



# Pacific Voices II

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Pacific Postgraduate Symposium  
30 September 2005

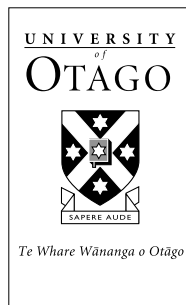


Otago  
Pacific Islands Centre

# Pacific Voices II

PACIFIC POSTGRADUATE SYMPOSIUM

30 SEPTEMBER 2005





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Pacific Voices II: Abstracts for the Pacific Postgraduate Symposium

## FOREWORD

In the Foreword to the publication of abstracts from the first *Pacific Voices* symposium held in 2004, I expressed the hope that the symposium would become a regular event. I was delighted, therefore, to learn that the occasion would be repeated this year.

The University of Otago prides itself in being a research-intensive organisation and our graduate research students should not underestimate the vital contribution that they make in this regard.

It is impressive and inspiring to read the abstracts presented in this publication which cover a diverse selection of topics. One cannot help but be left with a real sense of appreciation of the fascinating and valuable research that Pacific Island students are conducting on the University's campuses and beyond.

To the students participating in this year's *Pacific Voices* event, well done! While your research is undoubtedly important for the University, it is even more important for the wider society, including your own Pacific Islands communities.

Congratulations to Nina Kirifi-Alai, the Manager of the University's Pacific Islands Centre, for being the enthusiastic driving force behind the *Pacific Voices* symposium and to the editors of this publication, Claire Matthewson and Mele Taumoepeau, for the hours of work they have invested in this very worthy endeavour.



**Dr Charles Tustin**

Director, Research Higher Degrees & Scholarships

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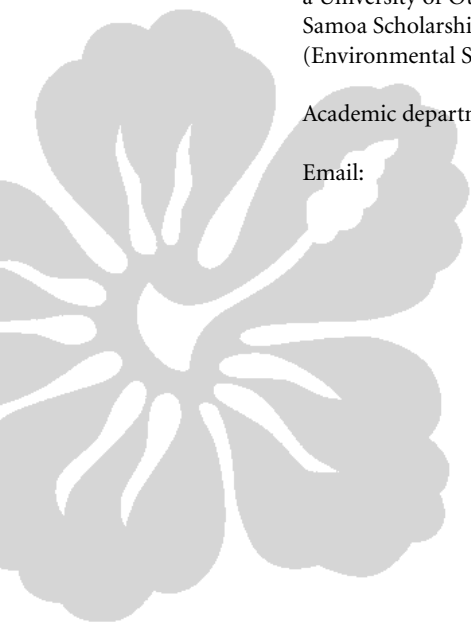


## PATILA AMOSA

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Patila is currently on study leave from the National University of Samoa where she has worked for 12 years, most recently in the position of Head of Science. She has served as both a National Examiner for science and a Regional Examiner for biology in the Pacific Senior Secondary Certificate (PSSC). Patila is supported by a University of Otago Division of Sciences/National University of Samoa Scholarship to undertake a Postgraduate Diploma in Science (Environmental Science) and an MSc.

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# COMPARATIVE STUDY OF THE IONIC COMPOSITION OF RAINWATER IN SAMOA AND DUNEDIN, NEW ZEALAND

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## Patila Amosa

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The increased emission of pollutants into the atmosphere by anthropogenic activities has altered the normal chemical composition of both air and rainwater. This has raised concerns about the impacts of these changes on the biological, chemical and physical characteristics of ecosystems. Health and agricultural effects have been identified, especially in regions depending on rain as the source of their drinking water, and for other domestic purposes or land irrigation.

This research will investigate the ion composition of rainwater in Samoa and Dunedin. Most precipitation research in New Zealand has analysed for the common ions but not fluoride. There seems to be only one study which includes fluoride ion analysis and no studies on rainwater chemistry in Samoa.

The main questions for my research are:

- does rainwater collected in Samoa have a significantly different ion composition from rainwater collected in Dunedin?
- what are the potential sources of the identified ions?

The first question will be answered by collecting rainwater samples in one inland and three coastal sites in Samoa and a coastal site in Dunedin. Collection will be carried out during each rain event in a three-month period. A systemic sampling design will be used to identify the coastal sites in Samoa.

Measurement of pH and chemical analysis of rainwater will then occur to identify the ions present and their concentrations. The second question will be answered by initially identifying wind direction and speed during the rainfall events. Back-trajectory methods can then be used to track the possible origin of the ions in rain. These data will determine whether the ions arise locally from a continental or marine source or have been transported from a distance. Statistical analyses will be done to determine the veracity of the collected data and to derive meaningful conclusions from the research.

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**Keywords:** precipitation, rainwater, ions, Samoa





### MARIEKE BLONDET

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Marieke has recently commenced her studies as a doctoral student in the Department of Anthropology, where she is jointly supervised by Dr J Leckie and Dr J Bryant-Tokalau. Marieke is also a student of EHESS (L'École des Hautes Études en Sciences Sociales/School of Higher Studies in Social Sciences) in Paris.

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## CONSERVATION AREAS AND LOCAL POPULATION IN AMERICAN SAMOA

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### Marieke Blondet

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In American Samoa the US National Park Service has set up a conservation area where the local people continue using the resources (unlike other American Parks where the conservation area is uninhabited and not utilized for subsistence living). This is because the traditional Samoan way of life is still practised and because extended families are still the land's owners.

In Samoa, land gives people their identity. Various aspects of the land may refer to an ancestor, a mythic adventure, a battle, a victory or a settlement, which, even today, might identify the persons or group that holds the land and give members their place in the social hierarchy.

In consideration of this factor, the US National Park Service rents out the protected areas to Samoan families. However, this financial contribution and the establishment of the park have potential to disturb the social organisation already being impacted upon by a higher and higher 'individualization' within the population. Indeed young men increasingly refuse to stay under the *Matai's* authority and ask for their independence and some lands.

Furthermore, the country is looking towards developing its economy by attracting overseas income. Ecotourism – currently the most important tourism trend – could be a very good option to pursue. At the same time, some people are fearful of being overwhelmed by tourists and the industry and so they take a close interest in the project's establishment. Are the people of American Samoa real conservationists, however? Or is environmental protection just another exported Western concept being applied to a non-Western society?

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**Keywords:** parks, American Samoa, conservation, ecotourism

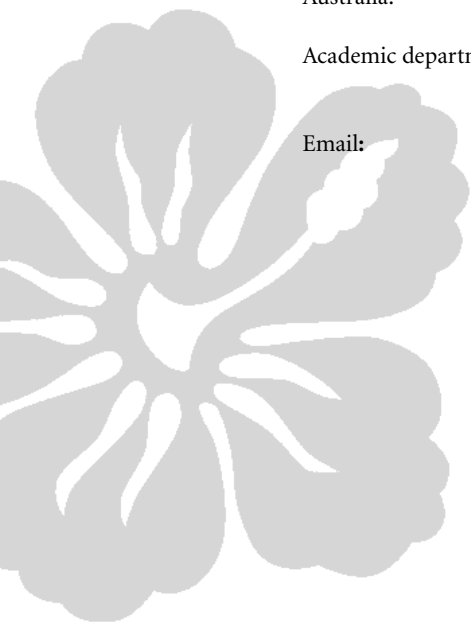


RAJNI K CHAND

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For a number of years before coming to the University of Otago, Rajni taught the ESL study skills course at the University of the South Pacific (USP). She also worked as an editor and course developer for distance programmes at USP, taught English in secondary schools in Fiji and Brisbane, Australia, and undertook research for IELTS Australia.

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# LISTENING NEEDS OF DISTANCE LEARNERS: PRELIMINARY FINDINGS FROM AN ESL STUDY SKILLS COURSE

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**Rajni K Chand**

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This paper discusses the preliminary findings of a study conducted at the University of the South Pacific that looked at teachers and learners' perceptions and experience of the listening component of an ESL study skills course offered by distance learning. Data for this study came from questionnaires, interview protocols and classroom observation. Questionnaires were used to understand learners' present and future listening needs and their views on the listening skills that they were taught. The interviews provided in-depth information on their listening experiences and strategies. Teachers' views on learners' listening needs were gathered by interviews. Additionally, observations via satellite were made on classroom teaching to identify interaction and listening activities. Preliminary findings indicate that distance learners were not using the listening material to a great extent. Most learners did not find these resources relevant enough and expected the material to be more authentic. There were indications from the learners that the teaching of listening skills should make use of the resources available to the learners in the region. The teachers of other subjects felt that the learners were not fully transferring the listening skills learnt from the study skills course into other courses that they were doing. This lack of awareness meant that the learners faced difficulties in notetaking and in other activities (such as when attending lectures) where listening skills were necessary.

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**Key words:** listening skills, study skills, distance learning, needs analysis, University of the South Pacific (USP)



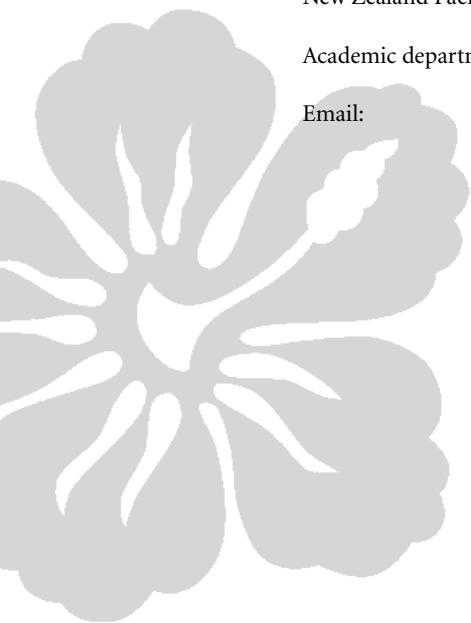
### DAVID FA'ATAFA

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David is of Samoan descent. He was born in Wellington and attended Tawa College. He completed his Bachelor of Physical Education at the University of Otago in 2003 and is currently studying for a Masters degree. He has a special interest in the health benefits of exercise, especially for Polynesians. David is a recipient of an HRC of New Zealand Pacific Health Research Masters Scholarship

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# MUSCLE METABOLISM RESPONSES TO RESISTANCE TRAINING VERSUS AEROBIC EXERCISE IN PACIFIC ISLAND ADULTS

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**David Fa'atafa**

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This study intends to compare changes in metabolic and physiological parameters between an aerobic-based and anaerobic, resistance-based exercise programme in sedentary Samoan men, following a supervised 20-week intervention.

Twenty (20) overweight sedentary males of Samoan descent, between the ages of 30 and 50, will take part in either aerobic-based training consisting of stationary cycling or treadmill walking (AT=10), or anaerobic training using either resistance-based machines or free weights (RT=10). Muscle biopsies, blood lipids, abdominal obesity measures and oral glucose tolerance tests (OGTT) will be taken prior to and following the exercise intervention. Fibre type composition of the participant will be determined from the biopsy taken from the vastus lateralis muscle in the leg. Blood samples will provide information about blood lipid profile and be used as markers of heart disease risk. Waist-hip ratio and waist circumference will be measured to determine regional body fat deposition and used as correlates with the blood and muscle tissue measures. An OGTT will be undertaken to assess insulin sensitivity, glucose tolerance, total glucose bioavailability and diabetes risk.

Specific aims of this study are: to characterise fibre type in this group of Polynesian men; to investigate the effects of aerobic and resistance exercise on carbohydrate metabolism and lipid profiles in previously sedentary Pacific Island men; and finally, to determine whether resistance exercise has a greater impact than aerobic exercise for decreasing risk factors in Pacific Islanders.

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**Key words:** Polynesian, exercise, heart disease, diabetes, obesity, muscle fibre



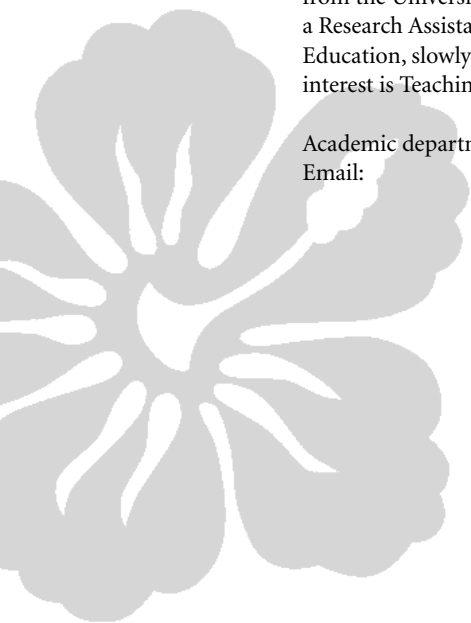
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### PHILIPPA FOGAVAI

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Philippa (née Uluilalata) is married to Posala and they have two young children. She was born and bred in Porirua; both her parents are Samoan. With a BA(Hons) from Victoria University of Wellington, Philippa is a trained secondary school teacher and has taught in New Zealand and Samoa. She also holds a GradDipSLT from the University of Otago. Philippa is working part-time as a Research Assistant and studying part-time for a PGDipArts in Education, slowly working towards a Masters. Her main area of interest is Teaching English as a Second Language.

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## A CHILD'S USE OF MATHEMATICAL LANGUAGE IN THE HOME

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**Philippa Fogavai**

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Research in the area of language use in the mathematics classroom is ever increasing. However, comparison between the use of mathematical language in the home and the classroom is an area that requires more research. The aim of this study is to identify key features of mathematical language, in one incident of a child's language usage in the home.

Data have been collected as part of an ongoing larger project: *Inside- and Outside - School Scaffolding of a Child's Mathematical Explanations*. This project is being done in conjunction with Dr Tamsin Meaney at the Educational Assessment Research Unit (EARU). For one day a week, over a 20-week period, a seven year old child has been recorded using language both in the home and in the mathematics lesson. Mathematical language use is then being selected from these recordings and analysed.

The data selected for this project are an incident of mathematical language use in the home, where the child is playing a popular game with a parent. The game involves the child paying money to the bank and giving out money from the bank. In this incident, I am interested in how mathematical language is initiated and elicited by the child and, particularly, in what language features indicate when the child initiates mathematical language, or what incidents elicit the child's mathematical language. As mentioned earlier, the collected data are part of ongoing research in which comparisons between home and classroom language use will be made at a later stage.

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**Key words:** scaffolding, language features, mathematics





## OSEA GAVIDÍ

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Osea is a Postgraduate Diploma student in the Department of Oral Pathology. His programme of study is clinically-oriented and deals mostly with oral diseases (Histology and Pathology) and minor oral surgery. He is also a Dental Officer at the Department of Oral Health, Lautoka Hospital, Fiji, having graduated with a Diploma in Dental Therapy and a Bachelor degree in Oral Surgery from the Fiji School of Medicine. One of his interests is Continuing Education and Professional Development in the workplace.

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## HEALTH TRANSITION IN THE SOUTH PACIFIC: AN OVERVIEW

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### Osea Gavidu

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This presentation reviews the transition in health in the Pacific Island countries (PICs) taking into consideration some of the underlying causes of poor health, attitudes and the observed changes in the health system.

The PICs are experiencing massive changes in health in response to changes in the environment through development, social behaviours and, in some cases, genetic factors. They have shifted from a more rural, structured, village-based economy to a more urban, cash-based economy.

Infectious diseases like measles, influenza, and tuberculosis were the leading illnesses in the 1950s, but their prevalence was reduced with the introduction of antibiotics, public health improvements, and eradication programmes. From the 1960s, however, non-communicable diseases such as diabetes, heart disease and cancer have dominated the disease picture<sup>1</sup> This is largely due to unhealthy lifestyle, change in diet and patient ignorance.

Oral cancer is prevalent in the Pacific Island countries such as Vanuatu and Solomon Islands (perhaps reflecting the prevalence of betel-nut chewing). Cancer rates in Fiji seem to be substantially lower than in New Zealand or Australia, but these statistics may underestimate the actual prevalence in Fiji<sup>2</sup> In general, the data on health in the PICs must be viewed with scepticism as there are variations in reporting practices within the different island nations.

Many of these diseases can be prevented by averting known risks such as smoking, betel-nut chewing, excessive alcohol and fatty food. It is a challenge to make an impact in reducing the mortality rate in the South Pacific region.

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**Key words:** infectious disease, non-communicable disease, oral cancer, mortality rate

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<sup>1</sup> Bloom AL (1986) "A Review of Health and Nutrition Issues in the Pacific" *Asia-Pacific Population Journal* Vol. 1, No. 4, December 1986.

<sup>2</sup> Taylor R, Levy S, Henderson B, Kolonel L, and Lewis N (1985a) "Cancer in the Pacific Island Countries". South Pacific Commission, Noumea, New Caledonia.



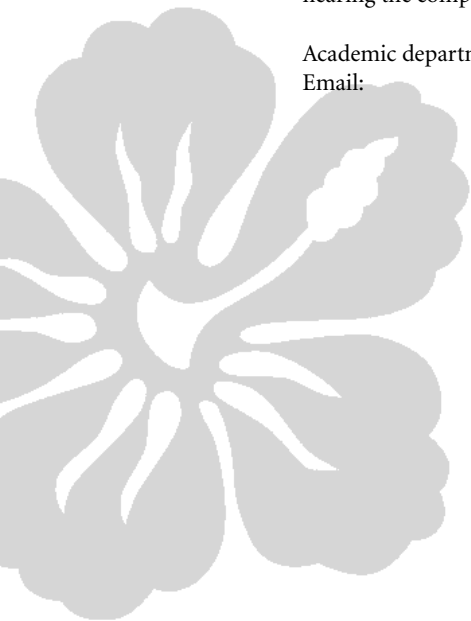
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### OLIVER ALEXANDER GUSSMANN

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Oliver's fondness for the sea was instilled by his parents who mostly sought sunny, watery places. Combined with his interest in new places and faces, he graduated with a BSc(Hons) in Marine and Freshwater Biology from Queen Mary and Westfield College in the United Kingdom and an MSc from the University of Otago. Oliver is nearing the completion of his PhD.

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DIVERSITY OF *HALIMEDA*  
(CHLOROPHYTA) ASSOCIATES AND  
IMPORTANCE OF CALCAREOUS  
GREEN MACROALGAE TO CORAL REEF  
BIODIVERSITY

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**Oliver A Gussmann**

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The tropical calcareous green macroalga *Halimeda* is well defended structurally and chemically against grazers. Such defence mechanisms may have cascading effects that influence reef community organization and species richness. I evaluated the importance of *Halimeda* as a habitat for reef organisms through personal observations, augmented by an extensive literature survey. The data set reveals a high diversity of associates (702 spp.) dominated by crustaceans, fish, annelid worms, gastropods, and echinoderms. Associated high secondary production ( $>15,000$  ind.  $m^{-2}$ , biomass  $80g m^{-2}$ ) is indicated by some quantitative studies. *Halimeda* is shown to be: 1) colonized by various sessile organisms, 2) used as a “nursery” microhabitat, 3), grazed incidentally or targeted as part of a varied diet, 4) a model for several “look-a-likes” (protective resemblance), 5) a source of material (calcareous segments) for various sediment- and tube-dwellers, and 6) others. Habitat and/or dietary specificity is known in at least 2 groups (amphipod crustaceans and sacoglossan molluscs). Range extensions and species new to science have been described from *Halimeda* niches.

Although a few associations have been studied in detail, there is considerable scope for experimental studies on the multitude of interrelationships between algal host and associated organisms, as well as the discovery of new species, as *Halimeda* habitats are targeted in future studies, and should thus be considered in biodiversity management plans.

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**Keywords:** biodiversity, coral reefs, algae



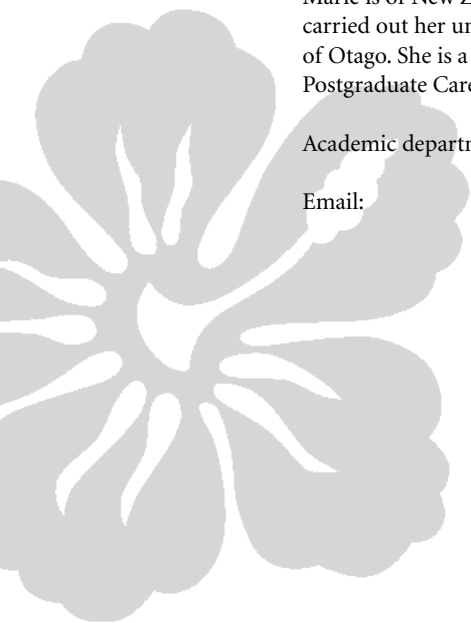
## MARIE I N D E R

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Marie is in the first year of her PhD in the Department of Microbiology and Immunology. She studies in the Virus Research Unit under the supervision of Drs Andrew Mercer, Lyn Wise and Stephen Fleming.

Marie is of New Zealand European and Samoan descent and has carried out her undergraduate and Master degrees at the University of Otago. She is a recipient of an HRC of New Zealand Pacific Postgraduate Career Development Award.

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# FUNCTIONAL ANALYSIS OF A UNIQUE VIRAL VASCULAR ENDOTHELIAL GROWTH FACTOR

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**Marie Inder**

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Orf virus (OV) causes a highly contagious disease in sheep and goats worldwide, is readily transmissible to humans and causes severe disease in immuno-compromised individuals<sup>1</sup>. OV lesions are characterised by vascularisation, caused by a vascular endothelial growth factor (VEGF) encoded by this virus<sup>2,3</sup> (Wise et al., 2003; Wise et al., 1999). The VEGF family of proteins have emerged as major regulators of the formation of new blood vessels in health and disease. VEGF is vital during wound healing and in pathological conditions such as renal disease, some inflammatory disorders, and tumour formation.

VEGF family members act via a set of receptors (VEGFRs) to mediate endothelial cell proliferation, vascular permeability and angiogenesis. OV VEGF uniquely recognizes only VEGFR-2 and NP-1, and the structural basis of this receptor specificity is unknown and its analysis is relevant to our understanding of viral pathogenicity and receptor activation by mammalian VEGF.

The primary aims of this project will be to determine the structural basis and significance of the receptor-binding profile of orf virus VEGF (VEGF ORF), by:

- identifying the domains of VEGF ORF responsible for mediating binding to VEGF receptor 2 (VEGF-2);
- discovering which domains block viral VEGFs from binding VEGF receptor 1 (VEGFR-1);
- addressing why it may be advantageous for orf virus to not bind to VEGFR-1.

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**Keywords:** microbiology, virus, wound-healing

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<sup>1</sup> Mercer, A.A., and Haig, D.M. (1999). Parapoxviruses. 2nd ed. In "Encyclopedia of Virology" (A. Granoff, and R. G. Webster, Eds), pp. 1140-1146. Academic Press.

<sup>2</sup> Wise, L.M., Veikkola, T., Mercer, A.A., Savory, L.J., Fleming, S. B., Caesar, C., Vitali, A., Makinen, T., Alitalo, K., and Stacker, S.A. (1999). Vascular endothelial growth factor (VEGF)-like protein from orf virus NZ2 binds to VEGFR2 and neuropilin-1. *Proc Natl Acad Sci U S A* 96(6), 3071-6.

<sup>3</sup> Wise, L.M., Ueda, N., Dryden, N. H., Fleming, S. B., Caesar, C., Roufail, S., Achen, M.G., Stacker, S.A., and Mercer, A.A. (2003). Viral vascular endothelial growth factors vary extensively in amino acid sequence, receptor-binding specificities, and the ability to induce vascular permeability yet are uniformly active mitogens. *J. Biol. Chem.* 278, 38004-38014.



MANASA LESUMA MAINAQELELEVU

---

Manasa comes from the Fiji Islands. Having completed undergraduate studies at the University of Tasmania, and with microbiology as his major, Manasa is now working towards a full two-year Masters programme in Medical Laboratory Science.

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ANTIBIOTIC PRODUCTION BY THE  
DERMATOPHYTE *TRICHOPHYTON*  
*ERINACEI* AND ITS EFFECT ON  
RESISTANCE IN *STAPHYLOCOCCUS*  
*AUREUS* AND *STAPHYLOCOCCUS*  
*SCIURI*.

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**Manasa L Mainaqelevu**

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The most important causative agents of hospital-acquired diseases worldwide are strains of methicillin-resistant *Staphylococcus aureus* (MRSA). The genetic determinant of resistance, *mecA*, is not a gene native to *S.aureus*, but was acquired from an extra species source by an unknown mechanism. A close homologue of this gene has been identified in isolates of *Staphylococcus sciuri*, a taxonomically primitive staphylococcal species recovered mostly from rodents and primitive animals. In spite of the close sequence similarity between the *mecA* homologue of *S.sciuri* and the antibiotic resistance determinant *mecA* of *S.aureus*, *S.sciuri* strains were found to be uniformly susceptible to beta-lactam antibiotics.

In an attempt to activate the apparently “silent” *mecA* gene of *S.sciuri*, a hedgehog strain of *S.sciuri* Hh20 and *mecA* positive by PCR, (for which the MIC for penicillin and oxacillin [methicillin] was 0.094mg/L and 1.0mg/L respectively) was obtained and exposed to increased concentrations of penicillin produced by the dermatophyte *Trichophyton erinacei*. The production of penicillin by these fungi is at its peak on the 5th and 6th day during its 14 day incubation period in protease peptone (2%) dextrose (4%) broth. Exposure of the beta-lactam susceptible *S.sciuri* (Hh20) to increasing concentrations of penicillin would hopefully activate the *mecA* gene, and render the *S.sciuri* (Hh20) resistant to beta-lactam antibiotics. The observations support the proposition that the *mecA* homologue ubiquitous in the antibiotic-susceptible animal species *S.sciuri* may be an evolutionary precursor of the methicillin resistance *mecA* of the pathogenic strains of MRSA. These observations also illustrate the remarkable variety of strategies available to bacteria for acquiring mechanisms of drug resistance in the in vivo environment.

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**Keywords:** methicillin, *S.sciuri*, drug resistance





## LOUISE MATAIA

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Louise has recently arrived from Samoa on a University of Otago Division of Humanities/National University of Samoa Scholarship in the Arts, Social Sciences and Humanities. She is undertaking postgraduate studies in history. Louise gained her Bachelor of Social Science in history and geography, as well as her Diploma in Teaching, from the University of Waikato. Since then she has worked as a secondary school teacher in Samoa, and more recently, taught foundation history at the National University of Samoa.

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# PACIFIC ISLANDS - BORN RESIDENTS OF DUNEDIN: WORK ATTITUDES AND ADAPTATIONS

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**Louise Mataia**

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This paper explores the work experiences encountered by four Pacific Islanders in the initial stages of employment in Dunedin and how they adapted to their new working environment. It focuses specifically on their recruitment and the significance of their labour over the last 30 years. Despite the explosion of scholarly and academic assessment of Pacific Islanders around New Zealand, nothing has been written about Pacific Islanders' experiences in Dunedin.

The widely accepted (even by Pacific Islanders), generalisation is that Pacific Islanders characterise the labour component in the manufacturing sectors of the New Zealand economy, implying an eternal and permanent status of Pacific islanders in this sector.

The research methodology comprises the collection of information through interviews with research participants. Their stories are then compared and also considered in relation to the general literature on Pacific Islanders. I also look at the published histories of the Dunedin companies to find out what they say about Pacific Islanders.

Through the study of the four individuals, it appears that Dunedin Pacific Islanders demonstrate migrant population characteristics of developing articulate initiatives to create opportunities for themselves and their families in their new adopted home, and have used their minority status to their advantage.

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**Keywords:** adaptation, migrant population, work environment



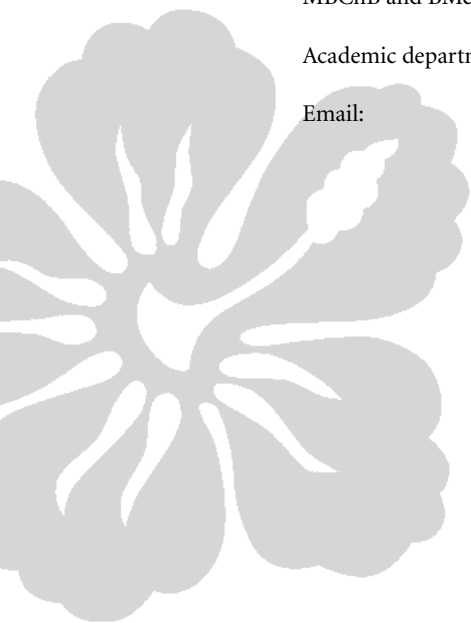
## SHIVA NAIR

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Shiva was born and brought up in Suva, Fiji. He started his tertiary education at the University of the South Pacific, enrolled in a Bachelor of Science programme. He has been at the University of Otago since 2000 and has established well, particularly with regard to Pacific Island affairs on campus. He is currently enrolled in the MBChB and BMedSci(Hons) programmes.

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## THE NEUROPROTECTIVE EFFECTS OF MELATONIN IN STROKE-INDUCED BRAIN DAMAGE, VIA MODULATION OF L-ARGININE METABOLISM.

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**Shiva Nair, Rosanna Rahman and Ian Appleton**

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Currently, there are no agents that can prevent the neurodegeneration which occurs after a stroke. Melatonin, a pineal hormone, has recently been shown to exhibit neuroprotective effects against acute focal cerebral ischaemic damage; possibly by acting as a free radical scavenger. However, hitherto, the mechanisms of these neuroprotective effects have not been determined. Therefore, this project explored the mechanism(s) by which melatonin acts as an acute neuroprotective agent post stroke.

Male Sprague-Dawley rats,  $285 \pm 15$ g underwent a 2-hour transient middle cerebral artery occlusion by filament insertion. Rats were treated with 5mg/kg i.p. melatonin or vehicle (5% DMSO in 0.9% saline) for 3 days. Brain damage was assessed histologically at 72 hours post stroke with the use of 2, 3, 5 – triphenyltetrazolium chloride stain. We focused on pivotal inflammatory enzymes, namely nitric oxide synthase (NOS) and its product, nitric oxide which breaks down to nitrite, and the enzyme arginase.

A decrease in infarct volume in the melatonin group ( $P < 0.05$ ; Mann Whitney U test) compared to controls was observed. A significant decrease in nitrite levels occurred with melatonin treatment ( $P < 0.001$ ) compared to non-intervention controls. Elevation of inducible NOS activity was seen in the vehicle treated group in comparison to control and this was reduced towards normal (non intervention controls) with melatonin treatment. This study clearly demonstrated that melatonin is a key mediator in the post-stroke neuronal inflammatory response. In addition, this is, in part, due to its inhibition of the enzyme NOS as well as its free radical scavenging properties on its product nitric oxide.

*This research is supported by a grant from the Health Research Council of New Zealand (SN), Bright Future Fellowship NZ (RR) and Lottery Health New Zealand (IA).*

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**Key words:** stroke, melatonin, inflammation

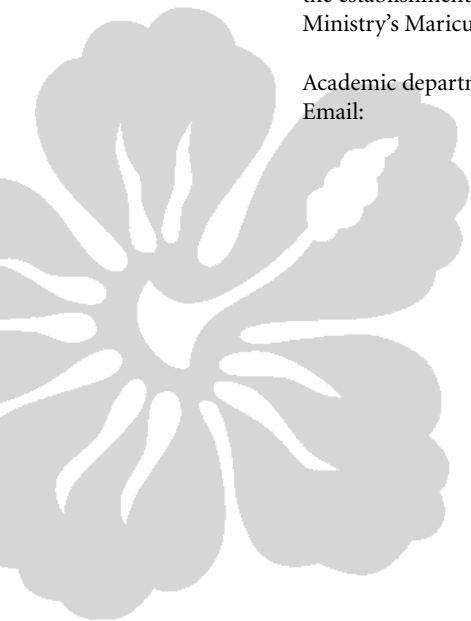


### POASI FALE NGALUAFE

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Poasi was born in Tonga (Neiafu, Vava'u) and, after leaving secondary school, he worked for the Ministry of Fisheries as a Lab Technician. He holds a Diploma in Applied Science from the University of Tasmania and a BSc in Aquaculture and Marine Biology from James Cook University. The highlight of his career in fisheries was the establishment of the cultured techniques for giant clams at the Ministry's Mariculture Centre.

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THE REPRODUCTIVE BIOLOGY OF  
THE COMMERCIAL SEA CUCUMBER  
*HOLOTHURIA SCABRA VERSICOLOR*  
(ECHINODERMATA: HOLOTHUROIDEA)  
IN TONGAN WATERS

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**Poasi F Ngaluafe**

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Sea cucumber or ‘bêche-de-mer’ fishery is the second most important commercial inshore fishery in Tonga. Currently, this fishery has been totally banned from any commercial fishing since 1995. However, *H. scabra versicolor* (commonly known as sandfish) is one of the highly priced sea cucumber widely distributed in coastal regions throughout the Indo-Pacific region including Tonga. Therefore, further research is required to gain a better understanding of the reproductive cycle and spawning cues of *H. scabra versicolor*.

The aim of this study is to investigate the reproduction of sandfish in Tonga by: (1) determining the breeding pattern of *H. scabra versicolor*; (2) identifying the timing of gametes mutuality; and (3) determining whether gametogenesis is continuous or seasonal. The specimen will be collected from two different populations (inner reef flat and seagrass communities) over a six month period. Each specimen will be measured for total length (TL), body-wall (BW), and gonad weight (GW). Gametogenesis will be examined using histological observation. The individual maturity stage will be also determined according to the maturity stage of the dominant tubules (stage 1: indeterminate (recovery); stage 2: growing; stage 3: mature; stage 4: partly spawned; stage 5: spent) in the gonads. Overall results will be compared with other previous studies in the Indo-Pacific regions to verify any abiotic or biotic factors that might cause any effect on the reproductive pattern of the *H. scabra versicolor* in Tongan water. Assessment of whether gonad maturation is either continuous or seasonal throughout Tongan water is significant. These results could also assist the Aquaculture Section at the Ministry of Fisheries in Tonga with the establishment of culture techniques for *H. scabra versicolor* in the future.

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**Keywords:** bêche-de-mer fishery, maturation, Holothuroidea, gonad morphology

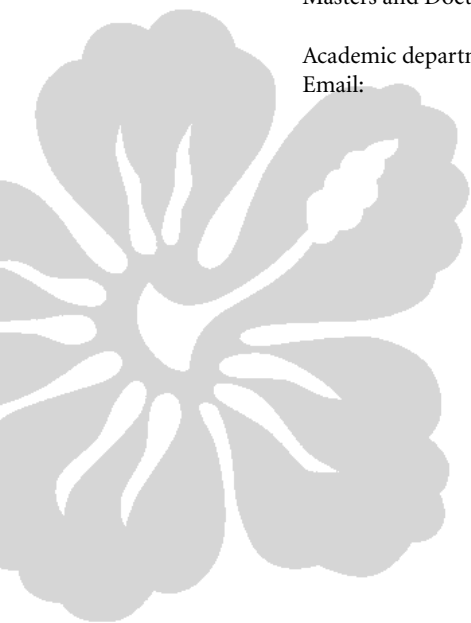


## JANET PEREIRA

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Janet is a researcher and primary teacher. She lived and taught for many years in Samoa. Janet is presently working on a doctorate relating to primary education in Samoa. In 2002 she was awarded a University of Otago Postgraduate Award and a Winston Churchill Fellowship. She has presented a range of papers relating to her Masters and Doctorate research.

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# SPARE THE ROD AND SPOIL THE CHILD: ALTERNATIVE PERSPECTIVES ON RESPONSIBLE PARENTING FROM SAMOA

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**Janet Pereira**

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Within each cultural group there are different beliefs, values and understandings that shape the way people go about relating to and disciplining children. In Samoa, children and adults generally believe that there is a place for reasonable physical discipline. Furthermore, children and adults believe that the way many Pakeha parents and teachers relate to children is socially irresponsible. From a Samoan perspective, raising children as good citizens involves ensuring that children know how to behave appropriately and if necessary, using physical discipline to achieve this.

This paper represents a small part of a PhD project. The presentation is based on interviews with rural and urban primary students, their teachers and parents in Samoa. The study has significant implications for educators, social workers and policy makers in New Zealand in that Samoans represent half of our rapidly growing Pacific population. It is critical that researchers and practitioners recognise and attempt to understand Samoan perspectives on what constitutes good parenting.

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**Keywords:** Samoa, physical discipline, parents



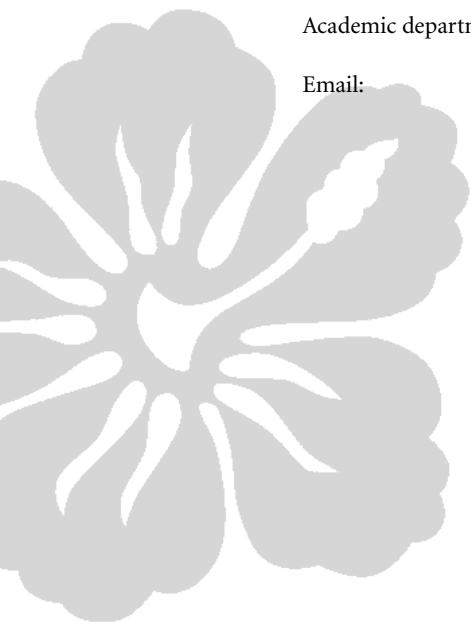


### LISHA SABLAN

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Lisha was born in Guam and grew up in Samoa. She is of Samoan/Chinese descent on her mother's side and Chamorro/Spanish on her father's. Lisha completed a BSc in Genetics and a BSc in Biochemistry at the University of Otago before undertaking her MSc (Genetics). Lisha is currently in the thesis year of that degree.

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## HOX GENES AND THE HONEY BEE *APIS MELLIFERA*

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**Lisha Sablan**

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One of the oldest questions in biology concerns the types of mutations which contribute to morphological evolution. Evolutionary Developmental Genetics (Evo-Devo) shows that greatest potential for evolution lies in a small number of genes that control embryonic development. My research focuses on one group of these: the *Hox* genes.

The *Hox*, or homeotic, genes encode homeodomain transcription factors that are important developmental regulators, acting together to determine regional specificity along the anterior–posterior axis of the developing embryo. These genes are highly conserved, having been found in all animal phyla studied, yet surprisingly, play a role in the development of vastly different body plans.

I have cloned a number of *Apis mellifera Hox* genes and examined their embryonic expression patterns using Insitu Hybridization. The arthropods represent an important system in which to study *Hox* genes due to their huge morphological diversity. Comparative studies of the *A. mellifera* genes and those of other arthropods will provide the basis for understanding how the unique morphology of *A. mellifera* evolved. Studies show that modifications in *Hox* gene function (genetic changes) together with the evolution of novel developmental pathways can provide the basis for morphological diversity between species. Bioinformatics and Phylogenetics will be used to determine the relevant genetic changes that have allowed for the differences in *A. mellifera* and representative arthropod group members *Hox* gene functions.

Although the *Hox* genes have been shown to be fairly highly conserved, in the arthropods two genes, *fushi tarazu (ftz)* and *hox3/zen/bicoid (bcd)* have lost their ancestral *Hox* roles and now play roles in earlier embryonic patterning. I have also completed cloning and expression studies with these two “rogue” genes. I am interested in what and when mechanisms evolved to allow these genes to change roles.

Studies such as this add to our understanding of the key genetic and developmental changes which have enriched the diversity and disparity of life.

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**Keywords:** *Hox* genes, developmental biology, evolution

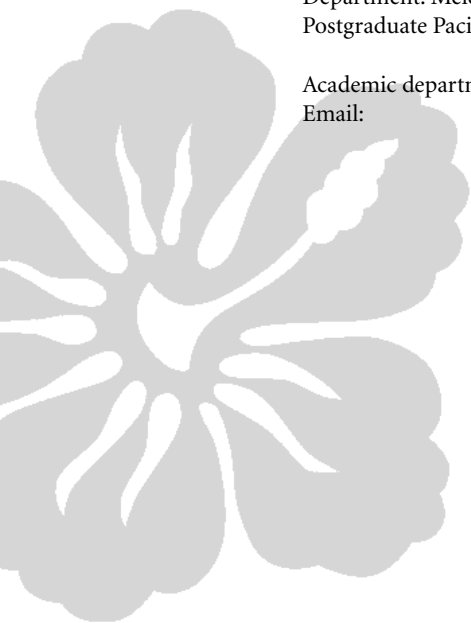


### MELE MA'ATA TAUMOEPEAU

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Mele is of both Tongan and Scottish descent. She and her family moved to New Zealand from Tonga in 1984. She did her first degree in Linguistics and Psychology at Victoria University and later trained as a Speech and Language Therapist in Edinburgh, Scotland. Mele is currently doing her PhD in Child Development in the Psychology Department. Mele is a recipient of an HRC of New Zealand Postgraduate Pacific Career Development Award.

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## MOTHER AND INFANT TALK ABOUT MENTAL STATES RELATES TO DESIRE AND EMOTION UNDERSTANDING

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### Mele M Taumoepeau

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Research with older preschoolers suggests that parental use of mental state language plays an important role in the development of false-belief, emotion and general theory-of-mind understanding. Very little research however, has examined mental state language directed at infants. This is important, first, because the period of language development prior to 2 years plays host to a burgeoning of general vocabulary and conversational development. Second, parental use of desire terms (but not belief terms) directed at 2-year-olds has been shown to predict a child's first reference to belief, suggesting an independent role for desire in the later understanding of mental states.

To address these issues, this study assessed the relation between mother mental state language and child desire language and emotion understanding in 15- to 24-month olds. At both time points mothers described pictures to their infants and mother talk was coded for mental and non-mental state language. Children were administered two emotion understanding tasks and their mental and non-mental state vocabulary levels were obtained via parental report. The results demonstrated that mother use of desire language with 15-month old children uniquely predicted a child's later mental state language and emotion task performance, even after accounting for earlier child language, mother socioeconomic status, mothers' own emotion understanding, and other types of mother language. In addition, mothers' tendency to refer to the child's (rather than others') desires was the more consistent correlate of mental state language and emotion understanding.

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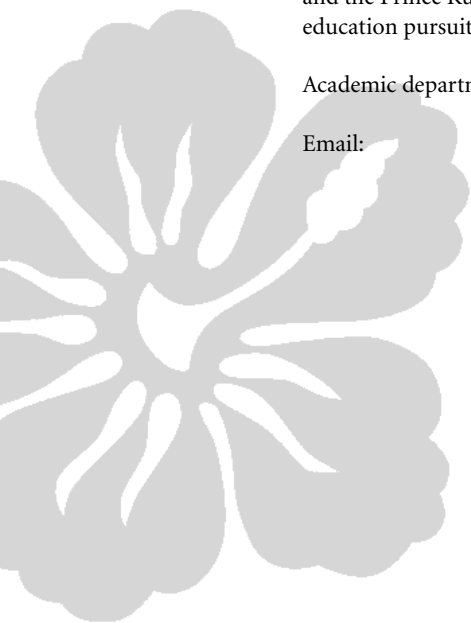
**Keywords:** theory of mind, desires, emotions, mother mental state language, infants



K L NĀLANI WILSON

Nālani links her genealogy to the Hawaiian archipelago and Colorado Rocky Mountains of North America. She is of Native Hawaiian and European American descent and feels a deep affiliation to both of her homelands. She would like humbly to acknowledge The Native Hawaiian Leadership Project, 'Aha Pūnana Leo-Lamakū', and the Prince Kūhio Hawaiian Civic Club for funding her doctoral education pursuits in Aotearoa New Zealand.

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# HŌ'IKE I NĀ IKENA PAKIPIKA: A PATHWAY TO INCORPORATING PACIFIC EPISTEMOLOGIES IN ENVIRONMENTAL EDUCATION

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**KL Nālani Wilson**

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The goal of this research is to explore how environmental education programs can provide a forum for Kānaka Māoli, or Native Hawaiian, and, in the case of Aotearoa, Māori epistemological perspectives. Venturing out of the classroom can offer students intellectual, conceptual and physical challenges that are only possible in the natural world, such as exploring mountain ridges, valleys and coastal regions to learn about native ecosystems, the indigenous place names of our island homes and the histories and stories of our land, ocean and people.

Outdoor experiential education is in the process of developing new ways of incorporating diverse epistemological views of the world and, more specifically, the natural world. Globally, indigenous epistemologies are seldom recognized in the field of environmental education; yet, as curricula are becoming more localized and place-based, understanding indigenous wisdom and knowledge is crucial. Outdoor education can only be enhanced by broadening the scope of cultural and environmental history in the places explored by students and educators.

The purpose of this study is to honour the first peoples of our island homes by incorporating Pacific ways of knowing and connections to place. It will also investigate and analyse the theories surrounding “outdoor”, “experiential” and “environmental” education to determine how it can be more appropriately localized.

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**Keywords:** Native Hawaiian, Kanaka Maoli, epistemology, environment, education

## RIDVAN FIRESTONE

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Riz is a Samoan-born health researcher. She was a recipient of a HRC of New Zealand Pacific Island Postgraduate Career Development Award in 2003 and holds a Master of Public Health degree. Riz's doctoral study examines the risk of obstructive sleep apnoea syndrome (OSAS) among taxi drivers, as well as identifying the barriers to care for the assessment and treatment of OSAS.

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## THE RISK OF OBSTRUCTIVE SLEEP APNOEA SYNDROME AMONG TAXI DRIVERS: A PUBLIC HEALTH CONCERN

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**Riz Firestone and Philippa Gander**

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The risk of obstructive sleep apnoea syndrome is a growing concern amongst taxi drivers. The objectives of this study were to: (1) document general sleep habits; (2) estimate the likelihood of obstructive sleep apnoea syndrome (OSAS) among a sample of Wellington taxi drivers.

An adapted version of a questionnaire used to screen for risk factors for obstructive sleep apnoea (OSA)<sup>1</sup> was distributed to 651 drivers. The questionnaire has been used to develop a multivariate predictive tool to estimate a probable risk of OSA using a threshold of at least 30% (Apnoea Hypopnoea Index (AHI)  $\geq 15$  /hour)<sup>2</sup>.

The overall response rate was 41.3% (n=241), average age 53.0 years, participants were predominantly male (89.6%). Excessive daytime sleepiness (ESS>10) was reported by 15.7% of all taxi drivers and was significantly higher amongst Pacific Island drivers (38%) compared with other ethnic groups (13%) and Māori (25%) ( $p<0.005$ ). The estimated pre-test risk of OSA across all drivers was 18%. There was a significant difference of risk (for OSA) between ethnic groups, which was particularly higher among the Pacific Island group (50%).

This study suggests that Māori and Pacific Island taxi drivers are more likely to report subjective sleepiness. The high prevalence of excessive daytime sleepiness (15.7%) and pre-test risk of OSA (18%) is a cause for concern and this warrants further investigation.

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**Keywords:** obstructive sleep apnoea syndrome, excessive daytime sleepiness, sleep habits

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<sup>1</sup> Harris R. Obstructive sleep apnoea syndrome: symptoms and risk factors among Māori and non-Māori adults in Aotearoa. Master of Public Health thesis, Department of Public Health, University of Otago; 2003.

<sup>2</sup> Mihaere K, Gander P, Reid P, Grunstein R, Neill A. Prevalence of obstructive sleep apnoea amongst adult Māori and non-Māori in a New Zealand community sample. *Sleep* (26), 2003, (Abstract Supplement), A237.



## PEFI KINGI

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Pefi is a daughter of Niue, born and raised; and educated in Niue, New Zealand, with a stint in USA. Pefi has a long history in Pacific, youth and community development. She has worked across many sectors of education, consumer affairs, and mental health, and currently proactivates commitments and services on behalf of NIU Development Inc., including problem gambling amongst Pacific Peoples.

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## “NIU ACTION”: RESEARCH AND PRACTICE – THE NATIONAL PACIFIC GAMBLING SERVICE

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**Pefi Kingi**

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Fakaalofa lahi atu ki a tautolu e tau takitaki a anoiha.

Pacific problem gambling service provision is premised on the understanding that Pacific Peoples are six times more likely to develop problem gambling<sup>1</sup>. It is a health model founded and structured on some basic Pacific cultural principles and Papaalagi models of education, primary prevention and public health delivery.

Pacific Peoples need to be a lot more aware of the pandemic and silent killer that is speedily intruding, sweeping through and affecting our Pacific communities. The National Pacific Gambling Service, umbrella-ed by the NIU Development Inc., has found that all Pacific Peoples are affected, from the Cook Islands, Fiji, Niue, Samoa, Tokelau, Tonga, and Tuvalu. Pacific problem gambling is a serious and emergent illness and it is a field supported by more anecdotal evidence than research. NIU Development Inc. provides a primary health service in Auckland, Wellington and Christchurch, and although it exceeds its contractual obligations it still perceives it is not doing sufficient to combat this new intrusive health problem. This paper will present an overview of Pacific developments in problem gambling.

Kia fakamonuina mai e Ia e tau amaamanakiaga he Fono.

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<sup>1</sup> Abbott, M.W. & R.A. Volberg. 1999. *Taking the Pulse on Gambling and Problem Gambling in New Zealand: A Report on Phase One of the 1999 National Prevalence Survey*. Wellington: Department of Internal Affairs. In association with Statistics New Zealand.

TAMASAILAU M. SUAALII-SAUNI

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Tamasailau lectures in Social Research Methods; Ethnicity and Identity; Law, Inequality and the State; and Youth in Society at the University of Auckland. She is a senior researcher and has held research positions with the Clinical Research and Resource Centre, Waitemata District Health Board, and with the Pacific Health Research Centre in the Department of Māori and Pacific Health, University of Auckland. With Alison Jones and Phyllis Herda Tamasailau co-edited *Bitter Sweet: Indigenous Women in the Pacific* (University of Otago Press), and published book chapters and an article for ChildreNZ on consent issues in research. Her research interests lie in the interstices of law, sociology and health, with a specialty in Pacific peoples in New Zealand.

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## THE ROLE OF TRANSLATION IN 'PACIFIC' SOCIAL SCIENCE RESEARCH

**Tamasailau M. Suaalii-Sauni**

This paper explores the role of translation in 'Pacific' social science research by examining and comparing the rationale, process and reception (by interviewers and participants) of the translation techniques and outcomes used in a New Zealand-based 'Pacific-specific' quantitative and qualitative study.

The quantitative study is a pan-ethnic (Pacific) specific survey titled *The Pacific Alcohol, Drugs and Gambling Survey*<sup>1</sup> conducted from mid-November 2002 to July 2003 using telephone and cell-phone computer assisted interview survey methods. The survey was translated into four languages: Samoan, Tongan, Cook Islands Māori and Niuean. Twenty percent of respondents were interviewed in one of the Pacific languages. The main reason for translating the survey questionnaire was to enable more Pacific people to participate.

The qualitative study is titled *The Roles and Responsibilities of Some Samoan Men in Reproduction*<sup>2</sup>. Eighty (80) individual life-story interviews were held with Samoan participants aged between 18 and 81 years. The ability to translate the aims of the research to potential participants and to conduct the life-story interview in the ethnic language was equally important for enabling 'depth' to participation.

Reflecting on the findings and processes used in the translation aspects of these two studies, I contend that the power of language cannot be underestimated as a source for gaining ethnic minority participation in social science research. This paper reflects on the findings of these two studies and uses them to debate the role of translation in social science research that seeks to be 'representative'.

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**Keywords:** Pacific research, translation techniques

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<sup>1</sup> Pacific Research and Development Services & Social and Health Outcomes Research and Evaluation Centre/Whariki. 2004 *Pacific Drugs & Alcohol Consumption Survey 2002/2003: final report*, Auckland: Massey University.


<sup>2</sup> Anae, M., Fuamatu, N., Lima, I., Mariner, K., Park, J and Suaalii-Sauni, T. 2000. *Tiute ma Matafaioi a nisi Tane Samoa i le Faiga o Aiga: the roles and responsibilities of some Samoan men in reproduction*, Auckland: Pacific Health Research Centre, University of Auckland.

## FAAFETAI TELE LAVA

The Pacific Postgraduate Reference Group was established in late 2002 to support our research students via monthly seminars and meetings – a place where they could bring their frustrations and ideas, seek support from one another, and offer support too. This concept led on to the idea of an annual symposium and the birth of ‘Pacific Voices’. The first symposium was held in 2004.

‘Pacific Voices II’ has come together due to the kindness of many people who gave their time, intellect and experience to ensure that our students’ voices are heard. Once again, I would like to thank the editorial team - Dr Claire Matthewson, and Mele Ma’ata Taumoepeau – for working tirelessly in making this dream come true; Nālani Wilson for being our photographer; the Director of Student Services, David Richardson, for his continued support and encouragement; Professor Tania Ka’ai for her support and participation, and Dr Charles Tustin for his words of wisdom. Special thanks are given also to Professor David Skegg, Vice-Chancellor, for his opening address and, most of all, to the stars our students. Thank you.

I am sure that the beautiful aria and tenor of ‘Pacific Voices’ will continue to resonate for many moons to come, a poem in their right: a gift to be cherished.



*Sing our words  
our lyrics  
the songs of our parents  
the dreams of our fanua  
Aotearoa le laumua  
Aotearoa is now home*

*Set high the tune  
for our generations to come  
Set high the standard  
I le fua ua taatia  
Weave the afa  
the fala  
the songs  
to our lyrics  
Sing louder  
O Aotearoa o lau lea  
Pese ma le loto  
Laga la ta pito laau  
High the tune  
let it be heard  
louder and louder  
listen...oh what beauty*

**Nina Kirifi-Alai**  
Manager – Pacific Islands Centre

## APPENDIX I

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### **Opening Address by Dr P H Meade, Deputy Vice-Chancellor (Academic) Pacific Voices Postgraduate Symposium 24 September 2004**

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Talofa Lava, Kia Ora and welcome to the Pacific Postgraduate Symposium. This symposium promises to be both useful and interesting to participants and I congratulate the organisers for their efforts.

Currently in New Zealand there are over 15,760 Pacific Island students in tertiary education: that is polytechnics, colleges of education, universities, wananga and private tertiary education providers. This equates to 4.7% of the total number of students in New Zealand tertiary education. Nearly 5000 of those students are undertaking university study, with just over 600 studying for postgraduate qualifications. At the University of Otago as of 2003 the number of Pacific Island students enrolled is slightly lower, at 2.4% and has increased from 2.0% back in 1999.

The percentage of Pacific peoples in New Zealand is expected to double by 2051 and the average age of Pacific peoples is currently younger than other population groups in New Zealand. Therefore, it is essential Pacific peoples are healthy, well educated and highly skilled so they can take part effectively and contribute positively in all areas of New Zealand society. There is consistently strong evidence of the great importance that Pacific families place on education generally and, increasingly, on tertiary education in particular.

A recent Ministry of Education study of Pacific Island students who had successfully completed their tertiary education from a wide range of institutions found that one of the keys to achieving such success was the amount of support students received from services offered by the institutions, from family and friends and from peer groups. Many felt support services were important, especially for new entrants to tertiary education because it is an experience that many are not equipped for and need guidance and motivation from Pacific role models or people who know the system. Peer group support is important because it encourages sharing of ideas and information and offers students the opportunity to discuss both the challenges and success they experience along the way. What their narratives revealed is that these students have succeeded because:

- many have had supportive family environments and/or supportive peers and friends in which a balance has been struck with regard to family obligations and commitments;
- most participants had positive role models (either teacher, parent, family member, older student/mentor);
- those that knew about support groups available to them, actively sought their assistance and necessary information, and attended PI tutorials.

The University of Otago offers Pacific Island students an extensive support network to assist them whilst undertaking the 'Dunedin Experience'. The Pacific Island Centre is a valuable resource for Pacific Island students, providing both support and advice. Of the 406 Pacific Island students enrolled at Otago in 2003, 255 registered with the centre. The centre provides and assists in organising tutorials, career advisory services seminars, course advice, student gatherings, community meetings and consultation, community functions, student counselling, and of course postgraduate seminars such as this. The Pacific Network on Campus and the Pacific Islands Community Organisations associated with the University's Pacific Island Centre are extensive and well supported.

For postgraduate students, the Student Learning Centre offers a number of services. The Centre is a resource library containing a selection of books on thesis writing and motivational issues. A variety of courses are run which are specifically designed for post graduate students, such as those which deal with preparing a research proposal, literature review, motivation and procrastination and how to improve your writing and grammar. The Centre also offers small group sessions and one-on-one consultations.

The University conducts annual student opinion surveys and graduate opinion surveys. These surveys are extremely useful as a means of improving the services available to Otago students and I'd like to share with you some of the results from the 2003 Student Opinion Survey. (*Responses on the handout*)

In terms of postgraduate study, respondents of all ethnicities in the 2003 student opinion survey, 88% of respondents, agreed that their home departments provided a climate supportive of postgraduate research; 86% were satisfied with the quality of the support they received from the University, and 81% were satisfied overall with the quality of supervision. A little lower than the previous statistics, 70% of postgraduate students said their supervisors encouraged

them to make seminar or conference presentations and to publish material as appropriate. It is this point that I'd like to discuss now how important it is to begin publishing material now, while you are postgraduate students.

As postgraduate students, it is important for you to begin publishing during your postgraduate years. Professor Royce Sadler (1990) has written a guide to publishing, in which he lists ten benefits of publishing, which are on the handout I've given you:

1. publication demands highly disciplined writing, and therefore clear and precise thinking. Writing itself facilitates thinking, helping you to clarify your logic. Reviewers' reports, even if negative can provide you with valuable new insights into a problem;
2. publication places your work under open professional scrutiny. This is one of the hallmarks of academic inquiry;
3. publication contributes to the scholarly literature in a field. In both research and teaching, academics set great store by published research findings;
4. publication reaches a wide international audience;
5. quality journals are usually widely and professionally indexed or abstracted. This gives even non-subscribers access to your work. Furthermore you can see how your article is being used, and the impact it has, by consulting citation indexes;
6. publication identifies you with a domain of research or scholarship, and facilitates contact with other professionals working in the same area, even if they have published little themselves;
7. publication in journals is economical... compared with dissemination through conferences;
8. [aimed at the working academic]: publications improve your academic credibility with students;
9. publication enhances your academic reputation, that of your department and that of your college or university. Although there are no direct financial rewards in publishing an article, there are considerable indirect rewards in terms of one's career: appointment, promotion or tenure;
10. publication is fun: you can get lots of personal satisfaction out of it.



To summarise, publishing is an important aspect of academic life:

- publication as a performance indicator and necessary for professional advancement;
- publication as an integral part of research and academic inquiry;
- the application of the skills involved in writing and publishing beyond the academic world.

A recent Australian study conducted to establish the extent of employer satisfaction with the skills of new graduates entering the labour market found that the reasons for recruiting graduates as opposed to non-graduates is:

- to provide a sufficient tool for future middle and senior managers;
- to fill the need for trained and educated people in areas requiring professional or highly skilled personnel;
- to introduce new ideas and techniques into workplace organisations.

The research suggests that the following skills may be sought in new graduates through the recruitment process:

- academic achievement in a suitable discipline
- literacy
- numeracy
- basic computer skills
- time management skills
- written business communication skills
- oral communication skills
- interpersonal skills
- teamworking skills
- problem solving skills
- comprehension of business processes.
- research and analysis skills
- leadership skills

The criterion on which employers put most weight on in recruitment, other than certain personal attributes, is academic achievement. While this usually needs to be in a relevant subject area, high academic achievement is taken as indicative of intellectual capability, capacity to learn, and motivation to pursue and achieve high goals. Employers in this study were also asked whether they were dissatisfied with graduate skills, and the one reoccurring theme was the dissatisfaction with graduates' written communication skills.

An opportunity for the sharing of information, peer-interaction and networking that a symposium like this provides is invaluable and I trust that you make the most of this opportunity and enjoy the day.



## Pacific Voices II

Pacific Postgraduate Symposium

30 September 2005

Pacific Islands Centre

University of Otago

Dunedin

New Zealand