

Reflections on a research baptism by fire

Te Kipa Kepa Brian Morgan

Abstract: This note summarises a process of transition from working as a professional engineer to taking an academic position in a university, with further responsibilities for Māori and Pasifika students. Associated with these developments was extending my own research capabilities. This academic journey faced many challenges and at times felt like a baptism by fire. However, the whole transitory process has proved to be fulfilling because I learned so much and was able to engage in work that was interesting, even exciting, and certainly worthwhile because it brought forth some new and useful knowledge. This learning process included developing several skill sets: from thinking, planning and strategising, to coming to grips with new areas and new issues that needed solving. In taking the reader briefly through this journey, it is hoped that the story has some resonance.

Keywords: academic development; doctoral study; engineering; research

Background

My involvement with post-graduate research began in 1998 by being co-opted into a part-time position at the School of Engineering at the University of Auckland. A primary role was to focus on the recruitment and retention of Māori and Pasifika students for Engineering. Prior to that, the School had one Māori staff member, Paul Mohi, who had a Civil Engineering degree and was a technician in the geotechnical engineering laboratory. At that time I was a Registered Professional Engineer with the academic qualifications of BE(Civil) from Auckland and MBA(Technology) from Deakin University running a consultancy in Rotoiti. Between 1993 and 1998 I held the position of Operations Manager for Te Runanga O Ngāti Pikiao and was responsible for all activities to the Executive Council. At its peak we employed 30 staff and managed external contracts with a value in excess of \$1million per annum.

In 2000, I accepted a lectureship in the Civil and Environmental Engineering Department (CEE) with half the time allocated to the recruitment and retention of Māori and Pasifika students. The research component of the position (0.2FTE) was to allow work on PhD research. The first challenge required enrolment for a Masters of Engineering to demonstrate my academic ability to complete the PhD. Completing three post-graduate papers in semester I, with three A- grades permitted transfer to a PhD. The journey had begun.

PhD Enrolment

The enrolment was not completed until almost three years later. This part of the journey following the post-graduate papers, began with a Masters research proposal entitled *The Value of a Hapū Perspective to Municipal Engineering in Aotearoa New Zealand*. The motivation to research this topic was our (Ngāti Pikiao) extreme concern about mis-management of ecosystems by engineers and in particular the management of Waiariki by Regional and Territorial Authorities in the Ngāti Pikiao rohe (area). Although my concern was based on 15 years experience with five as an engineer in a Territorial Authority, many engineers have difficulty with

this approach and there was some doubt that this research fitted within the field of engineering. Nevertheless, the topic was pursued.

One of the key steps was to obtain good supervision. Supervisor compatibility is a fundamental consideration and it is necessary to be clear about what a supervisor wants to gain from supervising your PhD research. The supervisor will also need to have the standing within their area of expertise to support your research direction if this is unusual, and will challenge the status quo. However, be wary because if one's research is somewhat novel as a result of being Māori, there is possibly a risk of being exploited for your indigenous knowledge and networks. Having a Māori supervisor reduces this risk.

Within engineering there are few if any Māori academics qualified to supervise PhD research. A Māori co-supervisor from another area is an option, however it may be difficult to find an academic willing to co-supervise outside their own discipline. Unable to secure a Māori co-supervisor, I finally enrolled with the Dean of Engineering and the Head of Civil and Environmental Engineering as my co-supervisors. Regular meetings with both supervisors allowed a balancing of work and research expectations as I continued to work full-time while doing the doctoral research.

An advantage of having two experienced senior academic staff in the Faculty as supervisors was that neither had a personal agenda regarding the research topic and this allowed considerable freedom within the thesis framework. However, their busy schedules also created severe time constraints for reading submitted work and there was little discussion regarding particular aspects of the research approach that were not common in conventional engineering research.

To assist the supervisors expedite feedback from submitted chapters, two of the PhD committee members (a committee established to review doctoral research progress and support the main supervisors) took primary responsibility for this work. Further, after four years, I managed to have a Māori academic appointed to this committee. Despite this, I felt quite alone with regard to the research area and was very aware that the research methodology was pivotal in ensuring the validity and robustness of the work.

Topic Selection

The topic stemmed from concern about the mis-management of the Waiariki lake ecosystems by engineers. After twenty years involvement in engineering it was clear that engineering thinking had its limitations and that historically the engineering paradigm was responsible for a considerable negative impact on ecosystem well-being, and in particular, the Waiariki lakes. I wondered if the engineering approaches could be enhanced by incorporating mātauranga Māori concepts.

My research proposal therefore set out a strategy of identifying common themes from Waitangi Tribunal cases involving engineering approaches to the water continuum and in parallel establishing what influence mātauranga Māori has had on lake ecosystem well-being over time. As the work progressed however, it became clear that simply identifying these two perspectives would not result in any real changes in terms of power, influence and decision-making by engineers working for the Territorial and Regional Authorities. As a consequence, a broader basis for demonstrating the potential contribution of mātauranga Māori, than demonstrating specific relationships within the Waiariki Lakes ecosystems that were sustained by our indigenous knowledge was formed.

An additional challenge was the existence of a huge volume of research that had been undertaken in the area of sustainability from a Western perspective. This research was also widely dispersed through the fields of academia. The significant majority of this research is based on the dominant Western paradigm of economic rationalism that is capitalism. The first challenge in this regard was, to show that the approach followed for the thesis had the potential to provide information and perspectives that were beyond the scope of existing approaches.

Methodology

The strategy was to use timelines to demonstrate the originality of ideas as many indigenous concepts have been high-jacked into sustainability thinking without adequate recognition of their true origins. Timelines were very helpful in demonstrating the relationships between mātauranga Māori, indigenous knowledge and Western scientific thought as sustainability is also about very long timeframes. The timelines established the significance of mātauranga Māori not only nationally but also in the international arena. This research shows that the work of the Waitangi Tribunal and subsequent Aotearoa New Zealand legislation influenced international thinking.

Mātauranga Māori concepts particularly focused on mauri and its central pervasive role in the ethic of kaitiakitanga. It was also important to establish how widely known and understood the concept of mauri is throughout the Pacific. Consequently, mauri was adopted as the basis for a decision-making approach that intended to allow both engineers and hapū to better understand the impacts that engineering initiatives have on our ecosystems and ourselves.

In essence, the research methodology was based on my past work experience however it paralleled ideas of Durie (2005) and Cunningham (1998) which were adopted retrospectively. During the research, and as a result presenting a conference paper relating systems thinking and complexity science to the indigenous paradigm (Morgan, 2005) I became more deeply involved in the field of Systems Thinking with its relevance to decision-making. Systems Thinking provided a framework of fundamental concepts and some approaches that could be adapted to suit a decision-making framework that was necessary to change the way that engineers approached decision-making. This enhanced the robustness of the Mauri Model decision-making framework (DMF).

Case studies trialling the Mauri Model DMF in consultancy mode were the most enjoyable aspect of the research as these workshops provided real understandings and empowerment to the participants in terms of their understanding of sustainability within a context of mātauranga Māori. The cases studies provided the basis for the final chapter and for validation of the Mauri Model.

Hot Tips

One of the supervisors strongly recommended seeking publication of the thesis research. This is a common approach in North America and in other countries and recognises the sense of obligation a researcher should have when they produce new knowledge. That is, the obligation to make that knowledge widely available through publication. This is a valuable experience, but it also needs to be managed with care. For example, one should choose very carefully where to publish what; and certainly to avoid any hint of duplication. On the other side, one needs to carefully check the requirements of the university to which the thesis is submitted.

While some might accept a work that is essentially a series of papers, that approach is not widely practised yet in New Zealand. So the management of outputs concern both the unpublished thesis and the resulting publications.

Journal papers provide a shorter term focus of energy within a tighter brief than the whole thesis and thus create additional impetus to write when you have many other demands on your time. The journal publishing process is also valuable in terms of the feedback provided by referees and by subsequent responses to the published articles. During the doctoral research I was able to publish 3 journal papers and 12 refereed conference papers. and also produced a report on each of the case studies that was returned to the participants for their use and feedback. These documents provided an excellent basis for writing up the final thesis. A great result was that mainstream international journals were willing to publish iwi affiliations and pepeha (proverb associating the writer with their geographic homelands) that contextualised my writing in a way that was consistent with mātauranga Māori.

The conference papers also provided timely feedback on the research and in particular the keynote presentations provided an international profile that gave me additional confidence to challenge the engineering paradigm status quo regarding wastewater treatment and disposal prevalent in Aotearoa/New Zealand. Posters from the research are also useful for supporting funding applications as well as for teaching classes and seminars.

The MAI writing retreats are also highly recommended for focussing writing effort--and in my case, to learn how to write a thesis. As a result of my relatively unconventional arrival at doctoral research the PhD was the first thesis I had written. Were it not for the journal and conference papers, it is doubtful that the thesis would have ever been completed.

On experiencing a writing block, try retyping the last paragraph you worked on to get going. This technique can also help regain a sense of 'flow after a time away from the writing (even days). For the thesis layout, learn to use document planner if working in MSWord. EndNote can be helpful but it can also be incredibly frustrating – especially avoid having different versions of this software and different libraries. It is suggested that modelling and practising particular EndNote-related techniques with a very small practice file containing different kinds of references is worth doing, before embarking on the bigger referencing jobs.

Finally, try not to do the doctoral research and thesis while working full-time, and try not to win other major research contracts during it. Last but not least, do try to be very aware of your limitations as a writer and to strive constantly to become a better one. That journey is longer than a thesis and it should be enjoyable.

References

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Author Notes

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