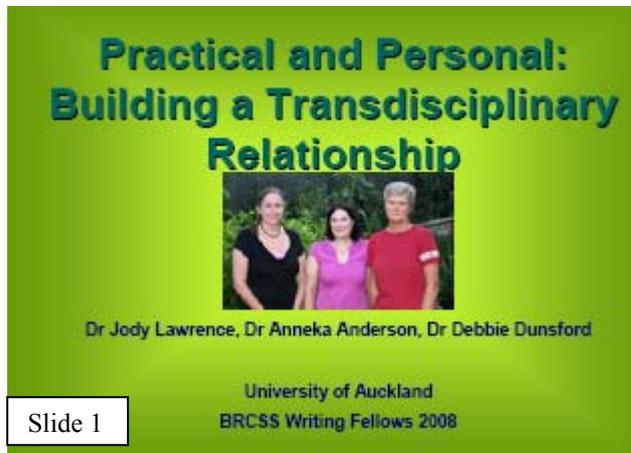**Practical and Personal: Building a Transdisciplinary Relationship**
Dr Anneka Anderson, Dr Deborah Dunsford and Dr Jody, Lawrence
University of Auckland

The primary aim of this paper is to describe the transdisciplinary relationship that developed among three post graduate researchers (Anneka Anderson, Deborah Dunsford and Jody Lawrence) during a doctoral research experience as part of a larger Health Research Council (HRC) funded research group. During this paper we endeavour to reflect on the way the project experience has fostered our professional and personal commitment to each other, and the potential for a transdisciplinary relationship.
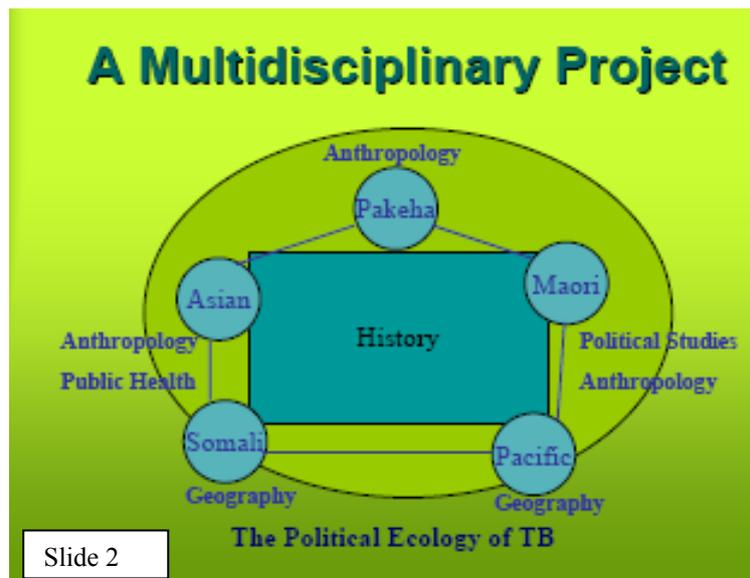
The broad research project that brought us together titled, 'The Political Ecology of Tuberculosis in New Zealand' (Slide 2), comprised of a range of different disciplines, each of which contributed to the project's overall aim of understanding the social, economic, political and historical dimensions of tuberculosis (TB). The primary aim of the study was to determine how local ecologies influence TB transmission and experiences in New Zealand, and what factors facilitate or create barriers for TB diagnosis and treatment.
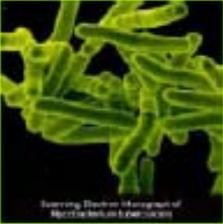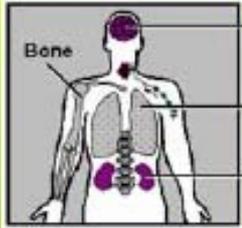
The study employed the theoretical framework of Political Ecology (Baer 1996) to address these aims and adopted a multidisciplinary approach which involved principal investigators and researchers from five different social science disciplines. The project was funded by HRC and based at the University of Auckland from 2003 to

1

2008. The individual projects from the disciplines of Anthropology, Political Studies, Geography, Public Health and History focused on questions of both mutual and separate interests within different populations in Auckland along with a historical approach. Alison Searle conducted her Masters thesis on TB amongst the Pakeha population, Moana Oh conducted her Masters thesis on TB and the principles of the Treaty of Waitangi. Roannie Ng Shiu conducted her Masters thesis on TB amongst Pacific Island people. Catherine Finn conducted her Masters thesis on TB, housing and Māori. Jill Miller conducted her Masters of Public Health in TB and community development. Anneka Anderson conducted her doctoral thesis on TB amongst Asian populations. Deborah Dunsford conducted a social history of TB for her doctoral thesis. Jody Lawrence conducted her doctoral thesis on TB amongst an African refugee population (For more information about the project go to http://www.arts.auckland.ac.nz/sites/index.cfm?P=12267).

Although we were working in individual disciplines with separate research aims and objectives, each of our studies were also used to inform the project as a whole providing a broad and multidisciplined understanding of TB in NZ. As depicted in the diagram in Slide 2, each research project was located within a broader circle and connected to each other with history providing a pivotal background context. The topic that united each of our research projects was TB. To provide some background into this topic, a brief summary of the nature of the disease is now provided.


Slide 3

TB is a communicable disease most commonly caused by Mycobacterium tuberculosis (Klovdahl et al. 2001:682).TB is transmitted by air borne droplets thus most TB transmissions occur within confined and crowded environments or by sustained contact (De Zoysa et al. 2001).There are two types of TB. Pulmonary TB is situated in the lungs – depicted in the shaded part of this diagram (Slide 3). Extra Pulmonary TB is located in other parts of the body including the brain, bones and other organs (Klovdahl et al. 2001). Only pulmonary TB is infectious.

It is also important to distinguish between the two stages of TB. Latent tuberculosis infection (LTBI) is where the body is infected with the bacteria but is not contagious (Klovdahl et al. 2001:682). Over one third of the world's population are infected by

LTBI (Bloom and Murray 1992). At this stage, the immune system is able to contain the infection. Of those exposed to LTBI, 5-10% go on to develop active TB disease (TBD) which is contagious (Klovdahl et al. 2001).TB has a long history, however a watershed moment was the development of effective drug therapy in the 1950s (Raviglione and Pio 2002). Essentially, this means that TB can be successfully treated. Epidemiological data however tells us that TB is unevenly distributed throughout the world, with developing nations continuing to shoulder a high burden of disease (Klovdahl et al. 2001). In addition, there has been a resurgence of TB in developed nations since the 1980s, in part due to the emergence of multi-drug resistant TB and TB/HIV co-infection (Klovdahl et al. 2001). TB rates in New Zealand have followed the global pattern with increasing incidence over the last two decades (Das et al. 2006, Harrison 1999). The average rate in New Zealand from 1995 to 2004 was 10.3 per 100,000 (Das et al. 2006:1). TB incident rates in New Zealand are higher than those in Australia, Canada and the United States and show wide ethnic and geographic disparity, with Auckland having the highest rates in New Zealand (23 per 100, 000) (Das et al. 2006:6, Ministry of Health 2003:5). Increasing TB rates and disparities in TB distributions were why our project was focused on local ecologies in New Zealand.

To understand the underlying theory and approaches used within our collaborative research designs, the following section will define and discuss a continuum of approaches from separate disciplinary studies to joint transdisciplinary research.
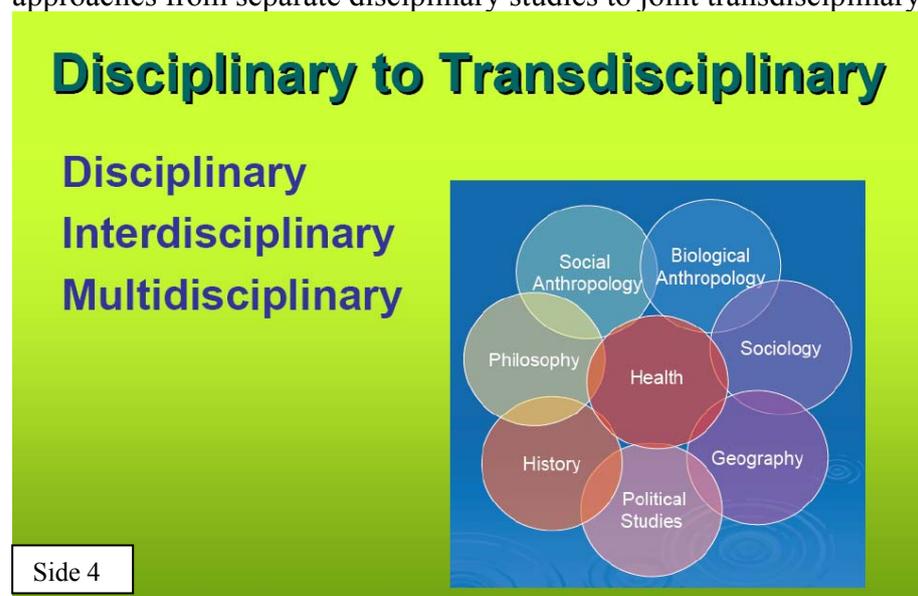
As academic research is institutionalised within formal organisations like our universities, most research is based within academic disciplines. A discipline is a recognised and institutionalised approach to knowledge with its own history and traditions (Institute of Medicine 2006). For example, Anneka as an anthropologist, employs ethnographic and cross-cultural methods to her research, whereas, Jody, a geographer, would place emphasis on the concepts of space, place and landscapes, while Deborah, a historian, would look at social movements and change through time. As depicted by the figure in Slide 4, each social scientist working within a disciplined approach is bounded by the specific epistemologies, paradigms and approaches of their individual disciplines.

In contrast to disciplinarity, interdisciplinarity focuses on answering questions of a mutual concern to various disciplines (Institute of Medicine 2006). Under this framework, different disciplines would pursue interconnected aspects of a research issue or form a bridge to cross disciplines (Parkes *et al.* 2005:261). For example, both social anthropology and sociology may ask "what are the cultural and social constructions of TB to cultural groups and societies"? We often use interdisciplinary theories and approaches in our disciplined research. By way of demonstration, Anneka has drawn on Geographic Information Systems (GIS), an approach from geography, as well as applied the sociologist Foucault's concepts of power in her anthropology-based research. Slide 4, also illustrates interdisciplinarity where the shaded areas between disciplines depict overlaps or interdisciplinarity. Although interdisciplinary approaches attempt to forge common perspectives, one weakness of this approach is that some important disciplinary areas may be omitted (Institute of Medicine 2006). By way of example, even if Anneka included the concept of space in her research, she may not be able to understand the impacts of policy on TB treatment if political studies were also not included.

Multidisciplinarity involves researchers from different disciplines working together as a team who focus on questions of both mutual and separate interests (The Institute of Medicine 2006). Within this approach, collaboration is associative, where work of each discipline "is added to that of all the others" (Parkes *et al.* 2005:261). The political ecology of TB project is an example of this approach, where each researcher while working within single disciplines, also worked 'side by side' and where possible, included interdisciplinary approaches. The figure in Slide 4, provides an illustration of a multidisciplinary approach where all the disciplines are working side by side to focus on a health issue, and each demonstrates overlapping areas of interest. To achieve multidisciplinarity, the researchers involved must be multilingual, each understanding the disciplinary languages, theories, concepts and methods of the other disciplines with which they are working to achieve a mutual understanding of their studies. The difficulties of achieving this approach are discussed below (Slide 7).

Slide 5
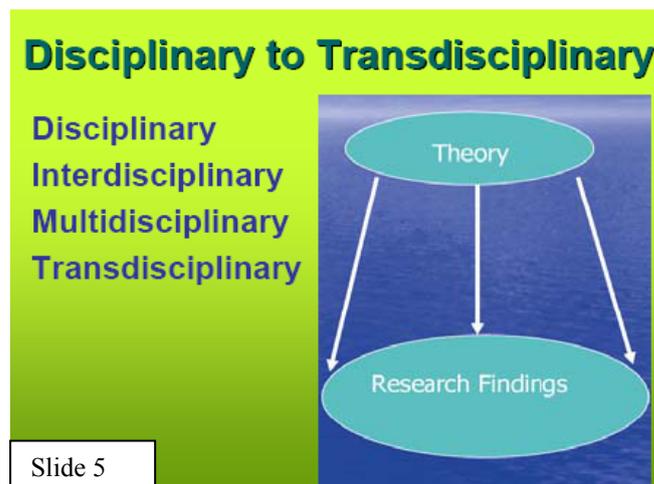
Transdisciplinary research, as its name suggests, transcends across disciplines. Here research teams work together across disciplines to define the nature of the problem to be resolved by working under broad theoretical approaches (Slide 5) that are focused on interactions in physical and social environments (Institute of Medicine 2006, Parkes *et al.* 2005). Thus transdisciplinary work moves away from the silo effect of coming from different disciplinary perspectives, towards an integrated team approach that transcends specialised knowledge bases. Transdiciplinary approaches are now becoming highly desired in many research sectors in New Zealand, and internationally (Institute of Medicine 2006, Littleton *et al.* 2008, Parkes *et al.* 2005),

due to their ability to address broad and complex social issues, as illustrated in Slide 6, by quote from the Institute of Medicine (2006:4).
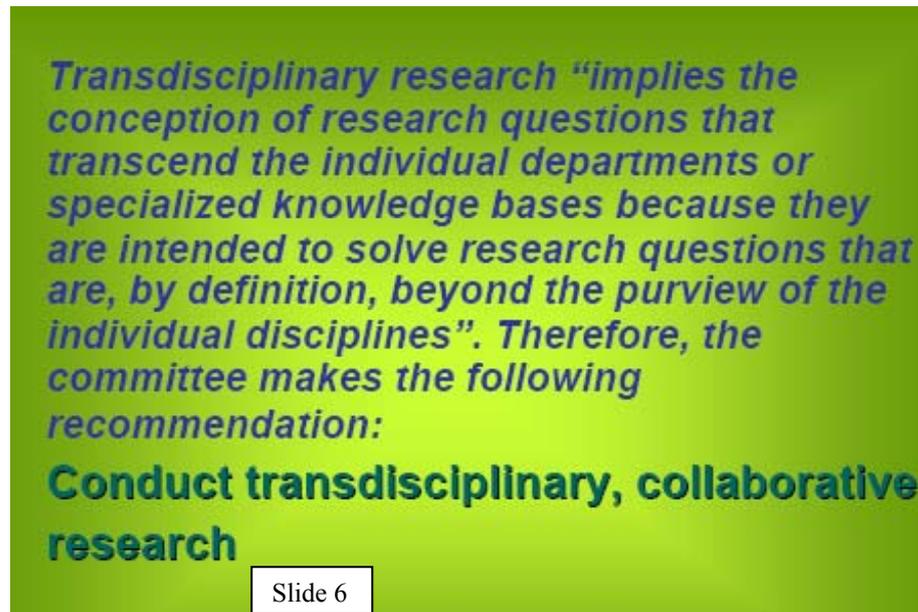
Transdisciplinary research "implies the conception of research questions that transcend the individual departments or specialized knowledge bases because they are intended to solve research questions that are, by definition, beyond the purview of the individual disciplines". Therefore, the committee makes the following recommendation:
Conduct transdisciplinary, collaborative research

Slide 6
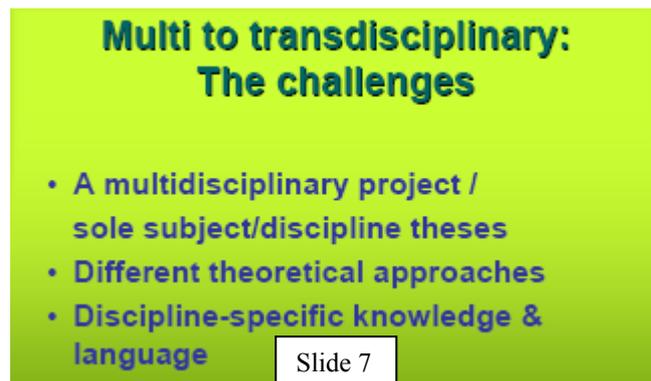
Multi to transdisciplinary: The challenges

- A multidisciplinary project / sole subject/discipline theses
- Different theoretical approaches
- Discipline-specific knowledge & language

Slide 7

Our graduate student experience of completing doctoral projects within a large multi-disciplinary project seems to us to be unusual within the humanities and, to a lesser extent, within the social sciences, and this presented benefits and challenges (Slide 7). The common view in our individual departments is that a PhD requires intense personal determination and resilience, mostly because of the lonely nature of the journey. There are plenty of anecdotes of students feeling that few understand the process they are engaged in or the gigantic place "your topic" plays in your life for the doctoral years – and beyond. Supervision meetings can be welcomed as much for the chance to talk to someone who is also interested in your topic, as for the advice received. On the other hand, the intensely individual nature of the doctoral journey is softened by the informal and formal collegiality of other doctoral students.

Department doctoral strategies increasingly seek to counter the "loneliness" risk factor by encouraging communal activities, such as PhD orientation sessions, student-run discussion groups, conference days, workshops, and even writing retreats. Nevertheless, the intricacies and endless fascination of your particular topic is rarely something that anyone else shares. In general social situations, the statement that you are doing a PhD often kills the conversation stone dead.

It was in overcoming the "loneliness factor" that being part of "the TB project" provided one of the greatest benefits. The size of the TB project grew over the five years, numbering four principle investigators, three PhD students and five Masters students, as well as public health and cultural advisors. So, there was a significant number of people involved. We were each based in our individual departments but had a significant "second home" within the university where our topic was "it". This exclusive emphasis on TB over five years built a sense of collegiality and interconnectedness beyond the project itself. We engaged with New Zealand public health, medical and scientific practitioners and researchers, as well as international social scientists working on tuberculosis. Being part of a larger project was a powerful motivation and support for each graduate student as we realised that our topic was of interest across a broad spectrum.

From the outset, the principal investigators promoted a team approach that ran parallel to and enveloped the separate individual projects. Although, each person's work contributed to the overall goals of the project, each thesis and its research was based firmly within its own discipline or subject. Strong primary supervisor/student relationships were a feature of the project. Co-supervisors from the other disciplines were careful to recognise the need for a piece of work not to fall between disciplines. Jody and Deborah found themselves being hauled in when increasing exposure to other disciplines meant we started to slide into a disciplinary no-man's land. On reflection, we now appreciate the benefit of having established a strong base within our own discipline. As our current shared work shows, ongoing development post-PhD includes transdisciplinary work but we believe that this is best developed from a solid base in our individual disciplines.

It is worth noting that the three of us had had surprisingly little exposure to each other's discipline prior to the project. Anneka's undergraduate degree was in Anthropology, Psychology and Science, Jody's was in Geography with a History minor. Deborah's was in History and Political Studies, with an English minor. None of us came to the project equipped with a relevant interdisciplinary skill set.

As we began to be exposed to those other disciplines, specific knowledge, purposes and language were initially barriers to understanding. The historian, Deborah, was surprised at the broad conclusions about the "lived life" anthropologists are able to draw through applying theory and data, whereas they were perplexed, perhaps bemused by the historian's pre-occupation with specific evidence, the unique lives of individual people and the tentativeness with which we generalise. The historian, always hopes to excite the "general audience", and often struggled with strongly theoretical approaches aimed at an academic discourse. On the other hand, reading Kleinman's (1980) concept of Explanatory Models brought a deeper understanding of the emotional effects of disease. Anneka and Deborah both found Jody's geographical discussion of the therapeutic landscape of the sanatorium (Gesler 2000) revealing and useful. In tandem with the difficulties of understanding new theoretical approaches, the disciplinary assumptions beneath them and the specific language used were difficult to understand for the newcomer.

Multidisciplinary Challenges

- Institutional barriers
- Reference styles
- Personal qualities

Slide 8

Some of the intellectual challenges we encountered have been discussed, but practical obstacles proved as difficult and probably produced greater feelings of frustration (Slide 8). At an institutional level, the problem of the subject silo emerged. Over five years, the potential of everyone being able to access one project hard drive to share reference material simply never came to fruition. The University's IT system did not allow students enrolled in one department to access a drive that was nominally the property of another department. At the most basic and practical level of scholarship, the correct referencing of primary history sources in a joint publication took a huge amount of juggling before an adequate compromise was reached.

On reflection, we realise too how important the personal qualities of the individuals involved were to the success of the overall project and to our ongoing desire to work together. The difficulties of being exposed to other disciplines has been discussed but, crucial to this remaining a positive experience, was the respect accorded to each individual and their discipline across the whole project. There was never a feeling that your discipline was in some way less than another. It became apparent that each had its own strengths and contributed at different stages and in different ways. Remaining open and respectful of different approaches could have been a challenge but the tone set by the principal investigators from the outset ensured the project operated in an atmosphere of mutual regard.

Practical interactions to bridge the disciplines

- A shared thesis topic
- Regular reporting
- Reading & discussion group
- Collaborative presentations
- International collaboration
- International symposium & publication
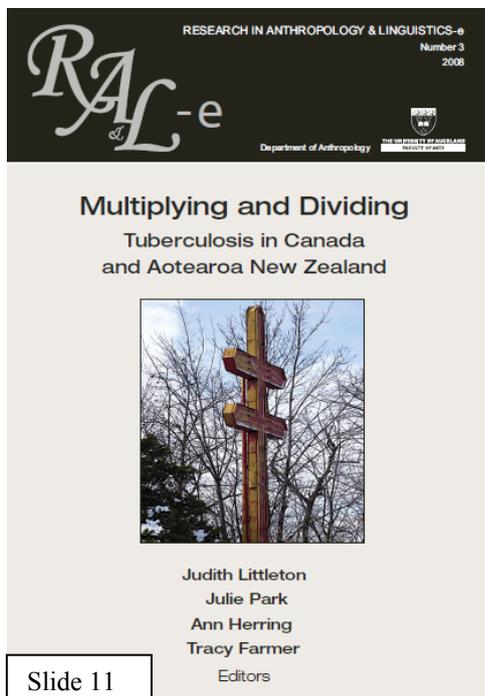- Writing time

Slide 9

The pathway that has led us to want to work in a transdisciplinary way has had no moment of revelation but has rather evolved in time and through a series of very practical steps (Slide 9). From the project outset, the principal investigators promoted a team approach that ran parallel to and enveloped the separate individual projects.

Part of the team building involved regular reporting of individual research progress to the group. For the student, this quickly revealed areas of similarity and difference across the different studies, as well as indicating continuities and change over time. This reinforced the place and potential significance of individual studies, the real worth of what you were doing. It was morale boosting to receive enthusiastic responses from the others about your latest thoughts on what you were seeing at the Archives, or your most recent set of interviews.

A significant part of the development of an interdisciplinary environment was the regular reading and discussion group. Readings were selected from across all disciplines and the reading group provided the opportunity to question those within the discipline first hand; it was a fast track introduction for the uninitiated. Being exposed to other disciplines in this way made us question our own subject at times. The principal investigators established this reading group and never let it slip away. Left to us, it would have disappeared as the pressure came on us to finish. But as long as it was organised, our commitment to the group meant we made time to read and attend We all now identify that group as the central point of our professional and personal development as colleagues.

Relationships between the project's researchers were also developed through collaborative and individual speaking opportunities at conferences, workshops and through informal meetings with other groups of researchers into tuberculosis; this reinforced our membership of the team further.

Of special significance was the project's international collaboration with researchers into TB at Canadian universities. This led to a symposium at McMaster University in Hamilton, Ontario in June 2006 (Slide 10). The experience of travelling and being overseas as a group; spending a week with other researchers just talking on our subject was a watershed in our developing commitment to each other. This also led to the publishing of a collected volume of essays on tuberculosis in Canada and New Zealand (Slide 11).

RESEARCH IN ANTHROPOLOGY & LINGUISTICS-e
Number 3
2008

Department of Anthropology

Multiplying and Dividing
Tuberculosis in Canada and Aotearoa New Zealand

Judith Littleton
Julie Park
Ann Herring
Tracy Farmer
Editors

Slide 11

Slide 10. TB symposium participants, Canada 2006.

Project membership of BRCSS (Building Research Capacity in the Social Sciences) offered exposure for students to a much wider range of research across disciplines. We attended conferences and, after completion, a BRCSS fellowship allowed shared office space and dedicated time for the three PhDs to write and take the added step of attempting a transdisciplinary publication.

Of most significance to the development of this multidisciplinary group of researchers has been the qualities of the people on the project. The commitment by the principal investigators to the academic success and individual well-being of the student researchers was constant. Academic efforts were complemented with social occasions. Without exception, principal investigators and researchers have been supportive of each other's efforts and understanding of differences. Work was critiqued honestly but in a positive and constructive tone, especially important when viewing the work of developing researchers from diverse disciplines. The significance and validity of each discipline was always respected.

The potential for multidisciplinary, or ultimately transdisciplinary, work developed subliminally over five years. When together, we came to think of ourselves as colleagues first, and anthropologist, geographer and historian second. Each secure in our own discipline, we were sure of our ability and our desire to work together, and convinced that, together, we would be able to add another dimension to our individual work.

Key Learnings

- Project structure
- Leadership
- Consistency & constancy
- Respect
- Personal commitment
- Joint ownership

Slide 12

Our experience of working together transdisciplinarily offers insight to other researchers about both the challenges and opportunities in engaging across disciplinary boundaries (Slide 12). A factor that significantly contributed to the success of this project was the overall structure. A supportive environment was constructed between students and staff. A visual metaphor to represent this idea is the notion of 'scaffolding'. As already mentioned, key structures included reading groups, writing groups, project meetings, conferences, providing group lectures as well as social interactions including parties, a 'thesis completion' party and informal gatherings. The varied nature of these interactions provided opportunities to be accountable to one another, to learn about others' research journeys and maintain momentum.

An important structural component is that of leadership. The project leaders provided both consistency and constancy to the group research process. All three of us believe that the leadership skills of the principal investigators, particularly Associate Professor Julie Park, were pivotal in the project's success. Their efforts in continually bringing us together, providing opportunities to grow and develop reflect their personal commitment to us as individuals and as a team. As students we were supported through to completion. In many ways the project leaders were selfless and generous with their time, support and input. The principal investigators received no personal benefit from going the extra mile, which is especially significant in the context of PBRF pressures. A sense of mutual respect both professionally and personally was instrumental. During the inevitable ups and downs we were

supported. All of these key building blocks culminated in a sense of joint ownership. This has facilitated the range of collaborative publications that have emerged, and are continuing today.

What is apparent to us is the very simplicity of the journey to our transdisciplinary relationship. This was not a planned project outcome but rather it evolved unconsciously over time out of such very practical and low key activities.

Now that we have provided a background context to our transdisciplinary research, we will demonstrate its application to a current work in progress focusing on citizenship and TB in New Zealand. From our involvement with the Political Ecology of TB Project, we realised that there were recurring themes in each of our research projects (Slide 13), regardless of the timeframe we were looking at, the physical location or social space we were working in, or people with whom we worked. Some of these 'big picture' findings were stigma, low socioeconomic status and ethnicity and immigration and policy.

It was evident from the political ecology of TB project that TB is a highly stigmatised disease. Whereby the stigma associated from TB commonly results in social ostracism and discrimination. Although the processes in which stigma is produced and maintained and the undesirable attributes associated with TB are variable across time and within and between social groups, every group of people we worked with, across all time periods, experienced stigma associated with TB (Anderson 2008, Dunsford 2008, Lawrence 2008, Ng Shiu et al. 2008, Oh 2008, Searle et al. 2007). Work by Dunsford (2008) and Finn (2008) revealed that historically, TB was seen as a disease of 'others'. Othering or racial discrimination, is based on real or supposed characteristics such as language, religion, physical characteristics, culture and shared history (Patchen 1999, Said 1991). In historical contexts, groups associated with TB included British and Chinese immigrants and Māori populations. In contrast to the past, in contemporary New Zealand settings, TB is now seen as a disease of Asian, African and often Pacific migrants (Anderson 2008, Lawrence 2008, Ng Shiu et al. 2008). Although the groups of people associated or blamed for bringing in and spreading TB in New Zealand have changed over time, the impacts of TB associated stigma have remained as a significant barrier for the diagnosis, treatment and experience of TB sufferers.

TB has long been known as a disease of poverty (Farmer 1992, Pevez et al. 2006), and as such, can be used to explore and understand social, political and economic inequalities and inequities within and between societies, or as Paul Farmer suggests, TB exposes the "fault lines" of societies (Farmer 1992:9). All of our studies revealed that the largest factor influencing TB transmission, diagnosis and treatment in New Zealand, through the past and present, were underlying structural inequalities. Therefore, although there are huge ethnic disparities in incidence of TB between ethnic groups in New Zealand, ethnicity itself was not a useful concept to explain TB transmission and experiences, of more significance, are the social stigmas and social inequalities apparent in New Zealand.

As evident from our findings regarding stigma and social discrimination, the social concept of 'othering' was another recurring theme in our research. Most commonly, groups perceived as 'others' included migrants to New Zealand, thus immigration was an important area of our research. We found that people's immigration and settlement experiences were often met with social discrimination in New Zealand, and impacted largely on their socioeconomic status, health and well being (Anderson 2008, Lawrence 2008, Ng Shiu *et al*. 2008). Social discrimination, like that of TB stigmas, also occurs at many societal levels from National policy to local group perceptions (Anderson 2008, Searle *et al*. 2007). For example, in New Zealand, there is a long history of social discrimination being manifested through immigration and health policies (Anderson 2008, Dunsford 2008, Searle *et al*. 2007) which can have direct and indirect effects of TB experiences, diagnosis and treatment.

As mentioned previously, to undertake transdisciplinary research you not only have to work across disciplines but also under a common theoretical framework which brings us to the concept of citizenship. Many of the themes and findings we found related to desirability or undesirability of social inclusion within local, national and political contexts, which all relate to the concept of citizenship. Aihwa Ong (1996) argues that citizenship is not just a legal definition, but is a broad concept that includes all members of a society, not just those defined as legal citizens. In this sense, citizenship can elucidate the fluid and multifaceted nature of belonging to community or nation, or not, of informal or formal acceptance by society or state as citizens, or not, and is a concept that we feel can explain the policy, discourse and the personal experiences surrounding TB in New Zealand throughout the twentieth and into twenty-first century.

Slide 14

Just as we encountered challenges through our multidisciplinary research so too have we faced many obstacles in our recent transdiciplinary collaboration (Slide 14). As recent post-graduates we are now all working in different occupations, Deborah and Anneka are both employed with the University of Auckland but in different Faculties and campuses from each other, while Jody is a full time mother of two children under the age of five (a difficult job for anyone) and does part-time contract work. Our different hours of work and spatial locations make finding times and places to meet very difficult. To overcome these challenges we rely on technology, particularly emails and texts. In addition, we are lucky enough to all live in the same area in Auckland, so usually meet at each other's homes when children are in bed and spouses are otherwise occupied.

Along with time and location, we also face institutional and technological barriers for collaboration. For Jody, who is no longer a student nor employee of the University of

Auckland, accessing library books, journals and printing and photocopying have proven very difficult. In addition, funding for conference presentations and research is often based on memberships to specific departments, Faculties and Universities so we have found this aspect difficult in regards to collaborative aspects of the research. However, we have become experts at what we have coined 'Nucleus Networking'. Essentially, we base ourselves on the North Shore City of Auckland, and share and pool our resources such as literature sources, printing and funding for conference presentations. Being members of BRCSS has also been of great benefit to us, who through their emphasis on and support of collaborative social science researchers have proved a valuable resource to us in providing grid seminars and workshops such as the conference this paper was presented at for students and emerging researchers.

At the end of the day, when undertaking transdisciplinary research, yes, transcending different academic languages, theories and approaches is difficult, particularly when this is compounded by institutional barriers within and between academic environments BUT what we have found in our experiences, is that the greatest resource we have to overcome these obstacles are the PEOPLE with whom you collaborate with! Our journey to transdisciplinary research was like a Pantene commercial, it did not happen over night, it was a long, slow, evolutionary process that would not have happened without exposure to the Political Ecology of TB Project, our fantastic collages, and BRCSS. Now as we are entrenched in ongoing transdiscipinary collaboration we can say with certainty that the value of "the whole is greater than the sum of its parts" (Slide 15).

Slide 15

Reference list

Anderson A, 2008. Mark of Shame: Social Stigma, Tuberculosis and Asian

immigrants to New Zealand. In Littleton J, Park J, Herring A and Farmer T (ed) *Multiplying and Dividing: Tuberculosis in Canada and Aotearoa New Zealand.* Auckland, Department of Anthropology, University of Auckland, pp. 196-204.

Baer H A, 1996. Bringing political ecology into critical medical anthropology: A challenge to biocultural approaches. *Medical Anthropology,* 17: 129-141.

Bloom B R and C J L Murray, 1992. Tuberculosis: Commentary on a re-emergent killer. *Science*, 257:1055-64.

Das D, M Baker and L Calder, 2006. Tuberculosis epidemiology in New Zealand: 1995-2004. *The New Zealand Medical Journal,* 119 (1243): U2249.

De Zoysa R, P Shoemack, R Vaughan and A Vaughan, 2001. A prolonged outbreak of tuberculosis in the North Island. *New Zealand Public Health Report,* 8:1-4.

Dunsford D, 2008. The Bright Light of Action and Hope: Illuminating the Complexity of Tuberculosis in New Zealand in the 1940's. In Littleton J, Park J, Herring A and Farmer T (ed) *Multiplying and Dividing: Tuberculosis in Canada and Aotearoa New Zealand.* Auckland, Department of Anthropology, University of Auckland, pp. 179-186.

Farmer P E, 1992. *AIDS and Accusation: Haiti and the Geography of Blame.* Berkeley: University of California Press.

Finn C, 2008. A Political ecology Perspective on Housing Conditions and Tuberculosis Transmission among Māori in Two Different Geographical Areas during the early-and mid-20th Century. In Littleton J, Park J, Herring A and Farmer T (ed) *Multiplying and Dividing: Tuberculosis in Canada and Aotearoa New Zealand.* Auckland, Department of Anthropology, University of Auckland, pp. 163-175.

Gesler W, 2000. Hans Castorp's journey-to-knowledge of disease and health in Thomas Mann's *The magic mountain. Health and place* 6(2):125-134.

Harrison A, 1999. Tuberculosis in immigrants and visitors. *New Zealand Medical Journal,* 112: 363-216.

Institute of Medicine, 2006. *Genes, Behavior and the Social Environment: Moving Beyond the Nature/Nurture Debate.* Washington: The National Academic Press.

Kleinman A, 1980. *Patients and Healers in the Context of Culture*. Berkeley: University of California Press.

Klovdahl A S, E A Graviss, A Yaganehdoost, M W Ross, A Wanger, G J Adams and J M Musser, 2001. Networks and tuberculosis: An undetected community outbreak involving public places. *Social Science and Medicine,* 52:681-694.

Lawrence J, 2008. Health, Wellbeing and Diaspora: The Lived Experience(s) of TB in a Refugee Community in Auckland, New Zealand. In Littleton J, Park J, Herring A and Farmer T (ed) *Multiplying and Dividing: Tuberculosis in Canada and Aotearoa New Zealand.* Auckland, Department of Anthropology, University of Auckland, pp. 205-217.

Littleton J, Park J, Herring A and Farmer T, 2008. *Multiplying and Dividing: Tuberculosis in Canada and Aotearoa New Zealand.* Auckland, Department of Anthropology, University of Auckland.

Ministry of Health, 2003. *Guidelines for Tuberculosis Control in New Zealand 2003,* online, available at: http://www.moh.govt.nz/moh.nsf. (14/12/06).

Ng Shiu R, Park J, Kearns R, 2008. Placing the Experience of Pacific People Living

with Tuberculosis in Auckland, New Zealand. In Littleton J, Park J, Herring A and Farmer T (ed) *Multiplying and Dividing: Tuberculosis in Canada and Aotearoa New Zealand.* Auckland, Department of Anthropology, University of Auckland, pp. 218-231.

Oh M, 2008. The Treaty of Waitangi Principles in *He Korowai Oranga- Maori Health Strategy*. A critique from the Perspective of TB Care. In Littleton J, Park J, Herring A and Farmer T (ed) *Multiplying and Dividing: Tuberculosis in Canada and Aotearoa New Zealand.* Auckland, Department of Anthropology, University of Auckland, pp. 71-82.

Ong A, 1996. Cultural citizenship as subject-making. Immigrants negotiate racial and cultural boundaries in the United States. *Current Anthropology* 37(5):737–62.

Parkes MW, Bienen L, Breilh J, Hsu L, McDonald M, Patz JA, Rosenthal JP, Sahani M, Sleigh A, Walter-Toews D, Yassi A, 2005. All hands on deck: transdisciplinary approaches to emerging infectious disease. *EcoHealth* 2: 258-272.

Patchen M, 1999. *Diversity and Unity: Relations between Racial and Ethnic Groups.* Chicago: Nelson-Hall Publishers.

Perez A, Brown HS, Restrepo BI, 2006. Association between tuberculosis and diabetes in the Mexican border and non-border region of Texas. *The American Society of Tropical Medicine and Hygiene,* 74(4): 604-611.

Raviglione M and A Pio, 2002. Evolution of WHO policies for tuberculosis control 1948-2001. *The Lancet,* 359: 775-780.

Said, E., 1991. *Orientalism: Western Conceptions of the Orient*. Harmondsworth: Penguin.

Searle A, J Park and J Littleton, 2007. Alliance and compliance in tuberculosis treatment of older Pakeha in Auckland, New Zealand. *International Journal of Tuberculosis and Lung Disease,* 11(1): 72-77.