses information to guide the doing (e.g. in a manufacturing context, production planning, order fulfilment, etc.) and produces information on what is being done and has been done;

- System 2: Coordination - uses information to make short term balancing decisions on resource allocations to ensure that what is being done in the near future is consistent with overall policy direction and priorities;
- System 3: Control - which distributes, monitors and audits resources between and across the functional systems towards organizational goals, uses information of various types (policy, financial, productivity, etc.) to audit/monitor the implementation system. This encompasses all the traditional and newer audit functions - financial, quality systems, environmental, etc.
- System 4: Intelligence - in the military sense - or planning gathers information about the environment (broadly defined including stakeholders) and about the functioning of the organization itself, represents the organization to its environment and also influences the environment. This function links the other functions to policy and the organization to the outside world. This function may encompass research and development, and also marketing;
- System 5: Policy/identity - which establishes the organization's preferred future and develops the policy frameworks to focus efforts towards the achievement/pursuit of that preferred future, uses information to set overall direction for the organization and disseminates information about overall direction and the defining characteristics of the organization (strategic policy).

Figure 13 represents an ideal viable systems model with all functions and communication channels in place and operating. If any one or more of these functions is underdeveloped or missing, or the information flows between them are poor or blocked, then the organization is not making the best possible use of information that is essential to its survival, development and growth. It also faces the danger of optimising parts while sub-optimising the viability of the whole.

Beer's model also incorporates the important systems concept of recursion, that is, each implementation function (indicated as subsystems 1a, 1b, 1c in figure 13) must have the capability to be viable within the boundaries set by its membership of the broader organization. Each implementation function should contain policy, intelligence, coordination and control functions as well as implementation sub-systems within its own boundaries. Note that recursion does not necessarily imply a hierarchical structure. What changes at each level is not the importance or value of contributions but rather the focus and time horizon of work. Recursion clearly implies that functions such as policy formulation, intelligence, control and coordination are shared responsibilities, not the exclusive domain of senior management or staff functions.

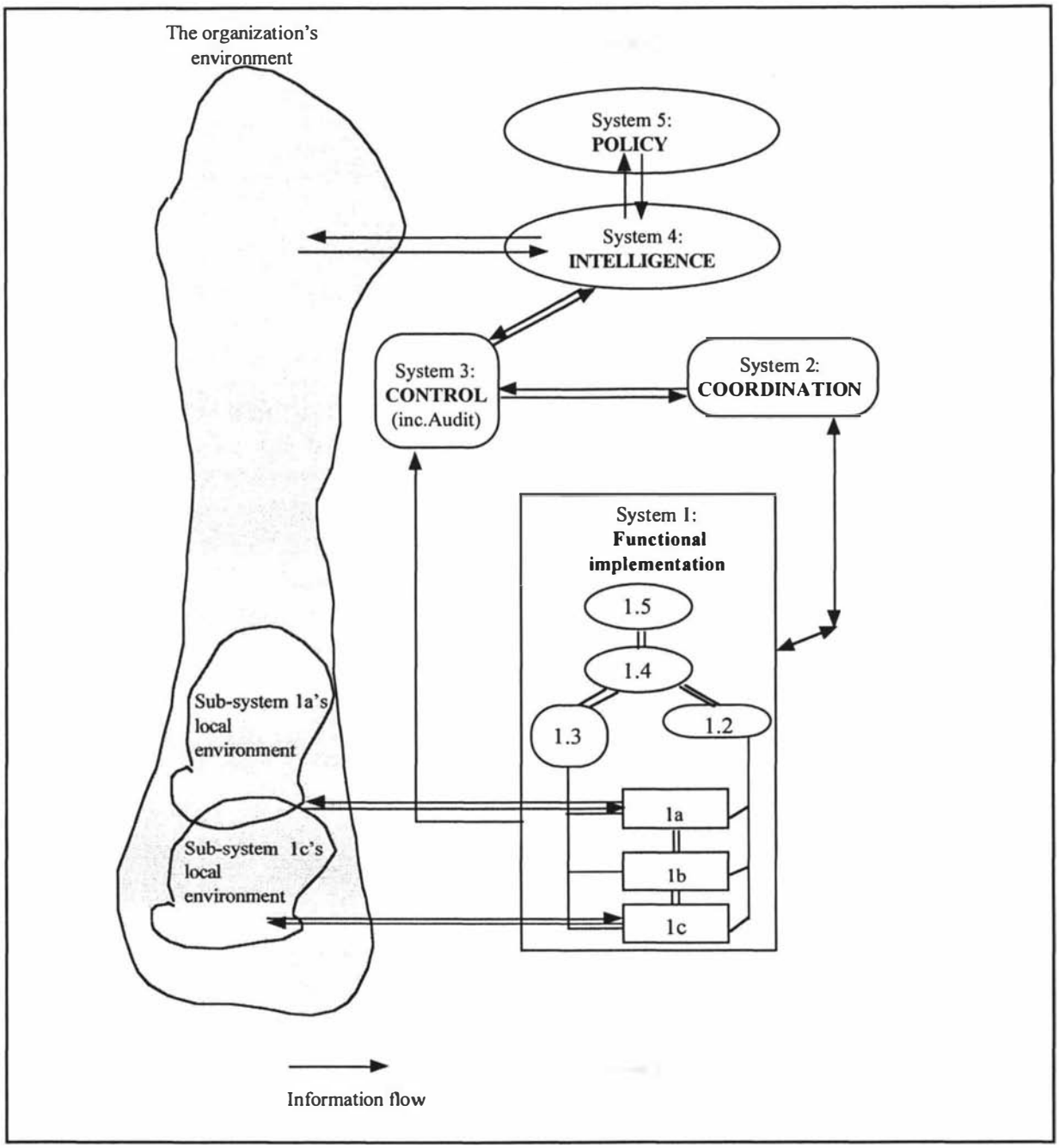

Figure 13: An ideal Viable Systems Model (VSM)

Diagnosing implementation: teaching, research and service

The diagnostic process begins by detailing each part of system 1 – the core implementation function - in terms of its environment, operations and localized management. For the Institute the parts are teaching, research and service. The specific environment of each implementation system is discussed in some detail. The discussion draws on: information from participants; formal policy and procedural documents from various sources outside the Institute; and the theoretical and conceptual literature relating to each functional area and the relationships between them. There is, for example, a substantial literature on the nature of teaching in higher education that forms part of the environment of teaching in the Institute.

These sources are woven together to contextualise what actually happens, how it is constrained by higher management decisions and how performance is measured and accountability exercised in each part of the implementation system. The teaching function as a key defining operation of the Institute as an educational organization is examined first. Subsequently the discussion turns to the research function as the Institute's formally defined raison d'etre. The service function of the University and the Institute did not feature prominently in participant interviews and seems to form only a very small part of the Institute's operations.

Teaching

> Our role is to educate. (Ad4)
>
> When you boil it all down what's important is getting those good teachers in front of classes – get those kids out there thinking. (Ac5)
>
> Universities are a place of learning and if you look at contribution we can impact far more lives in terms of what we do in teaching. ... the area where we have the greatest impact is the students we send out therefore that should be number one. (Ac27)
>
> Teaching is an activity of underrated complexity. When done well, it is an exacting and exhausting business..... Socrates likened teaching to midwifery. Just as the midwife does not produce the baby, so the teacher does not produce the learning. Rather they both help in the delivery process. (Hinchcliff, 1997, 179)

Teaching is the main process by which the Institute works towards its goal of "the education of outstanding graduates". The Institute's responsibility for teaching formally is focused on the delivery of individual papers. Within a paper, Institute staff are responsible for the design of teaching and learning activities, specific content and assessment and the relationships between them and for coordination and delivery of those elements.

The broad characteristics of a paper, such as level, duration, broad content and scope, are established outside the Institute in its environment. Figure 14 identifies key elements of the environment of the Institute's teaching function. The programs of study to which the Institute's papers contribute are designed and administered by a staff function at the College level in line with University policy requirements and regulations and with input from staff within the Institute: while Institute staff are able to influence broader design considerations, they are *not* the responsibility of the Institute. Hence course regulations and paper prescriptions form part of the environment for the Institute's teaching function. Most courses are prescribed to the level of papers and broad paper content – in formal, binding prescriptions in the University calendar[59]. For some courses the precise combination of papers to be completed to gain the qualification is specified: the curriculum as papers is prescribed. For other courses the broad structure - number of paper points at particular levels – is prescribed but not specific papers. In general, the links and transitions between papers are loose. Similarly, the delivery of each paper is embedded in and reflects the culture and expectations of a particular academic discipline. The delivery of individual papers also is embedded in societal and educational contexts. Students, who enrol in programs, come into papers with existing knowledge skills and attitudes that may influence and be influenced by

[59] The paper prescription is limited to 60 words or less.

their experience of a particular paper. As the Institute's staff predominantly teach papers in later years of courses, the papers in the first year of courses, which are taught mostly by other institutes, also form a significant part of the environment of the Institute's teaching.

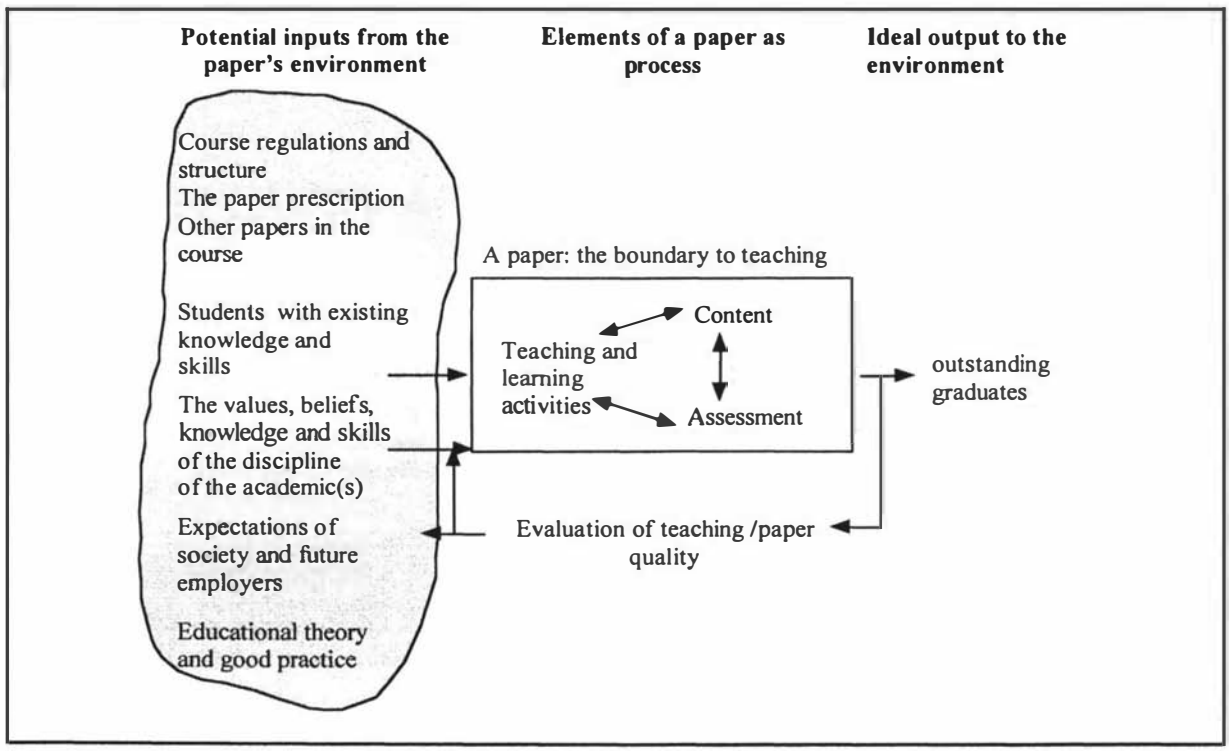

Figure 14: The broad environment of teaching

The main, regular feedback mechanisms providing information about a paper back into its environment are mandated from the environment. The University requires that students in each paper are surveyed at least once every three years to obtain their feedback on content, administration and teaching[60]. The Institute is responsible for ensuring compliance with policy and receives information from the surveys. The University also requires that each qualification is reviewed every five to seven years. Qualification reviews are conducted by the College and examine four broad areas – program objectives, qualification structure and management, teaching, learning and assessment and "overarching considerations" to assess the quality of the program and its fit with the University's strategic directions (Massey University, 2005b). These externally initiated reviews provide some feedback at the level of individual papers. Once each five years some courses containing papers that the Institute delivers are reviewed by the relevant professional body to ensure compliance with the educational requirements for graduates to be eligible for professional registration. Where courses comply with the required standards, the professional body accredits them.

[60] At the time of writing, University policies, practices and instruments for evaluation of papers were under review.

Course regulations and prescriptions set a major part of the structural rules around each paper and around the Institute's processes of teaching and learning. Such rules and prescriptions are not the only information inputs to teaching from a paper's environment. Information also potentially comes from:

- the academic discipline about its values, the shared beliefs of members of the discipline, its body of knowledge and skills;
- students about their current understanding, skills, attitudes and orientations;
- society, professional bodies and employers about their expectations of 'excellent graduates';
- the discipline of education about theory and good practice of learning and teaching;
- formative and summative evaluation of the quality of teaching and the paper from past students and other informed sources.

For most staff the dominant voices from the environment are those of their professional/academic discipline and of future employers of graduates. As noted in Chapter 6, for participants the threshold for quality of teaching outcomes is employability of graduates.

> Our students go out into industry so we try to tailor the courses so that they slide as smoothly into industry as possible. The only way to tailor those courses is to get an appreciation of what it's like to work in industry and what industry wants. (Ac4)

For the teaching function to be viable, such information from the environment should be interpreted, accommodated and influenced through a 'within teaching' intelligence function. Indicators of teaching performance should be evaluated for accountability and fit with broader teaching policy through a control function, and effective coordination provided. While control and coordination functions are evident within each paper and at the College/course level, there is little evidence to indicate the existence of these functions across papers within the Institute.

Teaching operations

> [Universities have] an academic culture where teaching is an essentially private activity conducted by amateurs (Elton, 2001, 44).

Representations of teaching

The research literature on teaching at least nominally forms a significant part of the environment of the Institute's teaching operations. Teaching has been characterised in a variety of models. Hinchcliff (1997, 177) presents four models:

The Machine model: the transfer of fact through the expert (academic) to the neophyte (student) by lectures, for memorization and regurgitation on cue in examinations 'in order to secure success in this rite of passage'.

The Professional model: built on the authority of the academic as expert and 'good parent of learning' who makes their presentations interesting for the sake of the learning 'child'.

The Collegial model: teaching is a pleasant, harmonious interaction built upon a trusting, confident relationship that 'may founder on the rock of discipline, rigour and examination'.

The Contractual model: the teacher and student accept a mutually agreed set of obligations; values and ethical dimensions are discussed and respected; and each participant knows what the other expects, but creative learning may be curtailed.

Each illustrates "some facet of teaching that is worth considering" (Hinchcliff, 1997, 177) and points to the complexity of teaching and its inter-relationships with its environment. Each has the interactions between students and teachers at its core. Each is built upon different interpretations of that relationship and the relationships between teaching, learning, content and assessment. Each reflects a different understanding of the curriculum. All of these are evident in the teaching activities of the Institute, perspectives of staff and the intermittent discussions about educational matters.

Teaching is not just transmission of content, nor just presentation of knowledge, nor just enjoyable interactions, nor just fulfilling agreed obligations. Samuelowicz and Bain (2001) classify seven orientations to teaching and learning held by university academics. The orientations, which they distinguish in terms of nine belief dimensions[61], fall into two distinct clusters of teaching-centered orientations and learning-centered orientations (Table 7).

Teacher Centered orientations	Imparting information
	Transmitting structured knowledge
	Providing and facilitating understanding
Learning centered orientations	Helping students develop expertise
	Preventing mis-understandings
	Negotiating meaning
	Encouraging knowledge creation

Table 7: Academics' orientations to teaching and learning

Trigwell, Prosser and Waterhouse (1999) similarly identify five qualitatively different approaches to teaching and note from their earlier research that academics' conceptions of teaching and their perceptions of their teaching context are related to their approach to teaching. They also explore the relationships between teachers' approaches to teaching and students' approaches to learning. Neumann, Parry and Becher (2002) present a conceptual analysis of teaching and learning activities across broadly

[61] The dimensions are: desired learning outcomes, expected use of knowledge, responsibility for organizing or transforming knowledge, nature of knowledge, students existing conceptions, teacher-student interactions, control of content, professional development and interest and motivation. (Samuelowicz & Bain, 2001, 306-307)

defined disciplines or fields of disciplinary knowledge and note contrasting patterns in both knowledge related and socially related aspects of teaching and learning between disciplines[62]. All of these studies point to the complexity of teaching and the interconnectedness of systems of process (the flows of learning and teaching events) with systems of meaning (academics' beliefs about and orientations to knowledge and teaching; students' orientations to learning) and the environment and the systems of structural rules around teaching. Quinlan (2002) notes further than within the hard applied field of engineering which as "a profession borrows from various disciplines to successfully 'make things that work'" (2002, 49-50) some commonality of purpose of engineering education is evident: engineering educators "are oriented towards preparing students for the real world demands they will face as engineers" (2002, 49). However, differences in practice are evident and reflect different conceptualisations of engineering as professional practice. Multiple views of what engineers do strongly influence often contending views of what students should learn and how they should learn it.

Teaching in the Institute

From a broad process perspective, teaching is the complex task of designing and enacting the curriculum – mediated by the values, beliefs and skills of the teachers – to promote learning. While the Institute's staff members are able to influence framing course-level curriculum design decisions, such decisions are made elsewhere outside the Institute as an organizational entity. The detail of a particular paper – within the bounds set by the calendar prescription - remains largely at the discretion of staff teaching into the particular paper. Within the Institute, academic staff teach what they think best in the way they individually think best, with little explicit connection to colleagues or to identified good educational practice from the wider environment. Interestingly, little of their thought about and practice of teaching appears to have been shaped by formal study. Only two of the more than fifty academics have formal qualifications in teaching or education. Most recently appointed staff have been required by University policy to undertake a thirty-hour training program on basic teaching skills. Few participants articulated a personal philosophy of education and none suggested the existence of a unifying educational philosophy underpinning the Institute's teaching.

Most participants, however, expressed the belief that we are teaching well, although none identified measures or data to support that belief. There is intermittent collection of data on performance through SECAT as an externally mandated evaluation instrument but little evidence of any use of the data generated. Also, there is little collective reflection on the teaching process or exposure to educational theory or best practice. At a compulsory staff development seminar on assessment theory and practice[63], in response to some comments about research in the area, one academic was heard to say with some

[62] The aspects are: knowledge related - curriculum, assessment and main cognitive purpose, and socially related – group characteristics of teachers, types of teaching methods and learning requirements of students. (Neumann, Parry & Becher, 2002, 406)

[63] This activity was organized in response to a perceived 'problem' with assessment practices in one paper. Although the then Head of Institute made it clear that the seminar was compulsory for academic staff, less than one third attended.

surprise: "Do people do research on this stuff?" (Ac11) As noted previously teaching is something to be done rather than something to be thought about.

Very few participants made unsolicited comments about curriculum or teaching practice: the precise characteristics and nature of what most identified as the Institute's most important work seemed to be taken for granted. When prompted to reflect on teaching practice, some expressed reservations about the lack of attention paid to it:

> ... many [papers] seem to be the standard 'lecture and learn' approach. (Ac4)
>
> We don't look at ourselves carefully and say "how can we improve the quality of our students?" (Te3)
>
> Discussions [about teaching] are a reactive afterthought rather than something that is always on the agenda. I remember one, years ago – it was the only time anyone has made any attempt to spend time developing teaching. (Ac5)

Curriculum decisions over recent years were mainly seen as responses to demands for resource efficiencies in the face of tight budgets, and requirements to maintain professional accreditation of courses rather than educationally based and designed for improving learning.

Local Institute management of teaching.

> The feel of lack of direction is because the Institute doesn't own the degrees. I think it's because the responsibility for academic quality is separated out from the Institute, and so it comes down more to individuals addressing those issues than it being a collective responsibility of the Institute. (Ac2)

Each paper taught by the Institute has a nominated coordinator who fulfils a predominantly administrative role ensuring that, for example, the formalities of documenting paper outlines and submitting examination questions on time are completed and that staff teaching into a paper know the blocks of lectures that they are required to present. As the Institute has extended its delivery of papers to multiple campuses, paper coordinators have become responsible for ensuring consistency between paper deliveries at different locations, in some cases assisted by local campus-based coordinators. Formal mechanisms for interactions and exchanges of information between paper coordinators are absent from the Institute's structure. College appointed "major leaders" convene intermittent meetings of "interest groups" to discuss curriculum issues. These meetings occasionally delve into the detail of individual papers. Neither paper coordinators nor major leaders have authority to direct the actions of individual academics involved with papers or majors.

At the Institute level, management of teaching focuses essentially on matters of efficiencies in the utilisation of academics' time through "rationalisation" of paper offerings, and allocation and monitoring of teaching workloads through a workloads model. When the management of teaching was raised with participants, most almost immediately focused on issues related to balancing effort and opportunities across teaching and research.

> ...balancing people's workloads and giving people the option of doing research – ... you have to manage the teaching load in an equitable way across staff. I think we've got something that is reasonably transparent to people in the standard hours model, which I think goes someway to doing that. (Ac2)

Several participants noted that the data reported from the model identifies significant ongoing anomalies in teaching workloads; specifically outliers with extremely low or extremely high teaching loads. In both cases, management was seen as needing to take responsibility for dealing with them:

> There is a group of people in the Institute who are [seen as] not good researchers and who are not being encouraged to do it. I don't think it's proven..., they are just being loaded up with lots of other things, given other priorities and ... nobody has actually said to them let's do some research. (Ac27)
>
> The personal choice to try to avoid the teaching – that's a management issue. Management needs to step in and ensure that there is fairness, equity, transparency – all that stuff that we've discussed over the years in the Institute. Not that everybody should carry an equal teaching load - there are staff development issues – so that everybody feels that they are getting a fair go: nobody is getting any special bias. (Ac5)

Participants noted that teaching is managed predominantly in terms of optimising research performance of the Institute: the two were seen to be in tension. While quality of research is explicitly promoted, one participant noted

> From what I can see there is no commitment to quality of teaching beyond what is satisfactory. (Ac4)

Why is this so?

Framing policy, coordination and control functions for teaching and course quality lie outside and distanced from the Institute and the communication channels into it are not robust.

> ... the overall responsibility for delivering the program has been moved outside the Institute or partially outside the Institute with only an advisory or arm twisting influence over what people do. (Ac27)
>
> ... the degree used to be the family and people were members of that family. I don't see that as quite the case anymore... (Ad2)
>
> What the teaching programs offered us in the past was a cohesive point of focus to bring us together and help us act as teams. With the de-emphasising of that, we've lost a bringing together type function. (Ac27)

The College has created structures of academic directors, program committees and qualification coordinator positions for majors within courses/programs to provide administrative frameworks around teaching and information channels to inform teaching. However, for several years, staff from within the Institute were expected to undertake these responsibilities in addition to their core work, without any formal recognition or reward for performing the duties[64]. Consequently the performance of these College, rather than Institute, based responsibilities tends to be given low priority and intermittent attention. Additionally the College-based structures, while responsible for course structures, content and course quality, are not responsible for the quality of paper delivery or teaching. The Institute's responsibility for

[64] Despite formal College policy that course coordinators should have a time credit of 10% of a normal workload to accommodate these duties, the loading was not built into the Institute's workload model for some two years after the policy was promulgated.

paper delivery has to a large extent been decoupled from responsibility for wider academic issues of policy, responsiveness to the environment and broader quality considerations:

> Ownership was lost through restructuring and a lot of people found that comforting – an excuse to stop thinking about those types of things. I think most of us did stop – thinking that someone else was taking responsibility for longer-term stuff. (Ac22)
>
> In the old days the departments owned and ran the degrees and felt quite passionate about them. There would be staff meetings to discuss the degrees and there would be quite heated debates whereas now you send a message about a meeting about a degree option and you're lucky to get two people as they don't see that as a responsibility of the Institute. They have other things they have to do and they don't have to be at the meeting. If they were at the meeting they would probably have some strong, strong views to put across. (Ac2)

While most academic staff devote the largest proportion of their time to teaching papers, responsibility for the quality of courses that staff teach into lies outside the Institute. While staff generally were seen to take their teaching responsibilities seriously, their best efforts were seen to be partial responses to and decoupled from substantial parts of the complex environment of teaching. College-based courses provide the primary boundary for teaching and a buffer between the Institute's operations and the wider environment.

Course regulations and structures and formal paper prescriptions frame papers. Partly due to the lack of coordination of content across papers, teachers make (sometimes false) assumptions about what students bring with them to, and want from a paper. They bring to their teaching a deep understanding of their specific area of expertise within their discipline and present fragments of the body of knowledge and practice of the discipline within their papers: there is not time to cover it all. Their efforts are guided by what the profession, as represented through the professional association's accreditation requirements, and employers want from graduates in their discipline: the expectations of the profession are equated with those of society. They bring their assumptions and beliefs about good teaching and learning although few are immersed in education as a discipline. Most academic staff are immersed in their discipline and content. The discipline and discipline-based research is the most visible environment for many academics. Contributions to that environment are privileged in the College as the framing structural environment. The tension between teaching and research is strengthened by College and University systems of structure.

Some participants noted that students' first year experience of their course, predominantly in papers provided outside the Institute, is one key barrier that buffers the Institute's teaching function from parts of its environment, particularly prospective students (as illustrated in Figure 15), and limits its responsiveness and ability to draw students into the Institute.

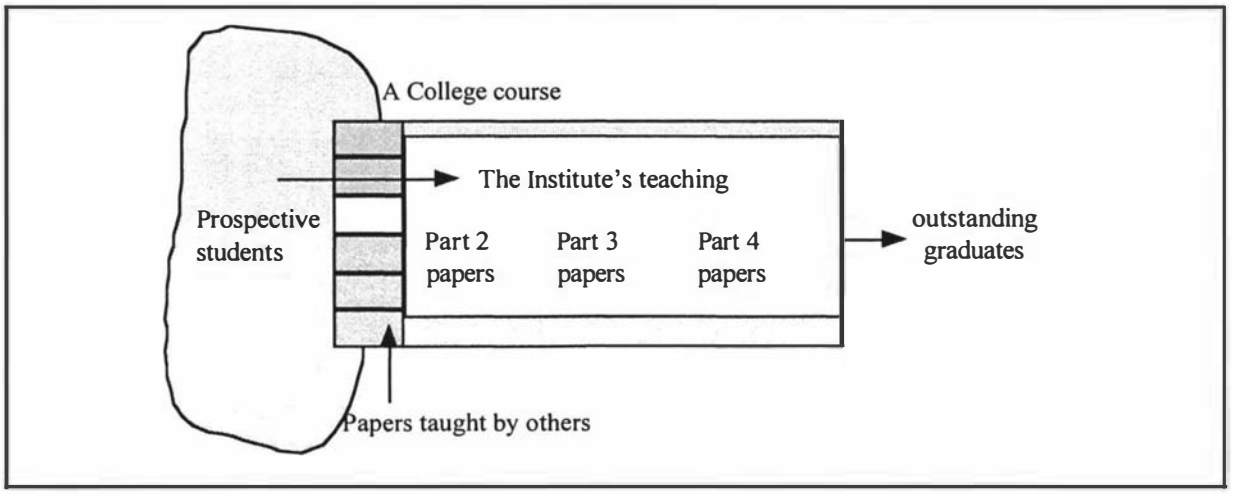

Figure 15: Others' first year papers – a key environmental barrier

The Institute had previously recognised student numbers as a key to the Institute's viability and devoted considerable resources to marketing and student recruitment to attempt to engage with potential students. However, students enrol in prescribed courses and must survive their first year of study before entering the Institute's teaching function to a substantial degree. Improving students' first year experience was identified as one potential focus for intervention to ease their transition into the Institute and specifically its teaching function. A proposed intervention focused on the First Year Student experience is discussed in Chapter 8.

Research

> Research is an intellectually controlled investigation which leads to advances in knowledge through discovery and codification of new information or the development of further understanding existing information or practice (NZQA, 1996 cited in Woodhouse, 1998, 42)
>
> Massey is known in New Zealand and internationally, for producing research that is relevant and usable, of direct use and value to the community, including technological breakthroughs and key social insights. (Massey University, http://research.massey.ac.nz/)
>
> ... research – its exciting, it does lift you, it gets you up in your field, you have to be right up to date and you are discovering new things.(Ac6)
>
> Research is done by individual academics for their interest. (Ac2)
>
> I encountered one of these discussions between engineers and scientists and they are so far apart on what research is about.... let's not go down the track of definition of research - it's so broad. Every individual has their own little narrow definition, but if we take everybody's definition it really is very, very broad. (Ac5)

The research environment

While systems of structure emphasise research as a key function of the university, the College and the Institute, there is no agreed definition of research beyond loose linkages to the concept of advancing knowledge.

The literature suggests that there are many conceptions of research held by academics and students. Brew (1999) suggests that conceptions of research reflect beliefs and assumptions about the nature of

knowledge[65]. Where knowledge is conceived as real and objective, then research builds on existing knowledge through the discovery and codification of new fragments of knowledge using established methodology. Research is predominantly defined in terms of outcomes or output – 'new' or more precisely 'newly discovered' knowledge and peer reviewed publications. Willis, Harper and Sawicka, from a study of taught postgraduate students' perceptions, note "research [is] overwhelmingly understood as the output of research activity.... A synonym for publication... There was almost no evidence that students had any awareness of research as a process of finding new knowledge" (1999, 5). Research as a process of learning and growth for the researcher is largely ignored or set aside: good research as process is simply objective, rational, reproducible application of scientific method. Research is considered independent of social context. Research productivity is measured by the number of outputs – additions to knowledge predominantly through publications – and the quality of research is measured through peer review of publications.

The University's information systems about research predominantly reflect this image of research. Its Research Expertise Directory emphasises the areas of discipline knowledge in which researchers work and research products are identified in the research outputs database, which lists publications and other contributions to the body of knowledge. The Government's Performance Based Research Fund (PBRF) evaluation process also uses number and quality of outputs as the dominant measure of research performance by individuals and institutions in the tertiary education sector[66]. The PBRF has gained prominence as a control mechanism for the tertiary education sector: its impact and effects are discussed more fully below, in the analysis of the control functions in and around the Institute.

	1998	1999	2000[67]	2001	2002	2003	2004
Total research outputs[68]	205	264	209	225	306	352	445
Peer reviewed							
- journal articles	27	30	26	35	27	31	37
- conference papers	40	35	28	25	33	32	57
Non-refereed							
Conference papers	29	7	31	12	11	18	23
Technical publications	5	18	18	24	31	15	
Professional consultancy reports	5	23	29	15	21	32	40

Table 8: Indicative Research Outputs 1999-2004

[65] Definitions of research and the characteristics of research have also been discussed in Chapter 2 above.

[66] Peer esteem and "contribution to the research environment" were also factors in rating individual staff members (TEC, 2003).

[67] In 2000, the University undertook a major, protracted "repositioning" project, which was perceived by many staff as simply downsizing by another name, caused considerable uncertainty for the Institute's staff and resulted in several staff redundancies. The figures from 2001 onwards represent the outputs of a significantly reduced academic staff head count.

[68] The figures are drawn from the University's Research Outputs database, which classifies 18 categories of outputs.

Using these definitions and measures of research as new knowledge provides some insight into research in the Institute (Table 8). Since its inception, the Institute has increased the total volume of its research outputs. In the peer-reviewed journal articles and conference papers categories, output remained relatively stable in number until 2004 when the number of refereed conference papers increased, but has decreased slightly as a proportion of total research outputs. If these categories are taken as indicators of output of new knowledge, research of this type seems to account for only part of the Institute's research effort. What views of research might accommodate and account for the bulk of its research outputs?

Where knowledge is seen in a social context as socially constructed, then research can be seen as a process that "makes sense of phenomena hitherto unexplored, creating socially recognised knowledge" (Brew, 1999, 293). Research is defined in terms of [otherwise taken for granted] process as well as outcomes and becomes learning about socially useful knowledge. Publications are one means of sharing learning. Many staff in the Institute undertake this type of research under the banner of consultancy asserting that:

> I don't believe that we are an institute of fundamental research; we're much more applied. (Ad4)
>
> Consultancy and technology transfer are different to research because you're taking connections that have previously been made and putting them into new environments. (Ac22)
>
> The modern [research] requirements of a NZ university seem to be more economically focused. Research could have a quality aspect determined by political or industrial customers who say how useful or otherwise our research is to them. (Ac1)

The environment of the Institute's research function has four major elements to it: the academics' disciplines, research sponsors and funding bodies, the University/College, and society, each with a variety of expectations of the Institute's research (Figure 16). Some expectations are framed in terms of outputs, for example the key measures used in the PBRF assessment, while others are framed in terms of outcomes, for example those of research funders and sponsors.

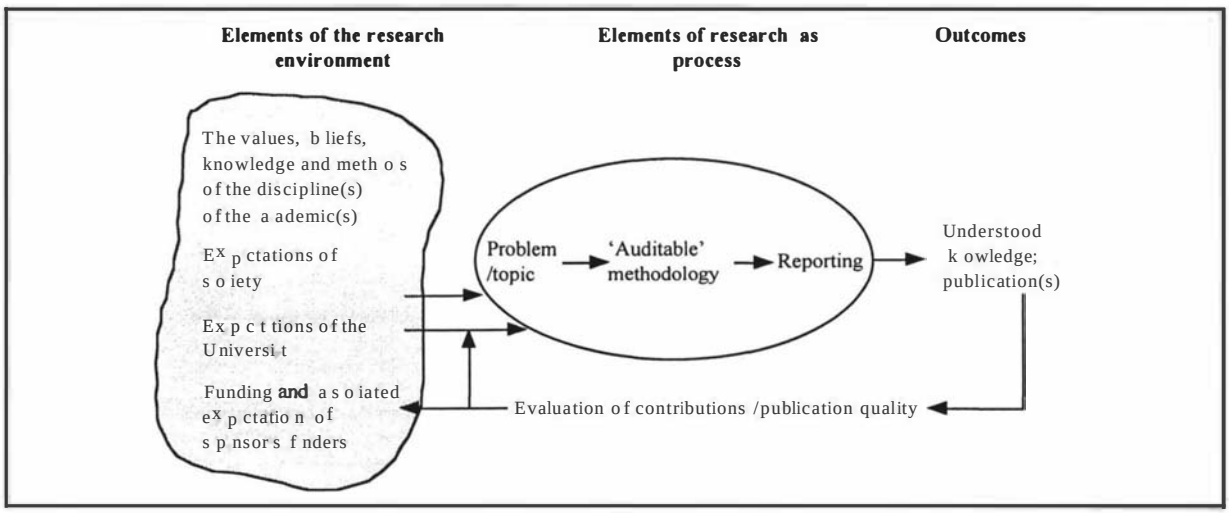

Figure 16: The environment of research

Research operations

Research activities occur predominantly within the research programs and projects of individuals and small groups of academic staff – the Institute per se does not do research. Few participants offered any comments on the process of research itself apart from observing the diversity of definitions of what counts as research used by staff within the Institute – from generation of new knowledge to applied problem solving in industry. Several noted the importance of applied research through consultancy with industry as a linking mechanism to teaching;

> Consulting can give you far better insight into what is important in what we teach – it changes one's perception of what's important in the text book – the simple ideas that inspire people to want to learn and change. (Ac27)

The processes of research seem to be taken for granted, or not to have meaning at the level of the Institute.

How is research managed?

> I dislike the concept of managing research in the university environment. Research is done by individual academics for their interest (Ac2)
>
> In terms of management, it might be a bit of a conflict with so called academic freedom but I'm a believer in collective effort to find, attract and use funding but that hasn't been done. The research groups weren't managed – they just died. (Ac27)

At the creation of the Institute, an attempt was made to establish, by decree of the then Head of Institute, an organizational structure for research by assigning staff to designated research groups. These mandated groups were largely left to self-organize as the coordinating mechanism for cooperative team research within the specified discipline areas. While some of the research groups flourished, others languished. A review of the groups by a subsequent Head of Institute noted that research is:

> ... an activity that is highly personalised and relies on the abilities and motivation of individuals (whilst it is possible to command a group of individuals to dig a hole, it is not possible to command a group of individuals to be creative and to create knowledge). Furthermore, there exists a range of experience and commitment to research. Therefore it is not surprising that some groups have 'worked' and some have not.

The review also noted "a model whereby the Institute attempted to pick winning research topics and assigned/coerced staff to work in these areas was not favoured." Consequently staff were encouraged to pursue their own research interests, form and disband research groups as they saw fit, and the management of research at the Institute level became focused on "the operation of research projects in a manner that minimises risk, promotes clarity, and ensures that our resources are employed appropriately" and "the issue of nurturing of high performance research teams".[69] Research was formalised and legitimated as an essentially individual activity monitored through individual performance review and planning processes. The Institute's research performance was to be determined by the performance of individual academics.

[69] At the time of writing, nine predominantly narrowly discipline-based research groups were at least nominally operating in the Institute.

> I don't know who gives any direction on whether we should research this topic or not, or whether the Institute has an overall direction for research – I doubt it very much - I think it's full of individuals with their own area of expertise so they research their own little area. (Te3)

Subsequent actions suggested that buying in established researchers was a preferred tactic for achieving improved research performance. Participants expressed divergent opinions on the appropriateness of this strategy for managing research. While some supported the view of research in the Institute as the sum of individual academic's endeavours, others supported a more directed, collective approach to research to promote optimisation of overall performance rather than focus on the optimisation of parts.

> In terms of research I think we're missing a lot of opportunities in terms of collective research – I think that has been badly managed in the sense of trying to identify where are the winning areas or where are there funds available that groups of us could redirect our efforts towards winning. (Ac27)
>
> Maybe there ***should*** be more links between the areas but because we don't overlap or talk to each other enough it doesn't happen. Everyone stays in their own little direction and moves on. I don't think we use the resources we've got as a whole enough – we're all too much individuals but maybe that's a university thing. (Te3)
>
> I think it's going to take a different approach but I don't have the answers. In the meantime we sit around and wait for some enlightened individuals to suddenly get enthusiastic and drag some colleagues along with them –and I don't think that works all that often especially in an environment where people are fairly busy. (Ac22)

One participant particularly noted the influence of the PBRF as an external control mechanism towards emphasising individual performance: "This is all accentuated by the PBRF – what it does is focus attention on a small portion of the money we get, potentially totally out of proportion to the quantity of money" (Ac4).

Linking implementation functions: information, interactions and interdependence

> [In the University] research and teaching are closely interdependent and most of the teaching is done by people who are active in advancing knowledge (NZ Government, 1990, s162)
>
> You have to garner new research and new understanding but ultimately the role is to pass that on – to educate. (Ad4)

Woodhouse notes "In the British tradition it has been dogmatically accepted that the defining characteristic of a university is the interlinking of its teaching and research" (1998, 44). Over the years there has been a good deal of discussion about exactly what this statement means in practice and a substantial body of research into the nature of the relationship(s). Hattie and Marsh (1996, 529-530), from a meta-analysis of quantitative research on the relationship, conclude "the common belief that teaching and research are inextricably entwined is an enduring myth.... [as] the evidence suggests a zero relationship, and there was no support for the existence of moderators".[70] Nevertheless, the belief in

[70] Hattie and Marsh do, however, acknowledge that most studies have used gross measures of research outputs/publications versus student evaluations of teaching. Elton (2001) also is critical of simplistic investigations and Zubrick advocates the need to move beyond 'sterile pre-occupation with binary categories and reductionist measurements' (2000, 1).

interdependence of some sort is strong and the belief is substantiated by research (Robertson & Bond, 2001).

Elton (2001) has identified four potential causal relationships:

> 1 good research causes good teaching
>
> 2 good teaching causes good research
>
> 3 the relationship between good research and good teaching is dialectic, i.e. they support each other
>
> 4 there are one or more additional factors, which if present, cause the correlation (2001, 47).

The possibility of understanding the relationships and potential causality is further confounded because, as discussed in the preceding sections, neither research nor teaching is a unitary concept. What is good research is contested just as what is good teaching is contested.

"Research-led teaching" is the formally espoused relationship that underpins the work of the College and the Institute, echoing the rhetoric of government policy. Teaching is seen as dependent on research.

> The idea that the larger university seems to have is that you do research, so you can then teach, you can then pass the connections that you've made on to other people. Making the connection for the first time is called research and passing it on is called teaching. (Ac22)

This dependent relationship, rather than interdependent, does not hold up to scrutiny, particularly if research is defined as output at the leading edge of newly discovered knowledge. While some staff expressed the beliefs that "we should be teaching cutting edge stuff and research is the way to keep ahead" (Ad2) and "[research] helps update material" (Ad1), support staff expressed this view more commonly than academics. Academic staff identified several limitations and potential dangers with this model. If teaching is seen as imparting information or transmission of structured knowledge, then for students early in their courses the fragments may be too far removed to make sense:

> We have to be careful because what people consider as research [is] theoretical stuff. (Ac4)
>
> In a lot of areas the teaching is of fundamental engineering that doesn't change. Fundamentally it's the same as it was sixty years ago or a hundred years ago and therefore I don't think there's a huge correlation between research and teaching for most people. (Ac2)
>
> The danger is if you get people who teach based on their research, they whip through the basics so quickly that [students] can't understand the research.... (Ac22)
>
> Researchers say 'I'll be able to feed this back to my students' but they don't – because they are working at such a high level that it's probably really not appropriate to feed it back to anybody other than a PhD student. (Ac27)

This dependent relationship is most relevant "from about year 4 up.... the vital link for research is through post-graduate students" (Te3) who have absorbed sufficient structured knowledge to make sense of the fragments.

If teaching is seen as learning-centred, helping students to develop expertise in a discipline or profession, particularly for employment, then this link becomes even more tenuous: "because we're in a vocational area, that level of research is not what is wanted by employers" (Ac22). Where, however, research is defined in terms of process then "[research] gives you great material to bring back into the classroom – not great material, great stories, which is good" (Ac6) as "your own stories to give motivation to students" (Te2).

> ... staff doing research, ...should let students know what their research interest is and blend it into what they teach, so students get a feel for the research and further down the track might come back to it – so the students feel personally involved in the research that is going on... (Ad5)

There also is a potential danger that if this dependent relationship is taken for granted it may be interpreted as make teaching subordinate to research. Where rhetoric and control systems focus on quality research, simply assuming that quality teaching will follow, then may result in unintended, undesirable effects.

Notably, Elton's opposite dependent "good teaching causes good research" thesis was not mentioned or alluded to by any participants.

Implicit in the comments of participants are suggestions of mediating factors between research and teaching. Consultancy in industry was identified as an integrating mechanism to link real world applied research/problem solving to the student experience as were stories derived from research experiences. The suggested links were between experiences of the process of research and the process of engaging students in learning. This thinking about the interconnections implicitly reflects Boyers (1997) model of multiple scholarships. The nature of the links have been explored more explicitly by Al-Jumaily and Stonyer (2000) who focus on the important but underdeveloped area of the scholarship of integration. Lewis, Samuel and Weir (1998) illustrate the complex and closely inter-connected nature of academic work in engineering, noting the regular interchange of ideas between research, consultancy and undergraduate education. Both suggest that the fundamental focus of engineering education is the professional process of engineering and the students' experience of that process. These disciplinary-based studies reflect a wide literature that moves beyond studies questioning if there is a relationship between the two areas to explore the potential contribution of both to learning.

> "One should not be asking 'is there a relationship between teaching and research?' but 'to what extent can teaching and research interact to enhance learning?'" (Willis, Harper & Sawicka, 1999, 2)

Such investigations suggest a useful conception of research and teaching as processes towards learning, linked through scholarship/reflective practice. Woodhouse (1998, 47) suggests the academic as teacher should be a reflective practitioner, engaged in activity with research characteristics. As illustrated in

figure 17, curriculum, as the whole bundle of student experiences, and its impact on student motivation have been identified as critical integrating elements in the relationship between good research and good teaching (Elton, 2001).

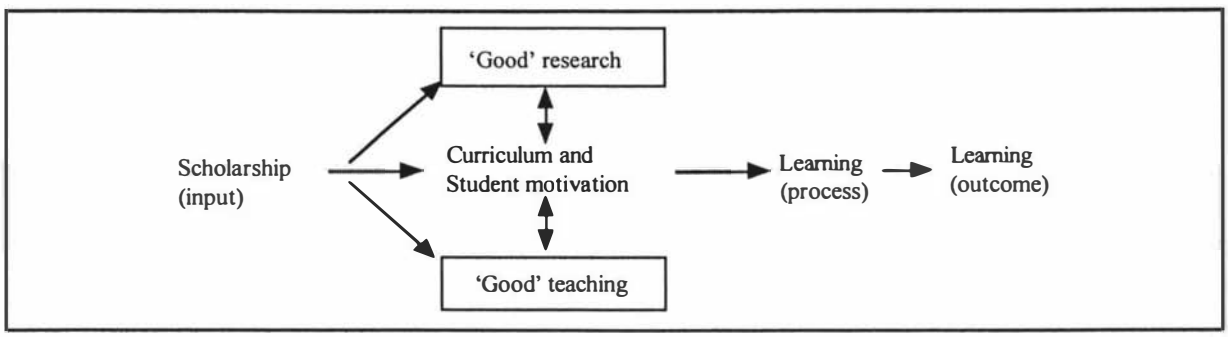

Figure 17: Scholarship, curriculum and student motivation - the mediating elements

Characteristics of curriculum that promote a constructive relationship between the two have been proposed by Willis, Harper and Sawicka (1999, 9):

> Modelling a research approach to a problem/issue;
>
> Recognising the importance of research skills through assessment;
>
> Encouraging students to participate actively in the creation of staff research;
>
> Making the development of appropriate research skills and understanding explicit;
>
> Creating a school research culture that includes undergraduate and post-graduate students[71].

These characteristics point to the relationships and interconnections between systems of process, systems of meaning and systems of structure and suggest the need for a systemic approach to curriculum design. Participants saw the tension between research and teaching as unproductive and unhelpful and potentially threatening to the viability of the Institute. Some saw refocusing attention on the curriculum design process and on the processes of learning and teaching as a means of establishing a more productive link between the two. A renewed curriculum was also proposed as a partial solution to the problem of at best static student numbers. Interventions towards resolving these issues are discussed in Chapter 8.

Diagnosing coordination: smoothing and balancing short term demands

> ... there's a competition for time between the two things. (Ac1)
>
> I don't see any management apart from individuals doing the managing. There is no management structure that's obvious to me that promotes that sort of balance [between teaching and research] occurring, in fact quite the opposite..... nothing to ensure that ability to do those things and work across is being enhanced. (Ac6)

[71] As an outcome of this project, the institute's research seminar series was re-established. While graduate students are routinely informed of these seminars, undergraduate students are not.

> In a lot of ways everyone is just expected to get on with their own bit with very little collegial support – there are a lot of people working on their own which I think is detrimental. (Ad5)

The work of university academic staff is predominantly framed and shaped by commitments to and performance in dual core functions of knowledge creation and knowledge transmission through the processes of research and teaching. While the 'interdependence of teaching and research' in the New Zealand university is asserted in legislation, ongoing tensions exist between the two, particularly in terms of demands on time and variable recognition and rewards. Jenkins (2004) noted existing evidence that commitments to teaching and research can be synergistic and complementary or antagonistic and competing. Thus, he argued that the relationships between research, teaching, broader work expectations and rewards need to be defined and managed at the institutional, departmental and individual levels to avoid potentially undesirable effects and counter-productive behaviours (Jenkins, 2004). The nature of the relationship between them is further complicated by the patterns of demand. Commitments to teaching can be at least loosely modelled and predicted over time as teaching responsibilities are cyclical and ongoing. The demands of research on Institute resources, particularly academic staff time, are less predictable as much of the work results from competitive bidding for projects. It is difficult to predict which bids are likely to be successful. Projects may start up at any time. Once projects are established demands can be estimated within a project for the life of the project. However, the total demands of research on resources at any time in the future cannot be forecast with any accuracy. Within the Institute there is little evidence of mechanisms to smooth and balance short-term demands or peak loads. The Head of Institute has indicated that the responsibility for doing so lies with individual academics and within groups.

Most participants were adamant that the relationship between research and teaching functions is not managed except through attempts to balance the workloads and opportunities of individual academics. The balancing and coordination of effort across the areas is simply the summing of the parts of individual agreements. The Institute's workloads model is recognised as a mechanism for smoothing demands across individuals but it is a very partial tool: through most of the life of the Institute it has quantified teaching loads but had not taken research commitments into account[72]. Ironically but tellingly, given the privileged status of research, for most staff, it is fitted around formalised commitments to teaching. The model provides quantitative data that could be used as part of a coordination function but does not address qualitative issues around the quality or value of work done or the impact of extremes in workloads on the wellbeing of individual staff members. Despite the operation of this tool, extremes still exist in the relative teaching loadings of staff. Multiple explanations were offered for this situation.

> It's a systemic problem. ... In that sense the system has been poorly set up, so unless particular managers take on board some sort of banner or find some way to integrate the teaching and research it will continue to be badly managed – it's just not the main objective for the Institute anymore. (Ac27)

[72] A review of the model undertaken near the end of this research for the first time built measures of individual research commitments into the model to provide a more comprehensive picture of individual academics' full workload. At the time of writing the outputs from the revised model had not been made public.

> We're struggling because of a lack of manpower - we're short of people with enough breadth – we've gone so narrow that we've only got one person specialised in one area, so if that person 'trips over' there's just a big hole. There's no support, so as people do, they crumble. (Ad5)

The perceived lack of effective coordination across teaching and research was seen as the consequence of a combination of practical resource constraints and the structural rules separating responsibility for research from responsibility for teaching that were put in place with the creation of the College. A third factor limiting the effects of the coordination function has been the lack of clear framing guidelines or statements of expectations of a reasonable extent and balance of work for individual academics or groups of academics from the University. An effective coordination function is difficult to establish without an effective policy frame and integrated control function and measurements system. Such frames were absent at the university level for most of the duration of this research.

As demands from the environment have resulted in increased pressures and performance expectations, workloads of academic staff have been affected directly. Coaldrake and Stedman (1999, 9) note that as academic work expanded to meet growing expectations, universities and individual academics have responded through "accumulation and accretion" rather than adaptation. They also noted that "[u]ntil recently the effect of change in academic work has been a blindspot in policy terms for many universities... and it remains so for most" (Coaldrake & Stedman, 1999, 1). McInnis (2000) has highlighted the need to investigate workload issues such as increased stress on staff, development of creative solutions to ameliorate problems, and "sustaining the primary sources of work satisfaction that best promote quality" (2000, 151; see also Winefield et al., 2001). Within the time-span of this research, the University in cooperation with staff unions developed a workload policy and procedures, which were the first to be formally approved at a New Zealand university, and followed four years of deliberation about workload principles and approaches to workload management (Paewai, Houston & Meyer, 2004). The group responsible for reviewing implementation of the policy noted the importance of explicit procedures for workloads modelling as a means to promote structured discussions about workload issues. The review proposed seven recommended actions by the University to clarify the planning environment for and constraints on work units including proposals for University-wide workload benchmarks and nominal expectations. The policy and recommendations to enhance implementation, for the first time established agreed workload planning principles of equity, transparency, reasonableness, safety and acceptability and linked processes of coordination to issues of reward and recognition and staff motivation (Houston, Meyer & Paewai, 2006). The flow-on effects of this reformed environment for coordination and guidelines for control had not become clear at the time of writing.

The lack of effective coordination within the Institute is still perceived as a threat to viability as is the misalignment of control mechanisms, particularly reward systems with the most important work – teaching.

Diagnosing Control: Who gets what and how are they accountable?

> Criteria for promotion are so strongly based on research outputs that it ensures that people are going to try to improve their research. (Ac2)
>
> There are some people who just get out of teaching as much as they can and do research all the time and they are just climbing the ladder without looking backwards. (Te2)
>
> The people who research get the credit and those who teach don't get much credit at all – it tends to split people into two camps. The teaching camp resents the researchers and the researchers tend to look down on the teachers who don't do much research. (Ad5)
>
> We promote people essentially on their research abilities and ability to bring in dollars. To say we value quality teaching is paying lip service to it. ...The only way that teaching comes into promotion at all is on quantity: if you can carry out loads of research and do a heap of teaching, you're considered a better prospect for promotion. (Ac4)
>
> How are we measured? I think we need to have some measurement systems that people feel comfortable with and that have some notice taken of the results. I don't know what comes out of SECATs... the only other quality method I know of is the [professional accreditation] one. Do we seek feedback from recent employers? I don't think we do. That would be a better way to measure our quality. (Ad2)

The control function – System 3 of the VSM - should encourage and monitor alignment of the implementation functions with organizational policy and objectives and in response to information from the environment. The most evident part of the control system within the Institute deals with financial and budget monitoring and planning. There is little space for resource bargaining as the research function is largely dependent on direct external funding of individual projects and teaching commitments are predominantly established outside the Institute. A control system for monitoring the annual performance of individual staff – the University's Performance Review and Planning (PRP) system – also operates at the Institute level although its implementation is inconsistent. Notably this system is focused on staff development and is not linked to promotion or reward and recognition systems. The Institute's annual teaching awards can be seen as a control mechanism designed to focus attention on and reward teaching quality. For the first several years of its operation, academic staff members were able to self-nominate or could be nominated by students or peers, although some staff had expressed concern that students were ill-informed about the existence of the awards and the nomination process. Towards the end of this research, due to difficulties in attracting nominees, the decision was taken that the awards in future would be based on the results of student evaluations of papers. An ad hoc group within the Institute selects recipients against published criteria. It is noteworthy that for the first few years of their operation, recipients of the awards received money that was earmarked for funding research activities. Later the award guidelines were changed to indicate the money could be used to support "professional activities" of recipients after the irony of the existing system had been the source of some debate. Otherwise control functions within the Institute are underdeveloped as is the audit channel (System 3* of the VSM). The only mechanisms for gathering immediate information from implementation functions/operational elements are informal discussions with individual academics.

Apart from some discretionary funding allocations at the edges of operations (e.g. a mechanism to make funds available for student research projects), the few systems in place mirror and implement control systems established at higher levels of recursion outside the Institute. One external control and audit

system, which focuses on functional operations of teaching, is the assessment process associated with professional accreditation of some undergraduate degree courses. Each five-yearly accreditation review visit prompts a flurry of activity to ensure that the degrees comply with the requirements of the professional body. More recently the University has introduced a policy requiring regular internal reviews of courses and programs, which also has affected parts of the Institute's teaching operations. These reviews, however, occur within the structure of the College, not the Institute.

The major control systems that affect the Institute's functional operations are the University budget process, its staff promotion system and the University-wide requirements put in place in response to the Government's Performance Based Research Fund. Two of these systems, as with PRP, focus on individual staff performance. The PBRF assessment exercise explicitly focuses on research performance and the University's academic staff promotion system is seen by many to do the same:

> ... research is what I'll be promoted on. (Ac2)
>
> You look around and say 'if I get promotion that means I'm doing what my employer wants me to do: How do I get promotion? I'll do that.' If the message is quite clear around the place that if you really want to get promotion you write a few papers, then you write papers rather than trying to change the system. (Ac5)

Nearly 30 years ago Kerr, in a paper called "On the folly of expecting A, while rewarding B" noted:

> "Society *hopes* that [university] teachers will not neglect their teaching responsibilities but *rewards* them almost entirely for research and publications.... Consequently it is rational for university teachers to concentrate on research, even to the detriment of teaching and at the expense of their students." (Kerr, 1975, 773 italics in original).

Many academics, including participants in this research, believe this contradiction remains three decades later (McInnis, 1999; Bellamy, Morley, & Watty, 2003). While rhetoric links research and teaching, the control functions influencing the Institute from its environment tend to privilege and consequently direct attention to research operations. The PBRF mechanisms, in particular, are seen as autocratic and potentially counterproductive hardening the boundaries between, rather than integrating research and teaching.

In summary, control functions within the Institute are weak, arguably because there is little discretionary resource allocation for the Institute to exercise control over. The research function operates and is resourced largely autonomously within the boundaries of discrete research programs or projects as subsystems within the Institute. Teaching commitments are bounded and determined more by courses and program requirements that exist beyond the Institute than by the Institute itself. The Institute's teaching obligations are established externally and its ability to adjust its teaching commitments is circumscribed by those external requirements. The Institute is only able to reduce teaching by reducing paper offerings: it can only reduce paper offerings if course schedules and regulations are changed by the College to remove papers. University-wide control systems focus on the performance of courses and individual academics: they focus outside the boundaries of the Institute or on sub-systems inside the Institute respectively. Financial control systems focus on the Institute simply because it has been designated as a budget centre. The inability to articulate appropriate control functions, beyond financial reporting, may suggest that the Institute is an arbitrary construct and not a viable organizational entity.

Diagnosing intelligence [development and marketing]: understanding the environment – assisting it to understand us

> How long is it since any of our HoIs have been on central committees of benefit to the Institute in terms of the shoulder rubbing that goes on and the inside knowledge they can bring back? A lot of that has been lost. So we're not doing that very well and we're not doing the internal politics of the university very well either. (Ac27)
>
> I find it ironic that [this is] a very applied Institute that's very industry focused and interacting with the movers and shakers of industry, yet we don't seem to incorporate a lot of change thinking in what we do. I don't see us doing a lot of talking about teaching programs, where we should be going, among the academics. (Ad4)

The intelligence function - System 4 - is where internal and external information can be brought together to enable both rapid responses and long term planning to promote alignment between the organization and its environment and hence viability. Jackson (2000, 161) notes that System 4 should be the location of activities like corporate planning, market research and public relations to provide an environment of decision: it is difficult to identify coordinated activities within the Institute that are future focused and promoting, let alone guaranteeing, adaptation.

Since its creation the Institute has been affected significantly by a university-wide "repositioning" project designed to reduce staffing levels (in 2000), the development of a strategic agenda for technology and engineering at the University (2003) and subsequent to the release of that report, the creation of an overarching School of Engineering and Technology (2004). In each of these situations, the Institute was seen by staff to be reacting to fait accompli rather than effectively engaged in influencing decision making processes with potentially major implications for the Institute. As noted in Chapter 7, participants saw the previous HoI as somewhat isolated from staff and as "a good employee" enacting University and College decisions rather than actively shaping the future of the Institute. Some participants noted the impact of imposed changes on the attitudes and involvement of staff in decision making. Issues of planning about and for the Institute seem not to capture the interest of or generate enthusiasm amongst many academic staff.

Market research and marketing of courses and programs initially was an Institute responsibility. As one participant noted: "Our previous HoI gave [people] glowing letters of appreciation of us being on the marketing committee and then suddenly it disappeared and I don't know where it's gone. No-one has said anything to me about it – it's suddenly not there anymore" (Ac6). Early in the Institute's existence marketing was officially centralised as a University and College level function with only indirect contributions by the Institute itself. In 2003, responsibility for these functions was returned to the Institute and the Institute appointed staff to develop a medium- to long–term marketing plan for key courses. In mid-2003 the plan was adopted. In mid-2004 with the creation of the School of Engineering and Technology, responsibility and budgets for marketing of courses was transferred to the School. Early in 2006 part of those responsibilities and some funding were returned to the Institute. The Institute Development Manager on more than one occasion has indicated significant difficulties in identifying what it is we are trying to sell (personal communication).

In summary, the loose and largely informal management structures of the Institute combined with the diversity of courses and academic staff interests, and the associated diversity of academic and industrial environments seem to militate against the development of an effective intelligence and development function. On rare occasions staff meetings have provided a "System 4"-type function. Throughout the life of the Institute, staff meetings had disappeared and been revitalised several times but have not been a regular on-going characteristic of its operation. System 4 continues to be ill-defined and under-developed within the Institute.

Diagnosing policy: identity? direction?.... What direction?

> I know what people used to think because they were the people who used to have like minds about what we were aiming for in the old faculty. I'm not convinced that people who've joined the Institute in the last 5 years have any feel for the approach that we used to be unique for. We were the best at what we did. So I think we've lost some of our culture.... (Ac5)
>
> I think we're in danger of a lot of the culture built over many, many years being lost. Our energies are dissipating in other directions and the structures aren't there to identify it again and bring it to the fore. (Ac6)
>
> [There is] an attempt in some quarters to have a unified go forward focus - an underlying ethos of 'helping industry', which perhaps we're not succeeding in achieving. (Ac27)

System 5 of the VSM is the policy function responsible for the direction of the whole organization. It represents "the essential qualities of the whole system" (Jackson, 2000, 162), i.e. the ethos of the Institute to the outside world, and is the formal link to the next higher recursion of organization – in this case the College. The policy function must balance adaptation to the external environment with an appropriate measure of internal stability. Jackson (2000, 162) notes that decision-making needs to be formalised and the effects of decisions monitored without threatening freedom of interaction within the function. Beer (1981) recommends that System 5 be arranged as a "multinode" - an interactive assemblage of managers.

Formally the Institute has a management board of one: the Head of Institute is the only officially designated academic management position in the Institute. Professors in the Institute are expected to provide academic leadership for their disciplinary specialism and to perform administrative duties but are not designated as managers. The Institute has in place a system of nominal 'academic group managers' (AGMs) who act as mentors for academic staff members, primarily implementing the University's Performance Review and Planning procedures[73]. These are internally created roles and not substantive positions formally recognised beyond the Institute. The Head of Institute, AGMs and the Institute's Administrative Services Manager comprise the Institute Executive Group. It is notable that the Institute Development Manager, who has a key responsibility for intelligence/planning, is not a member of the group: communication between System 4 and what might be seen as a focus for System 5 passes through the office and person of the Head of Institute. Minutes from meetings of this group suggest that it mainly receives reports from the Head on developments and decisions at the College and University levels and

[73] These nominal 'academic groups' cut across academic disciplines and have no formal standing or substance within the Institute. One or two of the academic group managers meet with their group on a regular basis to pass on information about decisions and actions, but such group meetings are the exception rather than normal practice.

regular updates on administrative matters of finance and staffing. There appears to be very little decision-making by the group. The functions of system 5 seem to be concentrated in the position and person of HoI. As noted earlier, the position has had three occupants during the period of this research[74] and their ability to formulate policy for the Institute has been largely constrained by developments at the College level. Similarly, the various occupants seemed to have little impact on the development of an identity and ethos for the Institute. The lack of agreed identity, the dilution of values and ethos as established staff members have left and new staff members have arrived (in many cases as a consequence of strategic decisions made outside the Institute)[75], the focus on short-term survival evident from participant comments (see Chapter 6) and the underdeveloped communication channels have also contributed to an environment of ongoing tension between continuity and change.

Diagnosing communication channels

A consistent theme throughout participant interviews was that of limited communication. Some academics noted the disappearance of staff meetings that had been a major communication channel, but some of the technical and administrative staff seemed to be more concerned about the lack of such mechanisms to enable information sharing and input into decision processes.

> ... people don't know what's happening because we don't have staff meetings. People don't have the chance to say things about the running of the Institute. (Te2)
>
> ... leadership from the top and *communication*. [I]t would help us to do better if people talked about things more. (Ad5)
>
> We don't ever have that sort of group meetings where we can say what we think or brainstorm, and when people come up with good ideas, do we support them? (Te3)

Particular concerns were expressed about the perceived secrecy of strategic planning:

> ... my assessment would indicate the serious need to review our interrelationships and interpersonal functionality. There's a lot of secrecy and I don't know that that's a good idea. (Ac3)
>
> It would be good to be informed of decisions being made and to have input to some decisions that are going to affect us. An admin person's perspective is different to a manager's or an academic's and it can change the situation. (Ad1)
>
> There's the engineering task force report .... The task force was working last year and everyone knew about it but no one was actually told about what was happening. So I think there are some issues like that that could be addressed. (Ac2)

Early attempts to develop a strategic direction and vision for the Institute had faltered partly because of staff members' apparent lack of receptiveness to information and lack of participation when opportunities were created. As participants noted:

> While some administrative or management units aren't good at disseminating information down, there's no point if people aren't listening – it's equally of no use. (Ad4).

---

[74] Shortly after the conclusion of fieldwork for the research, the most recent Head of Institute announced that he was leaving the position after a tenure of just over two years.

[75] Of the 59 academic staff members in the Institute in 2000, 30 have departed. In the same period sixteen new members of academic staff have been appointed. At the time of writing, over 30% of current academic staff members have been with the Institute for less than five years.

> Communication has got to be two way. Here it seems to be 70:30 out of favour with communicating. Whether that's a reflection of the management we've had.... Maybe the lack of communication suited a proportion of the staff – I don't know why. (Ac22)

Another commented "the main complaint is lack of communication but there doesn't seem to have been much effort to pin down the problem and fix it. We can be accused of just ignoring that problem – we [academic staff] haven't gone out to do something about it." (Ac5)

Communication channels are poorly formed and intermittent in operation. Effective control loops are not evident.

Comments on threats to viability

> We do assume there is a target – it might not be there: we might just be an amorphous mass bubbling along... (Ac5)

Jackson (2000, 165) identifies six common organizational design faults exposed through such analysis. The first is poor articulation of the different levels of recursion, particularly where the importance of parts of System 1 is not recognised and the implementation functions are not treated as viable systems in their own right. This fault is evident in the design of the Institute, specifically in relation to the teaching function. The fundamental unit of the teaching function for the University is a course or program: the course is the focus of design and approval mechanisms and is the basic unit offered to students. Students enrol in courses. Papers exist within a course or courses. Within the College, System 1 defined as the delivery of papers within course structures, lies inside the boundaries of the Institutes, while systems 2 through 5 reside at the higher recursion level of the College. The boundary between the Institute and the College separates the functional systems within teaching (Figure 18).

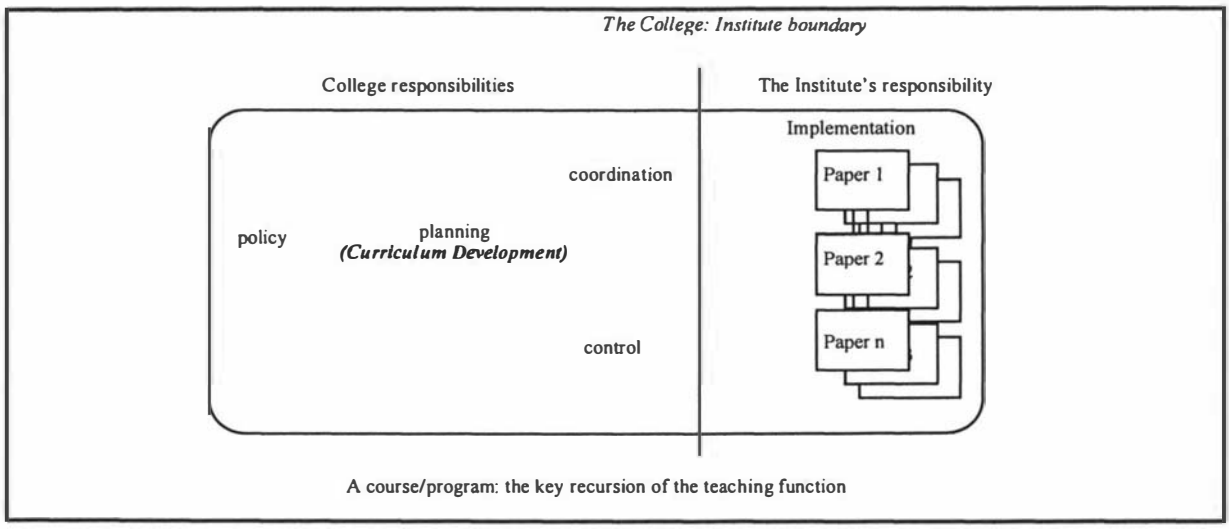

Figure 18: Misplaced boundaries on teaching

Mechanisms to cross the boundary are not robust. The Academic Directors and Program Coordinators responsible for course quality have little authority over delivery as they have no responsibility for the

performance of academic staff and are not directly responsible for paper quality (as the next recursion within teaching). This is likely to hamper effective course implementation rather than enhance it. The second fault is the existence of organizational features that are additional to those necessary for viability: this does not seem to be a problem evident in the Institute. The features are minimal rather than over-developed. The third fault is that Systems 2-5 demonstrate a tendency to become autopoietic, that is self-reproducing and serving their own purpose rather than serving the whole system. The Institute's coordination function as represented by its workloads model shows a tendency towards autopoiesis: data is collected, analysed and reported but seems to only rarely influence decisions about smoothing demands across the parts of System 1.

The fourth fault is that key parts of the functional system are revealed as being absent or not operating effectively. The analysis above indicates that Systems 2, 3, and 4 all are under-developed or ineffective. Fault five is evident as System 5 has significant difficulty representing the organization's essential characteristics and interests to the wider system. The vestigial nature of systems 2-4 suggests that communication channels between them and between the organization and its environment do not correspond to those necessary for the organization to be viable: fault six is also evident.

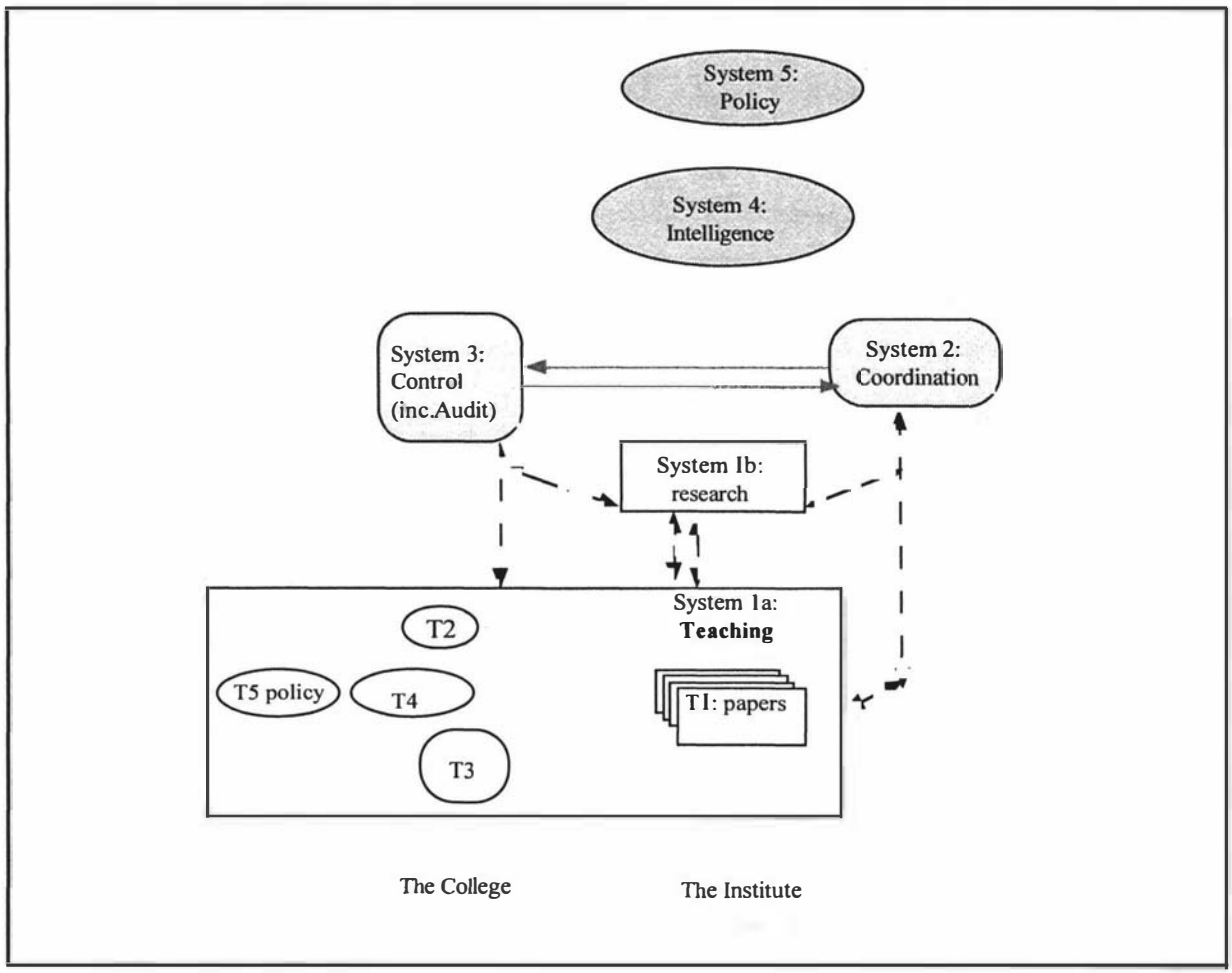

Figure 19: The Institute - an unviable system?

The greyed areas in Figure 19 indicate functional systems that people see as underdeveloped or non-existent. Communication channels are broken or clogged. The Institute appears non-viable.

What should be done?

The diagnosis in the previous section indicated several potential points for intervention to promote viability, which could be seen as a prerequisite for a focus on quality. The indications from the analysis echo views expressed by participants in interviews. In prescriptive mode the following could be seen as an agenda for improving viability.

In terms of vision and policy:

> We need to be better at painting a vision. (Ad4)
>
> Then you've got to get the team behind you. The team analogy is appropriate to what we're doing – everybody must play to the plan. The picture changes a bit but you have to have a plan of where you're going. *The target hasn't been clearly articulated.* (Ac5)
>
> If the vision is there, it may take time but it works through the place. (Ac1)

In terms of intelligence and planning, the need was identified to better sell what the Institute has to offer to get more students through the door.

In terms of coordination:

> Management needs to step in and ensure that there is fairness, equity, transparency – all that stuff that we've discussed over the years in the Institute - not that everybody should carry an equal teaching load - there are staff development issues – so that everybody feels that they are getting a fair go – nobody is getting any special bias. (Ac5)

In terms of the implementation function, there was an identified need to re-establish effective ownership of courses rather than papers. Curriculum development – the core intelligence/planning function for teaching, was seen to be out of the hands of the Institute. As the University's Code of Practice for Curriculum Development (1999, 4) notes

> Curriculum can be characterized in a number of ways:
>
> curriculum as content - the topics and subject matter to be taught
>
> curriculum as experience - the planned and other experiences encountered by learners in educational contexts
>
> curriculum as intention - statements of predetermined aims, objectives and outcomes, and planned learning experiences for students
>
> curriculum as cultural reproduction - the passing on of the accepted knowledge, values and behaviours of a discipline, profession or society to the succeeding generation
>
> Each of these images contributes to the characterization of curriculum used in this Code of Practice:
>
> *All the planned learning opportunities offered to students and the experiences encountered by the students when the plans are implemented. The curriculum is the plans, practices and outcomes of the interaction between the student, the curriculum documents (plans) and the teaching staff.*

The systemic nature of curriculum has been explored elsewhere: curriculum ideally provides a systemic framework for the experiences of learning and tasks of teaching (Houston, 2004, 2005). The curriculum design and development process provides the bridge linking key inputs from the environment to ideal outputs and outcomes: curriculum development maps to Beer's system 4 – the planning/intelligence function for a course (figure 20). In the best of worlds the curriculum design process takes into account student backgrounds, the body of the discipline, and educational theory and good practice as the starting anchor points and foundations for constructing the bridge. It takes into account the values and expectations of the university, society and the discipline in establishing the characteristics of outstanding educated graduates. It informs the essential characteristics of the course and shapes the framework for the implementation subsystems – the papers.

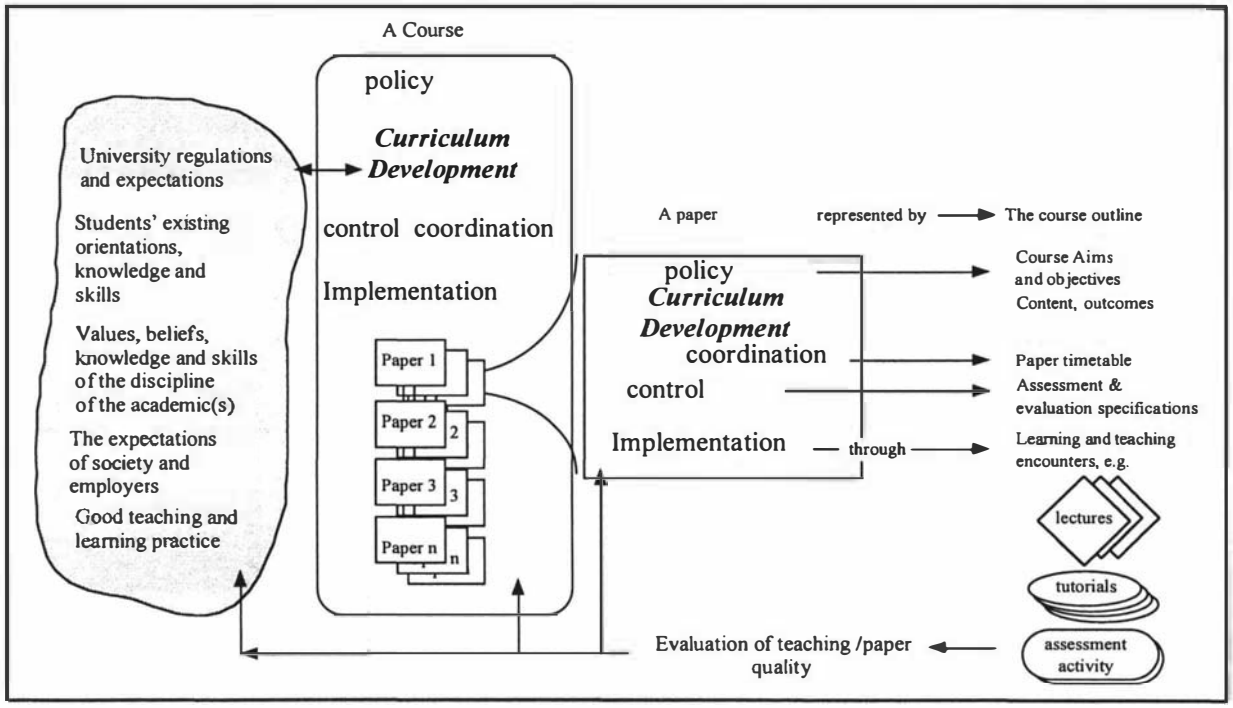

Figure 20: An ideal systems perspective on teaching: curriculum development as planning/intelligence

The formal organizational isolation of paper implementation from curriculum planning was identified as a potentially significant leverage point in relation to the viability of the Institute and courses. As noted in Chapter 6, another major potential intervention and leverage point for improvement in the Institute was to open communication channels - to get people talking. The implementation of interventions intended to address these faults is described in the next chapter.

Chapter 8
Implementing interventions

The previous two chapters have described the processes and outcomes of the creativity and choice phases of the research respectively. This has possibly created the impression of clearly contained and bounded linear progression through a fixed sequence of steps. As noted in Chapter 5, however, TSI in problem solving mode is not a linear, lockstep process. Rather it is an iterative process. Within it the phases interact in a variety of ways and the phases themselves are not necessarily discrete. Midgley (2000, 113) provides a methodological definition of intervention as "purposeful action by a human agent to create change". The acts of asking questions and presenting results from asking them, by this definition, are both interventions: the first was purposefully designed to elicit information and to encourage reflection on the situation of the Institute; the second was designed to share developing understanding and to prompt further reflection. In Midgley's terms, entering into the creativity phase of the approach is, itself, an intervention.

Similarly, the problem solving process is not isolated from its environment. It is intended to influence, and can be influenced by, contextual factors. Both asking the questions and presenting initial findings prompted some direct interventions 'outside' the main research process. For example, the Institute's research seminar series was re-activated as a means of promoting information sharing about areas of work and getting people talking: this was a direct consequence of asking questions about communication within the Institute. The initiative to re-introduce the seminars was taken by an individual staff member. As part of that series, I presented a seminar on findings and progress of the research interviews so far (see appendix 2). That seminar prompted a request from the Institute's Administrative Services Manager for me to make a special presentation to the Institute's support staff who normally do not attend the research seminars. After the presentation to support staff, several members of the group informally offered their endorsement of the findings to that point and suggestions about what should happen to improve the Institute, while others volunteered to be formally interviewed. Some participants subsequently indicated that 'things had happened' that they saw as prompted by the research presentation. In these cases, the initiative to get people talking came from other individuals, whose actions were influenced by this research but not integral to it. Similarly, in mid-2003 my discussions with the then acting HoI about the research project contributed to the re-introduction of Institute staff meetings as a forum for discussions. Other staff, including one of my research supervisors, had also taken the opportunity to suggest their revival as a means for improving communication and getting people talking.[76]

While the research led to some interventions outside the 'research' process but as a consequence of it, other interventions formulated within the research process connected to and built on opportunities created by larger activities that were initiated outside in the broader environment of the research project/process. Within the timeframe of the work presented here, the University initiated a program of activities focused on the first year student experience. A number of staff saw the University's interest in the issue as a

[76] Staff meetings over time fell away yet again.

mechanism to refocus attention on the experience of students coming into the courses into which Institute staff taught and to prompt greater interest in the overall student learning experience and its place in the Institute. Several structured interventions were identified to address the key issues of vision and direction, student recruitment and retention, and the relationship between teaching and research, which had been identified as I worked through the analysis of participants' perspectives. The interventions were:

i) further problem structuring to reformulate the problem of low student numbers – "we need more students" was a recurrent theme through the interviews – using rich pictures to attempt to identify constructive interventions.

ii) subsequent to i) attempted reform and improvement of the first year student experience around a research-based rationale for project-oriented curriculum for the first years of study and development of a conceptual design under my guidance.

iii) conceptual and process input to promote systemic consideration of curriculum issues and design.

iv) a participative, interactive strategic planning process to promote critical discussion about preferred futures for the Institute. A one-day workshop was planned and facilitated for key staff in the Institute.

Further discussions with Institute staff about the analysis and possible actions towards improvement identified varying levels of support for these initiatives, but sufficient to warrant further action. This chapter describes the attempted implementation of each of these planned interventions.

Structuring the student recruitment problem

As noted in Chapter 6, most participants commented on issues around student numbers and the implications for the Institute's viability given the Government's funding policies based on student numbers. Attracting and keeping students was recognised as critical to the Institute's survival. For several years the problem had been seen as one of marketing and recruitment. The Institute had invested significant resources in several marketing initiatives but undergraduate student numbers continued to decline. The Institute development staff, while primarily tasked with marketing roles, expressed considerable interest in attempting to reformulate understanding of the problem to expand the possible range of alternative actions.

I previously had been exposed to Checkland's Soft Systems Methodology and the use of rich pictures[77] as a method to share ideas and develop understanding of the elements and interrelationships in a problematic situation. The rich picture presented in Figure 21 was developed over several days of intermittent discussion with a small group of interested individuals[78]. The various revisions and extensions to the picture were drawn on large (600 mm x 660 mm) pieces of paper stuck to my office wall. As visitors

[77] The term 'rich picture' was initially used by Checkland to indicate the expression of a problem situation. In subsequent applications the notion has been taken literally. Participants construct pictorial, cartoon-like representations of the problem situation. (Jackson, 2000)

[78] The picture presented resulted from several iterations and refinements. I, acting as final draughtsman, tidied up the picture to give this 'final' form.

dropped into the office they were asked for their views of "why we don't have enough students?" and to contribute to the picture. After making their contributions to the developing picture, they were asked "what might we do about it?"

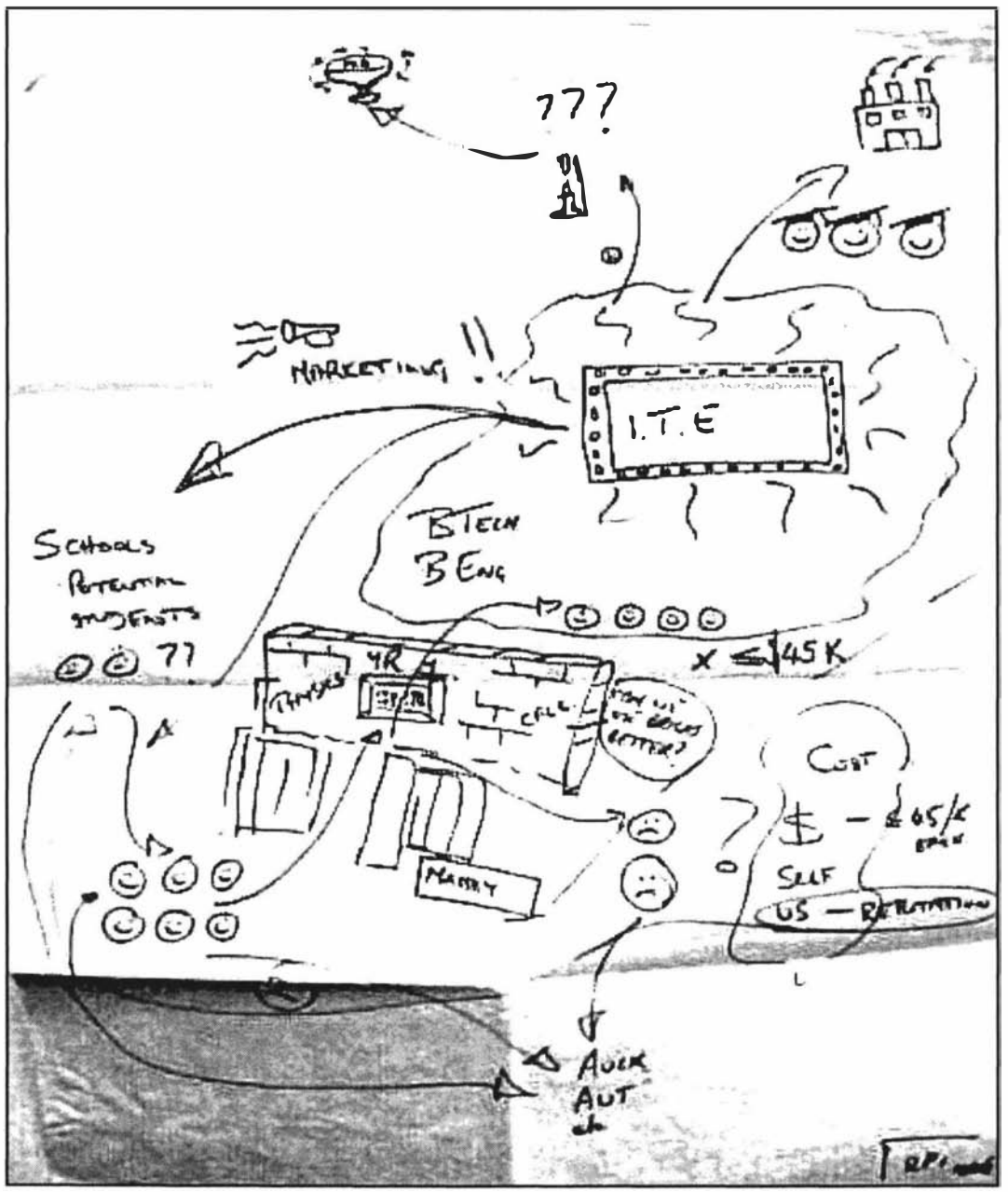

Figure 21: "Why don't we have enough students?" - a rich picture

The initial inputs - near the centre of the picture - focused on ineffective marketing. Early responses to the later question of "what might we do about it?" focused on the need to sell the 'bright lights' of the Institute more effectively; 'we need to trumpet better and more loudly' to potential students to convince the uncertain and undecided that the Institute's programs were the best product on offer. The solution to the problem was to do more of the same but better: better marketing would cause more students to come.

As the picture developed, staff began to think more widely around the picture as well as to fill in details. Redoubled marketing efforts had not worked to solve the problem – there were clearly other factors that influenced student numbers in the Institute. One participant voiced the view that the issue wasn't attracting students but rather keeping them.

As discussions continued it became increasingly clear that staff understood that students were coming but a significant number were not progressing beyond their first year of study. Many would come in through the open, welcoming gates of the University only to hit the "brick wall" of the first year curriculum. The first year curriculum provided a glimpse of the Institute and what it does through the window of two introductory papers surrounded by a wall of fundamental, mostly scientific knowledge. Many did not get over the wall.[79] It was recognised that their 'failure' had significant implications for the students themselves in terms of their self-perception and self worth, as well as costs for the Institute. The costs to the Institute included more than just lost revenue [although that amounted to up to $45000 per student[80]]. There were seen to be costs to our reputation as failed students recounted their experiences to friends and family including other prospective students. Also, while the Institute bore the cost of marketing activities, others gained the financial benefit as the income associated with first year students was predominantly allocated to other Institutes providing the science and other related basic knowledge through service papers in the first year curriculum. As the picture was shared with wider groups of staff two substantial initiatives, both consistent with suggestions made during earlier interviews, began to take shape and gain some momentum.

The rich picture of marketing/retention was taken onboard by the Institute's development staff who made substantial changes in how the programs were being represented to potential students. Several months of effort were committed to establishing relationships with schools and developing learning programs to help potential students understand the importance and potential of science and technology and to emphasise the differentiating characteristics of the Institute's courses. As the marketing and liaison projects were beginning to gain traction, a decision was taken outside the Institute, which resulted in a significant setback to the activities. With the establishment of the School of Engineering and Technology[81], the budget and primary responsibility for the marketing function was transferred outside the Institute as was one member of the development staff. The activities came to an abrupt halt while lines of responsibility for the marketing of degrees were reformed and the nature of appropriate marketing activities reconsidered. In terms of the VSM, the Institute development staff attempted to strengthen the key marketing part of the 'within teaching' Intelligence function and strengthen the linkages into a crucial

[79] Subsequent data analysis confirmed that some 30% of students were not progressing beyond the first year and that there was no substantive data on reasons for students discontinuing their studies.

[80] Each student attracts approximately $15000 funding per year in the four-year course. For each student who does not continue beyond the first year the Institute nominally forgoes three years of funding as very few students drop out after the first year.

[81] The School of Engineering and Technology was created to provide an overarching identity to provide a common focus point for the Technology and Engineering degree program in the University and for academic staff teaching into the program. In the formal organizational structure these staff were located in five separate institutes.

part of the Institute's environment. Those efforts were cut short when that function was excised from the Institute as a direct result of unanticipated changes in another part of its environment.

The picture was shown and explained to academic staff, who responded in a variety of ways. While all agreed that the building blocks of sciences were essential, some expressed the view that the core of the issue lay with the capability of some students, who just were not up to the required standard. For others, the picture prompted the question: "can we use the bricks better – as a path rather than a wall?" A related question arose which reframed the issue of student retention and progression: "Are the students failing the course or is the course failing students?" These questions became the focus of a second substantive intervention to re-examine the nature of the first year curriculum – defined broadly in terms of the students' experience. This is described in the next section.

On several occasions the rich picture was shared with students as an example of using the tool and to gain their reactions to the specific picture. Students' responses generally indicated that they saw it as a good representation of their own experience. They agreed that a substantial number of their own first year student group had not 'made it' beyond first year for a range of reasons and in their own experience first year was endured and survived rather than enjoyed. Significant potential existed to make the first year experience better.[82]

Improving the first year experience

The problem of the first year experience of undergraduate students illustrates the complex interactions at the structural boundaries of the Institute. The Institute attempts to recruit students into degree courses using information focused on the practical applied characteristics of the Institute's offerings. However, the students' first year of study comprises mostly (six of eight) foundational sciences papers predominantly taught by academic staff from other Institutes with a focus on imparting fundamental scientific knowledge. That is, students who come to study engineering and technology must survive a year of "the basics" before experiencing any substantial exposure to technology and engineering papers. There was little agreement about the appropriateness of the way in which those fundamentals were being taught.[83] Some staff in the Institute perceived that the nature of the first year of study had a significant impact on retention and progression of students into the Institute's papers. Something needed to be done.

The re-surfacing of local concern about the retention problem coincided with the emergence of a similar university-level concern. The University's Statement of Objectives 2002-2005 included the following:

> To be recognised as providing a superb *first year experience* for our students and to pursue initiatives that will enhance the overall student learning experience at Massey University (2002, 13).

[82] One group of senior students introduced to the picture late in the research process strongly suggested a [somewhat disturbing] amendment to the picture – they collectively agreed: 'there's one feedback loop missing – graduates telling prospective students not to come!' The strength of that response was alerted to senior staff closely involved with the particular group of students.

[83] Neumann (2001) and Neumann, Parry and Becher (2002) note disciplinary differences have significant impacts on conceptualisations of teaching and learning and on teaching practices.

To place high priority on the *first year experience* for our students (2002, 5).

In October 2002, the Vice-Chancellor's Executive Committee (VCEC) approved in principle a draft proposal to prepare a phased 3-year First Year Experience (FYE) project, and the FYE Taskforce was appointed early in 2003. The taskforce presented a draft report to VCEC in June 2003. The taskforce noted that the approaches taken by the University in this area should reference the body of knowledge on student retention and progression and be research-led - rather than being driven by belief, opinion or institutionalised practice in the absence of evidence of effectiveness. The taskforce proposed that the draft report be circulated widely for consultation with key stakeholders including all academic staff. Interested staff within the Institute grasped the consultation process as an opportunity to promote curriculum change.

The Acting Head of Institute invited me to provide the Institute's contribution to the College's response to the report. Following a meeting to develop the College response, a participant representing the technology and engineering program observed that "rather than looking at how to improve the first year experience the meeting was very defensive and concerned with the very high failure rates. One of the suggestions from this meeting was to impose entrance exams." (Personal communication) The formal response by the College noted "the on-going commitment ... to provide optimal learning experiences for its students" and noted good practices in place. The response noted "pass rate improvements should derive from genuine improvement in student learning and not by administrative decree". At the same time it did not support a formal program of further research on the issue and observed "it isn't obvious that an improved FYE is a matter of training teaching staff." The College response also touched on academic matters noting "a document on the First Year Experience should have included statements regarding "Academic Standards", "Student Aptitude" and "Entry Level Requirements" in a section dealing with Fundamental Principles." The response was silent on matters of curriculum design and delivery of courses.

Working in parallel to the formal College process, I convened a small group of staff, who had individually expressed interest in the issue, to develop a response to the FYE Taskforce report. Our response endorsed its broad thrust. We noted "with some concern that the majority of the recommendations deal with issues one step removed from the student learning experience and key curriculum issues. While some recommendations apparently address the identification of best practice in delivery, there is little obvious attention to issues of best practice in curriculum design."

A review of current support mechanisms for technology and engineering students produced on behalf of the Technology and Engineering program reached a similar conclusion:

> It is considered by a number of staff associated with the Engineering & Technology programmes that a radical overhaul of the first year is required if it is to be made into a "superb first year experience". Research findings in the area of the school to university transition are currently being investigated, as are possible alternative methods of delivery based on research proven methods, which lead to successful learning, by the individual.

The Manufacturing Interest Group within the Technology and Engineering program endorsed the work towards a redesign of the first year curriculum: as noted in the minutes of a group meeting (1/9/03) " the proposal to rearrange the 1st and 2nd year teaching to provide parallel teaching of theory and practical applications was well received." While only a few staff were present at this meeting, their support was considered sufficiently strong for the work to proceed. The next stage involved bringing together findings from the research literature on the first year experience with informed reflections on the current experience of our students and developing a range of possible specific interventions. We also believed that telling the story as we saw it was an important part of the process. An opening in the schedule for the Institute's seminar series created the opportunity for us to try to sell our message and generate further support. Appendix 3.2 reproduces the presentation made to the Institute staff and subsequently to participants at the Vice-Chancellor's Symposium on the First Year Experience (12/11/03). The presentation was intended to place the Institute's problem of student retention and possible interventions to address it in the context of research evidence on the first year experience. The presentation was well received by Institute staff but gained a mixed response at the Vice Chancellor's Symposium: while some staff from other institutes were supportive, others responded defensively to the perceived criticism of teaching in their institutes. Despite the mixed reactions from those outside the Institute but likely to be affected by the initiative, we proceeded to further refine our proposals.

I, in cooperation with two other staff members, developed a proposal seeking funding from the University's "Fund for Innovation and Excellence in Teaching" to support our work on the first year curriculum. The Head of Institute[84] endorsed the proposal noting "We need to be seen for IPENZ[85] accreditation reasons as much as any to be in tune with modern engineering education thinking." The endorsement was clearly couched in the context of being seen to do the right thing rather than in terms of the intrinsic importance of the issues of student learning and retention. The application was successful and funding approved in June 2004, however, only half of the requested budget was allocated to the project. As the budget was mostly to fund staff release time, the reduction in funding imposed a significant constraint on the time available to progress the project. The implicit expectation was that the project largely would be undertaken in addition to existing responsibilities rather than in place of them.

The application noted that the first phase of the project would involve further research in the literature to identify existing good practices and to provide further evidence to support the efficacy of such an approach. This was to be followed by detailed design and development and negotiation with potentially affected groups. One of my colleagues, who was directly involved in first year teaching, took primary responsibility for the detailed design and development for the student projects and negotiations outside the Institute. An expected outcome was increased awareness and understanding of the techniques for, and benefits of integrated, project-based curriculum. While the background research progressed well identifying a substantial evidence base and a wealth of resources to support such an approach, the

[84] Between the presentations in November 2003 and the development of the funding application, a new substantive Head of Institute was appointed.

[85] IPENZ – Institute of Professional Engineers New Zealand – accredits the University's courses in relation to whether they meet IPENZ's educational requirements for graduates to obtain registration as professional engineers.

development process slowed substantially as it became clear that staff were expected to give their primary attention to preparation for the looming course accreditation visit by IPENZ scheduled for October, 2004. The work continued in the background, but at a much slower pace than originally envisaged.

Influencing curriculum

In November 2004, the Program Director of the Technology and Engineering program initiated a review of the cluster of manufacturing majors within the program. The review group was given potentially wide-ranging terms of reference but short reporting deadlines with an interim report due in December and a final report due in February, 2005. The group was required to report on the following terms of reference:

> For each major:
>
> Sustainability of the major.
>
> Programme aims, and the academic rationale on which they are based.
>
> Programme content, and links to other programmes within the Bachelor of Engineering and Bachelor of Technology degrees.
>
> Include appropriate comments and recommendations from the IPENZ Accreditation review that was conducted in October, 2004.
>
> Recommendations regarding continuation of the major, and its future content.[86]

The review group was expected to consult widely within the College. I saw the review as an opportunity to refocus attention on the earlier project-based curriculum design and to promote thinking about the broad issues of sustainability and academic rationale included in the first two terms of reference for the review. I distributed some notes (appendix 3.3) on my thoughts that attempted to put the review into an educational context reflecting current research to prompt some different thinking as there was potential that the review could be captured by the narrow concerns around content and papers contained in Term of Reference 3. The notes attempted to bring together research on: the first year experience and student persistence and success, links between research and teaching, and experiences of project/problem based learning in engineering and similar professional, practice-based disciplines internationally. The notes included a broad agenda for actions, based on an academic educational rationale, that could be taken to enhance the students' educational experience:

> Immerse them in technology and engineering from day 1 through enquiry-based curriculum, based on engaging with what the discipline/profession does.
>
> Technologists/engineers answer unanswered questions about:
>
> What products/machines/processes to produce?
>
> How to produce them?
>
> Why bother? [economic and social benefits]
>
> They also need to know about the contexts in which technologists/engineers function [the social, economic and organizational environment of technology/engineering practice].
>
> Who is interested in /affected by technological solutions?
>
> AND

[86] The quotes in this section are drawn from documents and emails distributed publicly to staff during the review process.

Technologists/engineers systematically find stuff out to solve problems on the way to providing answers.

So let's start by helping 1st year students to:

frame the questions

find information

analyse it and make decisions based on it

through introducing them to systematic processes of enquiry and problem-solving.

The intent of the ideas presented was to try to shift the focus of the review beyond content and specific topics that engineers need to know, towards considerations of what engineers do - the processes of enquiry and problem solving at the heart of engineering practice. The notes prompted only one response before the meeting. It was very supportive.

> ... why is there any opposition to your comments/observations, and if no opposition why are we not already doing it?
>
> ... in [our major] we see the students for the first time in second semester, year two, this seems to be a little unusual. My previous experience in writing degree programs, common first years and the links to senior years in particular, which is extensive - NZ, UK and Australia, is to develop more experiential and investigative rather than predictive and prescriptive courses.

The first review meeting was well attended by staff from the Institute. However, only one staff member attended from other institutes that have substantial input to papers taught in the cluster of majors. I attended and reiterated the ideas to the meeting. The minutes from the meeting noted:

> At this point we threw everything up in the air and looked at a different philosophical approach to the degree based on a student-centred model that supports student learning. ...
>
> There was consensus that we should go with this. ...
>
> 2) A redesign of the first two years based on the ideas that Ralph and Don have been discussing for some time. That is, material is presented to the students in an application-driven approach where applications are studied rather than fundamental theory.... There would probably be a two-year (or two one-year) integrative project (probably a design and build project) where these concepts could be applied to a real task.
>
> 3) A change to the way we teach papers. Instead of a philosophy of teaching students in a large number of lectures, move to an approach where students take control of their own learning. ....
>
> Much time will be needed and there must be buy-in from ITE lecturing staff, technicians, other BTech/BE staff and fundamental sciences staff to make this work properly.

The proposal marked a substantial shift in thinking away from content-based curriculum to the context of engineering work and process-focused curriculum. It emphasised interaction with students around the creative, problem solving aspects of professional practice, with students drawing on specific knowledge as needed. The term 'brain space' captured the concept of providing students with time to think around problem definitions and creative possible solutions rather than responding to clearly defined tasks. The convenor of the review group distributed the concept plan to others outside the manufacturing grouping who had not been involved in the meeting but who were likely to be affected by the proposal. Only one responded, raising concerns and cautions about the likely contentious nature of the proposal and about possible constraints:

.... Our biggest problem is lack of student numbers

We have been told to do more research.

I suggest we leave well alone. Maybe rationalise the number of degrees to free up teaching time and make marketing easier. We should spend the effort and wasted time on ensuring we get enough students ....

The Program Director advocated a strategy that focused immediately on rationalisation of majors, and in the longer term on more substantive changes.

At the next review meeting the general concept was further consolidated, but as the minutes noted: "Unfortunately a lot of people (who didn't say that they couldn't make it) weren't available so it was a small, motivated (and possibly radical) bunch who were doing the thinking! .... [W]e are looking to implement some of the ideas from 2006 onwards using the two first year papers we currently control and possibly moving one or more second year papers ... into the first year." This outcome represented a partial withdrawal into the papers "we currently control" acknowledging that broader changes would require wide-ranging consultation and agreement. Nevertheless support for the intent of the proposal continued, with some enthusiasm for maintaining momentum towards substantial change.

A colleague (with considerable experience in planning methodologies) and I jointly facilitated the following meeting, which focused on a strategy to move plans forward. The first part of the meeting was spent developing an overall objective for the process. Substantial time then was spent discussing potential obstacles to achieving the objective and subsequently identifying and prioritising intermediate objectives to overcome them. Twenty-four obstacles were listed. Analysis of the obstacles pointed to the importance of issues at the boundaries of the Institute: ten of the twenty-four obstacles related to knowledge-power relationships with other groups outside the Institute and issues of communication and information flows. Seven related to details of implementation – two of these were also boundary issues, while four focused on our limited mechanisms for understanding and reacting to student experiences. Only two of the obstacles reflected issues of curriculum knowledge content.

The key obstacle was that "we don't know if the model proposed will work". Participants at the meeting wanted more evidence to convince themselves and others that the good idea could be converted to good practice. The conclusion was that the primary 'intermediate objective' in advancing the broad strategy was:

We have the output from a working group [that] defines:
Processes (procedures) to achieve the academic objectives)
procedures – detail
project types (examples – generic – by option)
coverage of core material – how? omissions and whether they matter.
consider other points/obstacles
assessment
quality.

The further development of the project-based curriculum proposal was to continue as a background activity to be undertaken by a small group coordinated by a part-time member of staff.

The discussion during the meeting prompted a counter-proposal from two staff members who argued:

> We could not quite come to terms with an exclusively [process/project] based structure with no core engineering knowledge papers, so we would like to suggest an 'applied engineering' compromise.... The overall structure is to have 3 core knowledge papers per semester and an accompanying project paper in which this knowledge is applied, and which at the same time promotes a sense of student spirit and excitement, which in turn will give us greater student retention.

This counter-proposal indicated some misunderstanding of what was being proposed and constituted a reversal of emphasis with engineering knowledge at the core supported by projects to maintain student interest rather than engineering process at the core drawing on knowledge as needed. The content/knowledge versus process/engineering practice tension continued as an underlying and unresolved theme throughout the review and attempted reform process.

Shortly after the meeting, the Program Director steered the review back to formal administrative, time-constrained considerations. The next several weeks of activity and meetings focused on the deliberations of sub-groups established to review and rationalise content and papers within discipline streams to promote consistency across the majors and identify efficiencies in offerings. Several staff withdrew from the process at this point as they got bored with extended debates around specific content details (personal communications). The extent and nature of core management papers became a touchstone of the commitment to the values of the program and the scope of the majors[87]. Two alternative proposals were tabled. The first advocated a minimum requirement that two management papers (out of the 32) be taken by students in the program. This was justified partly on the basis that it "would definitely free up at least one slot ..., if not 2, for the ... major, and possibly for a few of the other majors." While not stated, it was implicit that these slots would be filled by technical/engineering content. The second made a claim for six management papers with a fallback position of a minimum of four (existing) papers in the majors. As the minutes recorded: "Robust debate ensued. It was agreed that an attempt would be made to fit four management papers into the course schedules." The 'four paper' proposal was strongly supported at the next meeting but it was noted " these must be seen and agreed to by those not present." The need for wider agreement meant that the proposal was not incorporated into the first round of minor course changes. Once the minor changes were put into the process for administrative processing and approval the review process stalled.

Several months later the discussions were re-activated. Following much discussion around the place of management teaching in the program, the "consensus was that there should be three general [management] papers which all manufacturing majors would take." Three existing papers were accepted

[87] In a parallel review of the cluster of biological-processing based majors the number of management papers was reduced pre-emptively without consultation with staff teaching in the management area. The papers were replaced by additional technical engineering papers.

as largely meeting the general requirements. The review group also identified the need for a large scale business simulation to be included and accepted that a parallel proposal of necessary topics "with the addition of environmental management, contained all of the material that was considered necessary for the three general papers." The topic list contained 75 specific items. A small task group was established "to decide how to distribute that material between the three papers while, presumably, minimising the changes required." This outcome contained an inherent contradiction in expected outcomes: existing papers met the general requirements but also needed to incorporate a wide-ranging list of new topics to be taught as well as a business simulation project. The task presented was to make substantial change while minimising change!

One member of the task group saw the brief as "just a matter of massaging things around to get everything in the best place and adding in any missing topics." Several staff members advocated more additional topics to be included with some arguing "we can go over a lot of topics quite lightly giving just the few key points to remember and providing an entree to the students' own further learning when they require it." Others were more cautious: "There are a lot of topics there, and we'd need to be careful how much information is presented and how it is presented to the students - it could get very dry and theoretical." Some supported active learning through simulations.

A string developed in the email exchanges reasserting the need to move outside considerations of lists of topics to be taught. I took the lead in attempting to re-assert student learning as the central underlying consideration. The string prompted a number of comments on the process being followed, with one participant asserting in the last sentence of one contribution: "In the end, I don't think we will get anywhere with trying to fit in everything that everybody wants, and I believe a dictatorial approach would work a lot better. Just get the major leaders alone to agree on a list of topics and go with that!"

This proposition prompted several impassioned responses. One participant wrote:

> ... This raises the issue of whether we can truly design an effective "management stream" of papers as a committee or whether we should provide conceptual guidelines and outcomes for the internal (expert) teachers of these papers - leaving matters of detailed paper content to them to decide and agree. I certainly extend this courtesy to my specialist engineering colleagues – I wonder if they can bring themselves to show me the same degree of trust?
>
> ... last sentence!! If this sentence implies that non-management specialists decide the curriculum – then it makes me very angry, as it fails to show the trust I mentioned previously.
>
> If it implies a small group of experts getting together to consider the design of a set of papers based perhaps on a broad conceptual and outcome based terms of reference (maybe set by option leaders – but preferably after consultation) – then I can agree. However it is not about dictatorship, rather I would suggest that that is more about using our peoples' strengths and expertise. It is about trust, academic freedom and morale building.

Another wrote:

> 1) ... the management/business component is one, if not the major, differentiating features of Massey's tech and eng degrees. ....
>
> 2) If we believe in 1) then the key question is what does it take to give the students this ability. Maybe it is a whole series of lectures on specific aspects of business and management - but I doubt it. ...

> 3) ... What I don't see is a serious attempt to really identify what it is that our graduates need to learn. ...
>
> I don't apologise for my personal passion and belief that we, in tech and eng at Massey, have a huge opportunity to establish a significant point of difference from other institutions in this area of management/business and its link with tech and eng. We really need to get it right and not just dream up a whole lot of topics to include in various courses.

At a subsequent meeting of the review group, substantial differences of opinion about process surfaced. There was, according to the record, no discussion of the underlying philosophical and educational issues that had arisen in the interchange about the management theme within the program. What was recorded was an attempt to promote a process that privileged the nominal positional authority of the major leaders over the academic expertise and authority of the staff teaching in the discipline. It was asserted "a small group of staff teaching the material was not a suitable group to implement [the changes]". The participants at the meeting generally endorsed the existing, broadly participative process.

Later meetings focused yet again on attempting to further align papers across majors observing timelines driven by administrative deadlines. Eventually, after several meetings, an agreed set of papers was accepted by those present. Several participants echoed the view that this was "quite an achievement, I think!" and "all in all - a very good outcome." However, individuals, who had been involved only intermittently in meetings, raised a number of concerns relating back to detailed consideration of specific content, papers and combinations. One contribution, carrying the provocative subject line – "Lets not embrace mediocrity by ignoring fundamentals!", argued strongly for preservation of particular technical content. At the same time others reiterated concerns about educational efficacy of the proposal, but accepted the compromises contained in the proposed paper combination.

> "This will have to be a compromise as we are really trying to shove too much material into too few papers. But that is the nature of the BTech/BE, and as [ ] said - it is for the greater good. ....
>
> Rather than say we *need* a paper of ... and listing every topic that could be included, lets work through it from the Graduate profile and decide what skills our graduates really need, should have and would like to have. Then see what is essential.
>
> .... Maybe we get smart and push the students to improve skills in workshops outside of the papers and during projects... take the emphasis off 'teaching' ... and put it on 'learning'....

At this eleventh hour a small number of staff, who had previously not engaged with or withdrawn from the review process, acted to block changes that they disagreed with, and were not prepared to shift from a position that put the whole agreement on common papers in jeopardy.

Then the Program Director stepped into the process:

> ... to remind us all of our targets and to summarise where I believe we are with regard to any proposed changes to our programmes. And to tell you my current thoughts and proposal. ..., which I believe will be acceptable to all those who are intimately concerned with the [ ] major, at all 3 campuses, and also to all those interested staff in [the four institutes teaching into the courses], i.e. the entire School of Engineering and Technology. (I've been a little disappointed at the ITE-centric nature of the current debate)....

> Again, many thanks to everybody for their hard work. Unless I hear any new and convincing arguments ..., I intend to run with [my] "Excellent Compromise".

At this point, several staff members who had been actively promoting consideration of underlying educational philosophy and methodology withdrew from the process as "the important questions weren't being addressed". The flavour of the final steps of the review were summarised in a message from the HoI which indicated that the over-riding considerations were to get the paper prescriptions right and to create efficiencies in delivery across campuses:

> Subject: Manufacturing majors Paper Prescription Review
>
> .... Remember that for all years but 1st and 2nd year particularly we are driving hard for each paper to be common across all campuses. Currently we waste effort reproducing notes, study guides, projects, assignments etc etc for each campus as the papers as delivered have diverged. From the point of view of a productive enterprise this is stupid.
>
> We teach how a productive enterprise can be both highly efficient and highly effective at the same time. Let us apply our own principles - few well-designed, standard components well made to fit a range of fit-for-purpose products.

Questions and debates around educational philosophy and teaching and learning were effectively absent from the management agenda of increasing the efficiency of the productive enterprise. The underlying view seemed to be that the courses were fit-for-purpose products, needing only more standardised production.

While the broad review was proceeding, a parallel project to review one degree major on one campus was also established by the Program Director. The first proposal from that concurrent activity prompted some strong responses when circulated for comment. Several staff viewed the apparently anecdotal basis for substantive changes as inadequate and for one respondent it was "shocking. ... I'm sure 10 other staff will have 10 other takes on it. We need to be much more confident before making this sort of change." The key proposal to change the designation of the major to a Bachelor of Engineering was also opposed as "absolutely the wrong thing to do" with a strong supporting argument for fuller research, leveraging the attributes and advantages of the specific major, and adopting a developmental process grounded in design and educational thinking. The various concerns had little impact on the proposal, which moved into formal approval processes essentially unchanged. In this case also, the positional authority of the Program Director and the major leader was asserted to drive changes based on a process that some staff saw as ill-founded.

In summary, the review began with a flurry of collective activity and enthusiasm for major curriculum reform focused on the student experience and refocusing courses around the engineering processes and practice. Much of the drive came from a small number of academics inside the Institute. However, as the review moved forward the time-bound administrative and management imperatives were regularly reiterated as significant constraints on the reform process and the immediate focus of the formal review activity. Analysis of the attendance at the string of review meetings showed significant shifts in participation in the meetings. Within the Institute, a handful of academics teaching into the group of majors never engaged with the process. Staff from other Institutes engaged only sporadically reacting to

proposals rather than contributing to their development. Those who expressed the strongest support for reform gradually stopped attending as the administrative focus on creating efficiencies strengthened and the position power of the Program Director, major leaders, and later the Head of Institute was asserted. The ideas on reform and educational effectiveness were displaced from the formal agenda by more immediate concerns for increasing efficiency. While I made efforts to keep broad educational considerations on the main agenda of the review process, and they did remain as a sub-text behind the dominant discussions of papers and content detail, the main discussions around these ideas continued as a peripheral activity amongst interested individuals outside the formally sanctioned fora. After discussion, debate and negotiation over some fourteen months, the main outcome from the process was an agreed set of common papers for the first two years of study in the cluster of majors. A few participants hailed this as a major achievement. Tensions that surfaced though the process – between knowledge-based and process-focused approaches to teaching and learning; between academic expertise and positional authority; between short-term delivery efficiency and longer term educational effectiveness, remained unresolved at the time of writing.

Formulating vision, future and directions

> Systems engaged in interactive planning are engaged ... in closing the gap between where they are and where they would most like to be at that moment in time. In this way they create their future because, in general, any system's future depends more on what it does than on what is done to it. (Ackoff, 2002)
>
> When you do not know what you want to achieve, it is very difficult indeed to develop ideas. (Ulrich, 2001, 9)

In response to concerns about direction, vision, and the Institute's future, a strategic planning process, based upon Ackoff's Interactive Planning, was designed and facilitated following briefings and negotiation with the HoI on the proposed approach.

Ackoff's approach is based on three principles. The first is the participative principle, which rests on the two ideas that the process is more important than the actual plan produced (therefore no-one can plan for anyone else) and that all those who are affected by planning should be involved in it. The second is the principle of continuity. Things change - stakeholder values, the environment, unexpected events, the plan may not work; no plan can predict everything in advance so plans should be constantly revised. The third holistic principle promotes simultaneous and interdependent planning for as many parts and levels of the system as possible. The process comprises five phases: formulating the mess; ends planning; means planning; resource planning; design of implementation and control (Jackson, 2000; Ackoff, 2002).

The two phases of formulating the mess and ends planning were the focus of an initial workshop, held in February 2005, intended to promote and start an ongoing planning process. The anticipated outcomes from the workshop were the initial formulation of a preferred future and the establishment of a number of working groups that would continue with means and resource planning towards implementation.

From the outset, the Institutes Development Manager and I argued for the widest possible participation to reflect Ackoff's first principle. However the Head of Institute maintained that full participation was

impractical. He selected 19 participants, predominantly academics, seen as occupying leadership positions in the Institute and representing all of the disciplines within it. The participants also covered the spectrum of duration of employment including some long serving individuals through to recent appointees. While a few of these participants had been involved directly in earlier parts of the research, most had not and came to the planning process fresh.

The Institute's Development Manager and I planned the detailed program for the workshop in consultation with the HoI and jointly facilitated it. The program began with an initial introduction to the general approach and the concepts of possible futures (Appendix 4). The HoI provided a briefing on some of the wider contextual and environmental factors, particularly at the College and University levels, impacting on the possible future direction of the Institute. Following the context setting, the participants were divided into three groups to forecast/imagine the Institute's current future [the future we are in] by focusing on the question 'what is the future if we continue as we are?' The groups were provided with limited prompts to encourage them to consider the dimensions of culture, process, structure and knowledge power. Forty-five minutes of vigorous debate and discussion followed in all groups. Each group was required to prepare a summary report to present to the wider group. The summary reports from the groups are presented in figures 22, 23 and 23 below. Reflection on the current future provided consistent views regarding the lack of direction of the Institute and confirmed information from earlier interviews.

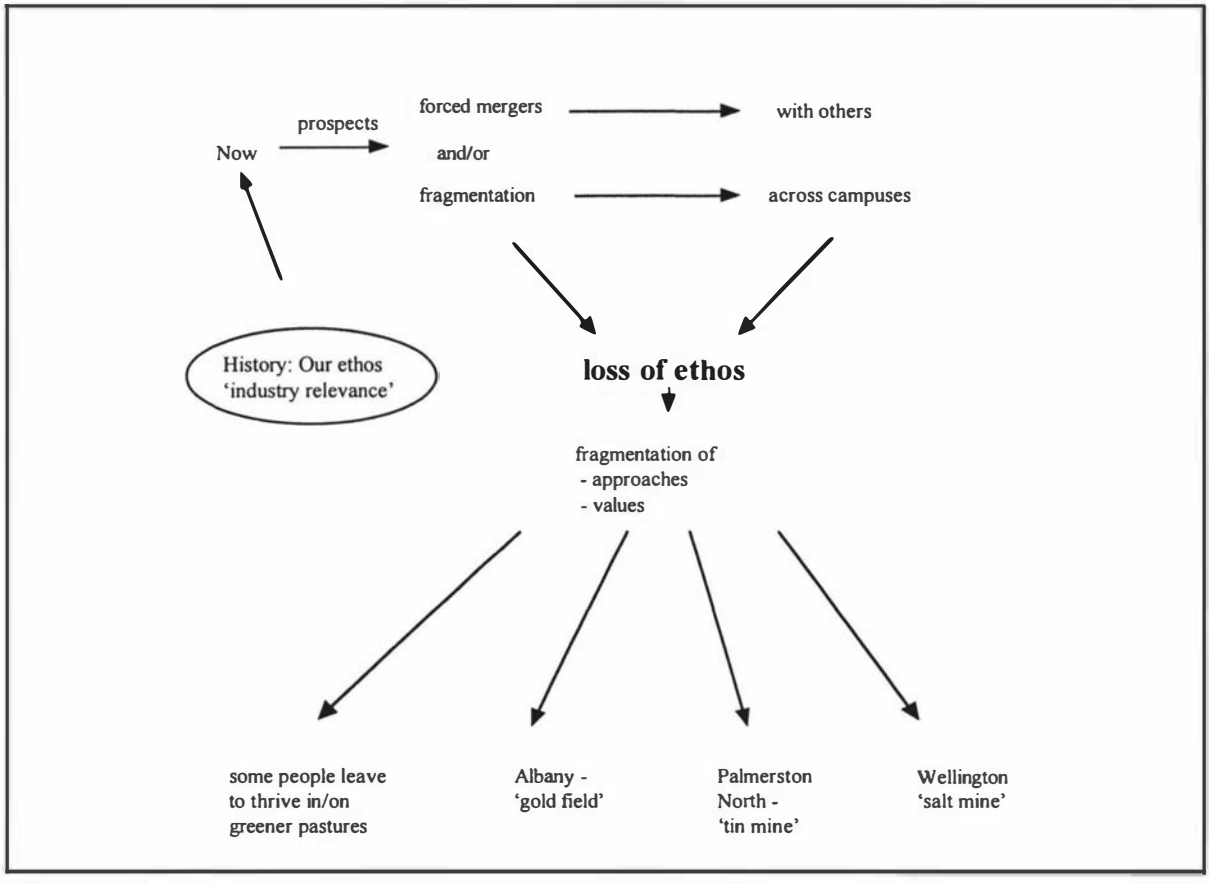

Figure 22: Our current future (Group 1)

As Group 1 explained in their feedback to the larger group, the Albany campus (the new green fields site of some Institute activities) was seen as the source of future riches and potentially a better place to work: a gold field generates [relatively easy] wealth and isn't as poisonous or dangerous to ones' health as a tin mine or salt mine! The Palmerston North and Wellington campuses were seen as necessary: salt is essential; tin is useful but there are serious challenges in obtaining either. The major issues identified by the group were fragmentation across campuses within the Institute, loss of identity and loss of ethos. The group also forecast an exodus of staff "to thrive in greener pastures".

The key image in Group 2's forecast of our current future was a spiral of decline in all of the key functional areas of teaching, research and service to industry. The likely outcomes for the Institute were splits, fragmentation and loss of collective identity. Group 2 particularly noted a shift to a more insular and individualistic culture, with decisions emphasising individual rather than collective interests and benefits.

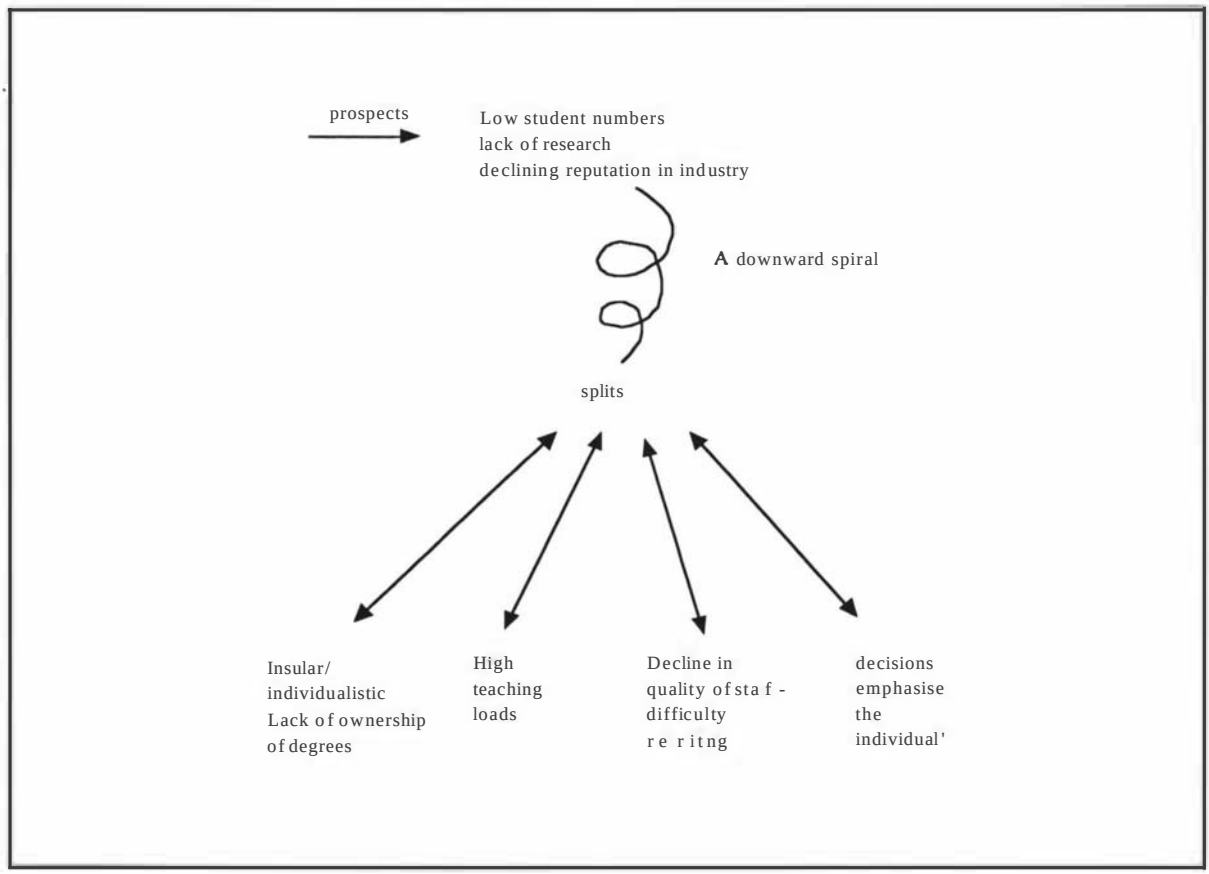

Figure 23: Our current future (Group 2)

Group 3 presented a similar picture but with the Palmerston North campus (currently the dominant of the Institute's three locations) particularly affected by shifts of resources and influence. The group saw that decline would lead to loss of influence over our own future and the Institute being forced to bend to the wills of others. The Institute's ethos and culture were also seen to be threatened.

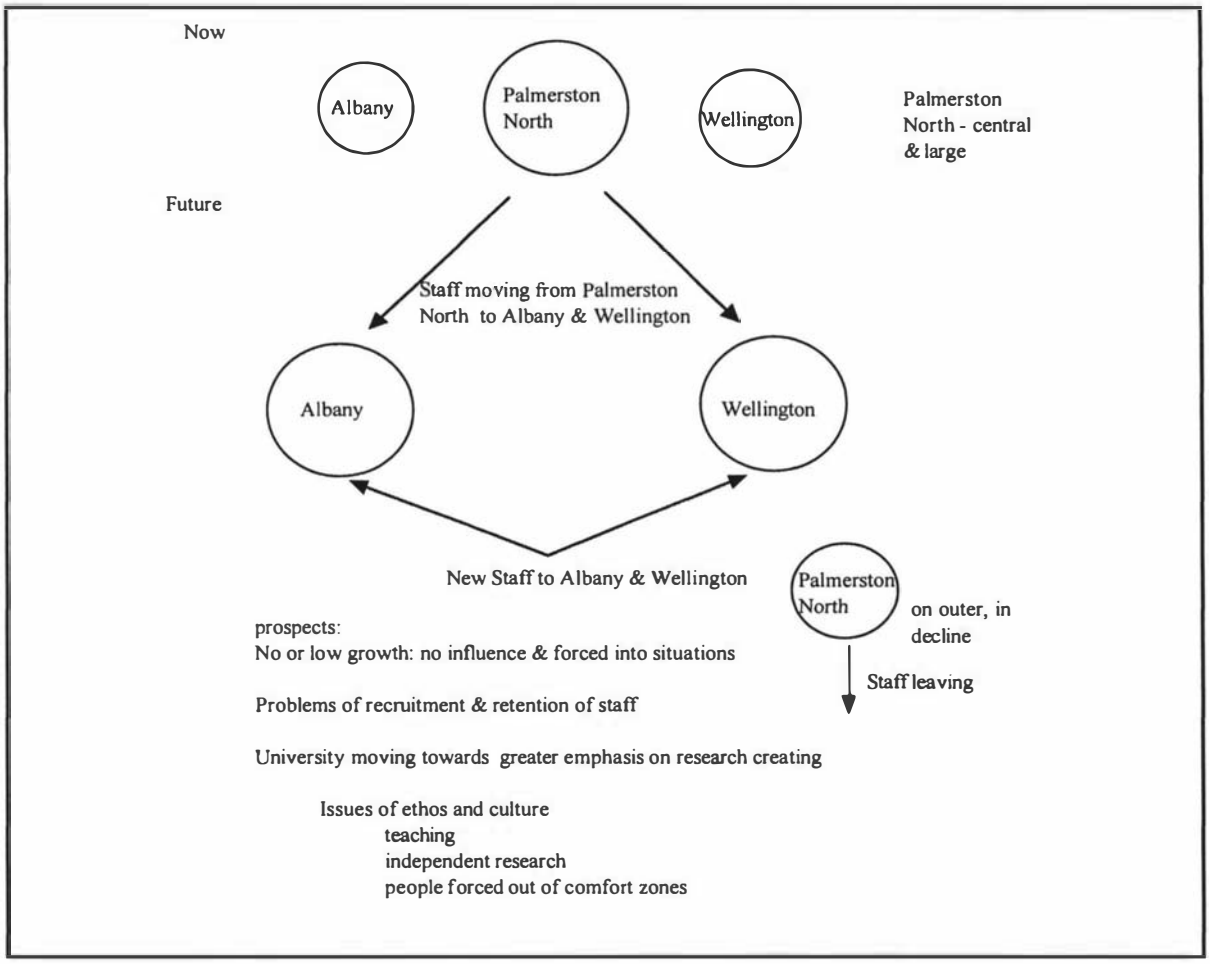

Figure 24: Our current future (Group 3)

While the groups were encouraged to identify positive aspects of the current future, they had difficulty doing so. Group 1 indicated that individuals might benefit from new interactions. Group 2 indicated that the Institute might be able to carry forward its ethos of 'care for students' and the strengths of individual staff members. Group 3 suggested the possibility that our 'great teachers' could influence students, and the potential for growth on two campuses [but indicated that this was likely to come from relocation/redistribution rather than overall/absolute growth]. Presentations from the groups all indicated a current future of fragmentation and decline. The participants collectively agreed that such a future was well removed from any preferred future for the Institute.

Mapping our preferred future

The second part of the workshop focused on two critical questions: 'what is important?' and 'where do we want to be?' The participants were reformed into different groups to start to explore our preferred future. The intention of this re-mixing was to promote interaction of ideas and perspectives looking towards the imagined ideal rather than have established groups responding and reacting to a particular image of the current future developed by the group in the earlier session. The groups once again were

given a relatively open brief. Again vigorous debate and discussion ensued. Figures 25-27 present the summary of discussions produced by each group.

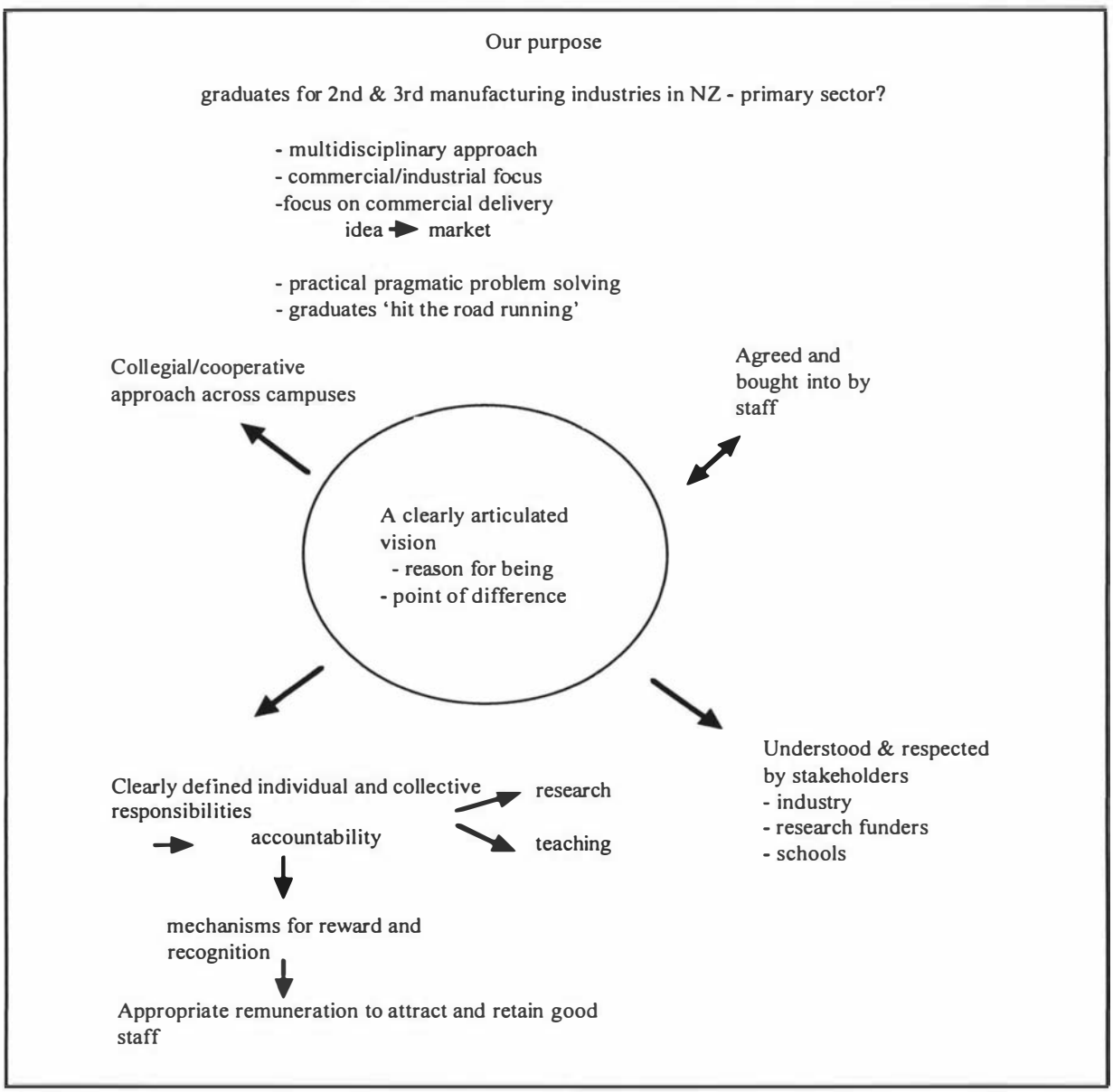

Figure 25: Our preferred future (Group 1)

The focus of the first group's summary was a purpose focused on producing graduates with particular characteristics for New Zealand's manufacturing industries and the need for a clearly articulated and accepted vision expressing our point of difference. The concept of a vision (rather than a precise articulation of a specific vision) was proposed as the anchor and launching pad for: developing a collective, cooperative approach to our work; defining individual and collective responsibilities and accountability and associated/aligned recognition and reward structures; and communicating with stakeholders. Development and adoption of an agreed vision was seen as an essential precursor to further

movement towards their preferred state. While research was mentioned, the major focus of the groups' idea of the preferred future was centred on the teaching function.

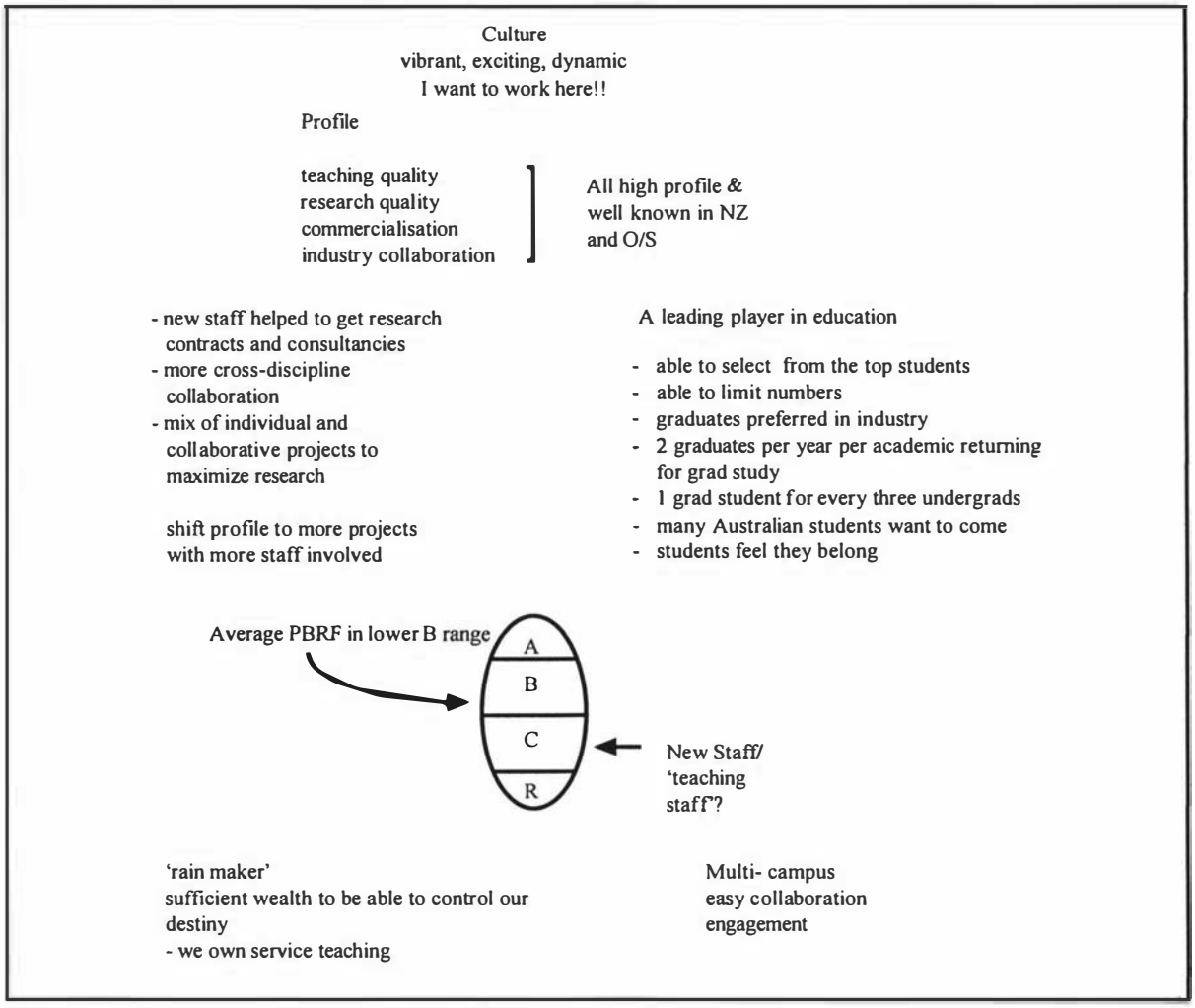

Figure 26: Our preferred future (Group 2)

Group 2 presented a preferred future based on a vibrant, exciting, dynamic culture encapsulated in the phrase "I want to work here!" Their future was built on high profile, and well-known teaching, research, commercialisation, and collaboration with industry. The characteristics of the education function in this summary were more precisely articulated in terms of an orientation towards encouraging and building graduate student numbers and attracting "the best" undergraduate students. The group also made passing reference to encouraging an environment where "students feel they belong". The groups presentation was strongly influenced by the expectations associated with the government's PBRF system and where we should be in the research grading. The underlying theme of collaboration was expressed primarily as a preferred characteristic for research. The need to be financially viable and take control of our own future also featured in the group's presentation.

Group 3, like Group 1, emphasised relevance to industry but more explicitly encompassed the functions of development, dissemination and implementation of knowledge by the Institute.

Vision:
Develop, disseminate and implement knowledge relevant to NZ industry

Preferred Outcomes
- Staff and student lifestyle (FUN)
- Industrial reputation
- Graduates in demand
- High reputation in schools
- Ability to attract and retain good quality staff
- Abundance of resources (growing)
- Recognition of varied career pathways
- Flexible project team based activities (teaching, research and consulting)
- Multi campus (?) International
- Managers rather than deliverers

Characteristics
- Diversity
- Teaching strength
- Team based
- Multi-disciplinary
- Innovative
- Flexible

Figure 27: Our preferred future (Group 3)

As with Group 2, they made explicit reference to lifestyle/culture: fun for both students and staff as an outcome of what we do and how we do it. Growth, diversity, and cooperation were identified as preferred attributes of all the Institute's functions. In contrast to Group 2, research was not a pre-eminent aspect of Group 3's vision but one of three equally important functions. All groups presented preferred futures substantively different from the perceived current future for the Institute. While some common positive characteristics of what the Institute should be like – viable and growing, team-based and cooperative, a positive reputation with stakeholders – emerged from collective reflection on the groups' visions of the preferred future, the presentations also encapsulated some potentially contentious differences in perceptions. The identity of the Institute – its essential qualities – were not clearly articulated or collectively agreed. The relative importance of teaching and research remained unresolved, as did the importance that should be placed on the Institute's response to the PBRF – it sat at the centre of one group's future but was not mentioned by the other two. While I and the Development Manager argued for an adjustment to the original schedule to allow more time for collective discussion to clarify these areas as an important element of ends planning, the HoI was adamant that the process should move on to action on means planning.

Means planning

The last part of the workshop focused on moving the participants into means planning towards a very superficially described and only loosely agreed preferred future. A group of key themes were extracted from the presentations in a brief discussion between me, the Development Manager and the HoI. The HoI added some predetermined areas of interest to the list of areas for action and presented initial working

briefs for addressing concerns in each area. Six working groups were proposed to formulate action plans in the identified areas of:

1 **Vision**: This group's brief was to prepare a crisp, agreed statement of what we want to be, easily communicated by any of us to outsiders that spells out where we are different, and better.

2 **'Rainmaker'**: Work out how, perhaps through research, consultancy, PBRF, short courses, extensive partnering, we can most realistically become a big enough earner to be seen to more than pay our way.

3 **Structure**: Work out the shape of the Institute and its relationship with the Massey School of Engineering and Technology that will best serve us. Consider imports and exports of activity areas, mergers and partnerships with other Massey groupings. Consider internal structure.

4 **Profile**: What is the public profile we desire amongst which publics? How do we achieve this?

5 **Teaching/Research**: How do we manage the balance of workload between teaching and research and other demands at Institute, subgroup and individual levels in the future (PBRF, growth at Albany, Wellington)

6 **Collaboration**: How do we move from our individualist toward a more collaborative culture? How do we avoid the waste of effort through duplication across campuses? Consider reward systems, technology support systems, etc.

Each workshop participant was required to join one working group.

It is notable that the areas for planning identified through the workshop mapped closely to the key issues and areas for intervention identified through the diagnosis using the VSM as a structuring tool (discussed in the previous chapter). The vision group was expected to distil out the Institute's essential qualities (the foundation of System 5) to inform planning and shape communication with our environment (System 4). The 'rainmaker' group was to explore mechanisms to enhance financial viability through better aligning implementation activities with our environment (System 1). The brief for the structure group was implicitly focused on boundary questions relating to the Institute's internal integrity and place in relation to the University's formal organization. The profile group was to formulate the marketing aspect of the System 4 function. The teaching/research group was given a brief spanning System 1 – the implementation functions of teaching and research and the inter-relationship between them, and System 2 (Coordination) and touching on System 3 (Control). The collaboration group was given the task of exploring mechanisms to change the culture through examining aspects of control (System 3) and communication.

The suggestion was made that all of the groups should co-opt additional members to broaden participation but otherwise little guidance was given to the groups on how to progress their deliberations. The HoI set an initial timeline of two months for each group to report on its progress. This phase of the process was intended to reflect Ackoff's holistic principle that promotes simultaneous and interdependent planning for as many parts and levels of the system as possible. The working groups were expected to exchange information on progress rather than work independently. As the groups began their work, the challenges of enacting that principle became evident.

Moving forward: Vision

The vision group circulated two drafts of a vision statement for the Institute, firstly to the workshop participants then to the wider Institute, for comment. These prompted some critical reactions from a small number of staff. Most staff, however, chose not to comment.

The first draft, in February 2005, emphasised "wealth creation for, and adding value to, the NZ economy... to be achieved through activities responsive to industry needs". This draft prompted public comment from five staff members. Three of the comments addressed the substance of the statement, while two made observations regarding the conceptual relationship between 'vision' and 'mission' statements. One commented on the challenges of embedding and enacting the vision noting that the Institute had been through a similar process under a previous HoI and that "the hard bit is getting everyone to truly believe in it ... [by] having consistent leadership (therefore HoIs who stay around for more than a couple of years or having systems that get truly embedded)."

The second draft for consultation, circulated in mid-April, carried the banner heading "Graduates and Knowledge to Fuel New Zealand Industry" to be achieved through relationships with key stakeholders, and profitable research and teaching activities. This version prompted comments from three staff members whose comments focused on "the rather peculiar and mixed imagery..." One summarised the major concerns: "'Fuel' creates a particular and not too desirable image primarily of consumption.... The use of the 'profitable' has a very off-putting connotation. It gives the impression that we operate for purely financial reasons. While it might be accurate let's face it, it will not make us seem very inviting to prospective students (or staff). Like working in a galley ship."

When I sought clarification of how the comments were being dealt with, it was made clear that the HoI had taken control of the process and that it was not clear how he intended to progress. The HoI presented the final version of the vision statement - "Affinity with Industry" –at staff meetings on each campus in late June and July. At the Palmerston North campus, it prompted very little response.

Moving forward: means planning

The coordinators of the 'rainmaker', profile and collaboration groups, when asked about the progress of their groups, all cited the slow progress of the vision group as a major constraint on the process. Feedback indicated that progress stalled: some groups were waiting for the vision statement to frame their work; others had experienced delays due to peak loads and ongoing demands on the time of members; and some (e.g. the rainmaker group) had found themselves re-inventing solutions that had previously been proposed but not actioned. The convenor of the 'structure' group indicated that they had produced a draft discussion document outlining possible organizational structures and relationships, which had been presented to the HoI. There was no evidence that the document was circulated within the Institute.

The teaching and research group, of which I was a member, met on four occasions to, firstly, determine a process for the group to work through and then to explore the nature of the issue and possible ways

forward. Two additional members were invited to join the group to provide a cross-campus perspective; only one accepted the invitation. The members also exchanged ideas and provided input to deliberations electronically between face-to-face meetings. The group prepared a four-page outline containing statements of principle to guide developments in this area, preferred strategies, mechanisms and measures of progress. The document was circulated to all academic staff in mid-March. Only two responses were received. No feedback was received from the HoI.

Arrested planning

While all participants in the planning workshop agreed that the forecast consequences of continuing with business as usual were well removed from any preferred future for the Institute, the planning process stalled. The speedy transition from ends planning to means planning was intended to produce results but proved counter-productive. Some five months after the initial workshop, the vision group presented the outcome from its deliberations to provide the foundation and focus for further development, but that action was insufficient to reactivate the process. Three other subgroups provided progress reports and interim recommendations to the HoI. He circulated only one of the group reports to staff.

Little specific attention was given to mechanisms to encourage the work of the groups, or to channels to enable communication between them or between the groups and the wider Institute. Neither the Development Manager nor I were given formal authority to coordinate or follow up the group activities. Implicitly, information was to be shared through existing communication channels. But as participant interviews (Chapter 6), the Viable Systems Diagnosis (Chapter 7) and the history of staff meetings in the Institute all indicated, existing communication channels were poorly formed and operated only intermittently.

At much the same time as the internal planning process faltered, the University's senior management began to activate processes for responding to the upcoming round of the PBRF. It was made clear that improving the University's performance in the assessment through increasing the quality of staff evidence portfolios was to be a major focus of activity in the later parts of 2005 and into 2006. The HoI indicated that he would be held accountable for the Institute's performance and that staff should make substantial efforts to comply with the University's expectations. Attention and energy shifted from looking to the future to justifying the past. Compliance with the expectations of others outside the Institute took precedence over activities towards internal improvement.

Summary

This chapter has described at some length the trajectories of four interventions initiated inside the Institute. Each attempted to address issues surfaced through participant interviews and discussions and through more formal diagnosis of the Institute's functional systems using the Viable Systems Model. Three were closely related and focused on teaching operations (a key part of the implementation function - System 1 of the VSM) that were identified as the Institute's most important work. The fourth focused more broadly on the Institute's future. All four began with the application of systems tools and methods.

The two dealing most directly with teaching moved beyond recognised systems tools towards improvement based in educational good practice. In each case I took as my principal role facilitating understanding of the systems methods and scene-setting for further work by others in the Institute. In every case the interventions faltered. Each was frustrated at least partly by environmental perturbations.

More broadly the experience of Problem Solving supports the validity of the principles embedded in TSI as an approach to intervention (see Chapter 2). Clearly the Institute is too complicated to understand using one model and is not amenable to a quick fix. Using metaphors helped to clarify what the Institute is like as an organization, the issues it faces and to identify potentially useful systems methodologies. Rich pictures, the Viable Systems Model and Interactive Planning together helped to highlight and started to address issues important to participants. Each of them, however, provided only a partial means towards sorting through the mess. As illustrated through this chapter, the project moved through several iterations of interaction between creativity, choice and implementation rather than a linear process and participants were engaged in all stages of the process. This last principle of engagement, however, proved most challenging to enact. This issue is taken up in the next chapter as part of critical reflections on the factors and relationships between them that affected the wider research process.

Chapter 9
Reflections on research

> ... action always entails the risk that one's judgement or the judgement of a collaborating group will be wrong and that things will turn out in ways other than expected. (Carr & Kemmis, 1986, 185)
>
> One of the most important aspects of one's research competence is therefore to understand the questions that it does not answer. (Ulrich, 2001, 6)

Introduction

The preceding chapters reflect on action, that is, TSI in problem solving mode. They focus on what was done and what was achieved in the specific intervention, and illuminate the local case. But the question remains: does the project represent competent research? This chapter focuses on this broader question. Jackson's (2000) constitutive rules for critical systems practice extend beyond local intervention/action to encompass the research dimension of systemic intervention and call for reflection on the broader implications and potential contribution of the particular case to wider understanding of, and knowledge about systemic practice. These concerns about research findings contribute to a broader, more clearly specified agenda for reflection and organizing knowledge about systemic intervention. They seek to build knowledge of theory and methodology *within* systemic practice and to formalise knowledge about a particular problem situation. In contrast Ulrich (2001, 3) argues "systems thinking is of interest more as a means of promoting competence in various fields of study than as a field of study for its own sake". The primary interest for Ulrich is not systems but competence in research towards improvement.

The main question of this research was not about method, nor about the problem situation, but rather about the relationship between the two represented by intervention towards improvement and the practical usefulness of systems approaches in the pursuit of improvement. While the research reported here presents a critical review of Quality Management as systems methodology (Chapter 3), the project was not intended mainly as research inside systems practice. Quality Management was critiqued in relation to the practice of higher education (Chapter 4) not as a methodology per se independent of context. Similarly while the research presents formalised information (and perhaps knowledge) about the Institute as a particular problem situation (Chapters 6 and 7), this was not its primary purpose.

Kay and Halpin (1999) argue that a system of intervention is composed of three basic elements - the practitioner, the situation under study and the theory informing the research – and the relationships between them. Without a practitioner, researcher or agent, intervention cannot occur. They argue further that early representations of the critical reflection mode of TSI ignore the first component of their triad – the practitioner.[88] Both Jackson (2000) and Midgley (2000) suggest that more questions need to be asked about the role of the "agent" and "the ethical commitments that she brings to the intervention" (Jackson, 2000, 393). For Soobrayan (2003) qualitative research is a deliberate exercise in taking risks, making choices and taking responsibility. Reason (2006) argues that action research is a process full of choices

[88] In Flood's 1995 rendition of TSI, apart from some words of caution on choosing consultants, the role of the agent is presented as unproblematic.

(and consequences) that the action researcher/agent makes. For Reason, understanding choices enables judgements to be made about quality, practice and knowledge. He points to the importance of four key dimension of action research practice - practical purpose, participation, ethics and politics of process, and the emergent nature of action research – and the challenges these present for researchers. Reason's position echoes but does not extend as far as the position taken by Ulrich that the quest for competence in research and as a researcher is a "very personal undertaking indeed" (2001, 4) and that the burden of becoming a researcher is the burden of choice where "competence depends more on the questions we ask than the answers we find" (Ulrich, 2001, 7). Midgley (2000) presents a similar argument about the importance of choices made by the intervener and also the importance of acknowledging mistakes based on erroneous intuitive judgement made in the heat of the moment. Reflections on choices and mistakes may allow learning to take place, so future judgements towards achieving the purpose of intervention can be made more successfully. Both Midgley and Ulrich argue for the primacy of social practice over research method: a pragmatic focus on the implications for and value to social practice of the research. Ulrich argues further that the principal focus of reflection on research competence should not be how to do proper research but rather what for. Swepson (2003) presents a similar argument for the primacy of practical purpose as the determinant of methodology and the goodness of research.

Some key questions that follow from this line of argument are:

- what questions were asked, what choices were made in relation to purpose, participation, ethics and politics of process?
- what impact did the practitioner/researcher (in this particular case, my) choices have on the research intervention?

(A related question addresses the inverse of the relationship in the previous question: what impact did the research intervention have on the practitioner/researcher? This question is not directly answered here.)

There is a particular systemic consideration, which has been central to the research represented here as well as to Ulrich's argument on competence in research, that must be added to the agenda for critical reflection: the boundary concept and systematic boundary critique. These ideas provide a link between process/methodology, the researcher and the problem context. Ulrich (2001) and Midgley (2000) prioritise systemic boundary critique in a significant departure from the interpretation of methodological pluralism offered by Flood and Jackson, which subordinates boundary critique to methodological choice. Ulrich (2001, 20) argues that it is an intrinsic part of any methodology and indeed of the assessment of the problem situation before any methodology choice.

Key questions for reflection in this regard are:

- did I, as the practitioner/researcher, help to place the boundaries of the intervention appropriately in relation to the purpose of the research?
- what were the implications of the placement of boundaries?

These questions are of course all constructed on a foundation of the accepted commitments of TSI/Critical Systems Practice/Systemic Intervention: to critical awareness and reflection on methodology, to pluralism and to improvement. Even more fundamental is a commitment to the 'rightness' of the systems idea and systems approach. Ulrich (2001, 3) suggests whether or not systems thinking is part of the answer depends on the fundamental question. A consequence of this view is that the commitment to the systems idea, as with the other commitments, warrants reflection:

- Is a systems approach right for the problem situation?

The next sections of this chapter reflect on these questions about quality and competence of research in turn[89]. It also contains observations on questions not asked, for as Ulrich notes the list of questions that could be asked is infinite and "one of the most important aspects of one's research competence is therefore to understand the questions that it does *not* answer" (Ulrich, 2001,7 italics in original). The final part of the chapter reflects on findings from the research, summarises the contributions of the work and suggests possible areas of further research.

Questions asked and choices made

Fundamental questions and motivation towards the research

What questions were asked, what choices were made in relation to practical purpose?

My fundamental question motivating this research was (and remains): how can we in the university improve learning, particularly for students? My underlying motivation was to work towards improving the quality of learning offered by my place of work. This question and motivation has been shaped by some twenty-five years of experience in tertiary education as firstly a student and later as a researcher, curriculum designer and educator. The legitimacy of that question and its connection to quality is supported by a thread in the literature on quality in higher education that places student learning at "the heart of quality" (Carmichael et al., 2001). Quality as transformation (Harvey & Knight, 1996; Harvey, 2002) leads to a focus on students and the impact of their experiences through curriculum and teaching (Horsburgh, 1999; Carmichael et al., 2001). Similarly, Trowler (2005, 16), in exploring the development of a social theory of learning and enhancement in higher education, suggests that the underpinning question is "how can the process of teaching and learning be enhanced?" Consequently, quality improvement should focus on improvement in curriculum and teaching as means to learning.

As a consequence of the practical focus of the question, I make very limited claims that the research represents the disinterested pursuit of objective knowledge. Rather it falls into the tradition of "unashamedly 'interested' research" by educators intervening to improve their own practices, which has

[89] In response to Midgley's plea (2000, 228) for honesty about declaring when questions were articulated, readers should note while these 'questions' implicitly and intuitively underpinned and guided the choices I made in the research, most were for much of the time unarticulated. I formulated the questions, including my fundamental question, in their current form retrospectively to provide an agenda for reflection on actions taken and not taken.

been advocated since the 1920s (McWilliam, 2004). This is a tradition that clearly reflects Ulrich's advocacy of the primacy of practice but, as McWilliam (2004) notes, sits uncomfortably in an academy closely wedded to 'disinterested' research. These interested-disinterested, action-research tensions impacted on the research from its first moments. As one of my then research supervisors noted in relation to an early representation of the proposed research: "This says a lot about action but not much about research." Consequently the research proposal was reframed closer to an accepted research mould: a second theme of research on systems thinking was emphasised in descriptions of the project. As the project progressed, comments and questions from colleagues fell into two distinct groups with some interested primarily in practical value and effects and others much more interested in the formality of the research process. These tensions also affected my focus on and commitment to the project. While the fundamental practical purpose was to improve local practice, the work also constituted 'formal' research towards me gaining a PhD. As my motivation and energy ebbed and waned, my interest shifted in varying cycles from working towards authentic improvements to just getting the research done and this thesis written, and back and forth.

I initiated this research with naïve optimism based on two commitments to education and to local participative improvement. Those commitments had been shaped by previous positive and successful experiences in educational institutional intervention for improvement using a variety of participative approaches. These aligned with my decade-long academic interest and research and teaching experience in quality management and improvement to shape the project. The value of the project seemed to be supported by an apparent fit with the publicly espoused values of the Institute and the strongly held beliefs about the value of education of some staff in the Institute.

Questions of participation

As Gregory (2000, 179) notes "participation is generally believed to be a good thing". The acceptance of its value is widespread across many disciplines including the discipline of Quality Management, where employee participation is identified as a defining characteristic of the approach (see Chapter 3), as well as both critical systems approaches (see Chapter 2) and Action Research (Reason, 2006). Gregory (2000) notes arguments in favour of participatory approaches are persuasive but evidence of success is limited. She argues the lack of evident success is a consequence of a general failure to reflect on the nature of participation. There seems to be little discussion in the literature on detailed considerations of participation.

Several crucial questions seem pertinent in relation to the issue of participation. How much participation is enough for a project to be considered participatory? Should the level and scope of participation remain constant throughout the life of the project, or change for different phases? What are the necessary conditions to make participation meaningful? How far and by what means should the researcher actively promote participation? All of these questions were asked and choices made at various stages of the research. In relation to at least the last of these questions, the range of possible choices was constrained from the outset by systems of structure around the research.

The University's *Code of Ethical Conduct for Research, Teaching and Evaluations involving Human Participants (the Code)*[90] requires informed, voluntary participation in any project undertaken under the university's name. Further to this, the Code explicitly states: "Pressure or manipulation of any sort to secure someone's participation as a participant in a research, teaching or evaluation situation is unacceptable."

The Code continues: "Particular care must be taken to preserve the rights of staff and students who are participants in projects." My application for ethics approval for the research emphasised that the voluntary nature of participation would be made explicit to potential participants, who would be invited to participate.

In previous projects that I had been involved with in other organizations, staff had been receptive to the idea of improvement and to methodologies directed towards that end: providing information had been sufficient to prompt engagement and active participation. My hope was that the same would be true in this project. The Code also notes "In action research, consent should be obtained initially to enable exploration of the possible research work. This should then be followed by further consent as agreement is reached about specific research tasks." It was made explicit to those people who consented to participate in the initial stages of creativity and exploration of the problem situation, that their consent only applied to that phase of the project and did not commit them to any subsequent activities. After two rounds of invitations to staff to participate – one written and one verbal at the end of an Institute research seminar outlining the proposed project, I chose to stop asking. While less than a third of staff in the Institute volunteered to participate, the views being expressed began to reach saturation with the later interviews re-iterating and reinforcing views previously expressed. I was fairly confident that the information provided a reasonable and recognisable account of what the Institute was like for a substantive part of its staff, and an adequate base for further analysis. Also, continuing to ask could have been seen as applying pressure. As Clayton and Gregory (2000, 155) note " it is not possible to force people to participate in a meaningful way".

As the project moved from creative idea generation and exploration of the problem situation towards choice of interventions, I chose to change the emphasis of the work moving from foreground participative activities to background analysis and synthesis. I applied systems thinking and tools to structure and analyse information. As noted in Chapter 5, participation in this phase intentionally was limited to formal discussions on progress with my PhD supervisors (one a member of the Institute's staff) and informal conversations with critical friends who had shown interest in the practical and research faces of the project. These interactions provided 'reality checks' on progress. Those informants and friends were briefed on process and systems methods as well as emerging 'findings'.

[90] The Code has undergone numerous changes over the past five to six years. The application process for ethics approval over time has been made increasingly detailed and stringent. The specific requirements in relation to action research were for a time made particularly demanding, for example requiring Committee approval for each stage of a project. The requirements have since been eased, requiring informed consent from participants for each stage but not full approval by the Committee.

The presentation of emerging findings through formal seminar presentations provided a means to keep other participants informed of progress. As the work progressed, emerging information was shared with staff and possible interventions were described as opportunities for staff to participate in shaping their own future. But very few chose to participate. Both of my supervisors raised concerns about the focus and direction of proposed interventions arising from the analysis (see Chapters 7 and 8). One suggested that the curriculum and teaching issues and proposed interventions were peripheral to the interests of many of my colleagues. The other was concerned that the plan focusing on the first year curriculum "appeared to involve a small group persuading the formal leadership of the Institute to adopt a solution of their devising." Both questioned the utility of this particular intervention as an illustration of the methodology. Both argued for more widely-based participation. This criticism of limited participation potentially could be seen as a major limitation of the whole research project: it could be seen as a biased tale – either of the marginalised and disaffected or those with sufficient interest in the well-being of the Institute to give time and ideas. It is possible that if more staff had chosen to participate that other interventions may have been identified. But that is the nature of research based on voluntary participation. Furthermore, it is unlikely that, in any situation of free, informed choice, all potential participants will decide to become actual participants or that any intervention will serve the interests of all participants. This is particularly so in a loosely coupled system (Weick, 1976) characterised by an individually oriented culture such as the Institute.

Conversely, it can be argued that the intervention illustrates the potential of the approach to enable participants (those interested enough to act) in a problematic situation to exercise influence and promote locally meaningful improvement. It should be noted that, after the decision had been taken to stop the 'formal' action elements of the project, the report on curriculum redesign produced by the interested few (see Chapter 8) was officially endorsed by the Technology and Engineering Program Committee and the Head of Institute, and progressed to the next stage of action. This part of the project seems to have enabled meaningful and beneficial participation for those who chose to participate.

The last formal intervention within the project – the strategic planning workshop (see Chapter 8) - illustrates other challenges around participation. In designing the workshop a strong case was put for general participation but was blocked by the HoI on practical grounds. The HoI selected participants based on "the traditional structures we had - the Professoriate and the Executive group with a couple of extras to ensure all major discipline/major groups were represented".[91] He strongly emphasised his expectation regarding attendance. Nevertheless, a quarter of the invited participants were unable, or chose not to attend. Those who did attend actively participated in the structured environment of the formal workshop but were less active in advancing the agenda of actions arising from it. It seems that active encouragement from the senior manager of the Institute exercising position power, was no guarantee of ongoing participation.

[91] In an open email to staff after the workshop he noted "I am conscious of having left out some far-sighted, open-minded, creative thinkers in this first meeting".

This project raises other ethical and practical questions about participation: should a researcher/agent persist with a participative approach if a significant proportion of people in the organization show disinterest? Is it ethical to promote improvement in the face of indifference, i.e. to plan for others? These questions are not answered here, other than to observe that perhaps I should have stopped. I chose not to.

Questions and choices about ethics and politics of process

The previous section, while focused on participation, touches on both ethics and politics of process. Recent literature reflecting on the nature of Action Research/systemic intervention acknowledges that doing it is political (Soobrayan, 2003; Coupal, 2004; Coghlan & Shani, 2005), particularly when it takes the form of insider 'interested' research. Insider researchers "through processes of collecting and producing representations of the voices of organizational members, ... are repositioning themselves and others within the power networks of the [organization]. This repositioning threatens existing organizational functioning and individuals within the organizations." (Coupal, 2004, section 2.3). As Tickle (2001) observes, the process of "opening windows" carries with it the potential consequence for the researcher and participants of "closing doors". Consequently Action Researchers need to be politically astute and work on performing their public research role and "backstaging", recruiting and maintaining support towards balancing the preferred and intended with the possible (Coghlan & Shani, 2005). The interplay of ethics, truth and politics embodies tensions and dilemmas that require vigilance on the part of the researcher, particularly in the context of education where "contentiousness is endemic and power is unequally distributed within relationships. Further the need to know and the need to act occur in tense combination" (Tickle, 2001, 300).

Much of the literature on Action Research outside education deals with the dilemmas inherent in the dual role expectations of serving client managers and doing good research (Morton, 1999; Walker & Haslett, 2001; Coghlan & Shani, 2005). This project did not have a manager as sponsor. The dilemmas between quality of consultancy and responsibilities to client, and quality of research did not arise. However, tension between action and research were addressed throughout the project. Several authors (Zeni, 1998; Morton, 1999; Walker & Haslett, 2002; Malone, 2003; Coupal, 2004) have commented on the often-difficult fit of university requirements for full ethical review and approval prior to the commencement of research with the "often-meandering route" (Zeni, 1998, 9) of action research where the researcher cannot know in advance what they may find or which political minefields they might stumble into (Malone, 2003). They note that the issue is most challenging in relation to insider research. The 'interested', insider nature of this research and the interplay of ethics and power politics affected the project from its beginning. The start of this project and the preliminary process of applying for research ethics approval coincided with a period of repositioning and industrial unrest in the University (Meyer & Evans, 2003) characterised by heightened concern for the University's reputation. The ethics approval process requires that researchers consider potential harm to the University as well as potential harm to participants and the researchers. My ethics application, based on careful consideration by my research supervisor and me, stated that the research posed no potential harm to the University. The University's Human Ethics Committee returned the application with a list of issues requiring further information. Within that list was

the comment in relation to potential harm to the University that "given the research topic, this Committee would be remiss in its management of ethics proposals if approval is granted to this application as it stands at present." Clarification was sought from the Committee noting the difficulty of responding to such a general concern. The initial response from the committee indicated that the potential harm arises in relation to "issues of privacy, access and the ongoing relationships with staff." No further clarification was offered nor did the committee comment on how potential harm to the University might be avoided. Having reflected on the question of potential harm to the university, I chose to proceed with again seeking ethics approval.

The Committee also requested further information regarding "colleague relationship pitfalls (especially if views differ)" as a potential source of harm to participants and to me as the researcher. In response to the committee's concerns, I explained:

> The focus of the research is on gaining an understanding of participant views. The intention is not to advocate the researcher's views on the topic. If the participants hold views that differ from those of the researcher then those views will be reported, just as views that agree with those of the researcher will be reported.
>
> Also, given that quality in education, particularly as it relates to the place in which I work, is one of my major personal interests/passions, any colleague relationship pitfalls are likely to arise irrespective of whether the research is carried out or not.
>
> Further it could be argued that the only way that improvement can be made is by clarifying disagreements and then progressing to resolve them.
>
> Hence I see the risk as acceptable.

Wright (1999), in reflecting on the personal implications of insider research, observes the risk of being an internal consultant is that the process might not work with consequences for trust, credibility and working relationships.

The Committee further clarified its concerns in relation to potential use of information in ongoing working relationships outside the research – "the extent (if any) to which you and/or your supervisor have a management and/or supervisory relationship with any of these staff". The revised application noted I had no management or supervisory relationship with other staff, hence any potential harm from that perspective was extremely unlikely. The concerns about possible role conflict for my then supervisor were resolved by his departure from the University (for reasons unrelated to the research) and his subsequent resignation as my supervisor. These major areas of concern both seemed to relate to political dimensions of the context of the project and to potential misuse of information outside the boundaries of the project rather than to the ethical conduct and potential consequences of the project itself. Having reflected on the Committee's concerns, and explored ethical and political dimensions of the issues raised, I chose to resubmit an ethics application containing minor amendments. The Committee approved the revised application without comment.

In its initial comments the Committee raised the further issue of ensuring that "the analysis and write up protects and preserves anonymity [of participants]". Coghlan and Shani (2005) identify the dilemma between "collaborative closeness" and anonymity and confidentiality as a major complexity of Action Research, and Zeni (1998) and Walker and Haslett (2002) identify that dilemmas of ownership and

responsibility arise in the process of publication. This issue was revisited regularly throughout the project. Mechanisms were developed to protect the anonymity of participants, but major concerns arose about ethical responsibilities to other "potential victims of [the] research" (Malone, 2003, 814). Initially, I attempted to write the thesis in the third person as a disinterested academic account of "an intervention in an academic department in a university" distanced in the writing from my own work environment. Much of this thesis was subsequently rewritten as an account of experiences in the Institute to give substance and life to a report that previously presented a hollowed, "author vacant" (Badley, 2004) shell of my research experience. As a consequence of the decision to identify the specific site of the research, participants' criticisms of past Heads of the Institute could be traced back to identifiable individuals who had occupied that position. I justified the final choice to write an account of the Institute including those criticisms on the basis of two key considerations. Firstly, the underlying dissatisfaction with management and leadership is a key aspect of the lived experience of participants in the Institute. An account of the research without critical comment and reflection on the role performance of the Heads of the Institute would not be a recognisable or potentially true account for most participants. Secondly, leadership and the functioning of leaders and managers are significant factors in the potential success of organizational change and improvement initiatives. Knight & Trowler (2000) explore this idea specifically in relation to university departments and the improvement of learning and teaching. Specifically, Flood notes that authoritarian, supervisory and laissez-faire leadership styles all "fail to match up to the needs of the problem solving system TSI in different ways" (1995, 61). Leaving out reflections about leaders and leadership styles would have produced a very partial account of the challenges of the research and of the potential of the methodology in a particular type of problem context.

Participants' perceptions of the leadership performance of various Heads of the Institute also influenced the path and politics of the project. In previous work in other organizations, I had been invited in with explicit support from key organizational managers established in their leadership roles. My role had been to guide and facilitate the work of internal participants. I had not been placed in a position of having to 'sell' an improvement-focused project to a succession of managers. In this case I initiated the project and was allowed in rather than invited in to the Institute. The attitude of top managers within the Institute could be described as informed indifference: the project was tolerated so long as it did not place great demands on resources or people. It became evident from talking to participants that more positive endorsement of the project by the Heads was unlikely to prompt greater participation from staff. Consequently, I chose to gather support from potential critical friends in middle-level positions within the Institute rather than seek active involvement from the Heads. The research progressed with participants *within* the Institute rather than with the Institute per se. I chose the possibility of meaningful participation over endorsement from individuals with nominal positional power. This failure to engage our senior manager(s) could be seen as a major failing of the research as a test of TSI. On the other hand, it could be seen as a legitimate part of a realistic test illuminating a limitation of TSI itself.

While Flood (1995, 58) asserts "Not all problem solving needs or ought to involve senior management", all successful cases of using TSI that I am aware of from exhaustive searches of the literature have been sponsored by senior managers in the host organizations (see for examples Flood & Jackson, 1991b;

Flood, 1999). Both Flood (1995) and Jackson (2003) present TSI as an approach *for* managers. There is a dearth of literature on applications of TSI by non-managers for local improvement. I have been unable to identify a single reported case of TSI used successfully for 'non-manager' insider action research, either because such efforts go unreported or perhaps because they do not exist.[92] As the project proceeded, one of my supervisors made the pertinent observation "this seems to be an approach best applied by an external expert with the ear of or commissioned by 'the boss'".

One of the key research questions articulated in the early stages of the project was: does Total Systems Intervention (TSI) as a systemic meta-methodology provide a way forward in relation to quality for the university under consideration? Part of the answer to that question lies in the fitness of the assumptions behind TSI as action for the specific environment. While Critical Systems Thinking emphasises its commitment to human improvement, it would seem that CST enacted through TSI operates predominantly as a means for management-initiated improvement. It seems, despite its avowed critical turn and as a consequence of its focus on methodology, to downplay crucial questions of whose interests are likely to be served. It assumes the alignment of the interests of other participants in the problematic situation with managerial interests (or their subordination to them). Ethical and normative considerations follow managerial political endorsement of methodology - within the boundaries set by sponsors. Ulrich argues that this approach in subordinating boundary critique to methodological choice "is bound to lose sight of its own original purpose and claim, namely, of ensuring critical systems thinking and practice" (Ulrich, 2001, 20).

The diverse values and characteristics of academics, the contested nature of academic work, and the continuing tussle between academic and managerial power in universities, together suggest that *a priori* assumptions about alignment of values potentially are misplaced. In this case, initial reflections on the boundary judgements of managers indicated that they clearly privileged research over teaching. Interventions towards improving the quality of teaching and learning – which emerged as a key interest of participants – were unlikely to gain substantive support from senior managers. Hence, I chose to proceed in cooperation with colleagues towards interventions likely to advance their interests and those of students, with nominal acknowledgement of the project from our Heads. That political judgement, while possibly violating an un-stated assumption of TSI, seemed consistent with the critical turn of CST and the commitment to improvement in terms of "bringing about those circumstances in which all individuals could realize their potential" (Jackson, 2000, 376).

Boundary setting and boundary critique

While Flood and Jackson acknowledge the importance of boundary setting as a precursor to intervention, they seem to pay little attention to boundary critique in the preliminary stages of intervention. Midgley (2000) and Ulrich (2001) argue unless boundary critique is placed up front in interventions, there is a danger that diagnosis and actions will be biased towards the interests of a narrow range of stakeholders –

[92] Carr-Chellman (1999) from an exhaustive search of ERIC database entries from 1966 to 1994 was able to identify seven refereed journal articles on systemic change in education generally presenting on field-based accounts. Only three took a critical systems orientation.

particularly those holding positional and knowledge power. Boundary critique provides a means to reflect on the otherwise potentially taken for granted assumptions that bound problem contexts, problem definitions and choice of interventions (Midgley, 2000).

As noted in Chapter 5, the initial boundaries of the project were set for practical reasons of manageability shaped by my hope to contribute to local improvement. The Institute in which I work seemed to be an appropriate organizational unit on which to focus. It seemed that the quality problem affected the Institute like any other academic unit. It also seemed that the Institute might be open to improvement, while extending the boundaries of the research more widely to the College was not likely to be productive. The Pro Vice Chancellor of the college had made clear in public pronouncements and plans the college's primary formal interest in doing research. His appointment and ongoing agenda was based on the success of the institute-based structure of the college and the elevation of research performance. Neither of the key aspects of the college seemed open to criticism, while interventions focused on teaching seemed unlikely to gain support at the college level. The possibility of meaningful intervention at the college level seemed remote. The possibility of influencing the University directly through this project seemed even more remote.

As the research progressed it became clearer (see Chapter 6) that participants saw the Institute as an arbitrary construct created by fiat – an administrative label attached to disparate groups, and that the formal boundaries of the Institute were ill-placed for it as an entity to be able to make substantial improvements in educational processes and issues (Chapter 7). The Institute, as such, acted specifically on issues of teaching quality only twice during the lifetime of this project. The first occasion (a half-day staff development workshop about assessment) was prompted by a complaint by a student. The second (the flurry of activity around the professional accreditation of degrees) was prompted by the need to demonstrate compliance with the accreditation requirements of the professional body. Once the stamp of approval – accreditation of courses - was achieved, the focus of attention reverted squarely to research and specifically to demonstrating the quality of research undertaken within the Institute.

The privileged/sacred status of research for the College and Institute was reinforced by an environmental perturbation - the Government's PBRF mechanism tied to funding – and the University's response to it. In the first 2003 PBRF assessment round, the University was ranked seventh out of the eight New Zealand universities on the overall weighted quality score based on staff research ratings (TEC, 2004)[93]. Two factors seemed to have significantly affected the result. The first was the number of R graded staff[94]. This category was interpreted widely as "research inactive" although this was not the intent or meaning attached to the classification by TEC (Clarke, 2005). In the Institute, 48% of staff were classified 'R'. The second factor was the quality of evidence portfolios produced by staff. The University in preparation for the 2006 assessment established a complex multi-tiered system to improve the quality

[93] The University lifted to third position on overall results taking into account staff gradings, research income and graduate research student completions.

[94] 'R' gradings were, in most cases, allocated to staff in the internal process preceding the formal assessment of portfolios by the PBRF panels (Boston, Mischewski & Smyth, 2005; Clarke, 2005).

of evidence portfolios produced by staff (see http://pbrf.massey.ac.nz/). In parallel, the College introduced a "research and research training capability improvement plan" including "'numerator strategies' derive[d] from building stronger evidence portfolios – achieving higher-level outputs and better and more comprehensive presentation" and "'denominator strategies' seek[ing] to ensure that the 'appropriate' members of staff are best placed for such evaluation processes." Some Institute staff with R grades were encouraged to separate from the University, while others had their duties and employment classifications changed to place them in "teaching only" positions more clearly outside PBRF eligibility guidelines. These decisions were shaped by the outcomes of an assessment process that was acknowledged to be "in many cases unfair... [with] about a plus or minus 20% accuracy [at the category boundaries]" (Callaghan[95], 2004 cited in Dalziel, 2005, 2) and criticised as failing "to adopt generally accepted standards of good practice in individual assessment: fairness, transparency and confidentiality" (Dalziel, 2005, 4). Many affected R-labelled staff were widely acknowledged as good teachers. This outcome reflected two problematic aspects in the PBRF process – the perceived stigma attached to the R label and that the results did not address quality of teaching (Clarke, 2005). The actions taken reaffirmed that research was and is the officially privileged activity.

Paradoxically, the Institute throughout its existence has continued to receive the vast majority of its income from teaching activities. While responsible for doing teaching, the Institute was and is not formally responsible for the broader educational considerations of program design, quality monitoring or improvement. These responsibilities continue to lie with Academic Directors outside the Institute structure. Yet participants – both staff and students - saw these as key areas requiring improvement (see Chapter 6), if the Institute was to be viable. The focus of improvement for participants mapped more closely to practical concerns of quality of education than to the formal concern of the Institute with research. Consequently as this project progressed, its boundaries and the focus of improvement shifted from alignment with the artificial construct of the Institute to alignment with the technology and engineering education/degree program.

As the concern for teaching and learning came to the fore, one of my supervisors observed that the curriculum activity was likely to be a side-show "of peripheral interest to many colleagues" and a distraction from interventions likely to have more impact and interest. This may be a legitimate reservation in relation to those staff who chose not to participate. Blaxter, Hughes and Tight (1998) make the observation that teaching is a task in which novice and experienced academics alike have little interest or motivation. For many their academic careers and professional advancement are tied to their discipline research expertise. For many academics an interest in researching higher education would "either be seen as navel gazing or simply bizarre" (Blaxter Hughes & Tight, 1998, 313). However, getting students, keeping them and educating them well were crucial concerns for those staff who chose to participate. Lasting improvement in all of those areas were traced back to the central issue of curriculum design as the foundation of the educational experience offered to students. The quality of their educational experience also was central to the concerns of students. Apart from the need for leadership and efforts towards

[95] Professor Paul Callaghan was the chair of the 2003 PBRF Moderation Panel responsible for overseeing the functioning of the subject review panels.

"getting people talking", participants did not propose any alternative interventions. Our choice to place the primary boundaries of improvement around teaching, learning and curriculum placed the project at the margins of the officially articulated interests of the College and the Institute. It did, however, maintain some momentum towards authentic improvement rather than succumbing to the pressure towards recounting the quality of past performance.

In relation to insider action, "it is always tempting to wait until one has more formal power and security and can *really* effect change" (Meyerson & Scully, 1995, 593), but compromise behaviours create environments that require more compromise behaviours. "[T]he only way ... to locate the appropriate degree of resistance is to push continuously against the limits" (Meyerson & Scully, 1995, 596). While there was little overt support from those with positional power, there also was little resistance. Intuitively, I chose a small wins approach to diagnose the system, to test the hardness of the boundaries, and to attempt to exploit the potential intersection of interests at the interface of teaching and research. Research-led teaching has been promoted as a defining and differentiating characteristic of the University. Although not explicitly defined, use of the term and actions justified by it, implied the specific meaning of discipline-based research-led teaching content. The imprecision in definition was exploited within this project to promote interconnected interventions based on education-focused research. The interventions drew heavily on available research on: student choice of university course (James, Baldwin & McInnis, 1999), education and project-based curriculum (see citations in Chapter 8), and teaching-research relations (e.g. Jenkins, 2004). Much of this research implicitly advocates systemic action to improve quality rather than piecemeal control to demonstrate accountability. Reflections on boundaries and ethics helped to create an opportunity to use the rhetoric of the institution to lever for actions at the periphery of its interests. Critical systems ideas helped to keep some attention on educational issues and potential solutions to them, rather than them being further marginalised, overwhelmed and submerged by the dominant ethic of research. Boundary critique, although intuitive and informal, helped to maintain focus on my fundamental question: how can we in the university improve the learning experience and outcomes for students?

Is a systems approach right for the problem situation?

From the outset, exploring and using systems approaches seemed the right thing to do. In relation to complex social problems, Attwater (2000, 555) identifies systems approaches as at least partly meeting the "need to find ways to talk across traditions...." Systems approaches seemed potentially to provide a means to talk across traditions impacting on the Institute and its work – traditions of teaching and education on the one hand and research and engineering on the other. McIntyre (2004) draws attention to Banathy's (1996) maps of ontology and epistemology. These show three views of the world through science, the humanities and design. My own world view was shaped in the humanities and education with its focus on the human experience, its descriptive, evaluative and synthesising methods, and its valuing of subjectivity, and concern for 'justice'. [One might argue that those steeped in the humanities are primitive or naïve critical systems thinkers.] At the same time I had dabbled in science and been exposed to design, particularly of educational systems. When I stumbled across critical systems thinking, first through Carr

and Kemmis's (1986) implicitly systemic work on educational action research, and later through the works of Flood and Jackson, Critical Systems Thinking and Practice seemed to offer an approach that drew out the best of all worlds. As Hawk (1999, 364) notes "An endearing and enduring aspect of the systems approach is that it encourages one to see relations and connections to a larger system of order. It encourages a more holistic stance and innovative, alternative activities."

The potential of systems approaches for Higher Education

In the guest editorial for a special issues of *Systems Research and Behavioural Science* on "Applying systems thinking to higher education" (1999, 16, 2), Ison outlines the potential range of applications of systems thinking to course design; for thinking about and effecting change in organizations in higher education; and for thinking about the sector as a whole. He then notes "the emphasis must be placed on 'potential' as the extent to which systems thinking has been applied... remains relatively limited" (Ison, 1999, 108) in any of those areas. In the same issue, Weil (1999) presents a plea for systemic learning and inquiry in higher education, and Banathy (1999) contemplates the question – similar to the question pursued in this research – "What does systems thinking tell us about how to provide for learning and human development?". He provides a strong argument for a new systems complex for higher education focused on learning rather than instruction. These arguments, like much of the literature on quality in higher education (Carmichael et al., 2001; Mullin & Wilson, 2000), reach the conclusion that student learning should come to the fore. A systems perspective for education takes into account the variability of students, adaptability and flexibility of processes, the interactions of components and expectations about the final outcome – learning (Orsini, 2000, 763).

Both Weil and Galbraith (1999a) identify the potential of systems thinking to shift the focus of action away from controlling means towards considerations of the purpose of higher education and how to better achieve the preferred ends. Similarly, Bowden and Marton (1998) argue for a new conceptualisation of the contemporary university as the "university of learning" where attention is moved from means to ends. The university of teaching and research focuses on means rather than purpose and potentially over emphasises differences and hardens the boundaries between the two ethics of academic-as-teacher and academic-as-researcher. In the university of teaching and research two action areas co-exist in tension that has the potential to degenerate into unproductive competition and ritual that sub-optimises the performance of the whole (see also Weil, 1999; Seymour, Kelley & Jasinski, 2004).

Bowden and Marton (1998) argue that the university is the archetypal knowledge organization. Everything in the university is about how to produce knowledge and capabilities – how to bring about learning. The university does not have three aims: it has one. Teaching, research and community service are not ends in themselves, but rather means to promote learning. Teaching promotes learning for individuals through knowledge being formed which is new to the individual. Research contributes to learning for humanity through the formation of knowledge that is new in the absolute sense. Community service and consultancy contribute to local learning for communities (geographical, industrial and other types) through knowledge being formed for particular purposes. The university of learning recognises

both ethics as equally valid and valuable means towards the single end of learning. It emphasises the interdependence of teaching and research, de-marginalises the academic-as-teacher and reintegrates the whole. In order to build, or re-build collaboration between academics-as-teachers, academics-as-researchers, management, administrative and support staff within the university, there needs to be understanding and agreement in relation to the purpose of the whole organization. While not explicitly grounded in a systems perspective, the work of Bowden and Marton with its emphasis on organizational learning, reflects underlying systems concepts of purpose, interdependence and emergence.

Systems ideas have recently become more evident in mainstream higher education literature (in contrast to systems literature touching on higher education). Seymour, Kelley and Jasinski's (2004) argument for systems thinking is presented in relation to issues of linking planning, quality improvement and institutional research. Colbeck (2004) presents a cybernetic systems model of teaching and research production to show the need to emphasise inter-relationships between elements, while Kezar (2005) provides an extended review of the connected but different concepts of organizational learning and the learning organization[96]. Both of these concepts share common systems ideas. According to Kezar (2005) these ideas in the context of higher education are often intertwined with other ideas like TQM. As one recent example, Srikanthan and Dalrymple (2005) present a holistic model for quality in higher education built on Senge's (1990) presentation of the learning organization – itself a representation of system dynamics. These authors present strong arguments and advocacy for systems ideas and systemic action in higher education. Systems approaches seem to be a good idea.

However, "in higher education systems thinking is frequently honored in the breach, not the observance" (Seymour, Kelley & Jasinski, 2004, 50). Galbraith identifies systems thinking as "a significant absentee from planning processes in higher education" (1999a, 142), where "a number of decisions and management strategies clearly lack the insight we associate with an understanding of the way that systems work" (1998, 70). For Galbraith (1999b) and Weil (1999) the lack of systemic perspective and learning is strongly influenced by government policies and its translation by university managers into practices that control the parts rather than recognising the primacy of the whole. "The vector pulls towards the status quo, exerted by government policy, funding and performance rewards (such as for research, quality in teaching) at institutional and individual levels remain robust" (Weil, 1999, 107). Such pulls perpetuate "disabling dichotomies" with the [so-called] quality pulls for 'winning the game' and the quality pulls for service improvement moving in opposite directions (Weil, 1999). This tension between externally politically imposed quality control for compliance and internal improvement of quality, creates significant challenges to systemic intervention towards improvement.

[96] Kezar (2005) rehearses Birnbaum's (2000) argument that any management approach should be applied critically through phases of exploration, implementation and evaluation starting with sceptical interest. These ideas resonate with the commitments of critical systems thinking and the three modes of TSI critical review, problem solving and critical reflection.

Systems approaches and the Institute

At the start of this project, critical systems practice represented by TSI seemed to provide means for locally meaningful actions towards quality improvement. But as Metcalf observes "attempting to work from a systems approach was – and still is – difficult and complex" (2003, 22). Systems approaches promote organizational learning which "is fraught with threats ... with very few easy answers about how to facilitate [it]" (Kezar, 2005, 13). The complexity of systems approaches encompasses the messiness of the organization itself, the interactions of the focus organization with its environment, and the interactions of methodology and researcher with the specific organization. To recap briefly, TSI in problem solving mode is designed to: apply creativity to help participants think about their organization and its issues; to choose appropriate systems-based methodologies and methods to suit the organizational images, issues and problems revealed; and to develop specific interventions for change in those aspects of the organization most critical to its operation (see Chapter 2 for fuller theoretical discussion and Chapters 5-8 for a description of the application).

Elton (2001, 46) observes "the first step in all good practice of problem solving consists of further analysis and perhaps redefinition of the problem." Critical systems approaches incorporate methods that support problem structuring as a precursor to problem solving in a particular context. As described in Chapter 6, the creativity phase of TSI helped to illuminate what the Institute is like and its quality problems. For participants within it, the Institute is a mess with interacting issues of: fragmented, individually focused culture; lack of clear purpose; ineffective leadership; and the duality of teaching and research, with uncertainty about interactions between them. Boundary critique helped to illustrate the interactions between the Institute and the College as its dominant framing environment and the interacting ethics within it (Chapter 6). At the boundary of the choice and intervention phases, use of Beer's Viable Systems Model in descriptive and diagnostic modes pointed to multiple challenges to the viability of the Institute, particularly the artificial structural boundaries placed between crucial functions. These applications of methodology helped to clarify understanding of the mess. In this respect, the project moved towards achieving what Metcalf (2003, 36) describes as "the first value of systems models and frameworks ...to help bring clarity to a world that sometimes seems to fade into a blur of confusion". Somewhat optimistically Metcalf continues "once done, the possibilities for "creating the desirable" rather than "suffering the inevitable" become more real." This assertion reflects the optimism of the statement in Chapter 1 of this thesis that understanding a situation is the key to improvement. But, as one of my supervisors noted, having the key may not be enough to open the door to improvement. Someone also needs to unlock it and push. Having crafted the key, I chose to hand it to others with some advice on where to push, i.e. some information on possible leverage points (crucial issues) and the invitation to push. A few individuals were interested enough to push the door open a crack to see some desirable possibilities. But there was little collective energy to keep pushing against external pressures and inertia. Perhaps I should have pushed harder myself, but as observed earlier, I chose to retreat to a small wins approach.

Clayton and Gregory (2000) discuss the characteristics of rule-bound systems and the challenges of managing change in such systems. They argue that in rule-bound systems the elements are bound together

by the rules of the institution, which define possible relationships and interaction between actors and constrain performance. In such problem contexts "who has the final say is externally determined by the rules governing the system's arena of action". Compliance with the rules creates a unitary illusion through suppression of cultural variety. While some participants are able to work the rules to their own advantage they are not able to control or escape them. One consequence of 'rule-boundedness' is that participants in the system retreat to doing rather than trying to make improvements as externally imposed rule changes are likely to make improvements obsolete. Participants become caught in an attitude of "wishing thinks to change but not being prepared to contribute to the change" (Clayton & Gregory, 2000, 153). The Institute and the individuals within it seem to be caught in a network of power – a rule-bound system.

Weil (1999) and Colbeck (2004) have noted the strength of the "vector pulls" towards the status quo such as the PBRF, and reward and promotion processes focused on individual achievement mostly in research. Trowler (2005) argues that inertia is incredibly strong in educational settings. Existing cultures are extremely tenacious and act as "filters, conditioning the reception and implementation of change, as well as generating their own changes or acting as a brake on it" (Trowler, 2005, 26; also Kezar & Eckel, 2002). Innovations come loaded with multiple potential meanings. They have a greater chance of success if professionals see them as profitable, in a broad sense, in areas that matter to them. Change that violates cultural norms is unlikely to occur (Kezar & Eckel, 2002). Cultural sensitivity is extremely important in designing change strategies as "the way forward will be contingent upon the nature of the particular academic unit and the people who work there" (Lomas, 2004, 163).

A pivotal issue in any change process is language - particularly the fit of the language associated with change to organizational culture and identity (Reger et al., 1994; Spear, 2001). Baldwin (1994, 132) notes "words matter a great deal; ... implying value systems and world views which need to be articulated and analysed and, where necessary, challenged". Chapter 4 illustrates that the language of QM, while superficially attractive, on closer examination fits poorly in the problem context of the university and higher education. The underlying concepts and associated methods fit poorly with the ill-defined, messy problem of quality higher education and advanced learning (see Jauch & Orwig, 1997; 1999). Chapter 6 illustrates the misfit of that language and its concepts with values and beliefs held within the Institute. Similarly, the language of critical systems thinking is an imperfect fit to the context of the Institute.

Systems concepts present a new language to share new understanding of situations (Ragsdell, 2000; Spear, 2001). For Wright (1999, 626) "the development of patterned language... facilitates communication for thinking and working systemically." Ambitiously, the language of systems attempts to bridge across the worldviews of science, design and the humanities (Banathy, 1996). But Metcalf (2003) cautions that people unfamiliar with systems work can find terminology confusing. Coghlin and Shani (2005, 543) note "as the involvement of individuals with differing disciplinary backgrounds increase, the challenge of developing a common language increases." Most of the academics in the Institute come from the common but internally diverse disciplinary background of engineering. Many have only worked in universities. Others come from design backgrounds. A few come from backgrounds in agriculture,

education, and management. Some of them have worked outside universities. The application of science to real world problems through engineering is strongly privileged in teaching and research: engineering and other design perspectives occupy a supporting position. Hard systems concepts are embedded in much of what is taught and much of the research that staff do, but systems concepts are not prominent in how people talk about the Institute as an organization. When exposed to systems concepts applied to the Institute, several participants listened intently and then commented to the effect "I don't think like that". The worldview of the humanities (including education) and people has been and remains at the periphery of the dominant language and culture. While a few staff members attempt to bridge across all three worldviews, many are deeply steeped in and wedded to a scientific view of the world, which they enact primarily through research. The dominant language in the Institute is the language of engineering and scientific methodology.

Ragsdell (2000), reflecting on using systems methods with engineers in industry, notes the challenge for her as facilitator was to move highly skilled, technically biased individuals out of their cause and effect type mentality towards a more interpretive stance. Even as part of a wider management-mandated change strategy the change that she facilitated took considerable time and effort. Barton, Emery, Flood, Selsky and Wolstenholme (2004) argue that one of the biggest challenges facing the systems movement is the dominance of the scientific methodology in universities. Universities as socio-psychological systems, more than socio-technical systems, have a dominant culture of a self-perpetuating dynamic of reward for publication of scientific research that obstructs systemic learning and development. In this respect, the Institute is a microcosm of the university. Environmental pressures and influences of the "reductionist realpolitik of the world of academia" (Barton et al., 2004, 33) continually assert the sacred position of the academic-as-researcher ethic within it.

Critical systems approaches provide methodologies to diagnose the pathology of the university (for example Galbraith's (1998, 1999a, 1999b) and Colbeck's (2004) use of system dynamics) and the Institute (see Chapters 6 & 7). They acknowledge the need to take into account power issues in any holistic intervention (Barton et al., 2004; Jackson, 2000; Metcalf, 2003). The array of established systems methodologies, however, does not provide approaches for resolving the leaderless state of the Institute. Similarly, they do not include any for acting on complex-coercive situations such as the Institute. Critical Systems Heuristics (Ulrich, 1991) and boundary critique help to more clearly identify and describe such problem contexts. They help to bring new understanding and information. But they do little more than that, even when put to Ulrich's (2000) polemical use of controversial boundary questioning to challenge dominant boundary judgements (see Houston & Foote, 2001 as an example). Nevertheless, reflection on boundaries did help to identify methodologies and methods for intervention within the Institute. Developing a rich picture helped to reformulate the student recruitment and retention problems. The VSM diagnosis helped to clarify the artificial and dysfunctional structural and functional boundaries around the Institute. Interactive Planning if fully executed might have helped resolve the issues of purpose and direction facing it.

The major interventions – reconceptualizing the first year experience and influencing movement towards a project based curriculum (Chapter 8), while framed by systems ideas, did not use recognised systems methodologies or methods. The interventions were concerned with improvement in the complex, pluralistic context of education and sought conceptual support and methods for improvement in the discipline of education. Much was found. Much of it advocates systemic intervention. It seems competence in improving education as a domain of practice intertwines with systems ideas.

This project is perhaps at this time best described as "arrested action research" (Carr & Kemmis, 1986, 185) in that I worked through a single loop of planning, acting, observing and reflecting and as yet there is little evidence to indicate if the work will develop into a critically, self-reflective spiral relating "*retrospective* understanding to *prospective* action" by a community of practitioners as advocated by Carr and Kemmis (1986, 186-7, emphasis in original). But as Reason (2006, 199) concludes "sometimes action research will be about creating tentative beginnings of enquiry under rather difficult circumstances, planting seeds that may emerge into large fruit". Interestingly, Clayton and Gregory (2000, 157) conclude that if one believes that rule-bound systems are inevitable, "then conducting a project which works by opening up communication channels must in itself be seen as a success". And some opening up of communication seems to have resulted from this research.

Working in the Institute did involve difficult circumstances. Education systems "require much more of an action researcher by way of planning and action" (Emery in Barton et al., 2004, 25). Changing the thinking of engineers is difficult and demanding even in supportive contexts (Ragsdell, 2000). And engineers in education bring conflicting conceptions and beliefs to their work (Quinlan, 2002). Much of the literature on change points to the importance of leadership from academic heads in enabling change in departmental cultures (Knight & Trowler, 2000; Askling & Stensaker, 2002; Newton, 2002). I tried to work with leaderless engineers in an educational setting to improve the educational aspects of their work in the shadow of a dominant environment privileging research. The Institute is possibly a worst-case example of characteristics of the university that contribute to a lack of collective will towards improvement: the Institute is asystemic. The Institute is an artificial construct with no collective focus or purpose. The culture of individualism promoted by the actions, if not the rhetoric, of the wider College and University works against the collective interest of the Institute. Each sub-system attempts to optimise its own performance, resulting in sub-optimisation of the Institute's performance as a wole. Nevertheless, I think we made some progress towards doing right things better - that is, quality improvement - in the local context through a systemic intervention.

Conclusions

As the project evolved, one of my supervisors raised a series of important questions. One was "are you even talking about quality per se anymore?" He went on "It seems you are testing a technology that seeks to provide organizations with guidance on seeking answers to the following questions: What are we trying to achieve and are these objectives appropriate? How should we organize ourselves and our activities to achieve this? How will we know whether we are achieving these objectives?" These

questions point to the heart of the quality problem but stop short. A major emphasis of the quality movement since its beginnings has been improvement. So a fourth question gets closer to the heart of the quality problem: how can we do better towards achieving our purpose? These questions provide useful heuristics for closing the loop on this work.

About quality ideas and quality practices

Quality has been loosely defined as "doing right things right" (Jacques, 1999, 48). Key figures in the quality movement were clear in their view that issues of quality for any organization are fundamentally issues of purpose and values (Deming, 1986, 1993) and contribution to society (Ishikawa, 1986). Purpose should never be defined in terms of activity or techniques (Deming, 1993), but much of the secondary quality literature does precisely that, prescribing methodology independent of the need to consider organizational purpose and clarify values. In much of that literature QM is embedded in and shaped by the market, not society, as its dominant environment.

Deming's answer in relation to how we should organize ourselves and our activities to achieve the agreed purpose was: "It would be better if everyone would work together as a system, with the aim for everybody to win" (Deming, 1993. xi). Working together as a system requires an understanding of systems ideas and systemic thinking, and behaviours built around cooperation and contribution rather than competition. While much of the popular quality literature acknowledges the need for a systems approach, the systems thinking that is promoted focuses almost exclusively on systems of process. It is an impoverished view of systems and of organizations seen as systems.

The leaders of the quality movement acknowledge the importance of control and measurement of the core productive process and outcomes as a means of providing information about how well the organization is doing in relation to quality, that is, achieving its purpose. But measurement and assurance mechanisms are seen as means within a quality approach not as an end in themselves. The mechanisms should provide data as an input to improvement. But once again, common practice emphasises methods and information as evidence rather than purpose – it separates means from ends.

Finally, the leaders of the quality movement argue that to do better – to improve quality – an organization needs to consider the future. It needs to align its elements of productive process, culture, structure and power and the interactions between them through leadership to optimise each component's contribution towards more effectively achieving its purpose. The quality movement provides a plethora of methods and techniques for optimising productive technical processes but little guidance in relation to the other elements.

Deming's and Ishikawa's works explicitly advocate a systemic approach for management and set a practical agenda for transformation of the quality of management. However, QM, as popularised and commonly practiced, retreats to a systematic approach for controlling and improving process and products within the established boundaries of industrial management.

In summary, authentic quality theory is essentially systemic; attending to values, purpose, and optimising performance relative to the aim of the system. It offers a framework of ideas, tools and techniques to help improve future performance, based on data about past and current performance. In contrast, QM as enacted in industry is mostly about applying methods for technical improvements. Rather than systems theory in action, it is systematic action shaped by tools and techniques.

Quality, systems and higher education

The ideas of the quality movement offer a great deal to higher education. But at multiple levels and in multiple ways QM as practice does not fit the complexities of the education system. Mismatches exist in relation to language, key precepts, methods and tools. However, higher education systems and institutions have adopted 'quality' methods and techniques divorced from the framework of ideas. As Deming and Ishikawa argued against managerialism, higher education moved towards it, adopting a hollow rhetoric of quality as a justification for it, and quality assurance as a mechanism to demonstrate management performance. Paradoxically, within universities, quality as demonstrated conformance to the accountability requirements of (admittedly important) others, has been privileged over quality as learning about how we can do better towards achieving our purpose. Substantial effort has been directed towards developing processes to demonstrate quality at much the same time as resources to advance authentic quality, that is, to achieve organizational purpose, are being reduced. Most so-called quality practices in the university are essentially not about authentic quality at all. They, at best, marginally contribute to answering the question: how can we do better towards achieving our purpose?

Critical systems thinking helps to illuminate the bizarre, asystemic nature of these actions taken in the name of quality. It also helps to expose their undesirable (and one would hope unintended) consequences. Systems ideas and systems methodologies provide a means to help to focus attention of those directly enacting the productive functions of the university – teaching and research towards learning - on core quality questions.

One of the defining systemic characteristics of universities in New Zealand is supposedly that "their research and teaching are closely interdependent" (NZ Government, 1990, s162). How might that idea of interdependence of functions be realised? Boyer (1997) proposes the scholarship of teaching as a linking mechanism. For Brew and Boud (1995, 268) "teaching and learning are correlated when they are co-related, i.e., when what is being related are two aspects of the same activity: learning!". Elton (2001) explores possibilities and suggests curriculum as the key connecting function. The research described here proposed problem-based curriculum as an appropriate intervention to improve the quality of learning for students associated with the Institute. Colbeck (2004, 9) notes "of the various ways that research and teaching may be linked, problem-based learning is the only one for which there is systematic evidence of student learning". The systemic approach I took in this research provided some partial answers to my fundamental question: how can we in the university improve learning, particularly for students? And this seems to be the core question of quality or competence in the domain of higher education.

Implications for research and practice

Firstly, some words of caution for those faced with proposals to use a critical systems approach for a PhD project. The complexity of systemic intervention, with its looseness of process structure and its commitments to improvement, critical awareness and pluralism with the demands these place on the researcher, should prompt caution by potential supervisors if a PhD candidate proposes using it. This is particularly the case with insider, practitioner research which poses tensions and challenges of balancing research with action, and the dilemmas created by the dual, potentially conflicting roles of agent and researcher. PhD students face challenges in just doing research without facing the confounding issues of dual roles. Additionally, systemic intervention with its commitment to participation and improvement relies on long-term commitment from participants, which cannot be guaranteed by the researcher, particularly if acting as an insider with a fragile mandate. Systems approaches are based on developing holistic understanding and promote a process of intervention that is responsive to the emerging understanding of a complex situation. As the potential field of action is large and the time and resource required for effective intervention may not be clear at the outset, such projects may not align well with the time-bounded expectations of a PhD study. Candidates perhaps should be encouraged towards a more clear-cut approach to demonstrating research competence and getting a PhD. (I have often wished that I had been.)

Nevertheless, for Midgley (2000, 274) "testing methodological ideas in practice is vital". This project has described one such test, illustrating the challenges of systemic intervention using TSI in the highly complex context of a university. The specific site chosen for the project arguably lies near the least accommodating extremes of the spectra of academic organizations in relation to such an approach. The focus of the project, as it progressed, moved towards improvement in education and learning in the face of environmental pressures promoting research and accountability. It achieved modest outcomes within that context. In a more receptive context much more may have been achieved. The project has by no means definitively resolved the quality problem in the university but has provided some indications of where and how authentic quality improvement might be achieved. Perhaps general resolution is not possible, but further critical research on the question is warranted.

With regard to the usefulness of systems approaches, this research suggests that Total Systems Intervention is more appropriate as a methodology for management-led rather than member-driven interventions in organizations. The literature suggests that where management has a genuine interest in improvement through a participative process, it offers a useful approach. The philosophical and practical agenda of Critical Systems Thinking, however, is not bound to the interests of management nor to TSI as an approach to intervention. Askling and Stensaker (2002) observe that quality improvement in higher education rarely happens by decree but seems to need negotiated social construction towards consensus building as a prerequisite to successful change. The works of Ulrich and Midgley, with their explicit up-front attention to boundary critique, position Critical Systems Thinking outside a management agenda and provide theory and mechanisms to support critical insider practitioner research. The exploration of critical systems approaches to critique boundaries and structure 'problems' in the core aspects of higher

education in locally meaningful ways should continue. While demanding on agents of intervention, it still might work to promote learning about authentic quality.

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Appendices

Appendix 1: Participant interview protocols

Appendix 1a: Staff participant information sheet and consent form

Massey University

Quality & ITE: A case study
Information sheet and protocol for staff participation

Introduction
This research is being carried out by Don Houston for his PhD. The research supervisors are Professor Tom Prebble from the College of Education, Tom Robertson from ITE and Jeff Foote (ESR, Christchurch). The focus of the research is quality and quality management in the University and specifically in the Institute of Technology and Engineering.

Purpose of the Research
The purpose of the research is to examine the utility of a methodology known as Total Systems Intervention (TSI) for developing an approach to managing quality in the University environment through action research exploring and improving quality management within ITE. The objectives of the study are to:

- capture the images of the Institute as an organization held by participants in it (staff and students);
- move towards the development of an approach to QM that acknowledges and builds upon the particular characteristics of the Institute;
- trial a number of possible interventions to help improve the management of quality in the Institute.

A two-page outline of the broad research approach is available on request. The project has two broad activity/ fieldwork stages: initial interviews to identify issues and a second stage of action towards improvements.

Staff Involvement
The proposed research fits the concept of Action Research. Action Research/TSI is research in cooperation with participants. A fundamental concept of the research is that understanding a situation from the viewpoints of participants is the key to its improvement. The research will not succeed without cooperation from and participation by staff. The methodology is explicit about ethics: informed consent is fundamental, as are confidentiality and truthfulness.

All staff of the Institute will be invited to participate in the study. Each staff member will be able to determine the extent of their individual involvement in initial data collection and later improvement initiatives. There will be no repercussions if an individual chooses not to participate.

Initial interviews
The initial data collection for the project will involve semi-structured one-to-one interviews between the researcher and staff. Interviews will focus on the broad questions: "what is the Institute like?" and "what does quality mean to you?" and participants will be invited to discuss their views on quality in the Institute. Interviews are expected to last for about an hour.

The interviews are not intended to discuss issues about individuals.

Each interview will be tape-recorded with the agreement of the participant. Care will be taken to ensure that all transcripts are prepared in such a way as to protect the anonymity of participants. All transcripts will be managed through secure storage and access protocols to ensure confidentiality of data.

Interview data will be disposed of in a way acceptable to participants once the study's objectives have been met. Until that time, raw data will be kept in a secure location, accessible only to me.

If you agree to participate in the initial interviews you have the following rights:

- To withdraw from the interview at any time;
- To have privacy and confidentiality protected;
- Ask for the tape recorder to be turned off at any time;
- Ask questions at any time; and
- To have access to information about the outcome of the study.

Utmost care will be taken to ensure that any specific comments or views you might express remain confidential (unless permission is given) to me. Anonymity will be preserved as far as possible. As the study involves in-depth interviews it may be possible to identify individuals from the subsequent research report. This issue will be carefully managed to protect the privacy of individuals whilst allowing the publication of the research.

It is anticipated that regular updates on progress will be provided to Institute staff.
A summary of the research will be available on request and a copy of my dissertation will be donated to the Institute. The intellectual property rights will belong to the researcher.

Trialling interventions for improvement

Once the initial data collection and analysis is complete staff will be invited to contribute to the 'action' or implementation phase of the research. In this phase, the researcher will act as a facilitator assisting staff to apply appropriate techniques and methods to work through the quality issues identified through the data collection phase. The time contributions that might be required from people in this phase will be clarified as the research progresses.

Research ethics

This project has been reviewed and approved by the Massey University Human Ethics Committee, PN Protocol 00/135.

If you have any concerns or questions, please contact Professor Prebble, Tom Robertson or me.

Professor Tom Prebble phone: (06) 351 3463 (Massey extension: 8663)
email: T.K.Prebble@massey.ac.nz

Tom Robertson phone: (06) 350 4941 (Massey extension: 4941)
email: T.R.Robertson@massey.ac.nz

Don Houston: phone: (06) 350 4091 (Massey extension: 4091)
email: D.J.Houston@massey.ac.nz

A consent form is attached. If you are interested in participating in at least the first phase of this study, please complete and sign the consent form and return it to me via internal mail. Thank you for your time and attention.

Yours sincerely,

Don Houston

Massey University

Quality & ITE: A case study
Consent Form

I have read the Information Sheet and protocol for staff. I understand that I may ask questions at any time.

I understand that the interviews will be audio taped. I also understand I have the right to withdraw from the study at any time and to decline to answer any particular question.

I agree to provide information to the researcher on the understanding that my name will not be used without my permission. (*The information will be used only for this research and publications arising from this research project*).

I agree/do not agree to the individual interview being audio taped.

I also understand that I have the right to ask for the audio tape to be turned off at any time during the interview.

I agree to participate in this study under the conditions set out in the Information Sheet.

Signed: .....

Name: .....

Date: .....

Appendix 1b: Schedule of questions for staff interviews

What is the Institute like? How would you describe this place to someone who had never been here to give them a feel of what it is like to work here?

How would you define quality in relation to what the Institute does?

Quality as 'doing the right things right' do we know what the right things are that we should be doing?

Issues of communication and vision

What do you see as the major quality issues that the Institute faces?

What do you think is the most important work that the Institute does?

How do you think others – academics, support staff and students – would answer this question?

How does your own work fit in relation to the broader work of the Institute?

Two major areas of academic work in the Institute are research and teaching. How do you see the relationship between these two areas?

How do you think others – academics, support staff and students – see this relationship?

How well do you think the relationship between teaching and research is managed in the Institute?

Do you think staff in the institute see themselves as a 'community of eng/tech educators'?

Issues of academic freedom: collective responsibility v individual right?

One commentator has argued that universities contain five 'tribes':

Students, who are traffic thro' the place – they're here on their way to some other destination

Academics as teachers, who work <u>in</u> the place for students

Academics as researchers, who work <u>out of</u> the place for their discipline and others

Support staff, who work in the place for their 'boss' or other clients

Managers who work in the university for the University.

What do you think about this is a description of how staff and students relate to the Institute?
Do you think that the Institute has a culture of improvement?

Do you think that the Institute has customers? If so, who are they?

What do think that their expectations are of the Institute?

The Institute has been involved in two rounds of university-wide academic quality audits since 1996. What effects do you think that these audits have had on quality in the Institute?

What do you think should be done to improve quality in the Institute?

[For academic staff, the Education Amendment Act asserts that a defining characteristic of a university is the interdependence of teaching and research. How do you enact this interdependence in your own work?]

Appendix 2: Research Seminar Presentation

Quality and ITE:
A case study

Don Houston
PhD candidate
Social and Policy Studies in Education
Massey University

Quality & ITE

Purpose of the research

Formally

" to examine the utility of Total Systems Intervention (TSI) as a methodology for developing an approach to managing quality in the University environment through Action Research exploring and improving quality within ITE."

Locally

To help us do the right things right

Personally

To get the letters!

Quality & ITE

General Research Objectives
Through the use of TSI, to :

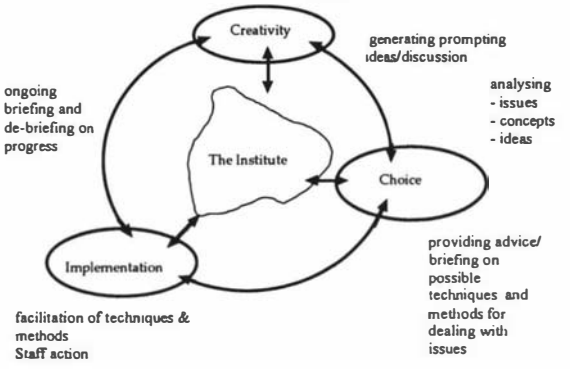
- explore the images of the Institute held by staff and students;
-if possible, move towards the development of an approach to QM that acknowledges and builds upon the particular characteristics of the Institute.

Quality & ITE

Local/ Applied Research Objectives

To promote improvement of the quality of operations and outcomes of the institute
To provide
- a 'process superstructure' to support the conversation amongst staff on important issues;
- mechanisms for staff to work together and be seen to be working together;
- opportunities to surface and deal with 'hidden' issues.

The methodology: My role



Data collection

A variety of perspectives, images and ideas through **semi-structured interviews**.

Monitoring context through **participant observation** and collation and analysis of documents.

Triangulation: multiple data collection methods from multiple sources to ensure validity of interpretations and conclusions.
- **iterative** with action informing and interacting with theory development.

Ethics

TSI is explicitly ethical. TSI seeks to maximise benefit to participants through improvement in the organization.

TSI embodies principles of
- meaningful participation (to develop rich understanding from the perspectives of participants),
- critical reflection to achieve systemic understanding and
- improvement for participants

TSI is action research in cooperation with participants.

Protocols for staff participation

Staff of the Institute will be **invited** to participate in the study.
i) semi-structured one-to-one interviews [45-90mins.]
the broad questions:
"what is the Institute like?" and
"what does quality mean to you?"

[*There will be **NO** repercussions if people choose not to be involved.*]

Protocols for staff participation

ii) Interventions for improvement

the researcher as a facilitator assisting staff to apply appropriate techniques and methods to work through the issues identified through the data collection phase.

The time contributions that might be required from people in this phase will become clearer as the research progresses.

Quality & ITE: so far

What is the Institute like?

... *an air of a slightly degenerated colonial institution* .... It doesn't quite have a purpose or direction other than just continuing because it's there.

... a bit less energetic than it should be, not really functioning

... lots of people all milling around doing their thing, but no urgency or specific energy in terms of direction...

... rudderless ship springs to mind

Quality & ITE: so far

What is the Institute like?

BUT...

It's happy..
Generally friendly and cooperative...
lots of good people, lots of good personalities, lots of expertise....

Quality & ITE: so far

What is the Institute like?

In summary:
....'a shadow of something that was once great', 'the island [vision] is too far away/has sunk, so we don't know where we're swimming to'

but we are a rudderless ship anyway
[but we have good interpersonal interactions as the ship sails on/we swim on - which is good because we have no collective idea how to function as a crew.]

Quality & ITE: so far

And what is most important?

teaching and education of students ... *but it's not what people hold dear to their hearts*. ...research seems to be what people think about.

...teaching is most important even tho' research is what I'll be promoted on.

3 important things: teaching, research and the external links with industry and the community.

[That] the Institute as a body of people continues to learn and apply our knowledge through its teaching and research.

Quality & ITE: so far

So quality is?

... graduates who are well qualified to take up their jobs in industry ....

...research that has been competently handled and shows significant benefit to the customers of that research.

... students must be satisfied with their degree and their relationships with the University in the course of their degree & afterwards.

Quality & ITE: so far

A culture of improvement?

No

... probably not. In a culture of continuous improvement for teaching that would be given priority ..... There would be discussion about ways in which teaching could be improved, about best practice.

I think it needs a culture before it can begin to improve. ...

Some – however informal

yes as individuals but a lot of the time we're pushing it up-hill

Quality & ITE: so far

to improve quality?

get the right people talking. ...

the lack of success in affecting change is directly attributable to a system that doesn't encourage participation and contribution

we should have mechanisms in place for continual improvement especially on the teaching side

A lot would fall out from asking staff and addressing issues in a holistic fashion.

Quality & ITE: so far

to improve quality improve?

... I don't think we have the same ownership of vision that we used to have. It may just be that we haven't sat down as a big group and talked it over. .... I don't see any real distinction between ITE and any other Institute on campus – we're not trendsetters.

Our ability to get and keep students
Delivery to the student

Quality & ITE: so far

to improve quality improve?

... I don't think we have the same ownership of vision that we used to have. It may just be that we haven't sat down as a big group and talked it over. .... I don't see any real distinction between ITE and any other Institute on campus – we're not trendsetters.

Our ability to get and keep students
Delivery to the student

Quality & ITE: the next steps

First Year experience (using Rich Pictures)

- an important issue internally & a University priority

30% attrition!
Cost to us? - much more than $s

Cost to students?

How might we make it better? (using CSH & other methods)

Quality & ITE: the next steps

What do you think?

The Institute is like...?

What are the quality issues?

How can we resolve them?

Are you interested in participating?

Appendix 3: Improving the First Year Experience

Appendix 3.1: A response to the First Year Experience Task Force Report and Recommendations.

This response is presented from the perspective of staff dealing with students in a prescribed, professional program for which we have the capacity and some mechanisms in place to encourage the development of a collective identity and sense of community amongst student cohorts.

We endorse the broad sentiment of the report that students should have the opportunity for a superb first year experience and the need for a broad strategy that addresses the range of factors contributing to the quality of the first year experience.

We are strongly of the view that the interventions should address the experience of all students not just those 'at risk'.

We suggest that the overall measure of success of the interventions in creating a superb first year experience should be that students actively encourage others to come to Massey.

The next section presents our responses to the specific recommendations in the report. The final part presents a number of observations about the report and the issue of a 'superb first year experience'.

Recommendations 1-5: organization and management.

We endorse the view that the first year experience is an issue warranting a clear focus of responsibility at the senior levels of the University and mechanisms to enhance the sharing of best practice within the University. However the impact of University-wide coordinating structures is likely to be highly dependent on the quality of specific initiatives more directly affecting the experience of first year students.

Recommendations 6- 11: academic advice

6 and 7: Supported with reservations. Such practices are already in place in the BTech/BEng program. It is noted that the impact of such practices is highly dependent on the quality of the prescribed papers. Without careful selection, design and delivery of the papers, such prescription may have a negative impact on the experience of students.

8: The concepts of feedback to students, acknowledgement of good performance and assistance to students at risk are endorsed. Providing such advice during second semester may be too late however. With semesterization, at risk students may already have left because of poor performance in semester 1 papers. Such feedback could more appropriately be given during the later part of first semester. [Note that this is a role of staff mentors in the BTech/BEng program.]

9: While consistency in the application of regulations is endorsed, we are unable to see the contribution of this recommendation to a superb first year experience for students.

10 and 11: The concepts of gaining feedback from and providing assistance to departing students are endorsed.

Recommendations 12 –21: Student Support and Services

12-19 supported. Information to school students and linkages with schools should also provide information on pathways from school to university for students who have potential for success in the university but who may have studied subjects that are not a good fit for university entrance.

Recommendations 14 and 17 echo current and past good practices in the Technology and Engineering program [see attachment].

20-21: The relationship of these recommendations to the intent of providing a superb first year experience is particularly obscure as is any potential benefit of enforced attendance and roll taking. These actions could potentially send the wrong messages about University life and study: such practices could

encourage conformance and attendance rather than independent learning, application and critical thought on the part of students.

It may be more fruitful to ask the question why students are not motivated to attend lectures.

Recommendations 22-29

22: supported

23: supported [see attachment for an overview of proven good practices in the Tech and Eng program].

24: supported. The authors of this response would be keen to participate. Some initiatives are underway in Tech and Eng and such a program would help to support those initiatives.

25-26: supported. The intention of reducing high failure rates is applauded. Care is needed to ensure that interventions legitimately benefit student learning and do not simply or artificially affect proxy measures such as pass rates, and student satisfaction [itself a problematic measure].

27: supported. This recommendation seems to echo the staff-student mentor system that has been operating in the Tech and Eng program for many years [see attachment]. Participation in such a scheme should receive appropriate recognition as a legitimate academic role from senior management to encourage and support staff involvement.

28-29; supported. Recommendation 29 is critical. The expansion of TDU capability in this area is strongly supported. Staff should be strongly encouraged to participate in such activities.

General Observations.

While supporting the general thrust of the report, we note with some concern that the majority of the recommendations deal with issues one step removed from the student learning experience and key curriculum issues. While some recommendations apparently address the identification of best practice in delivery, there is little obvious attention to issues of best practice in curriculum design.

The report notes that the student cohort has changed away from the traditional image of university entrants and that 'high quality curricula in the first year ... provide access to the learning and teaching experiences intended to lead to positive student outcomes.' However, interventions around the key issues of curriculum content, the balance of formative and summative assessment, matching student learning styles, understanding students' prior knowledge and learning experiences and ensuring consistency between the curricula of individual papers and the objectives of programs of study are not prominent in the report.

A further issue of concern is the effect of semesterization on student performance and retention. Some first year students are subjected to potentially 'life changing' assessment events early in first semester and have their academic progress and duration of study shaped by the performance in their first thirteen weeks of study. For many, this coincides with a period of personal and social disruption and dislocation – particularly for those studying away from home for the first time. The impact of semesterization on first year academic performance and retention deserves significant attention.

We also note that caution is needed in equating passing and progression to second year with a 'superb first year experience'. For some students a superb first year experience may result in an informed decision to discontinue in a program and either depart the University or change to a different study path. Care is needed to ensure that 'measures of success' recognise the complexity of the experience and the range of potential positive outcomes from a superb first year experience.

Huub Bakker, Senior Lecturer, Technology and Engineering
Ralph Ball, Senior Lecturer, Technology and Engineering
John Brooks, Associate Professor, Food, Nutrition and Human Health
Don Cleland, Professor, Technology and Engineering
John Gawith, Lecturer, Technology and Engineering
Don Houston, Senior Lecturer, Technology and Engineering
Ian Maddox, Associate Professor, Technology and Engineering

Attachment

BACHELOR OF ENGINEERING & TECHNOLOGY PROGRAMME

FIRST YEAR EXPERIENCE

The following are actions aimed specifically at first year students enrolled in any of the B.E. or B.Tech. majors at Palmerston North or Albany.

1. The Programme Director's office and the appropriate major leader examine each student's **Enrolment documentation**. Any anomalies or possible candidates for exemptions or direct entry into the second year are highlighted

2. On '**Enrolment Day**' all students pick up their forms from the Engineering and Technology Programme Administrator and are directed to the appropriate major leader, all of whom are available 'on the spot' to sort out problems and to make themselves known to the individual student. The Programme Director is also in attendance to deal with 'non-standard' situations.

3. A **mentoring system** is in place. The major leader acts as the initial mentor for their relevant students for the first semester. This enables the major leader to organise group activities designed to encourage the students to get to know fellow students in the same major.

4. All students are allocated a **mailbox** in the Riddet Atrium (PN only). This is to encourage them to visit this area and to begin to associate with it as 'their base'. It is the intention to extend this to Albany in 2004.

5. On the first Monday of the teaching year, all first years attend sessions organised by the Programme Director. In this session the opportunity is taken to bring the student's attention to the **support services** that are available and to emphasise the role of the major leader in being the 'face' that they can call on.

6. Formal '**staff/student liaison committees**' are in place. A student representative is 'elected' from each major for each year. The committees are organised on groupings of like majors. Minutes are circulated to HOIs.

7. First years are encouraged to join the **student societies** located at PN and Albany. HOIs support these activities where possible.

8. Each major has an associated Engineering/Technology paper delivered by staff from the appropriate Institute. These papers are designed to convey the Engineering/Technology ethos and are seen as a 'taste of things to come'. They involve the students in:

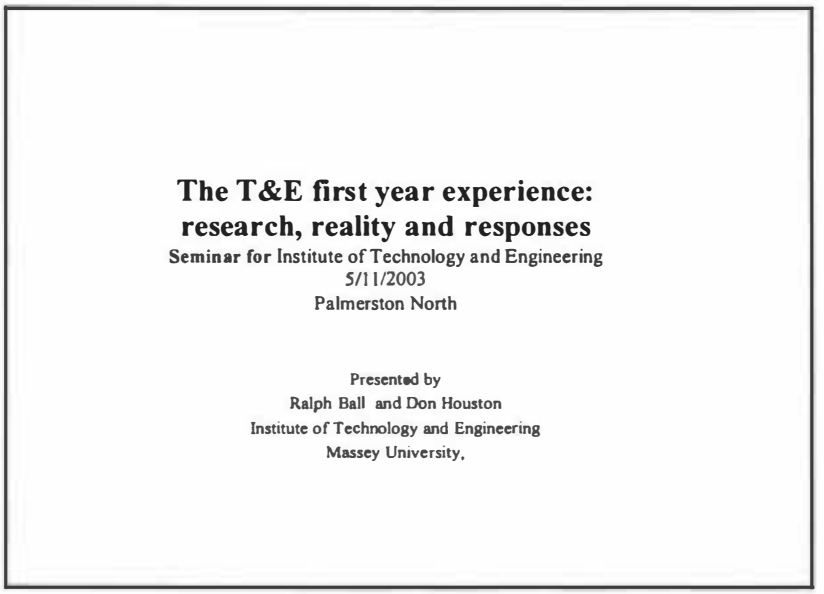
a variety of learning styles

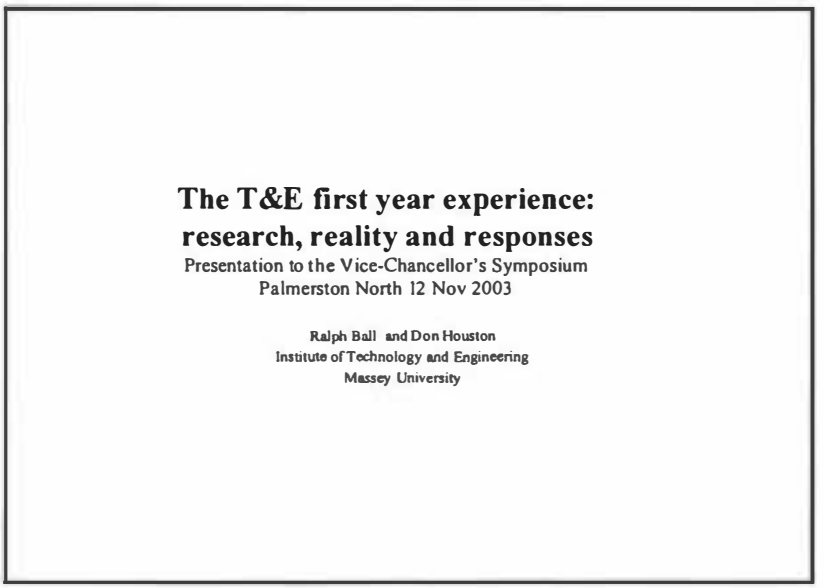
- group work
- problem solving
- design and make projects

All the activities are based upon a selection of fundamental engineering or technology appropriate to the industry that the majors are directed towards.

9. It is considered by a number of staff associated with the Engineering & Technology programmes that a radical over haul of the first year is required if it is to be made into a "superb first year experience". Research findings in the area of the school to university transition are currently being investigated, as are possible alternative methods of delivery based on research proven methods, which lead to successful learning, by the individual.

Appendix 3.2: Presentation to introduce the FYE problem in context





The FYE: context

The systems context:
The Education Amendment Act (1990)
Academic freedom means [in part]
"the freedom of the institution and its staff to teach and assess students in the manner they consider ***best promotes learning" [emphasis added]***

Massey's Statement of Objectives:
• To be recognised as providing a ***superb first year experience*** for our students and to pursue initiatives that will *enhance the overall student learning experience* at Massey University (D. Students, p 13).

FYE Taskforce report:
the approaches we take in this area should be **research-led** — rather than being driven by belief, opinion or institutionalised practice in the absence of evidence of effectiveness.

[Yes people do research on such things!]

The first year experience

FYET report addresses two related but different issues:

-retention;
- a superb experience.

What does their analysis say?

What does the research say?

What should we do about the FYE of Tech and Eng students?

The FYE: context

"The ITE experience"

What do we pitch to prospective students?
Exciting, interesting...
Technology,
real life application,
jobs **problem solving,**
(robots)

What do they get?
Fundamental science: Physics, calculus, ...

Engineering fundamentals Intro tech

The first year experience

Does it matter?
Do our students want to be scientists [they could be doing science]?
Do our students want to be 'traditional' engineers [they could be at Auckland or Canterbury]?

Or

Do students come to Massey for its different ethos?
then get 6/8 fundamental science and maths papers in first year!

We don't actually know but the consequences are...

The first year experience

Results in core 1st year papers 2002

Paper			Percentage Not Passing			
			Alb	PN	Wlgtn	Ext
159.101	Programming Fundamentals	49%	46%	30%	58%	
124.101	Physics (a)		46%	30%	-	-
124.102	Physics (b)		38%	44%	-	-
140.150	Technology & Engineering for Industry		40%	19%	20%	-
160.101	Calculus I		54%	37%	-	-
160.161	Introductory Calculus		-	41%	-	-
161.120	Introduction to Statistics		54%	54%	-	-

The first year experience

Retention to 2nd year: all BTech/BE

	Nominal 1st yr enrolments @ March*	2nd yr	Loss from previous year	% retained
2001	224			
2002	288	143	46	76%
2003	352	176	67	72%

* One issue highlighted here is the potential for "Did Not Start' as confounding factor.

The first year experience

Retention to 2nd year: ITE BTech/BE majors

2002 1st year students not re-enrolled with ITE in 2003:
25/160 or 15.6%
Financial cost:

@ $15 000/EFTS - $375 000 /yr
@ $10 000/EFTS - $250 000 /yr
potentially for 3 years

[More than 'at risk' through PBRF!]

FYE: The research

What influences the quality of the First Year Experience?

... a high proportion of student attrition including academic failure is due to difficulties of adjustment to the tertiary education environment and expectations, rather than resulting solely from a lack of capacity to perform at the necessary intellectual level (Tinto, 1993).

Successful intervention appears to require addressing multiple variables including

cultural,
social and
adjustment factors

as well as providing academic support

FYE: The transition

Final year @ School
Small(ish) classes
-with friends
Familiar social environment
Teachers they know
Teachers who know them
[- at least their name]
Teachers who are interested in teaching/education
[Disciplined/directed learning environment]

1st year university
Large classes
- with strangers
New/ strange social environment
Lecturers they don't know
Anonymity - lecturers who don't [want?] to know them
Lecturers who aren't interested in education?
"Self directed, independent learners"
1st assessment 3-6 weeks into transition

" a challenging hurdle".... "an intimidating gulf"

Should we be surprised some don't make the transition?

FYE: The research

McInnes, James and Hartley (2000) Trends in the First Year Experience - 1994-1999

The consistency with which various research studies identify about one third of students as likely to withdraw...

Reasons [those who thought about it but stayed]

Emotional health	*46%*
Wanted to change courses	42%
Disliked study	37%
Thought I might fail	37%
University wasn't what I expected	*36%*

FYE: The research

School and University compared [over time]
"Does the gap between school and university experience exist to the extent it did five years ago? In short the answer is yes."

	% agree 1994	1999
University study more fulfilling than school	57	61
The standard of work expected is much higher than I expected	45	44
Study is more demanding than it was at school	64	57
My final year at school was good preparation	*36*	*34*
The subjects at Uni clearly build on my school study	34	33

McInnes, James and Hartley (2000)

FYE: The research

Students 'Academic orientation'
'... taking on the academic values and norms of the university and their lecturers'

	% agree
I enjoy the intellectual challenge	61
I enjoy theoretical content	*40*
Lectures stimulate my interest	*46*
I found most of my subjects really interesting	50
Lectures are a valuable source of learning	*58*
I get a lot of satisfaction from studying	40

McInnes, James and Hartley (2000)

FYE: The research

Students 'Academic application'

	% agree
I worked consistently throughout 1st semester	37
I find it difficult to get motivated	48
I regularly seek the advice and assistance of teaching staff	19
I have a strong desire to do well	**81**

Students want to do well but... 'are finding it difficult to apply themselves to the business of university study'

McInnes, James and Hartley (2000)

FYE: The research

Students' Expectations and perceptions of study

	% expecting a lot of	% finding a lot
Difficult material	62	64
Work to do	*65*	*75*
time on study	*62*	*71*
Pressure throughout 1st semester	***49***	***61***
New content	74	70
Special assistance in new areas	*39*	*33*

McInnes, James and Hartley (2000)

FYE: The research

Students 'perceptions of teaching'

	% agree
Staff try hard to make subjects interesting	50
Teaching staff:	
- are good at explaining things	47
- *give helpful feedback on progress*	*25*
- *make a real effort to understand difficulties students may be having*	*37*
- *take an interest in my progress*	*21*

McInnes, James and Hartley (2000)

FYE: The research

Students' perceptions of workload

	% agree
Too heavy	37
Volume means I can't comprehend it all thoroughly	48
Number of contact hours makes it difficult to complete set tasks	23
The syllabus tries to cover too many topics	38

Effective learning is less likely to occur when students *perceive* themselves as overloaded with work.

McInnes, James and Hartley (2000)

FYE: The research

Students' perceptions overall

	% agree
I am finding my course intellectually stimulating	63
Overall I am really enjoying my course	64
Overall I m very satisfied with my university experience so far	63

Mclnnes, James and Hartley (2000)

A significant proportion of those who persist are arguably dissatisfied with the experience.
So?

FYE: The research

In summary:
Factors contributing to an uncertain start include:
-inaccurate information, unrealistic expectations of the amount of work and time involved.

Two thirds of students who go direct from school to university are of the view that they are not well prepared for university study

More students rely on part time work to support themselves

First semester of first year is an emotionally, intellectually and socially disruptive period of adjustment for many students

FYE: The research

BUT

'... we may take for granted that all or even most of today's first-time university students are prepared for university study either academically or socially....

Models for teaching, learning and student support that may have been appropriate for yesterday's elite attending universities are challenged by today's more diverse student population.

We can, of course, simply expect students to do well according to our traditional practices—and fail those who do not. If we do, the consequences will include...?

FYE: The implications

It is up to the University community to judge whether we regard such results as acceptable and, if not, to pursue the appropriate interventions.
(FYET report)

Can we justify in educational terms what we do or is it "simply driven by belief, opinion or institutionalised practice"?

What might we do differently to create a superb first year experience?

FYE: possible responses

Don't lie in marketing!
or
Put in screening - only take those likely to succeed [but we don't know who they are or what success is!]
or
Immerse them in Tech & Eng from day 1, and

Capture and respond to learning styles rather than letting them wander from lecture to lecture, and

Provide a different perspective than school, and

Send the right signals: don't give them 'life changing' assessments 15 days into their period of adjustment [and fail 70% of them!]

FYE: possible responses

And more specifically...

Ralph?
&
colleagues?

Appendix 3.3: Some thoughts for the Manufacturing Majors review process.

There are a number of perspectives we can take on the review.

Administrative 'efficiency' and/or educational effectiveness seem to be two major ways to tackle the mess. The first without the second is largely meaningless.

An issue that bridges both

In my mind one of the major [no pun intended] issues we face is retention during & beyond first year. This is a major factor in terms of sustainability of the majors. We throw out about a third of students before we gain any 'financial value' from them i.e. they don't make it to ITE papers.

We can fiddle administratively with the content that the survivors [of 1st year] get or we can work on curriculum change that will potentially increase learning, retention [and financial viability]. The second approach can be research-led.

Reviewing [first year] curriculum: the context

The systems context:

The Education Amendment Act (1990)

Academic freedom means [in part]

"the freedom of the institution and its staff to teach and assess students in the manner they consider ***best promotes learning" [emphasis added]***

Massey's Statement of Objectives:

To be recognised as providing a ***superb*** *first year experience* for our students and to pursue initiatives that will *enhance the overall student learning experience* at Massey University (D. Students, p 13).

Massey First Year Experience Taskforce report:

'...the approaches we take in this area should be **research-led** — rather than being driven by belief, opinion or institutionalised practice in the absence of evidence of effectiveness.'

In this case the research referred to is research on learning, teaching and the transition to university.

What influences the quality of the First Year Experience?

... a high proportion of student attrition including academic failure is due to difficulties of adjustment to the tertiary education environment and expectations, rather than resulting solely from a lack of capacity to perform at the necessary intellectual level (Tinto, 1993).

What does the transition look like according to the research?

Final year @ School	1st year university
Small(ish) classes -with friends Familiar social environment Teachers they know Teachers who know them [- at least their name] Teachers who are interested in teaching/education [Disciplined/directed learning environment]	Large classes - with strangers New / strange social environment Lecturers they don't know Anonymity - lecturers who don't [want?] to know them Lecturers who aren't interested in education? "Self directed, independent learners" 1st assessment 3-6 weeks into transition

"a challenging hurdle".... "an intimidating gulf"

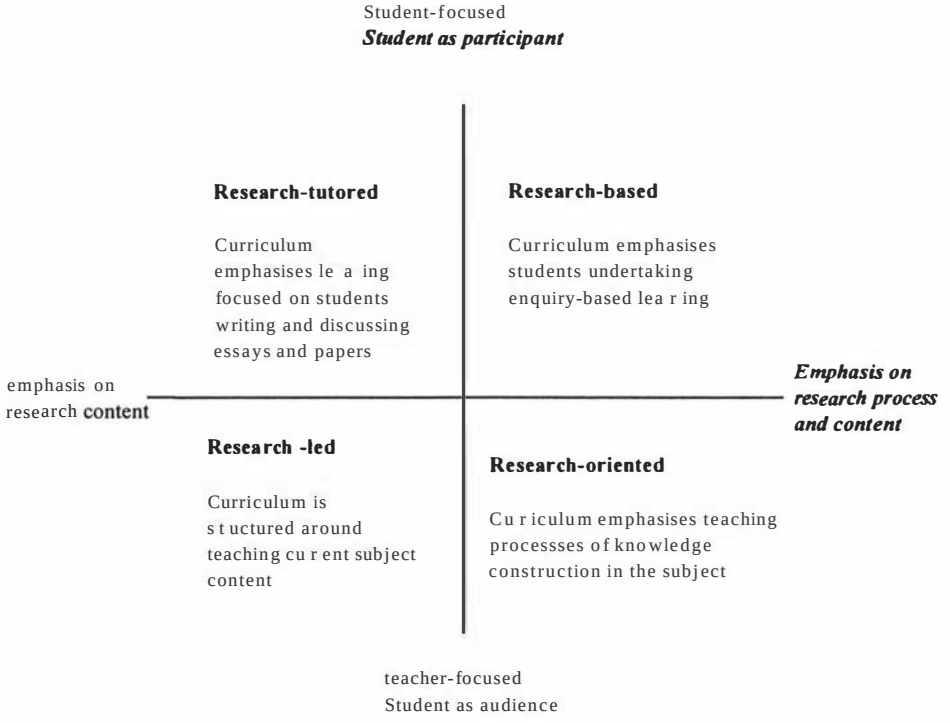
Should we be surprised some don't make the transition?

What scaffolding of support do we offer?

To reiterate: currently about one third of first year BE/BTech students don't successfully make the transition.

The curriculum context: the research teaching relationship

Research on the links between research and teaching increasingly supports the view that the teaching-research relationship is established through the student experience, which is largely shaped by curriculum design (Jenkins, 2004) Conceptions of curriculum designed with research in mind are indicated in the following table.



Curriculum, teaching and research (Healey in press)

'Research-led' curriculum is shaped by beliefs about what students need to know and is content focused. 'Research-based' curriculum is based around what students need to be able to do: it builds on processes of enquiry and answering questions new to the students.

The BE/BTech curriculum currently begins in the research-led quadrant – first year is subject content focused. Later it progresses to the research/enquiry-based quadrant.

Research-based curriculum under a variety of labels and forms has a long history in professional fields such as medicine [as problem-based learning] and is increasingly evident in engineering.

There is substantial research evidence that beginning in the research/enquiry-based quadrant in the first year of study promotes student engagement, learning and retention. The last of these is a major challenge for ITE: many of the students we recruit never progress to the parts of the degree majors over which we have more influence and control.

So what might we do?

Don't lie in marketing! We promise them the excitement of technology and engineering and give them a year of 'fundamental' knowledge largely de-contextualized from what technologists and engineers do.

And/or

Put in screening - only take those likely to succeed [but we don't know who they are or what success is!]

OR

Immerse them in technology and engineering from day 1 through enquiry-based curriculum based on engaging with what the discipline/profession does.

Technologists/engineers answer unanwered questions about:

What products/machines/processes to produce?

How to produce them?

Why bother? [economic and social benefits]

They also need to know about the contexts in which technologists/engineers function [the social, economic and organizational environment of technology/engineering practice].

Who is interested in /affected by technological

AND

Technologists/engineers systematically find stuff out to solve problems on the way to providing answers.

So let's start by helping 1st year students to:

frame the questions

find information

analyse it and make decisions based on it

through introducing them to systematic processes of enquiry and problem-solving. Such an approach can build on systems concepts & systematic process towards helping the students to answer their unanswered questions.

The characteristics of such a curriculum (Willis, Harper & Sawicka, 1999, 9) would encompass:

Process: Modelling a research/problem solving approach to a problem/issue;

Assessment: Recognising the importance of research/problem solving skills through assessment

Involvement: Encouraging students to participate actively in the creation of staff research

Content: Making the development of appropriate research skills and understanding explicit

Environment: Creating a research culture that includes undergraduate and post-graduate students.

Scaffolding to support learning:

1st years are largely left to their own devices to succeed or fail. Mentoring is patchy.

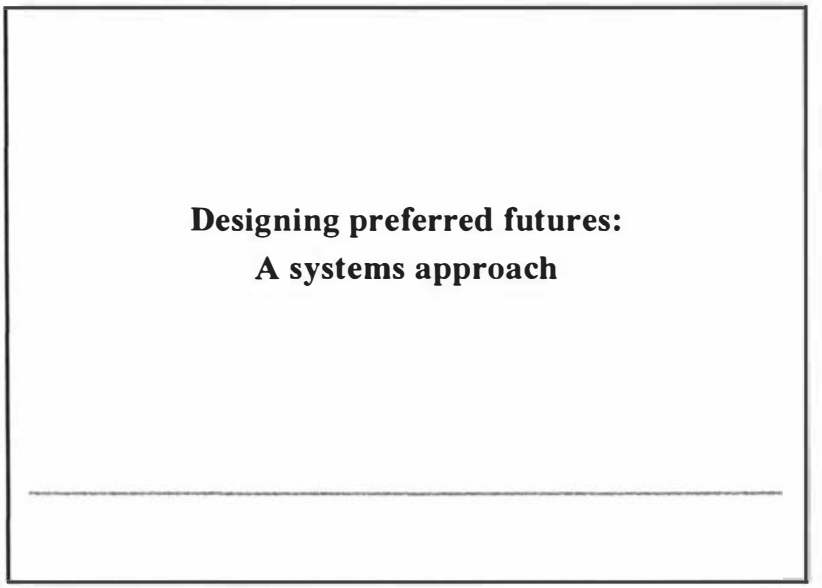
We need to more explicitly and extensively involve more Tech & Eng staff in the students' first year to help socialise them into technology and engineering. Preferably in ways closely linked to their learning experience. This might cost a bit in time but the research evidence suggests that cohorts that feel part of the place (ITE) perform better academically and have higher retention/progression rates. Every additional student that moves on to year 2, starts to bring a substantial financial return to ITE.

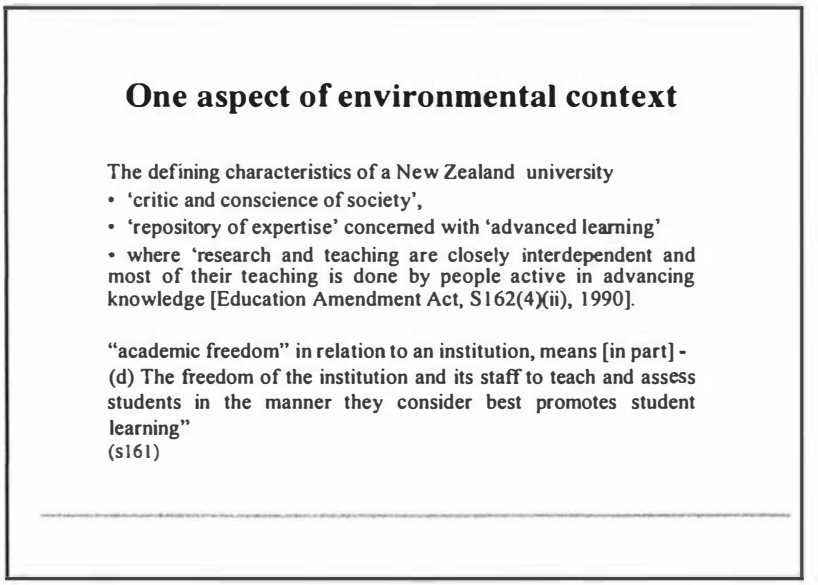
Some more attention to students at the start can lead to far more students at the end and significantly affect the sustainability and viability of not just the majors but the Institute and our jobs.

Just some thoughts/suggestions.

Don H.

Appendix 4: Strategic Planning Intervention





Systems concepts

1. A system is an organized assembly of ***elements*** with special ***relationships*** between the elements. If the elements or relationships change the system changes.
2. Each element ***contributes*** to the system's behaviour and is affected by it.
3. A system exhibits ***emergent*** properties that none of its components have individually. Emergence is a characteristic of the *particular* case.
4. Sub-groups of a system may have the above properties – they form ***sub-systems***.
5. A system has an outside – its ***environment*** and ***boundaries*** that determine what is in the system or not in the system. [A system can influence but not control its environment.]
6. A system ***transforms inputs*** from the environment to ***outputs*** to the environment

A Key systems concept: Emergence

An emergent property arises from the interactions of a system as a whole rather than a few parts in isolation. Emergence is a characteristic of the particular case.

A social system has three states:

Planned Created Experienced/understood

No two experiences of the future will ever be exactly the same!
Each will display different emergent characteristics

Designing for an uncertain future

A systematic process should help to align the planned, created and experienced futures

The systemic questions you ask will help determine the the future you get and our ability to cope with an uncertain future

---

Designing for an uncertain future

Possible futures

The 'current' future: the future we are in
What is the future if we continue as we are?

The preferred future: the ideal
What is the future we would <u>really</u> like?

The probable future:
What can happen? How and how far can we move towards our preferred future

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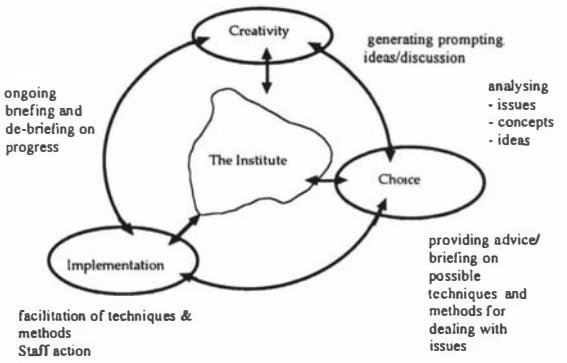
An approach to systems practice

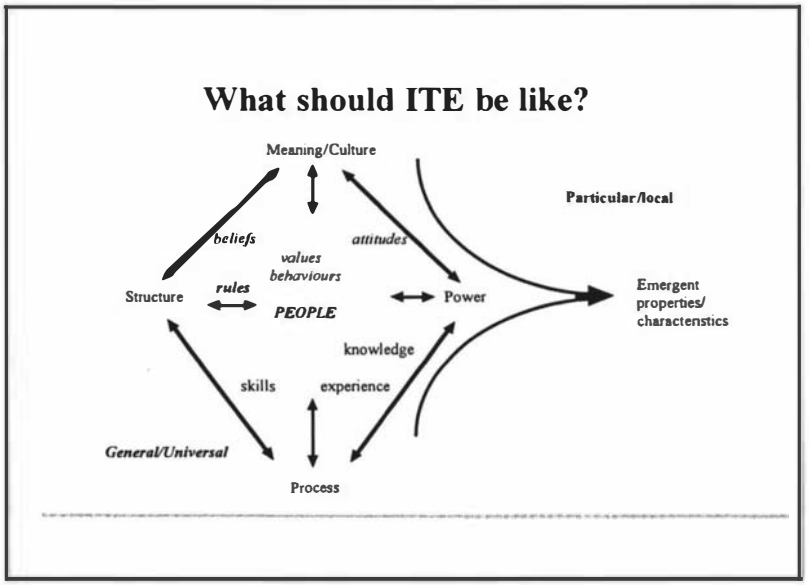


Designing for an uncertain future

Considerations in systems design

- systems of **process** (what is done, how things are done),
- systems of **structure** (how functional elements of the organization are related, policies and rules),
- systems of **meaning/culture** (how people see the purpose and values of the organization and their role in it), and
- systems of **knowledge and power** (how influence is based, distributed and used).

(Flood 1999)


What should ITE be like?
Meaning/Culture
Particular/local
beliefs
attitudes
values
behaviours
Structure
rules
PEOPLE
Power
Emergent
properties/
charactenstics
knowledge
skills
experience
General/Universal
Process