It takes an island and an ocean

Selected papers from the third
Vaka Pasifiki Education Conference

Edited by
Seu'ula Johansson-Fua, Mo'ale 'Otunuku, Ruth Toumu'a

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Cover artwork

At this time
Acrylic on canvas by Lingikoni Vaka'uta, 2019.
The artwork speaks to the challenges of our time in the Pacific Islands. The bird represents the younger generations that need to be nurtured and empowered. The basket represents the benefits and challenges that we face and carry with us. The woman represent our parents, grandparents and our ancestors and their knowledge and wisdom that benefits us and which we try to pass to our children.

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It takes an island and an ocean to raise a Pacific child

Edited by

Seu'ula Johansson-Fua
Mo'ale 'Otunuku
Ruth Toumu'a

2020

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Introduction

Dr Seu'ula Johansson-Fua, *Director, Institute of Education, The University of the South Pacific*

The title of this book, 'It takes an Island and an Ocean' is taken from the theme of the Vaka Pasifiki Education Conference of 2018 *It takes an island and an ocean: Rethinking Pacific Education for resilient, healthy communities*. The Vaka Pasifiki Education Conference of 2018 was held at The University of the South Pacific's Laucala Campus in Suva, Fiji from the 5th to the 6th of July, and formed part of the 50th Anniversary of the University that year.

The conference in 2018 marked the fourth education conference since the Rethinking Pacific Education for Pacific People by Pacific People (RPEIPP) activities were completed. The first was in 2011 and the movement then continued to evolve, eventually officially taking on the name Vaka Pasifiki Education Conference in 2014, making this the third conference of that name.

What is Vaka Pasifiki?

Vaka Pasifiki has both literal and richly metaphorical meanings. In a number of Pacific languages vaka or waka is literally understood as a means of sea transport, and most commonly refers to ocean-going sail boats and canoes. Pasifiki is a transliteration of the English word Pacific in a distinctly Pacific form, and refers collectively to the island dwelling Oceanic peoples.

Metaphorically, Vaka Pasifiki captures the essence of a vessel for, and of, our Pacific people. Vaka Pasifiki is inclusive of the many and diverse cultures of those who carry an educational vision forward; the means by which they carry it and are carried by it; and the reason it is done.

The destination of Vaka Pasifiki is, as yet, uncharted. It is dependent on the clarity of the collective visioning of Pasifiki people, who alone can forge new Oceanic paradigms, define and navigate to a destination which is sustainable and in which Pasifiki flourishing is assured. Vaka Pasifiki must be open and able to see and utilise the navigational wisdoms of its people. It must "ride low, close to Oceania: so that we feel the currents", and strive to be ever responsive to the hopes and aspirations of Pacific peoples, serving them with humility, respect and courage.

Vaka Pasifiki, therefore, is an educational movement, supported by "ordinary people with extra-ordinary dreams!" It is the initial name for the emerging Indigenous Pacific Research School of Thought. We invite you to journey with us.

What is the Vaka Pasifiki Education Conference?

Vaka Pasifiki Education Conference provides an opportunity for the sharing of ideas, presentation of research and best practice, and discussion of issues relevant to teacher education, educational policy and practice, and teaching and learning in Oceania.

The Vaka Pasifiki Education Conference is hosted by the Institute of Education as part of its role as secretariat to the Pacific Education Research Foundation (PERF) that founded the Rethinking Pacific Education initiative that is the RPEIPP. The Vaka Pasifiki conference is hosted in collaboration with national ministries of education and national universities/ teacher education institutions of hosting country. In the past, this has included Tonga Ministry of Education and the Tonga Institute of Education (Vaka 2014), the Solomon Islands Ministry of Education, Human Resources and Development and the Solomon Islands National University (Vaka 2016) and the Fiji National University (Vaka 2018). Through generous donations, conference fees and corporate sponsorships from various businesses around the Pacific we have managed to fund the Vaka Pasifiki.

Since the first conference in 2011 in Laucala, Suva Fiji, we have hosted the Vaka in Tonga, in Solomon Islands and in 2018 returned the Vaka to Fiji. Through this 'journey' the Vaka has extended its reach to include teachers, school principals, education officers, research students, teacher educators, educational administrators and educational leaders in the journey. We have also extended the Vaka to include Pasifiki people from the diaspora as well as Oceanic researchers from Australia, New Zealand and beyond. We have grown from a small gathering of 60 people to 500 registered for a Vaka conference.

But our journey has also been an opportunity to learn new forms of 'conferencing' that reflect our vast Ocean home. As such we have explored new platforms for hosting the Vaka and new (but old) forms of communicating and sharing our stories. These platforms are efforts to reflect our diversity and our willingness to be inclusive, to bring in our voices and our processes into the gathering.

What is the new platform for the Vaka Pasifiki?

In the 2018 Vaka Pasifiki we introduced four new platforms for the expressing of ideas and sharing of learnings at the Vaka Pasifiki Education Conference.

1.Tok stori drawn from the Melanesian approach to storytelling and consensus building. Participants were invited to Tok stori on the sub theme of 'Pikinini blong mi'. The Tok stori sessions were 'chaired' by a Melanesian scholar. The Tok stori sub theme focused on the Pacific child, with questions about our children's health, their safety, aspirations and challenges.

2.Ako is drawn from the Polynesian term that is a reference to learning and education. In this sub theme participants were invited to focus on the learning context for the Pacific child, by drawing on the Polynesian traditional notion of learning – that is based on demonstration of skills and sharing of knowledge from a relational perspective. In this sub theme, the participants explored learning for the child, through formal, informal and non-formal learning, new pedagogies that are emerging and exploring the relevance of their learning to an increasingly diverse, fluid and changing world.

3.Maneaba is based on the Kiribati traditional governance system where the community's issues are presented, debated and resolution is agreed upon. This was an opportunity for critical reflection for the Pacific regional organizations that serve the education sector. This sub-theme included participants from the USP, the SPC, national universities, development partners and international universities and institutions who were interested in Pacific education and their role as regional educators. The Maneaba session deliberated on issues of regionalism, relevance, purpose and shape of future regionalism. The Maneaba was guided by His Excellency the High Commissioner of Kiribati to Fiji, Mr. David Ateti Teaabo with kind permission granted by the Kiribati government to utilise this knowledge forum.

4.Lan is based on the Marshallese language that refers to the sky. In this session we invited the star gazers, the navigators, the Moana and the Maui to take us further, to dream for us a new space, and to draw up a new direction to go forward. This sub theme invited innovators, creators, builder, designers, crafters, artists, musicians, poets, dancer and performers to share aspirations and hopes for our children and our future. In this sub theme, we hosted demonstrations of ideas and concept papers through art

(different forms) poetry, oratory, music, performance, as well as the use technology and traditional media for expression of ideas.

Our experience with the new Vaka platforms has encouraged us to continue with these platforms into future Vaka Pasifiki Education Conferences. We also recognised that there was some shortfall in the logistics and also the eventual publication of 'papers' from the conference. In shifting the platform for the Vaka, we had not fully prepared for the shift required in the logistics as well as in the reporting of such a dynamic new platform. But that is part of the journey, we learn and continue to grow as we weave a stronger 'sail' for our Vaka.

This book presents selected papers from the Vaka Pasifiki Education Conference 2018. The publication of these articles has been deliberately published as an e-book, making it freely available and accessible for our Pacific students and researchers who have traditionally been marginalized in accessing these scholarly articles. Most of the articles presented in this book are drawn from the Ako sessions with a few articles from the Lan sessions. It seemed to suggest that these sessions were the easiest to be translated into this written form. We will continue to explore future Vaka, more relevant ways to present ideas and stories from the Tok Stori and the Maneaba platforms.

There are a total of 14 papers presented in this e-book covering various topics from Pacific languages to home-school relationships, Mathematics, open schooling, climate change, teacher education and tertiary education. Collectively, these papers represent the diversity of issues and challenges that we are facing in our education systems and the various efforts we are making to find relevant solutions.

The authors who have kindly contributed their writings also showcase a new wave of emerging Pacific scholars. They come from national universities, regional and from international universities and each have been welcomed on board the Vaka. The authors are Pacific people living in the Pacific countries, as well as Pacific people in the diaspora, as well as Oceanic people from around the region. We hope that this is an indication of the journey ahead for the Vaka and the new order of Oceanic regionalism.

References

Fua, S.J. 2017. 'Ilo. In: Peters M.A. (eds), Encyclopedia of Educational Philosophy and Theory. Singapore: Springer. https://link.springer.com/referenceworkentry/10.1007/978-981-287-588-4_13

Kavaliku, S.L. 1966. Educational re-organization for national development in Tonga. Wellington, Victoria University. (Unpublished Ph.D. thesis).

Sanga, K., Reynolds, M. 2020. Knowledge guardianship, custodianship and ethics: a Melanesian perspective. AlterNative 1-9 DOI: 10.1177/1177180120917481

Taufe'ulungaki, 'A.M., Johansson Fua, S., Manu, S., & Takapautolo, T. (2007) Sustainable livelihood and education in the Pacific: Tonga Pilot study. Suva, Fiji, Institute of Education, University of the South Pacific.

Thaman, K.H. Concepts of Learning, Knowledge and Wisdom in Tonga, and their relevance to modern Education, Prospects, Vol. XXV, No.4 December, 1995

Foreword

Professor Derrick Armstrong, *DVC (Research, Innovation & International), The University of the South Pacific*

In July 2018 I had the privilege and pleasure of attending the 4th Vaka Pasifiki Conference that was held at the University of the South Pacific. It was already a very important year for USP as we celebrated our 50th Anniversary as a regional university serving 12 Pacific island countries. These countries are both separated and united by the vastness of the Ocean. As such, the Ocean embodies so much meaning and identity for the diverse peoples and cultures of our region. The coming together of over 500 educators from every part of the region and beyond to share experiences, reflections and knowledge through their stories and the story-telling methodologies that characterise and unite people across distance, was a truly memorable experience.

The Vaka conferences had started from much smaller beginnings here in Fiji in 2011, but have grown in numbers of participants as well as in influence and importance over the years. I had my first and unforgettable experience of the Vaka Pasifiki community of educators when I attended the conference in the Solomon Islands in 2016. In the Solomons, as in Fiji in 2018, the passion for education that was shared between practitioners and academics committed to the role of education in the future of the Pacific was truly inspiring.

The challenges that go into organising a conference like this are quite remarkable and not always obvious to those who like myself had the pleasure of unencumbered participation. We owe a great debt to those gifted and resilient educators who have committed so much to founding, building and sustaining this movement which has allowed us all to benefit so much. The richness and diversity of the conference was inspiring and this was reflected through the celebration of oral story-telling approaches to learning together and the sharing of knowledge. I have no doubt that every participant in the conference has taken away things from the experience that have been life-changing.

This publication, for which I am honoured to write the Foreword, not only presents a selection of papers from the Conference but does so much more by capturing the spirit of that event. It allows those who participated in the Vaka to recapture and to further reflect on some of the important work that was presented and discussed. It also allows a wider

and perhaps new audience to become participants in the journey that is the Vaka Pasfiki. Education is the key to continuity of culture and to its continuous exploration and growth. In the Pacific context, the Vaka Pasifiki interwove across the cultures of the region, bringing us together, ever stronger, ever more sure of our identities and our unity of purpose, and ever more conscious of the contribution of education to the well-being and success of our region and its people. This important volume, and the larger Vaka Pasifiki conference that it represents, is testimony to all that shines brightly for the future of Pacific education and is a beacon to guide educators as they continue, or freshly embark upon, their journey.

Derrick Armstrong

Suva
July 2020

Our Editors

Dr Seu'ula Johansson-Fua is the Director of the Institute of Education at the University of the South Pacific. Seu'ula is Tongan and lives with her family on the island of Tongatapu. Seu'ula is an educational researcher with a deep interest in Pacific History and Indigenous Knowledge systems. She has been part of the Vaka journey since 2004 with the Rethinking Pacific Education Initiative (RPEI) that later evolved into the Vaka Pasifiki in 2011. She strongly believes and works hard to support regionalism and serving Pacific people.

Dr Mo'ale 'Otunuku is a Research Fellow at the Institute of Education of The University of the South Pacific. He is Leader of the Institute Research and Development Program. He has been a secondary school teacher in Tonga and in New Zealand before completing a MEd (Hons) and EdD from the University of Auckland. He joined the Institute in 2011 and have been doing research and development works around the Pacific region.

Dr Ruth Toumu'a is of PNG and NZ descent and married to a Tongan national. Ruth joined the IOE in 2013 and leads the Waka Publications Programme, which has been responsible since the 1970s for publishing culturally and linguistically relevant reading books and classroom materials for Pacific children, teachers and caregivers. Ruth's background in Applied Linguistics, TESOL and Education has led to research interest and experience in literacies, learner language analysis, curriculum and educational resource design for Pacific peoples in Aotearoa New Zealand and the Pacific region.

Our Contributors

Helene Jacot Des Combes

Dr Helene Jacot Des Combes obtained her PhD on "reconstruction of the paleoceanography and paleoproductivity variations in the NW Indian Ocean during the last 300 kyr: the geochemical response compared to the biological record", at the University of Lille, France, in 1998. From 2000 to 2008, she worked as a scientist at the Alfred Wegener Institute for Polar and Marine Research in Bremerhaven, Germany. She joined PaCE-SD as a Research Fellow. Currently, she is a Senior Lecturer in Climate Change Adaptation at USP. She has developed a training needs and gap analysis on TVET in 15 Pacific island countries for the 6 million Euro European Union Pacific Technical Vocational Education and Training on Sustainable Energy and Climate Change Adaptation Project (EU PacTVET). She was the Course Coordinator for the Postgraduate Diploma course on disaster risk reduction and also delivers guest lectures on the ocean response to climate change. Now, she is advising the Government of Marshall Island on climate change adaptation and disaster risk management.

Robert Early

Robert Early was the Director of the Centre for Pacific Languages and Associate Professor of Pacific Languages at the Emalus Campus of the University of the South Pacific in Vanuatu. He has carried out teaching, research and postgraduate supervision over a wide range of linguistic and Pacific language areas. He is actively involved in supporting Pacific governments and international agencies in language policy and planning, multilingual education, vernacular resource development, lexicography and translation.

Margaret Flavell

Margaret Flavell career in education has spanned across secondary and tertiary sectors, and across the UK and Aotearoa New Zealand. Born in the UK, she taught English there at secondary level. In the tertiary sector, she taught Literacy to adults and managed Adult Basic Education. Flavell came to New Zealand in 2008 to teach secondary English. Whilst working full-time, she embarked upon a master's degree in order to better understand Pacific students. Inspired by this learning, she successfully gained a scholarship at Victoria University of Wellington for full-time PhD study. Graduated in 2019, her thesis explored home-school relationships for secondary Pacific learners in New Zealand. She believes the theoretical frameworks that supported her study would be equally helpful to schools wishing to evaluate and develop their home-school practices for Pacific learners. Margaret lives with her husband on the Kapiti Coast in New Zealand, and is regularly to be found on the beach walking her dog. She has three grown-up children and one grandchild. She welcomes any opportunity for further research which extends the capacity of Pacific learners to excel in their education.

Sonia Fonua

Sonia Fonua is Papālangi (New Zealand European) and was born and raised in Aotearoa New Zealand. She is married to her Tongan husband and has two young sons who are her inspiration to improve the education system for all Pasifika. She has been working for fifteen years in foundation and bridging education for indigenous Māori and Pasifika students interested in pursuing a career in health. Building on her previous study in Anthropology, she is currently a part-time doctoral student in Critical Studies in Education within the Faculty of Education and Social Work, University of Auckland. Her research interests focus on ethnic disparities in education, and ways to embed indigenous (science) knowledge and develop effective teaching and learning methods for indigenous and minority students.

Peni Hausia Havea

Peni Hausia Havea spans more than 5-years working in the health care setting. He taught - communicable diseases, medical and surgical, psychiatric, obstetric and then simultaneously, supervising students at Tonga-based hospital, Vaiola. He was working as a HIV/AID counsellor, managing health clinic and counselling.

Now, he is leading the implementation of the Water, Sanitation, Hygiene (WASH) programs (i.e., DFAT, Australia) in Tonga. This 'WASH Recovery and Resilience in Tonga' project is one of the DFAT initiatives to Tonga when the nation devastates by cyclone Gita. His role is a Reviewer/Leading Consultant in developing Tonga's Health Nutrition (HN)-WASH Cluster SOP (Standard of Operating Procedure) manual. This Health Impact Assessment on climate change and disasters is universal so that it applies to other small islands states. As a Country Manager, for Live and Learn Australia in Tonga, Dr Havea managed these inter alia.

Robin Havea

Dr Robin Havea was born and raised in Tonga. After graduating with a BA (Dist) from 'Atenisi University (Tonga), he went on to complete a MSc (Hons) at the University of Waikato (NZ) and a PhD at the University of Canterbury (NZ) both in pure mathematics. His main research interests are in constructive mathematics and foundation of mathematics. In recent years he developed a special interest in the applications of mathematics particularly in robotics, climate change, crop modeling, and mathematics education. He joined USP as an Assistant Lecturer in September 2001 then climbed up the ladder to become a Senior Lecturer in Mathematics before relocated to his home country in July 2019 where he is currently the Director of USP Tonga Campus.

Peaua Tu'ipulotu Heimuli

Peaua Tu'ipulotu Heimuli has recently completed her Ph.D. at The University of the South Pacific, examining the potential of 'open schooling' to support second-chance education in Tonga. She is an educator and has been assisting the education of students in Tonga for over 33 years. Peaua worked as a teacher, deputy principal and principal at Tonga High School and onwards to becoming a Deputy Director and Acting Director for the Ministry of Education. She was also a science curriculum developer, an educational assessment and evaluation officer in Tonga, and has taught at The University of the South Pacific. Her professional experience further expanded with work attachment at the Queensland Department of Education, Harvard and Boston Universities and tertiary institutions in New Zealand. Peaua is the eldest of 11 children and she has 5 children of her own, hailing from the village of Ma'ufanga, Tonga.

Sarah Louise Hemstock

Sarah holds a PhD in bioenergy systems modelling from King's College London and is an author and adviser to the Alofa Tuvalu "Small Is Beautiful" project—recognised by UNESCO as one of its "Decade of Achievement Projects". She authored and led the €6 million European Union Pacific Technical Vocational Education and Training on Sustainable Energy and Climate Change Adaptation Project (EU PacTVET) at the Pacific Community (SPC). She was a Visiting Fellow at Nottingham Trent University is now an Adjunct Fellow of the University of the South Pacific where she led the €8 million Global Climate Change Alliance Project.

Her interest in the Pacific region began while lecturing at King's College London & as a consultant for Imperial College when she researched biomass resources in several Pacific small island developing states. Sarah is a founder of the Pacific Regional Federation of Resilience Professionals and was a member of the EU Intra-ACP Global Climate Change Alliance Steering Committee; and numerous international project steering committees. In 2010 she was made Government of Tuvalu Honorary Ambassador—Officer for Environmental Science.

Alister Jones

Alister Jones held various management roles in senior positions at the University of Waikato, such as directors of the Center of Science, Technology, and Engineer Research, director of Wilf Malcolm Institute of Education, Dean of School of Education and Senior Deputy Vice- Chancellor of the University of Waikato and acting Pro Vice-Chancellor - Waikato Management School. Alister has a MSc physic and PhD Physics Education from the University of Waikato.

Manpreet Kaur

Manpreet Kaur is a Lecturer in English at The University of Fiji. She teaches English Literature and Language courses at the undergraduate level and post graduate level. She also coordinates TESL program at Saweni Campus. Currently, Manpreet is doing her PhD in English Literature titled 'From Borderlands of History and Imagination: An Indo-Fijian Woman's Perspective'. She has an anthology to her credit titled 'Echoes of my Footprints '. Manpreet has attended and presented scholarly papers at several local and international conferences. She is passionate about climate change, educational challenges, diaspora and diasporic subjects as well as creative writing. Manpreet has collaborated and published several peer reviewed papers in scholarly journals. Her passion also includes freelance writing.

Avitesh Deepak Kumar

Avitesh Deepak Kumar is a high school teacher employed by the Ministry of Education, Heritage and Arts, Fiji. He teaches English in junior and senior streams at a prominent high school in Nadi. Avitesh has presented collaborative papers at numerous local and international conferences. Recently, he presented a paper at International Girmit Conference at University of Fiji. He has published in the inaugural Pacific Medical Student Association Journal and has a book chapter under his credit. His research interest lies in education, languages, creative writing and gender issues. Avitesh also writes poetry and short stories which is pending publication.

Leua Latai

Leua Latai is a Senior Lecturer at the Faculty of Education. She is a poet, an artist and teaches Studio Arts, Art History, Theory & Criticism under the Teacher Education Department at the National University of Samoa. Her special interests in research are in the value and function of the arts and art as therapy.

Lex McDonald

Lex is a senior lecturer at Victoria University of Wellington New Zealand. He is also a registered practicing psychologist and has worked and lived in the UK and Pacific countries. His interests include therapeutic interventions and has a specialisation in counselling.

Yolanda McKay

Yolanda McKay is a Marshallese who was born, raised, and resides in the Marshall Islands. She recently joined the University of the Virgin Islands' PhD program in Creative Leadership and Innovation. She holds bachelor and master's degrees in Education, both from the University of the South Pacific (USP). She has been working for the Marshall Islands USP Campus since 2001 as an Academic Programmes Coordinator. In 2012 she began managing the RMI-USP Joint Higher Education program which offers University preparatory courses for Marshallese students.

Maria Meredith

Maria Meredith is of Tongan descent with ancestral connections to Fiji, Samoa, and Uvea. Born and raised in Aotearoa New Zealand she has been working for almost 20 years with adult students in bridging and foundation education. She lives in East Auckland with her Samoan husband, Eugene, and their four children. A recently elected member of the local government board of Maungakiekie-Tāmaki, she is also currently working toward completing her PhD in Education with the School of Curriculum and Pedagogy at the University of Auckland.

Judy Moreland

Judy Moreland was a senior staff at the Center of Science, Technology, and Engineer Research and was a senior lecturer at the University of Waikato. Judy's specialty is in primary education and she has a PHD qualification in Technology Education.

Mele Katea Paea

Dr Mele Katea Paea is a professional at the University of the South Pacific who graduated with a PhD in Management from Victoria University of Wellington, New Zealand. Dr Paea is passionate about the significant role of indigenous knowledge in shaping the best leadership perspectives and capabilities of people. She is currently writing about the important connection between indigenous leadership and public leadership.

Sione Paea

Dr Sione Paea is a lecturer in Mathematics at School of Computing, Information and Mathematical Sciences (USP) who graduated with a PhD in Mathematics from Victoria University of Wellington, New Zealand. He teaches undergraduate and

postgraduate mathematics courses at USP. Dr Paea is passionate about teaching, something that he considers as his core contribution to enrich learning in the Pacific. He has committed and invested his life not only as a mathematics teacher but also as a mentor to nurture the hearts and minds of students, as ultimate users, to become wise and genius in mathematics. He is interested in researching nano-crystal growth, coal pyrolysis, card sorting, and differential equation application. His words of encouragement: "Never quit, aim high, and think big. Never ever think small about yourself. You have to desire and drive to be the best. Set a goal and don't quit until you attain it."

Rajendra Prasad

Rajendra Prasad is a PhD candidate in the School of Language, Arts and Media in the Faculty of Arts, Law and Education of University of the South Pacific. He teaches linguistics at the School of Language Arts and Media, The University of the South Pacific. His research interests are in the linguistic study of Fiji Baat and its historical development in the social, political, and educational fields of Fiji Indians. Prasad is actively researching on multilingual education in Fiji. He has presented papers and co-authored several publications in his area of interest.

David Sade

David Sade is a Solomon Islands citizen where he was born and raised. He received his primary and secondary education in Honiara, the Capital of Solomon Islands. Then he had his tertiary education at the Pacific Adventist College in Papua New Guinea where he received his bachelor of education degree. Sade continued his post graduate studies at the University of Waikato in New Zealand where he gained his masters and PhD qualification, specializing in Technology Education. He is a senior staff at the Solomon Islands National University in the Solomon Islands and currently holding the position of an assistant professor. David is currently the head of the TVET Education department at the School of Education as well as acting Head of School of Education under the Faculty of Education and Humanities. His research interest is in TVET and Technology Education.

Amelia Leba Siga

Amelia Leba Siga is the current Project Manager for the €6.3 million European Union Pacific Technical and Vocational Education and Training (PACTVET) project across 15 P-ACP countries based at the Pacific Community (SPC) in Suva, Fiji. She has about 20 years of experience as a secondary school teacher in Fiji teaching Mathematics, Basic Science and Biology. She worked at the Fiji Higher Education Commission(FHEC) from 2013 to 2018 first as the programmes accreditation officer working with all registered Higher Education Institutions(HEIs) in Fiji to accredit their programmes and have them registered on the Fiji Qualifications Framework(FQF) then later as the Team Leader Professional Services coordinating and overseeing the development and assessment of Fiji

National qualifications, the accreditations of institutional programmes and the recognition of foreign and local qualifications. Amelia is a current Doctoral (PHD) student at the Te Whare Wananga o Awanuiarangi in New Zealand.

Rebecca Spratt

Rebecca Spratt is an independent researcher-practitioner with over 15 years of experience in aid policy and programming in the Pacific region, with a particular focus on the education sector. She is currently undertaking her PHD at Deakin University, exploring how the policy of context-responsiveness is understood and operationalised by actors involved in Pacific education aid.

Apenisa Tamani

Mr Apenisa Tamani is currently the Climate Change Education Advisor based at the German Agency for International Cooperation (GIZ) office in Suva, Fiji. He is also the Course Coordinator for the New Regional Qualifications in Resilience (Climate Change Adaptation and Disaster Risk Reduction) at the University of the South Pacific (USP), Pacific TAFE in Suva. Mr Tamani has a Bachelor of Science Degree, Postgraduate Diploma in Climate Change and a Postgraduate Certificate in Disaster Risk Management. He further pursued a Master of Arts in Diplomacy and International Affairs. He also attained a Certificate IV in Training and Assessment and an International Skills Training (IST) (Assessor and Moderator) Qualification. Mr Tamani has assisted Ministries of Education with the integration of climate change and disaster risk reduction education into primary and secondary school curricula. He also assisted countries in the development of their National Qualifications and the Regional Qualifications in Resilience and has done various consultancies on climate change education across the Pacific.

'Alisi Tatafu

'Alisi Tatafu, is a Tongan born woman who migrated to Aotearoa. A lifelong learner, she values the opportunities of being educated in New Zealand's schools. 'Alisi wholeheartedly believes that we all have a responsibility to Fakakoloa a Aotearoa 'aki e 'Ofa Fonua, enrich Aotearoa with the love of the country. She believes unique Tongan values, fa kave'i koula a Tonga (four golden pillars of Tongan values) – faka'apa'apa (respect), tauhi vā (keeping relationships warm), mamahi'i mea (loyalty), loto to (humility) – can add value to all things in her adopted home, Aotearoa. 'Alisi is very passionate about the various youth initiatives she is involved in and has been a secondary school teacher at Mangere College for 12 years. She is currently Y11 Co-Dean, Assistant Head of Social Studies and Practicum Coordinator for student teachers from various Education Faculties in Auckland.

'Ana Maui Taufe'ulungaki

'Ana Maui Taufe'ulungaki is currently Dean of the School of Education and Director of the Institute of Research at Christ's University in Pacific, Nuku'alofa,

Tonga. She has been involved in education in various capacities in Tonga and abroad for more than 40 years.

Lesieli Pelesikoti Tongati'o

Lesieli was born and educated in Tonga before pursuing tertiary education in Aotearoa NZ and returning to Head the Science Department, at Tonga Teachers College. She has a wealth of academic and professional experiences in Aotearoa NZ. She has championed Pacific scholarship to empower both Pacific and non-Pacific scholars across the border. She brings authentic Pasifika knowledge, skills and experiences connecting different contexts and curriculum areas across Te Whāriki (ECE Curriculum) and its links to the New Zealand Curriculum Framework. Lesieli has a deep understanding of Tapasā and the Cultural Competencies Framework for Teachers of Pacific Learners. Lesieli is currently the Kaihautū Mātauranga o Te Moana nui a Kiwa – Pasifika Education Leader, Tātai Angitu, Institute of Education, Massey University. She also give lectures in Human Development from a Pacific perspective and co-supervise masterate students. Previous professional experiences included working at the University of Canterbury, New Zealand Council of Educational Research, Ministry of Education leading the development five Pasifika Education Plans, with the last one being the Pasifika Education Plan 2013-2017 (extended by the Ministry to 2020), while finalising the Pacific Education Action Plan. Lesieli also worked at Victoria University of Wellington as Academic Director, Pacific Senior Management Development Programme.

Eta Varani-Norton

Eta Varani-Norton has a PhD from Sydney University, MA Education and MA Anthropology and Development Studies from Macquarie University, and a BA from the University of the South Pacific. She has taught at both secondary and tertiary levels in Fiji and Australia. In Fiji she taught education courses at the Fiji National University and her experience at the University of the South Pacific included Instructional Designer and Online Course Developer. She also taught Indigenous Studies and Indigenous Studies and Education at Macquarie University and Sydney University respectively. She is currently a researcher and consultant in Indigenous knowledge and education, based at home.

Godfrey Vasethe

Godfrey is a Solomon Islander, currently a senior lecturer and the head of department for Secondary Education at the faculty of Education and Humanities of the Solomon Islands National University. He joined the institution at the end of 2011. Born and educated in Solomon Islands, he first graduated with a diploma in teaching from Solomon Islands College of Higher Education and a BA from the University of the South Pacific. Godfrey did his Master's degree in Education at the University of Waikato in New Zealand from 2008 to 2010. In 2011, he returned to King George Sixth School to teach for one year before becoming a lecturer at the Solomon National University until now.

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Languages & Literacies

CHAPTER 1

Probing the Place of English Language in Fiji Secondary Schools in the Present Day – from English Facilitators' Perspectives

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Abstract

English language is used either as a second or third language in majority of the Islands nations here in the Pacific, while also in terms of status, use, and function, dominating in the formal arena, education, the media, and parliamentary proceedings. Therefore, the pervasive need to learn the English language falls on the younger generation in the form of formal education. This then reflects language facilitator's fundamental role in teaching the English language, so learners become competent in both written and spoken English. This paper examines the status of the English language in Fijian secondary schools from the English teachers' perspectives and also highlights the views of two distinguished professors – Professor Subramani, Professor in Language and Literature; and Professor Tupeni Baba, Professor in Education, at the University of Fiji – about the status of the English language in Fiji secondary schools. It identifies the pedagogies utilised by facilitators of English. The paper rationalises the declined or inclined status of the second/third language. Given the suggestion to raise the standard of English competency in Fiji secondary schools, it is hoped that this study will inform education stakeholders, language programme coordinators at tertiary level, and policymakers about the challenges facing English language facilitators.

Introduction

Fiji is in the process of revolutionising its education sector through the introduction of e-books, tablets, internet accessible classrooms, and use of laptops in learning and teaching in order to increase the ability of students of Fiji to use computers, tablets and smart phones to access information and create content themselves (Deo, 2015). While this may place Fiji on par with the rest of the world in terms of digital literacy, there is also concern that

this may be at the detriment of the English language as printed books will slowly fade out and reading skills of students plummet further (Subramani, The Status of English in Fiji Secondary Schools, 2018). Linguistically, English, Fijian, and Hindi serve as the three official languages of Fiji, each having a critical role in the formation of a national identity.

Nemani Delaibatiki writes in a Fiji Sun newspaper article titled "English should be reinforced as number one language" that: "English is the common language now in many countries. It's a reality that we need to accept. Text books are written in English, teachers and lecturers teach in English and students converse in English" (Delaibatiki, 2015). This indicates that the education system is placing special emphasis on English language. In an opinion column in Fiji Sun, "Why It's Right, Education Is Now Focusing On English?" Charles Chambers notes that the introduction of English is from colonial times when Fiji was under British rule. With the departure of the colonizer, however, the impacts of colonization remain, one of which is the English language (Chambers, 2018).

In addition, up until the new 2013 constitution, the previous practice in teaching multilingual Fijian children in Fiji primary schools was that Fijians of Indian descent spoke Fiji Hindi (FH) as their mother tongue; learning Shudh Hindi (SH), or Urdu, and English for formal and literacy purposes; and using English and Fijian for interethnic communication. The iTaukei children in Fiji classrooms spoke and conversed in their varying dialects. Depending on the class composition, the teacher then either spoke in Fiji Hindi or iTaukei, but English to some degree. However, the current education policy states that English is now to be the medium of instruction. Today, English is the dominant language of instruction. Thus, this necessitates teacher training institutions in Fiji to address the issues around multilingual education so that teachers/facilitators can with assurance contribute to an educational system which maximizes the use of Fiji's linguistic resources for the educational progression of all sectors of the country's population.

Based on the latest United Nations estimates, as of Sunday, July 1, 2018, the current population of Fiji is 912,216. Fiji's population is equivalent to 0.01% of the total world population (http://www.worldometers.info/world-population/fiji-population/) (worldometer, 2018). Of a population of 912,216, 64% are iTaukei, 27% are Fijians of Indian descent, 8% are Chinese, European, and other Pacific Islanders. While various vernacular languages are used during informal settings, English is used as the lingua franca among the multiracial citizens of Fiji. Also, English is the medium of

communication and instruction in 712 primary schools and 167 secondary schools in Fiji.

Language Policy

The 2013 Fijian Constitution Section 31 states the Right to Education. Section 31, Subsection 3stipulates: "Conventional and Contemporary iTaukei and Fiji-Hindi languages shall be taught as compulsory subjects in all Primary schools". However, Section 3 (3) of the 2013 Fijian Constitution stipulates that: "the constitution is to be adopted in the English language and translation in iTaukei and Hindi are to be made available". Furthermore, Section 3, Subsection 4 stipulates: "If there is an apparent difference between the meaning of the English version of a provision of this Constitution, and its meaning in the i-Taukei and Hindi versions, the English version prevails". This depicts that English Language supersedes other languages, since the constitution is the supreme law of the country. Thus, while Fiji's 2013 Constitution recognises Fiji as a multilingual state and declares the main languages (Fijian, Hindi, and English) to be equal in terms of status, use, and function, in reality, English dominates in the formal arena, education, the media, and parliamentary proceedings.

Languages in Education

English is used as the medium of instruction from pre-school to tertiary education. English is compulsory in all external exams but local languages are optional. The standardised vernacular languages taught in the schools in Fiji are the Bauan dialect (i-Taukei) and Hindi. Other languages taught in schools include Urdu, Rotuman, and French.

Background to the research

This research concentrates on Teachers of English in Fijian Secondary Schools. The research is not based on teachers from a particular area but rather, from all the education districts in Fiji: Central, Western, Northern, and Eastern Divisions. English is compulsory in all the 167 secondary schools in Fiji with a total of 68,776 students (Lutunaika, 2017) undertaking the English curriculum courses from Years 9 to 13. This research does not focus on the students' acquisition of this second language but, rather, on the challenges faced by the teachers of English in imparting the content to the students.

Objectives

This paper is intended to:

- Examine the status of the English language in Fijian secondary schools from the English teachers' perspectives;
- Identify the pedagogies utilised by facilitators of English;
- Outline challenges faced by the English facilitators, and
- Recommend suggestions provided by the language teachers to raise the standard of English in Fijian classrooms.

Methodology

Journal articles, papers, and education reports published by various local, international, and regional education stakeholders were utilised to compile data for this research. Questionnaires were also distributed via email and Surveymonkey mobile link (https://www.surveymonkey.com/r/KK8633L) to teachers of English throughout the country to get firsthand information regarding the topic. These teachers are part of the Fiji Association of Teachers of English (FATE). Questionnaires examined the challenges teachers face while teaching English as a second language. Questionnaires included eleven questions pertaining to the teaching of English as a second language in Fijian classrooms. A total of one hundred and fifty teachers were consulted from various schools throughout the country all of whom actively responded. Also incorporated in the questionnaire were suggestions from the teachers of English that policymakers need to consider in order to raise the standard of written and spoken English in the country. Discussions and interviews held with Professor Subramani and Professor Tupeni Baba before the survey form the premise of this research with questions on the survey linked to the Professors' responses. One of the challenges faced while conducting this research was obtaining information from teachers situated in the remote and maritime areas due to limited telecommunication available. It is anticipated that findings from this research will encourage greater effort in relation to raising the standard of written and spoken English through emphasis on all the four communicative aspects of the language: Listening, Speaking, Reading, and Writing.

Significance of the Study

This study is of significance as it aims to highlight the status of English in Fijian Secondary Schools from the English language facilitators' perspective. The study sheds light on the extent to which the English teachers agree with the comments and criticisms of employment providers and university lecturers that the status of English is declining among high school graduates. It also provides insight into the myriad teaching

pedagogies used by the language facilitators, and the factors that affect teaching and learning of this second language. As the expectations of the universities and employment providers continue to increase, this study emphasises the need for thorough consultation with the language facilitators, as well as a consolidated approach towards the teaching of English as a second language.

Findings and Discussion

Findings are presented and discussed below, followed by consideration of some approaches to teaching English, challenges presented in teaching English today in Fiji, and some recommendations.

The Status of English in Fiji Secondary Schools: from the English Language Facilitators' Perspective

The perception of education stakeholders that the standard of written and spoken English is declining at an alarming rate is not surprising given the fact that the reading culture among the younger generation is slowly fading away (Kaur, 2015). Teachers of English have always been under the microscope for many reasons, one of them being that teachers' proficiency and competency in English determine the level of English that the students acquire. According to the Fijian Ministry of Education, students must pass English to have an overall pass in their exams. Clearly, this places a large responsibility on the language facilitators' role in teaching the four communicative skills to the students.

The responses of the English language teachers in Fiji secondary schools on the status of English among the secondary school student show that they agree with the perception of employment providers and universities that the standard of written and spoken English among new graduates is declining. Of the one hundred and fifty teachers who responded to the questionnaires, ninety five (63%) agreed, while the remaining fifty five (37%) disagreed (refer to Figure 1). Therefore, it can be concluded that while teachers have been working tirelessly to raise the standard of English among the younger generation, more effort is also required from other stakeholders including the parents and students

Moreover, Professor Tupeni Baba (2018) of the University of Fiji states that:

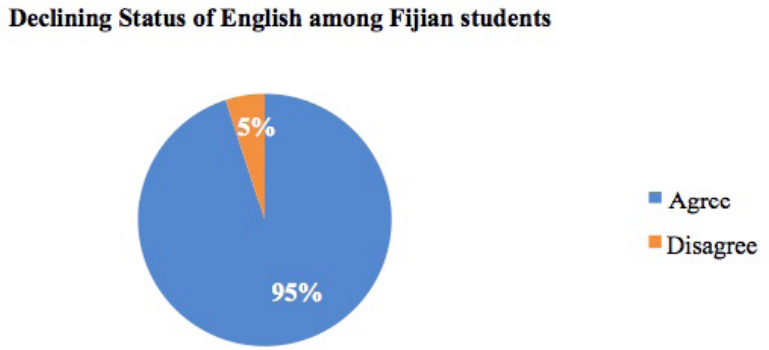
> The competition for the type of language in the classrooms is quite tight considering the different mother tongues students speak, and whatever mother tongue, the dialects the child speaks and given the competition

> in terms of time, lack of resources and some of the people who are critical of the standard of English spoken in Fiji is largely due to the time they have spent overseas, having grown up during their secondary school days and now returning to Fiji, they need to understand that Fijian classrooms have a real challenge."(Baba, 2018)

A similar sentiment was also shared by Professor Subramani (2018), Professor of Literature at the University of Fiji, who highlighted that:

> Over a period of time, English took over the vernacular, and Fijian and Hindi became marginalised and English became a dominant language. There are many reasons for that: one is parents want it that way and children also want to do it because many of them want to learn English and migrate for jobs. But this is at the detriment of your mother tongue which is the basis of your emotions and feelings, your cultural life. So those who don't know their vernacular will have poor grasp of English. So, all in all, the status of English in Fijian schools is poor. Terrible situation. (Subramani, 2018).

Figure 1. Response from the English Language Facilitators on the Declining Status of English among the Fijian students



Teachers' perceptions of factors contributing to decline of English language standards

With the majority of the teachers who responded to the questionnaires agreeing that the standard of English among Fijian youths nowadays is declining, they were also eager to identify factors other than teacher competency that have contributed to this language crisis. These factors were such as Teacher Education Programmes, Diminishing Reading Culture, and English Teaching Pedagogies.

Teacher Education Programmes

Language acquisition best happens in the early years of life and thus emphasis must be placed on recruiting highly qualified teachers of English at primary level (Maharaj, 2018). Three universities in Fiji offer teaching programmes: the University of the South Pacific, The Fiji National University, and the University of Fiji. The nature of courses for Bachelors in Arts (Language and Literature) must change in a bid to produce teachers who are highly competent (Maharaj, 2016). For example, emphasis must be given to language and literature units as these are two distinct branches of English. The language major courses are even unfavorably weighted within the programme. It must be recognised that students majoring in English (and the Vernaculars) are in fact studying two distinct subjects: these are Language and Literature. Therefore, Language and Literature each have a weight of only 12.5% of the entire programme (Maharaj, 2016)

According to the Ministry of Education's policy that each secondary school teacher must have two teaching subjects also contributes to the deteriorating language situation in Fiji. Teachers of English are also required to teach Social Science/Geography, Vosa Vakaviti, Hindi, or History. Thus, much of trainee teacher education courses are comprised of education units and a second teaching subject which leads to a lesser grasp of English teaching courses than is desirable. Furthermore, teachers, through the survey, highlighted that English teachers and programmes at university level should have a fair distribution of language and literature units. One participant, a retired high school English teacher and a former Vice Principal, points out that, "If a teacher is insecure in some aspect of the language, that aspect will be overlooked for the most part". Thus, the language programme coordinators at universities must strike a balance between the language and literature units offered to aspiring teachers of English.

According to Subramani "there needs to be strict monitoring of the English language in other departments in universities". Subramani (2018) highlights that "in the Universities, only LLC department is there, but in the science and administration, they don't care. As long as students have written something, they just give some marks. They don't care about their grammar and presentation because they themselves don't know (Subramani, 2018). This perspective suggests that as education providers, universities must step up to ensure that the standard of English among graduates improves.

Diminishing Reading Culture

Reading is an important gateway to personal development, and to social,

economic, and civic life (Holden, 2004). However, it comes as no surprise that the reading culture among the secondary school students is slowly fading away (Kaur, 2015). Teacher respondents perceived that students nowadays show less initiative in reading, largely due to the increase in technological gadgets. In an interview, Professor Subramani (2018) noted that "to learn a language one needs to develop in the reading culture and teachers must put emphasis and inspire students to read to get the deeper meaning of the language". He further claimed that students nowadays are more engaged with their technology and books are being ignored. Reading through books has a different meaning than reading e-copies. Professor Unaisi Nabobo-Baba, during a book launch at FNU, Natabua Campus, stressed that there is a more urgent need today than ever before to produce more local literature. Launching "Writing and Publishing in Fiji: Narratives from Fijian Writers", Nabobo-Baba highlighted the decline in reading culture and emphasised the need to create a platform for local emerging writers to publish their work so that our children can familiarise themselves with local literature. To engage students in the reading culture, the curriculum must be conducive. Subramani (2018) highlights that:

> Curriculum needs to put more emphasis on reading…a lot and not only reading silently. Teachers got to read [aloud]. And you can then cultivate your listening skills. The listening skills are very poor. They don't listen. They find it very difficult to listen. They are more into internet and not in the listening culture.

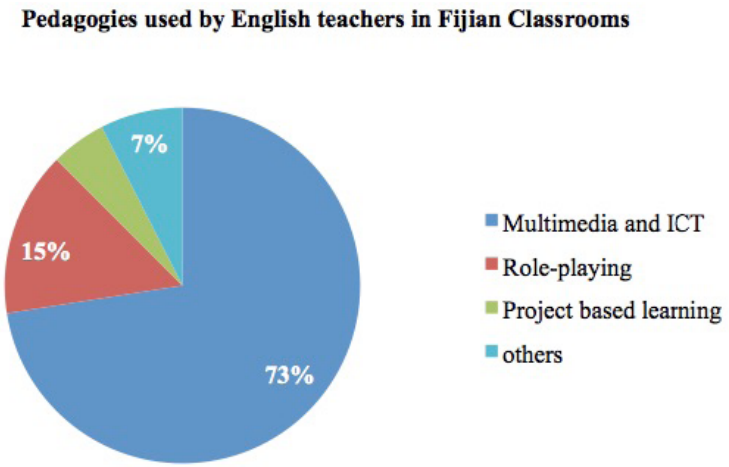
In conclusion, these respondents' and interviewees' perception is that, to uplift the standard of spoken and written English, students must be encouraged to read printed books and materials in their leisure time.

English Teaching Pedagogies

Analysis of the questionnaire responses shows the various pedagogies that teachers use in Fiji classrooms to teach English. Out of a hundred and fifty (150) teachers who responded, seventy-two (48%) use multi-media and Information and Communication Technology to teach English. Technological devices such as laptops and projectors were utilised by teachers of English in their respective schools. A further fifteen (10%) respondents choose role-playing for their English classes mostly for literature from Year 9 to Year 13 and oral assessments for Register Studies in Years 11, 12, and 13. Senior stream language teachers, who account for twenty percent of respondents, provide project-based learning opportunities for their students. A further seventeen percent of all teachers interviewed, stated that they utilize library resources, giving self-directed learning opportunities and group work while

teaching English. The other pedagogies used by teachers include the use of integrated approach, innovation and creativity through charts, visual aids, and cross-cultural approach (refer to Figure 2).

Figure 2. Teaching pedagogies utilised by English teachers in Fijian classrooms



Approaches to Teaching English in the Present Day

Most of the English language teachers in the world today are either second or third language speakers of English (Richards, 2017). Competency in English language teaching draws on content or subject matter knowledge, teaching skills, and the ability to teach in English – a skill that is usually viewed as being influenced by the teacher's language proficiency(Richards, 2017). Gone are the times when second language learners were taught by native speakers. Native speakers who speak English as their mother tongue or as their first language are at an added advantage when compared to Non-Native Speaking Teachers of English. In the present-day scenario, in the Fijian context, many students find it difficult to speak fluent English mainly because there is little interaction at home, in communities, and in school in the English language. In an interview with Prof. Subramani, (2018) it was highlighted that "for a second language learner in countries like Australia and New Zealand, English will be acquired easily as they are exposed to the language everywhere, whereas in Fiji, English is only spoken in schools and during business dealings".

Constructivist theorists contend that children are active participants in their learning in that they actively construct new knowledge whenever they interact with their environments (Bakhurst & Shanker, 2001). Thus, in Fiji

teachers of English must contextualize the subject matter so that students are able to process information mentally. In doing so, teachers will be able to aid the students' cognitive development through social interactions.

Furthermore, according to Shunk, Pintrich, and Meece (2008), the principal theoretical perspectives that must be used by teachers are:

- Readiness (Piaget);
- A spiral organisation of content and activities (Bruner);
- Zone of Proximal Development (ZPD) (Vygotsky);
- Scaffolding (Vygotsky), and
- Cognitive development happens in a social space where people influence each other (Bruner, Piaget, and Vygotsky)

Through the use of such theories together with Maslow's motivation theory, not only will there be a "paradigm shift" in the way English is taught in Fijian secondary schools, but classroom practice will also shift from a teacher-centered class, to teacher-learner interaction, to learner-learner-teacher interaction with the teacher's role being that of guide or facilitator. The findings suggest that, due to time constraints, teachers at times fail to utilise the above theories. It was further revealed that the pressure from school administration with regard to completion of coverage diverts teachers from using the theories in their classrooms.

In addition, According to Khan et. al (2017) the four communicative skills need to be taught thoroughly in schools with help provided to struggling students through literacy intervention programmes.

Baba (2018) states:

> A lot of emphasis needs to be given to reading. Three places where reading needs to be impressed upon is: home, school, and media. Reading: we need to create interest in the children. We need to ask how many schools in Fiji are investing in their school libraries, with interesting reading materials. How can children read at home? Do parents at home appreciate them reading? Is media supportive of the language we promote? The role and impact of television, for instance. Also, we need to investigate other media platforms and its bearing on English language, and at this day and age the vast technological gadgets have a profound impact on the English language. The M.o.E should encourage the home and the school to provide a supportive

environment for children to nurture their reading.

Challenges of Teaching English in Fijian Classrooms

According to the teachers who responded, there are more challenges to teaching English at the present time than in the past. These challenges are perceived to contribute to the declined status of English at secondary school level.

Responses from the questionnaires indicate an increase in the number of non-readers and non-writers enrolling in secondary schools. Most non-readers and non-writers are identified in Year 9. Teachers interviewed were asked to outline suggestions for improving this scenario and the most common suggestion was for parents to continuously engage in their children's education through regular consultation with the teachers.

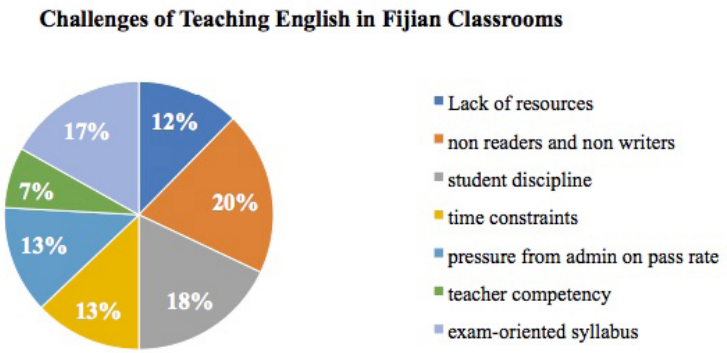
Another major challenge faced by teachers is student behaviour in schools. A lot of the teachers perceive that students' attitude towards their studies has been deteriorating.

Other challenges identified by teachers include:

1. Lack of reading resources
2. Time constraints: teachers are given only two terms to complete their coverage, thus, they tend to rush through it
3. Pressure from some school administrations with regard to the pass rate in English, and
4. Teacher competency, with teachers saying that this is an area that needs to be addressed to improve the standard of English in schools.

The aforementioned challenges highlight some of the issues that need to be considered in a bid to improve the standard of English. However, there may be other challenges that teachers around the country face while teaching English and a nationwide consultation with the English language facilitators is urgently recommended to raise the standard of English language among the younger generation (refer to Figure 3).

Figure 3. Challenges faced by English language facilitators in Fijian classrooms



Suggestions by Language Facilitators

Given the declining status of the English language among secondary school students in Fiji, the suggestions provided by the teachers of English may be useful when considering means of raising the status of the language. These suggestions include:

1. Revision and effective planning of curriculum from Year 9 to Year 13.

2. For Year 10, more time should be given so that teachers do not rush to cover the syllabus in two terms, leaving out the most important aspect of teaching English. Because the system is exam-oriented, teachers teach only what is tested, rather than teaching concepts holistically.

3. Literature texts should be contextualised and emphasis given to text written by local writers.

4. Every child's formal education should begin in their native or first language. Acquisition of the first language strongly increases the likelihood of successful acquisition of a second language, like English.

5. Teach only Literacy and Numeracy from Year 1-2 and then introduce other subjects once reading, writing, and numeracy skills have been mastered.

6. Have conversation classes where students can read and speak more.

7. Students should be molded from lower classes so when they reach higher level, they are competent.

8. Reading must be encouraged at home and in schools.

9. Syllabi at primary level should be reviewed. The basics need to be taught well so that the foundation of students' knowledge is strong and they can learn.

10. Test theory and knowledge-based questions rather than essay writing.

11. Teachers to be trained in teaching second language speakers of English so that they can teach it well for they themselves are second language speakers of English.

12. Treat literature as a separate subject.

13. Engage teachers in the consultation process.

14. English as a second language must be made enjoyable by encouraging students to enact genres such as drama and short stories and also by having poetry recitals. Reduce the amount of poetry and the numbers of short stories in Years 9 and 10.

15. Specialised teachers are needed for non-readers and non-writers; and

16. More workshops for teachers of English and sufficient resources should be made available.

17. Teachers of other subjects to also take ownership and not rely on only English teachers to teach English. For example, Geography and Basic Science teachers should also highlight the importance of the correct usage of Grammar in essays and penalise students with incorrect grammar.

Summation

It is evident, then, that the declining standard of English in the country is perceived by these professionals (professors and teachers of English) to fall on every sector. The atmosphere and the environment needed to promote English in Fiji are lacking. Media houses, to university programmes, to the education system must change to solve the language crisis in Fiji. The efforts by the English teachers in the country must be acknowledged and teachers must be consulted in the curriculum development process. Parents must also take a proactive approach to immerse their child in vernacular before they are made to learn a second language. Finally, major work is needed in the way English is taught in Fijian Secondary Schools. We need to teach English as a language rather than teaching it as a subject.

References

2013 Constitution of the Republic of Fiji Islands. (2013). Suva: Government

Printery.

Arya, K. (2013, September 4). FBC News. (R. Koroi, Interviewer)

Baba, P. T. (2018, May). Status of English in Fiji Secondary Schools. (M. Kaur, Interviewer)

Bakhurst, D., & Shanker, S. (2001). Jerome Bruner: Language, Culture and Self. Sage Publications.

Chambers, C. (2018, January 9). Why It's Right, Education Is Now Focussing On English . Fiji Sun .

Clammer, J. R. (1976). Literacy and Social Change; A Case Study of Fiji. Leiden: E J Brill.

Delaibatiki, N. (2015, January 6). English should be reinforced as number one language . Fiji Sun .

Deo, R. (2015, September 13). Fijivillage. Retrieved from fijivillage.com: http://fijivillage.com/news/Govt-launches-new-initiative-to-increase-ability-for-students-to-access-information-kr29s5/

Fiji Sun. (2018, April 3). Fiji Sun. Minister acknowledges the role of religious organisations in education, p. 5.

Geraghty, P. (1984). Language policy in Fiji and Rotuma. Duivosavosa: Fiji's Languages- Their Use and Their Future(8), 32-84.

Geraghty, P. (1989). Language Reform: History and future of Fijian. (C. H. I Fodor, Ed.) Hamburg: Helmut Buske Verlag.

Geraghty, P. (2013, September 20). Language debate. Fiji times, p. 6.

Gillion, K. L. (1962). Fiji's Indian Migrants: A History to the End of Indenture in 1920. Melbourne : Oxford University Press.

Holden, J. (2004). Creative Reading. London: Demos.

Kaur, M. (2015, September 17). Reading, A Dying Culture in Students . The Fiji Times .

Khan, A., Khan, D. S., Zia-Ul-Islam, S., & Khan, M. (2017). Communication Skills of a Teacher and Its Role in the Development of the Students' Academic Success. Journal of Education and Practice, 8(1), p. 18.

Kumar, A. D. (2018). Teaching of English in Fijian Secondary Schools. Retrieved from Survey Monkey : https://www.surveymonkey.com/r/

Kumaravadivelu, B. (1994). The postmethos condition: Emerging strategies for second/foreign language teaching. TESOL Quarterly, 27-48.

Lal, B. V. (1983). Girmityas: The origins of Fiji Indians. Canberra: Australian National university.

Lutunaika, E. (2017). Ministry of Education. Retrieved June 24, 2018, from http://www.education.gov.fj/index.php/g/moe-departments/secondary-section

Maharaj, M. (2016). Teacher Education Programmes: are they contributing to Poor English Language Skills in Fiji? International Journal of Humanities and Cultural Arts , 1092-1101.

Maharaj, M. (2018, January). Language Under The Microscope . The Fiji Times .

Mann, C. (1935). Education in Fiji. Melbourne: University Press.

Mugler, F. (1996). Vernacular language teaching in Fiji. In F. M. Lynch, Pacific Languages in Education (pp. 273-286). Suva: Institutte of Pacific Studies and Pacific Languages.

Mugler, F., & Mangubhai, F. (2003). The Language Situation in Fiji. Current issues in Language Planning, 4(3&4), 367-456.

Richards, J. C. (2017). Teaching English through English: Proficiency, Pedagogy and Performance. RELC Journal, 7-30.

Schunk, D., Pintrich, P., & Meece, J. (2008). Motivation in Education: Theory, Research and Application. New Jersey : Pearson Education.

Siegel, J. (1987). Language contact in a plantation, A sociolinguistic history of Fiji. Cambridge: Cambridge University Press.

Subramani, P. (2018). The Status of English in Fiji Secondary Schools [Recorded by M. Kaur]. Nadi, Fiji.

Subramani, P. (2018, May). The Status of English in Fiji Secondary Schools. (A. Kumar, Interviewer)

Tamata, A. (1996). Code-Switching in Fiji's schools. (F. M. Lynch, Ed.) Suva: Institute of pacific Studies at the University of South Pacific.

Wood, A. (1978). Overseas Missions of the Australian Methodist Church (Vol. 2). Melbourne: Aldersgate.

worldometer. (2018, June 18). Retrieved from world-population: https://www.worldometers.info/world-population/fiji-population/

CHAPTER 2

Language and Law in Fiji

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Abstract

This paper looks at how the language education policy, or lack of it, in Fiji affects the realisation of basic human rights enshrined in the constitution. In order to demonstrate this, the paper explores the history of the education system of Fiji and most importantly the space given to language(s) in it. The paper then explores how the constitutions of the country have influenced people's attitude towards language. It also looks at how inadequate attempts to implement vernacular education hamper the basic rights of individuals enshrined in the constitution. The 2013 constitution states that all primary school children should learn Fiji Hindi and Fijian as conversational languages. Based on peoples' expectations and the realities of implementing this section, the paper makes some suggestions for improving the situation.

Introduction

The sea and the journeys that define the Oceania have multiple layers as time and tide have continued adding tales and legends to it. The choice of the language one communicates in is dependent on many factors. When in a community where everyone has the same mother tongue or vernacular the speakers do not have much difficulty in deciding how to communicate with fellow citizens. While the idea of communicating with fellow citizens may be an activity as simple as breathing for many, the same cannot be said of many others who live in a multicultural and multilingual society. In most third world countries, which are still trying to get a foothold on basic things like economy and infrastructure, putting emphasis on matters like language of instruction that seem to have little economic interest may not be a priority for the government. This is the case in most Pacific countries which are still trying to be "independent" after being declared independent by the colonial masters. The colonial rule, while bringing in a lot of economic prosperity, did also develop the education system of the Pacific islands. Initially, the main priority of the education system was to enable the locals to be able to

read the Bible in their own language (Mangubhai & Mugler, 2003). Later, the education set up became main-stream schools where students obtained a modern education.

The colonial education system has produced some very fine intellects from the Pacific. In Fiji, the colonial powers introduced education in the form of the Fijian version of the Bible and the locals embraced it quite well. The Fijians saw the vast opportunities through education and received it with open hands. The missionaries took care of education until they passed the baton to the colonial government in 1916 with the establishment of the Education Department (Mangubhai & Mugler, 2003). The introduction of the indentured labourers from India, which is discussed in detail later in the paper, added more diversity and challenges to the education system of Fiji. The space given to language in this journey is worth understanding. The roles of English, Fijian, Hindi and other languages in the education sector of Fiji have continually been re-invented. The role played by the early missionaries and then the indentured labourers in forming the educational landscape of Fiji is extra-ordinary. The indentured labourers who came to Fiji further enriched the fabric of Fijian society and the language and culture that evolved on the plantations has had a deep impact on Fijian society. Be it the language of instruction or the vernacular classes, each has its own unique challenges. For one to understand the education system in Fiji and the way the languages are taught, it is imperative to go back in history and comprehend the way education has evolved since the first contact with Europeans. The influence of the colonial administration and its language on the education systems in most Pacific countries today must not be overlooked. The space given to languages in the education system in Fiji has some very interesting tales to tell.

Educational History

The history of formal education can most probably be traced back to the arrival of the first missionaries. The missionaries had come to spread the word of God and to do that they had to teach the Bible to the people of Fiji. “The first translations by the missionaries were in the Lauan dialect and then also in Somosomo, Rewa and Bau dialects. The seat of the most powerful state at that time was Bau, hence Bauan language was “objectified, which became the standard Fijian” (Geraghty, 1984, p. 35). There are still arguments as to whether the language used was totally Bauan or whether there was influence from other dialects. Perhaps this marks one of the first disagreements on the dialects to be chosen for teaching as standard. This debate continues to some extent today. Apart from translating the Bible

into Fijian, the other challenge for the missionaries was to have teachers to teach the Bible. As a result, schools were established by the Methodist Church to teach Fijians to read and write (Mann, 1935).

This perhaps marks the beginning of the formal schooling system in Fiji. These schools became very popular and the teaching of the Fijian language slowly took root. Other subjects started being offered and the language of instruction was Fijian. The teaching of Fijian to read the Bible spread throughout Fiji. After cession in 1874, the colonial government decided to print the official gazette in Fijian in addition to English. For the colonial government to publish its official gazette at that time in Fijian proves that there were local readers of the language. The success of the gazette saw the publication of a periodical, "Na Mata", in 1874 in Fijian also (Clammer, 1976). The Methodist church then began its quarterly, "Ai Tukutuku Vakalotu", in 1887 (Mugler & Mangubhai, 2003). The interesting fact was that the Fijian that was being used was the codified standard which was used in the Bible (Geraghty, 1989, p. 385). In other words, the Fijian language had been standardised by this time with the Bauan dialect being the most important ingredient and it continues to be used in all official publications to date.

Arrival of the Indians

The colonial government then encountered a shortage of labour to work in the plantations in Fiji. The governor, Sir Arthur Gordon, who had solved the same problem in Trinidad by bringing in labourers from India organised the introduction of Indian labourers in Fiji (Lal, 2012). This event changed the course of Fiji's history forever in all fields including education. The arrival of the indentured labourers from India in 1879 added a new group of people with different languages to the demography of Fiji. The indenture system commonly known as "girmit" saw the arrival of approximately 60,000 Indians to Fiji within 37 years (Lal, 1983). These labourers came from different parts of India and spoke different dialects and languages. While working on the plantations they tried to communicate with each other in their various dialects. Eventually, the contact between the different varieties led to the formation of a koine Fiji Hindi (FH), (Siegel, 1987, p. 140).

While FH was taking root as the lingua franca of the Indian population, they were concerned that their children would not be able to read their scriptures if they did not learn shud (pure) Standard Hindi (SH). During the indenture period and even after, the use of SH was limited to the religious domain. There was hardly any provision for formal education for Indians.

The Indian community on its own began working on providing education to their children. This period saw the setting up of informal schools which provided teachings of scriptures and SH.

"The teaching of Hindi continued but was mostly confined to the religious domains prior to 1920" (Gillion, 1962). By then the demand for education by the Indians was reaching the government which had to recognise the schools which were now quite well established. The 1926 education commission advocated that SH should be used as the language of instruction of Indian students until the end of primary education (and Fijian for the Fijian children). This was a landmark decision. The education commission of 1926 had some interesting findings. While the government recognised and allowed SH to be used as a language of instruction, there was a strong demand from both Indians and Fijians that English be included in the school curriculum (Mugler & Mangubhai, 2003, p. 395). So, it is obvious that by this time the two major races had recognised that their children needed to know English for a better future. The commission also saw that this demand was more intense from the Indians.

Once the education commission of 1926 allowed the use of SH as the language of instruction, there was a strong demand from other ethnic groups for their languages to be used also in classrooms; for example Urdu, Arabic, Tamil, and Telegu (Mugler & Mangubhai, 2003, p. 395). The various religious organisations took charge of building schools and providing education for their children. While the focus of each organisation was to promote its language and religious teaching in their schools, they did embrace the holistic value of education and asked the government to provide education for their children. The partnership between the religious organisations and government saw the establishment of numerous schools in Fiji. This was noted recently by the Minister for Education (Fiji Sun, 2018, p. 5) while officiating at the foundation laying of a new block at Pandit Shreedhar College, an institution owned by Shree Sanatan Dharam Fiji.

The colonial government took responsibility for providing education from the church through the establishment of the Education Department in 1916 (Mangubhai & Mugler, 2003). The colonial government had already established schools in New Zealand and had trained teachers available and so they were brought in. With the arrival of these teachers, most Fijian teaching materials were taken out and replaced with English ones. As a result, the language of instruction gradually became English since it was the language of the teachers. At the same time there were schools established

such as Suva Grammar and Levuka Public which reinforced English as the language of instruction (Mugler & Mangubhai, 2003, p. 395).

The journey of education continued growing steadily for all in Fiji. Queen Victoria Memorial School (later Queen Victoria School) was founded by the Catholics to educate the sons of chiefs in both Fijian and English when they could not get a space at the other English schools (Wood, 1978) while the Indians were also expanding their schools rapidly. The growing education sector prompted the government to commission a report in 1944. The famous 1944 Stephens report recommended "neither an Indian nor the Fijian language should be taught or examined beyond primary stage" (Mugler & Mangubhai, 2003, p. 400). It further went on to recommend that the languages of instruction for the present be English, Fijian, and Hindustani (a term to be re-visited), with the teaching of English being intensified until it became the language of instruction throughout the colony (Mugler & Mangubhai, 2003, p. 395). One cannot deny that this second recommendation of Stephens did eventually become what we have today as far as language of instruction is concerned. Thankfully his recommendation that Fijian and Hindi should not be taught beyond primary school did not materialise. The next education commission report of 1969 recommended that English should be the medium of instruction after year 4. This policy is still intact as no major change has been implemented, but for many practical reasons English is extensively used as early as in grade one. In a survey Tamata (1996) reported that code-switching happens extensively in almost all schools but is not acknowledged officially (Mugler, 1996, p. 279).

Constitutions and Language

Since independence, Fiji has never changed its language policy but the attitude towards language(s) after independence began to be influenced by the constitutions of the country. Fiji has seen four constitutions, and all have had some influence on the language(s) and how they are used in different spaces, be it Parliament, the courts, or the education sector. The 1970, 1990, and 1997 constitutions had clearly made provision for the freedom for members of Parliament to use English, Fijian, and Hindustani in Parliament. Ironically, no Indian organisation ever objected to the use of the word Hindustani instead of Hindi in these constitutions. If one follows the use of the term Hindustani by the colonials, it refers to the lingua franca that was used by the colonials back in India, the variety of Hindi used mostly for trading in Calcutta and other parts of India in those days. That is the term they had brought to Fiji and was used in the 1944 Stephens report and it was not clear which Hindi it was referring to. Eventually it found its

way into the constitution of 1970 and continued to be used right up to the 1990 constitution. So, while on the one hand there is strong objection (to be discussed later) to the use of the term FH, there was no protest against the use of the term Hindustani instead of SH.

The 2013 constitution, on the other hand, while promoting the languages of Fiji in the preamble does not have any provision for members of Parliament to use their mother tongue rather than English. As Geraghty (2013, p.6) notes,

It makes no sense for any government to say that it supports vernacular languages, and at the same time ban those languages in the highest decision-making body in the land. Every previous government has allowed vernaculars in Parliament, and so do most democratic nations around the world, so there is no excuse. Participation in public life in Fiji should not be the exclusive domain of those who are fluent in English, and members of Parliament should be free to use their mother tongue if they so choose.

The 1997 and 2013 constitutions have Fijian and Hindi translations and sections 3 and 4 of the 2013 Constitution (2013) state that this Constitution is to be adopted in the English language and translations in the Fijian and Hindi languages are to be made available. If there is an apparent difference between the meaning of the English version of a provision of this Constitution, and its meaning in the Fijian and Hindi versions, the English version prevails.

Apart from these two major sections on language in the 1997 and 2013 constitutions, the latter goes on in detail about the rights of a detained person in relation to language. The Bill of Rights in the 2013 constitution has a lot to do with the language(s) of the detained person. Most of the sections do allow for a person to be interrogated and tried in his/her own language. Section 13, subsection 1 states:

Every person who is arrested or detained has the right— (a) to be informed promptly, in a language that he or she understands, of—(i) the reason for the arrest or detention and the nature of any charge that may be brought against that person. (2013, p. 8)

Section 14, subsection 2 b states:

> to be informed in legible writing, in a language that he or she understands, of the nature of and reasons for the charge; to be tried in a language that the person understands or, if that is not practicable, to have the proceedings interpreted in such a language at State expense.

(2013, p. 9)

Most people in Fiji are bilingual, with English as one of the two languages, but for the above right to be realised, one needs to be proficient in the language used. While many may use English as the lingua franca, they are not sufficiently proficient to understand legal language in English. This language problem is further compounded when the police officers often are not proficient in the language of the accused. Even though they may be able to speak a few words, section (14) (2) b requires that the charge be written in a language understood by the accused. The inability to write in FH or Rotuman, for example, can have serious consequences for the outcome of the case once in court, based on the initial report.

The police officers who are the first law agents in contact with the accused are unfortunately not fluent in all the languages either spoken or written in Fiji either. Currently there is no language requirement to be recruited into the police force. While the officers are educated up to year 13 mostly, the English required to write reports is much more than what is taught in schools. While that may be taken care of while in training, I am left to wonder how much training they receive in the other languages spoken in Fiji. Most Fijian students receive lessons in Fijian at least up to year 8, but that is only in standard Fijian. If an accused is speaking in a dialect which is not known to the officer involved, the report may not reflect the reality. A famous case of an arson in 2000 saw how speaking different dialects can influence a case testified in court where a Fijian was accused of arson (Geraghty, personal communication, June 12, 2017). The accused was from Kuku, Nausori, while the officer who wrote the report was from Lau. When asked to provide linguistic evidence in the court it was found that a number of terms used in the "confession" were from the Lauan dialect. It was concluded that the confession was written by the police officer and so the accused was acquitted.

Section (14) subsection (2) b states "that an accused needs to be informed in writing of the nature of the offence in a language he/she understands" (2013 Constitution of the Republic of Fiji Islands, 2013), and raises a lot of issues in Fiji. The Indian population speak FH and for many that is the only language they understand. A few will read and write in SH using Devanagari script. If upon arrest, they demand that their report be written in FH, it will be impossible for many police officers to do so convincingly. In such a scenario the basic right of the accused is being jeopardised. Generally, most officers would write the report in English and the accused may end up signing it without comprehending it fully. All traffic infringements are reported in

written English. The right of the accused is certainly compromised due to the lack of proficiency in the language being used.

The second part of the same act says that the person should be tried in a language he/she understands and, if not practicable, the proceedings are to be interpreted at the state's cost. The problem here is the lack of trained interpreters in the Fiji courts who have mastery of languages used in Fiji. Apart from English and Fijian there is no credible training or education provided in other languages such as FH or Rotuman up to tertiary level. A few interpreters may write and explain in SH, but that is not a language an accused Fijian of Indian descent will be likely to be knowledgeable in. The sheer lack or total absence of experts in FH, which is the mother tongue of almost all people of Indian descent, is a big hurdle in realising these basic rights. To some extent these problems may be solved in future by a landmark provision on the language(s) of Fiji in the 2013 constitution. Section (31) subsection (3) states:

Conversational and contemporary iTaukei and FH languages shall be taught as compulsory subjects in all primary schools. (2013, p. 24)

The idea that conversational Fijian and FH should be taught in all primary schools (in other words, aiming for conversational proficiency in the dominant language of a second major ethnic group) is quite progressive and was welcomed by many as a step in the right direction. Some comments worth noting made in the letters to the editor column in the Fiji Times said:

- There are many benefits – the person will be trilingual, be able to understand others' culture, will not be left out when people start taking in their language and many more. (Koroidimuri, 2014)
- Many adults cannot even speak their own language properly, this initiative will be a plus to our children's future. (May, 2014)
- Thank you very much to the Ministry of Education and all the responsible stakeholders for having the insight in making conversational vernacular languages (iTaukei and Hindi) compulsory in primary schools. (Koroidimuri, 2014)
- My grandson is in Class One and can say a few sentences in both languages. With persistence, he will grow up knowing three languages. (Lockington, 2014)

The views above show that the idea of teaching conversational languages in the schools was understood well by the people. All children will learn FH and Fijian as well as English. At the promulgation of the constitution

the President remarked that, for the first time, the two principal vernacular languages, Fijian and FH, would be taught in primary schools as compulsory subjects and so we will be a nation better able to communicate with each other and share our stories.

Despite the support of the highest office of Fiji and the public, certain organisations objected to this move. The Arya Pratinidhi Sabha of Fiji (a Hindu religious organisation) directly rejected the idea, saying they do not recognise FH as a language. In a news segment, their general secretary said that "FH is a concoction of several languages and so we refuse to recognize it as a language" (Arya, 2013). This attitude amongst the Hindu organisations was in fear that sooner or later FH would replace SH. This sentiment goes back to the days when Indians worked hard to establish schools to teach their children SH to safeguard their culture.

Despite the opposition, the Ministry decided to go ahead with the programme. Certainly, the intention of the act was worthy as the laws discussed above would be better realised with proficient speakers and writers in the major languages of Fiji. The Ministry of Education produced a handbook for teachers to teach FH. The lessons were written using the Roman alphabet but unfortunately the writing system used was inconsistent. There was no consistency in the spelling. For instance, the letter "u" in one word represented the phoneme /ʊ/ and in the other it had the sound of the phoneme /ʌ/. Currently they are preparing new materials which hopefully will be more standardised.

The actual implementation of this act in the classrooms seems to have happened in a very ad hoc manner. Some comments from the teachers in the Fiji Times (15th January, 2014) were:

- "At XXX, we have 10 minutes every morning where all students learn conversational Hindi and Fijian."
- "Our Fijian students learn Hindi from our Indo-Fijian teachers."
- "The Education Ministry provided us with tapes which the children and the teachers listen to, and we learn about Fijian and Hindi."

Such feedback from teachers shows that the teaching of conversational language was never planned properly. The curriculum of the teacher training institutions did not change much to reflect this initiative. It is virtually impossible for children to learn a language by spending only 10 minutes on it every morning, or by listening to it over the speakers. If language teaching was so simple, then every student in Fiji would be a

proficient English speaker and writer based on the number of hours spent in teaching English.

While the Ministry continues to work on producing materials for the conversational classes, somewhere along the line it seems someone has lost track of what the intention was. Somehow the FH language that was supposed to be being taught in the conversational classes for Fijian students found its way into the external exam papers for the Hindi subject in 2016, designed primarily for the Indo-Fijian students who were supposed to use SH. This is a gross error on the part of the Ministry of Education officers who did not comprehend the very basic purpose of this programme. Such blunders have raised more resistance to the teaching of FH in recent years by the Hindu religious groups who happen to manage a lot of schools in Fiji. The fears expressed by Arya Pratinidhi Sabha and others are only reinforced more with such poor planning.

The Future

The whole purpose of introducing conversational language was that the two major communities learn each other's language. To do that, a lot of planning and preparation needed to be done. While there is a standard way of writing and teaching Fijian already in place, the same cannot be said of FH. First, a standard way of writing FH needs to be developed and followed. Conversational teaching materials should be added to the teacher training curriculum of language teachers. It is imperative that the conversational programme be separate from the language sections of the curriculum development unit. A lot of in-service courses should be organised for the language teachers so that they are able to teach conversational languages. Most importantly the ministry should abandon this notion that any Fijian teacher can teach Fijian and any Indian teacher can teach FH. Finally, a very good ability to speak and write either Fijian or FH apart from English should be an important criterion for the recruitment of trainee teachers and police officers.

References

2013 Constitution of the Republic of Fiji Islands, (2013)

Arya, K. (2013, September 4) /Interviewer: R. Koroi. FBC News.

Clammer, J. R. (1976). Literacy and Social Change; A Case Study of Fiji. Leiden: E J Brill.

Fiji Sun. (2018, April 3). Minister acknowledges the role of religious organisations in education. Fiji Sun, p. 5.

Fiji Times. (2014, January 15). Teaching Conversational language in classrooms. Fiji Times, p. 6.

Geraghty, P. (1984). Language policy in Fiji and Rotuma. In Duivosavosa: Fiji's Languages – Their Use and Their Future (Vol. 8, pp. 32-84).

Geraghty, P. (1989). Language Reform: History and future of Fijian. In C. H. I. Fodor (Ed.). Hamburg: Helmut Buske Verlag.

Geraghty, P. (2013, September 20). Language debate. Fiji Times, p. 6.

Gillion, K. L. (1962). Fiji's Indian Migrants: A History to the End of Indenture in 1920. Melbourne: Oxford University Press.

Koroidimuri, N. (2014, January 24). Languages. Fiji Times, p. 4.

Lal, B. (2012). Chalo Jahaji: On a journey through indenture in Fiji. In Chalo Jahaji: On a journey through indenture in Fiji. https://doi.org/10.26530/oapen_459865.

Lal, B. V. (1983). Girmityas: The origins of Fiji Indians. Canberra: Australian National University.

Lockington, A. (2014, January 31). Trilingual Students. Fiji Times, p. 5.

Mann, C. (1935). Education in Fiji. Melbourne: University Press.

May, S. (2014, January 24). Languages. Fiji Times, p. 4.

Mugler, F. (1996). Vernacular language teaching in Fiji. In F. M. Lynch (Ed.), Pacific Languages in Education (pp. 273-286). Suva: Institutte of Pacific Studies and Pacific Languages.

Mangubhai, F., & Mugler, F. (2003). The language situation in Fiji. In Language Planning and Policy in the Pacific, Vol 1: Fiji, the Philippines, and Vanuatu (Vol. 4208). https://doi.org/10.21832/9781853599224-004

Siegel, J. (1987). Language contact in a plantation, A sociolinguistic history of Fiji. Cambridge: Cambridge University Press.

Tamata, A. (1996). Code-Switching in Fiji's schools. Suva: Institute of Pacific Studies, University of South Pacific.

Wood, A. (1978). Overseas Missions of the Australian Methodist Church (Vol. 2). Melbourne: Aldersgate.

CHAPTER 3

Pacific Pedagogies for Literacy and Language Development: Exploring a research-practice intervention

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Abstract

The Pacific Literacy and School Leadership Programme (PLSLP) was a three-year intervention in three Pacific primary school systems. PLSLP was funded by New Zealand MFAT and delivered through a partnership between the University of the South Pacific's Institute of Education and the University of Auckland. Its overall goal was for improved literacy learning and language development. PLSLP took a design-based research (DBR) approach to working collaboratively with Ministries of Education and schools across Solomon Islands, Tonga, and Cook Islands. In this paper, we provide an overview of the programme and how the DBR approach was implemented within the different contexts of PLSLP. The paper is based on reflections of four PLSLP team members with a particular focus on the interface of literacy and language, and the development of contextually tailored learning resources. We maintain that the DBR approach, as co-constructed by the researcher-practitioners involved in each country, responded well to the challenges faced by Pacific Ministries of Education and their Development Partners in designing and delivering effective interventions for learning improvement. Underpinning PLSLP was the belief that aid interventions must contribute to enhancing student learning outcomes in a way that is contextually appropriate, and by building sustainable local capability for ongoing improvement. The central focus of PLSLP on teacher-student interactions, the pedagogical exchange, and co-design methods offered through DBR, ensured our interventions were built from and for the contexts engaged in.

Introduction

Concerns about students' literacy learning outcomes have been paramount

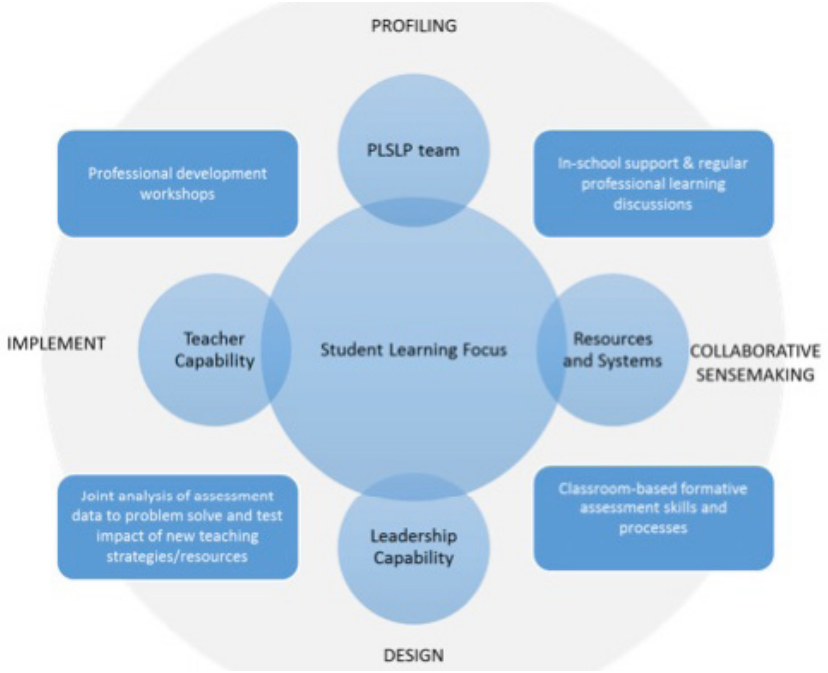
within Pacific Island countries for some time. The Pacific Literacy and School Leadership Programme (PLSLP) was designed to respond to these concerns through a research-practice collaboration. The design focused on working at the classroom level to improve student literacy learning outcomes, in a manner that is contextually appropriate and builds sustainable local capability for ongoing improvement. This paper provides an overview of PLSLP and the design-based research approach employed in the programme. Three members of the PLSLP team then share their reflections on key aspects of the programme, with a particular focus on the literacy and language intersect within PLSLP contexts, linking back to the Ako theme of Pacific learning contexts and practices.

Overview of PLSLP

The Pacific Literacy and School Leadership Programme (PLSLP) was initiated by the New Zealand Ministry of Foreign Affairs and Trade (NZ MFAT) in 2014, in response to growing concern across a number of Pacific Island ministries of education that high proportions of students were not meeting expected literacy levels (NZ MFAT, 2014). Central to the genesis of the programme, was a sense of dissatisfaction with the extent to which previous interventions had failed to demonstrate sustained improvements at classroom level, and that they were infrequently based on robust evidence of the actual patterns of teaching and learning within Pacific Island classrooms (ibid). Initial scoping for the programme uncovered a desire for a different approach, an approach strongly grounded in understandings of the context of Pacific schools, and in evidence about the patterns of teaching and learning that occur within Pacific classrooms (PLSLP Implementation Plan Phase One, 2014). PLSLP was therefore also designed to contribute a stronger evidence base for how best to support effective literacy teaching and learning within the specific context of Pacific Island nations.

A research-practice collaboration involving the University of Auckland and the Institute of Education of the University of the South Pacific was selected by NZ MFAT and the participating ministries of education to implement the programme. The PLSLP team worked with 42 primary schools across three countries – Cook Islands, Tonga, and Solomon Islands – over a three-year period, beginning in mid 2014. A design-based research (DBR) approach (explained below) was adopted as the means of responding to the desire for a stronger evidence base and delivering contextualised interventions that build capability at the school level to sustain on-going improvement, beyond the injection of finite project funds (Jesson and Spratt 2017). Key programme activities are represented in Figure 1.

Figure 1. Key components of PLSLP



By the end of the programme, evidence demonstrated significant gains in student achievement across the three countries compared to baseline (Pacific Literacy and School Leadership Programme, 2018). Significant increases in both instructional and school leadership practices identified as supportive of students' learning in targeted areas were also achieved across all three countries (ibid). Interviews with teachers and school leaders involved in the programme revealed that the majority valued the approach of PLSLP and recognised it as different from other programmes, in particular the collaborative "co-design" approach (explained below) and the recurrent provision of professional development support at the school level (ibid).

Design-Based Research Approach

As described in detail elsewhere (Jesson and Spratt, 2017, Veikune and Spratt, 2016), PLSLP employed a DBR approach, which has key features of:

- Involving collaboration between researchers and practitioners;
- Being based within a real education context and focused on immediate problems of practice for educators in improving student learning; and

- Involving iterative cycles of data collection from the local context, and the use of that data to design and test interventions. (Anderson & Shattuck, 2012; Fishman, Penuel, Allen, Cheng & Sabelli, 2013)

Adopting the DBR approach meant the interventions used in PLSLP were not pre-designed and there were no prior assumptions of what the key "problems" or appropriate "solutions" were or should be. Instead, PLSLP started with a "profiling" phase involving the collection of data about current patterns of student learning, teacher practice and school leadership practices specific to the participating schools. In "sense-making" sessions the PLSLP team facilitated a collaborative process with the schools for making sense of the data, reaching agreement on the most important student learning challenges, and developing hypotheses about what changes in practice are needed to address those challenges. The outcomes of this process informed the design of professional learning for the teachers and school leaders and the development of teaching and learning resources including formative assessment tools. This cycle of data collection, collaborative sense-making, and co-design of interventions was repeated throughout the programme, and involved stakeholders at every level (school level, with Ministry partners, and within the PLSLP team itself).

The implementation of PLSLP demonstrated several strengths of the DBR approach for the design and successful implementation of interventions to improve student learning. First, the DBR approach enabled PLSLP interventions to be developed within context; responsive to local priorities and incorporating local knowledge, while integrating academic knowledge and maintaining theoretical and practical validity (Jesson and Spratt, 2017). Described by Veikune as the "weaving" of academic and practical knowledge, the co-design process based on locally collected data ensured interventions were "woven with rather than for school communities" and that "teachers' knowledge about what sits behind the data is essential to weave into the analysis alongside "outsider" researchers' interpretations" (Veikune and Spratt, 2016, pp. 93, 77).

Second, the sense-making process served as an important professional learning opportunity, in making visible the relationship between patterns of student learning and teacher practice, and enabling teachers to further refine their understandings of effective learning and teaching in their context (Jesson and Spratt, 2017).

Third, the design-based research approach, in placing less emphasis on the "fidelity of implementation"(whether teachers implement interventions exactly as designed) and more on the "integrity of implementation" (doing

what matters most and works best while accommodating local needs and circumstances) allowed space for a more sustainable approach to capability building of teachers and school leaders (Le Mahieu, 2011). Schools are dynamic; every year new students arrive with different learning strengths and challenges, teachers and school leaders may change, demands of the curriculum may change. Sustained improvement in student learning, therefore, requires schools to have systems, routines, and capabilities in place to support on-going improvement. The involvement of school leaders within PLSLP was particularly important from this perspective.

This section has provided a broad overview of PLSLP and the DBR approach adopted in the programme. The following section provides reflections about the programme design and implementation of the DBR approach within the Tongan context from Heti Veikune. This is followed by two sections, by Robert Early and ‘Ana Taufe’ulungaki respectively, looking at the intersect of language and literacy, and the way in which PLSLP responded to this in the Solomon Islands and Tongan contexts.

Making Sense of the Known to Weave into the Unknown

PLSLP, known in Tonga as LALI (Literacy and Leadership Initiative), gave researchers the opportunity to engage with principals, teachers, and students in the 15 schools across 3 island groups in Tonga, on many different levels. The initial profiling in late 2014, using classroom observation and teacher and principal talanoa data, together with national Secondary Entrance Examination (SEE) results, enabled the team to plan to address what the data revealed about what was happening in the teaching of literacy in classrooms in Tonga.

The DBR approach employed by the programme was a new undertaking for many of involved in the team, as well as for the schools involved. Our unfamiliarity with this approach was hard at the beginning, especially in the early days of taking the profiling data back to the schools for sense-making and for planning. But once principals and teachers understood what the data meant and could see how useful it was for informing their school and classroom planning, it was easier for all of us. Principals and teachers felt empowered because they were allowed to look at their data and to select what area of “need” they could work on; for example, they chose reading comprehension because the SEE results revealed areas of weakness in the participating schools.

The professional learning that was planned addressed the opportunities for learning revealed in the classroom data. Workshops were targeted

for specific needs, such as vocabulary building, shifting from Tongan to English, asking questions, moving from question and answer to talk and think about reading/writing, how to use text resources effectively, setting up learning communities etcetera. Over time, teachers became more open about what kind of professional assistance they required in order to lift the results their students were showing.

A key to the success of this programme was the buy-in, not only by principals and teachers, but by the community as well. The development of new text resources targeted to the areas of learning need was particularly valuable, as these books provided teachers with the material to implement our newly-reminded and introduced strategies. We witnessed these resources being used right across all levels and in both Tongan and English. We took the reading materials to the home villages of the schools and showed parents how they could use their everyday activities and conversations to foster literacy and the added use of the books was a bonus. It is hoped that principals and teachers will continue to allow the children to go home with the books.

My role, as Coordinator and Literacy Facilitator for LALI, was to oversee arrangements for travel and for workshopping/classroom visits and to work with the University of Auckland team to facilitate workshops and classroom visits, to be involved in data collection and profiling, and to maintain contact with the 15 schools we worked in. It has been a huge learning curve for me, one that has allowed me to travel to our schools in the islands, to engage/interact with practitioners and leaders in the field, to learn from my team member colleagues, and it has enabled me to work with teachers and children in a way I had not done before in my teaching career. My awareness of the positive outcomes from using student learning data to inform planning, resourcing, and delivery has been most useful in my own work with the University of the South Pacific as well. At the end of these three years of the programme, the shifts in teacher and leader practice are most encouraging, and the shifts in student achievement are be celebrated and, hopefully, can be sustained for a long time.

The Language/Literacy Intersect in PLSLP

The design model of PLSLP forced project planning and implementation to be highly cognisant and reflective of the distinct contexts of each of the three countries. This was particularly evident in relation to language issues. There is now a fairly widespread understanding and acceptance of the importance of the child's first language in early learning, but the language/literacy intersect displayed distinct features and challenges in

each of the project locations. This section provides an overview of the language contexts in each of the three countries that PLSLP worked in and highlights how the programme responded to these contexts. A more in-depth description of a vernacular pilot undertaken in Solomon Islands as part of PLSLP is provided.

Cook Islands language context

In the Cook Islands, the Māori language exists as the dominant Rarotongan dialect on the main island, but there are also several other distinct dialects on other islands that PLSLP worked with; for example, Mangaia. There are also some other language varieties that are distinct enough to be regarded as languages in their own right; for example, the language of Pukapuka. There are strong attachments to these local speech varieties as markers of identity for the populations outside Rarotonga. The formal school vernacular education programme recognises and supports the use of these other language varieties. However, the easy access Cook Islanders enjoy to New Zealand has resulted in massive population movement to New Zealand, and language shift to English both in the diasporic community and increasingly in the home community. All the language varieties in the Cook Islands are regarded as threatened, and so there is also a strong language maintenance component to the implementation of vernacular education.

The challenges are most acute when it is found that in some schools, the majority of Cook Islands children are in fact English L1 (first language) speakers, with varying levels of ability in Māori as L2 (second language). This arose as a significant challenge for teachers in PLSLP schools on the island of Rarotonga and there were differing perceptions about how best to respond to this challenge at community, school, and Ministry level. The PLSLP team were mindful of the sensitivities of this issue, and the importance of engaging with teachers' and leaders' beliefs and values. Creating opportunities for dialogue amongst teachers about this issue became a key strategy within the programme, and one which teachers stated they valued. PLSLP contributed to creating a safe space for such discussion to take place, with a focus on the needs of students in classrooms and on developing strategies that would work best for them.

Previous assessment tools in the Cook Islands were originally designed in and for English, and then translated into Māori, but a more nuanced response to the language context led to the development of new formative assessment tools written directly in Māori. The development of these tools within PLSLP was a collaborative effort and professional learning opportunity that strengthened engagement by teachers, and incorporated

input from expert speakers and writers of the language. The tools were found to provide more valid information about students' performance in writing in Māori.

Tonga Language Context

In Tonga, traditional culture and language heritage have always been highly valued, along with learning and education, resulting in high rates of literacy being reported. The national language policy in education is for Tongan to be the medium of instruction until Y4 (year 4), with the introduction of oral English in Y3 and then a gradual move to English as the medium of instruction by Y6. Along with Tongan, the other indigenous language of Niuafo'ou, although spoken by just a small minority, is also recognised.

The official languages are Tongan and English, and project profiling in the schools revealed that English is increasingly perceived as having higher status than Tongan. There are signs of community language shift to English, and some community pressure for the teaching of English to be the key outcome of education.

Further, recent measures have been showing only a minority of children achieving literacy benchmarks and a particular challenge in managing the introduction of English as a second language from year 4, while continuing to build capability in the first language of Tongan. A core aspect of the programme's response to this particular language context was the development of dual-language resources with both Tongan and English text, and provision of professional development for teachers in how to strategise the use of these resources. This is discussed in detail in the section below.

Solomon Islands Language Context

In the Solomon Islands, as throughout Melanesia, the language setting is more complex, with multiple vernacular languages; Pijin (Melanesian Pidgin English) as the widespread language of interaction in almost every sphere of national life, and English as the official language and the language of formal education at all levels. As part of the profiling component of the project design, a study was conducted on the language profiles of the students and teachers in the project schools. Combined with classroom observation data, it was found that there are high levels of multilingualism among individuals and at school. Students were drawn from four language communities, but it was found that Pijin had displaced the vernacular as the first language for around 25% of students. Teachers were predominantly

working in their home areas, so usually knew the vernacular, and would use that widely in the classroom. Pijin is still somewhat stigmatised as a language in Solomon Islands, and its use for any purpose in education is contested. However, in practice it was found to be widely employed for all oral communication in the classroom. English was largely confined to its written form, either by the teacher on the blackboard or by students in their exercise books. The only time students were observed to verbalise English was when "reading" aloud as a class from a shared reader, which was largely a recitation exercise. In just a few locations, teachers had developed their own vernacular resources, but otherwise all classroom resources were in English, which of course is the only language of the official curriculum and its assessment regime.

Recent changes in national educational policy in the Solomon Islands now support the concept of vernacular education. The Education Strategic Framework (2016-2030) proposes mainstreaming the use of vernacular languages in education across the country. However, the large majority of teachers within PLSLP schools were unaware of this policy. When surveyed, the majority of teachers in PLSLP schools believed that they were not permitted, or at least not encouraged, to use the child's first language or Pijin. However, 85% of teachers surveyed indicated that they believed that the vernacular should be used in the classroom in some way.

Natqgu Vernacular Language Pilot

In response to the data collected through profiling, it was decided to explore the potential for a vernacular language pilot with the largest language community within PLSLP schools – the Natqgu language. The first step was to discuss the results of the language survey in meetings with the school communities. Awareness raising on the cultural, social, pedagogical, and other benefits of children learning in their first language was conducted, and there was found to be overwhelming support from parents for such an approach. Also, with a better understanding of the policy environment, teachers too became enthusiastic and engaged. Some resources from a previous church-based community literacy programme were revised, and new resources were developed, including an alphabet chart and a new alphabet song, and translations of the existing Nguzunguzu school readers. The literacy workshops provided for all teachers engaged with multilingual approaches, and inventories of bilingual strategies were developed.

Some of the key learnings from the vernacular pilot with regard to the language-literacy intersect are as follows:

• Some of the rationale behind multilanguage education goes against commonly held beliefs (e.g. that English-only from the start is best), and significant community and stakeholder (including teacher) awareness is necessary on an ongoing basis.

• Disconnect between national policy and local teacher perception and practice needs to be overcome, and national policy supportive of vernacular education must be followed up with appropriate advances in curriculum and provision of suitable resources.

• Vernacular literacy programmes must be built on knowledge from language experts and the importance of language factors in literacy education.

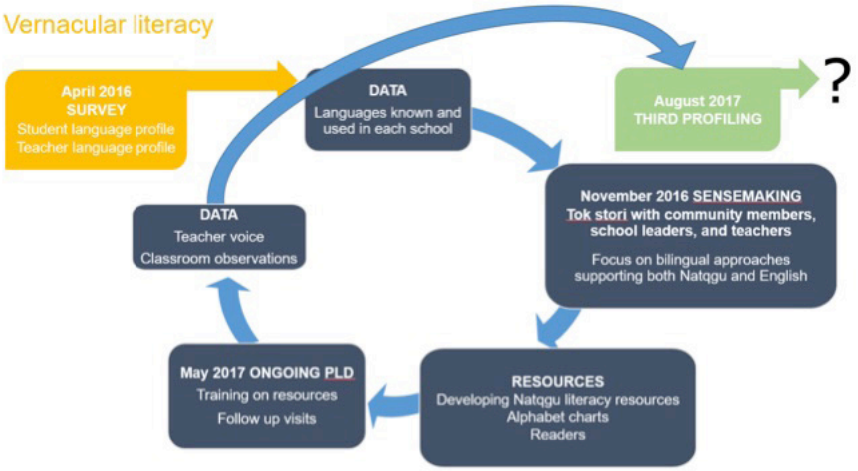
• Teacher development must include an understanding of first and second language learning, and provide skills and strategies for bilingual teaching.

• There is a huge scope for locally-prepared resources and teaching and learning materials to be developed and used.

• Incorporating vernacular into the classroom can provide a powerful opportunity for enhancing engagement with parents and communities, and bridging the boundary between home and school.

The chart below gives an overview of the cyclical process of the design-based research as it applied to incorporating aspects on vernacular literacy into the Solomon Islands component of PLSLP. The question mark at the end leaves open the prospect for further cycles of development for the language that was targeted in the pilot activities, or for expansion to other language communities and their schools.

Figure 2. Application of a DBR for design of vernacular pilot in Solomon Islands



Conceptualising Text to Support Biliteracy

The development of text resources specifically tailored to the identified student learning needs in each country was a core component of PLSLP. This section describes the development of text resources in the Tonga context, where three kinds of texts were developed: fiction readers in Tongan language in big book form for years 1-3; textless books in big book form for years 1-3; and dual language (Tongan and English) non-fiction books for years 4-6. The main purpose of developing new text resources in the LALI programme was to inspire in children a passion and love for reading and to instill in them foundational literature skills that can be built on and sustained throughout their school years and lives. To achieve this goal, the LALI resources were developed in accordance with certain key principles, based on research evidence from the literature.

The needs of Tongan children were paramount in the considerations and processes of resource development – their prior knowledge, their values and beliefs, their language competence, their world views, and of course, the contexts in which they are situated – educational, social, cultural, economic, and political. The resources were deliberately linked to the Tongan Ministry of Education's language policy and curriculum, to ensure that LALI would not subvert the work already done by teachers in Tongan classrooms but would bring additional value to classroom practices. The themes, contents, concepts, sentence structures, and vocabulary must also

be appropriate for each year level, as guided by the curriculum. The texts were designed to assist in enabling children to make the natural progression from thinking, talking, reading to writing.

The resources also had to be environmentally and culturally appropriate. An illustration of a pig in the story must be recognised by the children as looking like the pigs they see around them in Tonga. A story about a bear and a lion, for example, would not be appropriate in the Tongan context. Images are considered just as important as the texts in extending meaning and adding meaning to the story. The LALI resources were designed to be visually appealing in order to excite the child's imagination and promote love of reading. Overall, the process of development depended very much on the close collaboration between author, illustrator, photographers, editors, designers, reviewers, teachers, students, schools, communities, education systems, and the Ministry of Education.

The resource development process within LALI was not just evidenced-based, but also has the potential to contribute to the existing literature on effective resources for bilingual classrooms. In the case of the LALI, dual language readers were developed for years 4-6, in English and Tongan. These were designed in three different formats. The Level 4 books were printed as flip-books. One side is in Tongan; the book is flipped over, and the text is in English. The Level 5 books were printed in a successive format, meaning, that Tongan and English were printed on the same page, with Tongan first, followed by English. The Level 6 books were printed as progressive books; that is, the story in the first half of the book is in Tongan and from the middle of the book to the end, it is in English. The reason for using these three different structures is the fact that very little has been written in the literature on the most effective structure for printing dual readers for use in bilingual classrooms. At the end of LALI, a survey was conducted with teachers to find out which of these three structures of dual readers was found to be the most useful and effective. The results of the survey are being written up to contribute to the literature on the subject.

The first resources to be introduced into the schools were a series of textless books for years 1 to 3, with the objective of teaching the basic literacy skills, such as reading from front to back, from left to right, from top to bottom. The books have no text or words, but the story is told only in pictures and images, which proved quite exciting for both teachers and children and encouraged the development of the children's thinking and imaginations. The children are able to create their own stories, which they can tell the teacher or each other, write them in their own words, and

illustrate them. Teachers are able to use the books to link teaching to other subject areas of the curriculum and to use them for other levels, not just the early years. Such books allowed the children to make connections from the books to their environment and activate their prior knowledge, and expand their thinking and vocabulary.

The second set of resources were big books for years 1 to 3 and several factors came into play in the development of these. The books were in Tongan language only. This is in line with the evidence-based knowledge which supports a strong mother-tongue foundation as the basis on which to build second-language acquisition, in this case, English. It was also in accordance with Tonga's national language policy, which stipulates a Tongan-only medium of instruction from years 1 to 3. English is introduced orally through rhymes, songs, poetry, and play etcetera. in year 3, and introduced fully in year 4. Year 4 of primary education can be considered a transition year, from a monolingual medium of instruction to a bilingual approach. The big books were re-worked versions of existing Tongan readers, which were already in classrooms but only in small format. This was a deliberate attempt to add value to existing resources.

The big books were developed with the intention of encouraging shared reading in a safe environment, where children can share their ideas about the illustrations, make connections between the images and the texts, and use the images to expand on what is missing from the texts. In such an environment, all children are encouraged to read with confidence. Teachers use different levels and types of questions to deepen children's understanding of the texts, make connections with their environments and prior knowledge, visualise what they read, determine the important ideas in the text, draw inferences, synthetise information, ask their own questions, monitor their comprehension and repair their own understanding, and achieve, ultimately, metacognition.

As already stated, the development process for the big books was firmly based on research into effective resource design. For example, the size of the book had to be taken into account to ensure that a teacher can hold it comfortably in her hands, and to make sure that all the children in the class can read the text and see the pictures clearly. The font and size used had to be suitable for the level, and, similarly, the length of sentences and lines on a page, and the level of difficulty of the words used. They must be words which the children have encountered in their environments. Through improvements of skills levels, vocabulary and grammatical knowledge can be extended as well as reading for deeper levels of meanings.

The third and final set of resources developed under PLSLP in Tonga were dual readers for years 4 to 6 in both languages, Tongan and English. The main purpose of these books was to facilitate the transition of the children and teachers in Tongan classrooms from Tongan to English. In addition, these books supported the teaching of non-fiction text features and responded to the finding in profiling that most texts available in Tongan classrooms were non-fiction. The focus on non-fiction also aligns with research evidence that indicates if children are made familiar with non-fiction text features from an early age, they will be comfortable with such reading matters as they progress through the education system.

Alongside all the text resources developed for LALI were Teachers' Guides, in both in Tongan and English. These were printed separately for each year level and also for each language. These guides are not prescriptive; that is, they do not tell the teachers what to do. Rather they are offered as additional resources from which teachers can select activities and strategies that they think would be useful for their own students and would add to their existing repertoire. In line with the collaborative approach promoted by LALI, the guides also encourage teachers to share ideas for teaching and learning strategies with other colleagues and to adapt them to suit their own student's needs.

Concluding Reflection

This paper has explored aspects of the Pacific Literacy and School Leadership Programme, illustrating a design-based research approach to designing and implementing interventions to improve student literacy outcomes, building from within and for Pacific Island educational contexts. Originally presented as part of the Ako strand at the Vaka Pasifiki Conference, the weaving of the voices of different team members involved in PLSLP coheres with Pacific learning practices, often embedded within oral dialogue. Many of us involved in PLSLP began as novice weavers, happy to watch and observe the expert weavers. As the weaving grew and the mat advanced, novice weavers realized they had to step up because they, too, had something to contribute to the weaving. This particular mat is completed and the weavers have now stood up from the weaving and are admiring their handiwork, at the same time remarking on where they could have woven better or tighter. This mat is ready to be presented for our children to work and play on. And the weavers look now to the next mat, knowing full well they take the lessons learnt from this weaving to the next one.

References

Anderson, T., & Shattuck, J. (2012). Design-based research: A decade of progress in education research? Educational Researcher, 41(1), 16-25. doi:10.3102/0013189X11428813

Fishman, B. J., Penuel, W. R., Allen, A.-R., Cheng, B. H., & Sabelli, N. (2013). Design- Based Implementation Research: An Emerging Model for Transforming the Relationship of Research and Practice. In B. J. Fishman & W. R. Penuel (Eds.), National Society for the Study of Education: Vol 112. Design Based Implementation Research (pp. 136-156).

Jesson, R., & Spratt, R. (2017). An intervention in literacy in three Pacific nations: Implications of a context specific approach to co-design. The International Education Journal: Comparative Perspectives, 16(1), 36-49.

LeMahieu, P. (2011). What we need in Education is More Integrity (and Less Fidelity) of Implementation. Retrieved from https://www.carnegiefoundation.org/blog/what-we-need-in-education-is-more-integrity-and-less-fidelity-of-implementation/

New Zealand Ministry of Foreign Affairs and Trade. (2014). Activity Design Document for Pacific Literacy and School Leadership Programme. Available from New Zealand Ministry of Foreign Affairs and Trade

Pacific Literacy and School Leadership Programme. (2014). Implementation Plan Phase One. Available from New Zealand Ministry of Foreign Affairs and Trade

Pacific Literacy and School Leadership Programme. (2018). Draft Final Report and Internal Evaluation Available from New Zealand Ministry of Foreign Affairs and Trade once finalised

Veikune, H., & Spratt, R. (2016). Weaving a new approach to improving student literacy outcomes: the Pacific Literacy and School Leadership Programme. Development Bulletin, no 77.

CHAPTER 4

Ko e Fanāfotu ki he Ako Leleí – Transforming Education, Valuing Identity, Language and Culture

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Abstract

Navigating Ako, Pasifika education across Aotearoa New Zealand's social, cultural, and political contexts needs brave captains and leaders that operate on the fanā, the vaka, moana, and fonua. The Ako compass is set so learners arrive at desired destinations, secure in their identities, languages, and cultures, contributing fully to Aotearoa New Zealand's social, cultural, and economic wellbeing.

Navigating this folau (journey) through a results-based accountability framework will identify strengths and successful practices backed by visible results, to create value for learners and their parents, families, and communities, schools and the country.

This paper uses the Fanā Fotu, Transformation methodology, to discuss developing Pasifika Education Plans involving education agencies, education sector leaders, teachers, students, parents, families, and communities. These plans became the Fanā Fotu for ako across Aotearoa, founded strongly on Pasifika identities, languages and cultures, research, and evidence of what works to raise achievement, drawing on Pasifika voices and navigating across policy contexts. Fanā is a ship's mast and Fotu is something that shows up above the distant horizon. Fanā Fotu is used here to represent the Pasifika Education Plan as the flagship that led the transformation of Pasifika education towards improved outcomes.

The paper then draws from Ngāue Fakataha ki he Ako 'a e Fānau: Schools and Parents and Families Working Together to Better Understand and Support Pasifika Students' Progress and Achievement at School. This research and development project harnessed multiple voices enabling schools and their parents, families, and communities to work together and use culturally responsive pedagogies to support children's learning and progress. A key outcome was the resulting year-long Talanoa Ako Cycle, aimed at helping

schools and parents develop and sustain effective collaborations in support of student learning and success.

Introduction

Navigating Ako across Aotearoa New Zealand requires brave leaders to hear Pasifika voices, analyse research on what works to raise achievement, and understand policy and social contexts to develop Pasifika education strategic plans across a child's learning pathway from their parents, families, and communities, early learning, schooling, tertiary education, and beyond. Strategic planning helps navigate education towards better outcomes and public value. Pasifika is:

a collective term used here to refer to people of Pacific heritage or ancestry who have migrated or been born in Aotearoa New Zealand … recent migrants or 1st, 2nd and subsequent generations of … Pasifika men, women and children of single or mixed heritages who identify themselves with their indigenous Pacific countries of origin because of family and cultural connections. (Tongati'o, 2010, p. 10)

The challenge is understanding peoples' vision and movement from their distinctive Pacific countries of origin with clear cultural and linguistic identities to a country with a strong tangata whenua and large non-Māori, non-Pacific populations. This demands working effectively across communities and recognising the unique identities, languages, and cultures of each group.

The Pasifika population is young and diverse with multiple identities and worldviews. The majority of Pasifika people live in Auckland, half are Samoan, and about forty six percent are younger than 20 years old. Sixty seven percent of Pasifika students stay at school until age 17, of which twelve percent leave with University Entrance as their highest qualification.

Navigating across these worlds requires transformative leaders to:

- Operate on the fanā, vaka, moana, and fonua
- Lead, serve, and create followers
- Have zero tolerance for failure and high expectations for success
- Place learners at the heart of pedagogy and epistemology
- Use data and evidence to drive performance urgently
- Become culturally capable, competent, and proficient through inquiry,

knowledge building, and continuous learning

- Co-construct best practices to become everyday practices – is what you think, the same as what you say, and the same as what you do?
- Engage, make connections, and be brave – are Pasifika voices heard?
- Keep a line of sight across all areas – is anyone better off?

Navigating Ako across the Oceans of Social Cultural Contexts

Navigating ako across diverse social cultural contexts require leaders and practitioners to place Pasifika learners with their unique heritage and culture at the centre of their practices. Knowing the learner is key to co-constructing culturally responsive practices that motivate, sustain, encourage, maintain, and value identities, languages, and cultures, and the contributions they make towards successful education.

Culture is:

> the way of life of a discrete group, which includes a language, a body of accumulated knowledge, skills, beliefs and values … different cultural groups have unique systems of perceiving and organising the world around them. (Helu-Thaman, 1998, p. 120)

Culture matters because:

> individuals develop as participants in their cultural communities, engaging with others in shared endeavours and building on cultural practices of prior generations. (Rogoff cited in Tongati'o, 2010, p. 12)

While there is growing evidence of the significance of culture, identity, and ethnicity in educational responsiveness that can lead to successful learning (Bishop, Berryman, Cavanagh, & Teddy, 2007), responding to the culture and unique reality of students is often a complicated and sometimes problematic undertaking (Earl, Timperley, & Stewart, 2008).

It is important:

> for schools to identify the specific needs of individual students and to build a plan around those needs to raise student achievement for all. The biggest challenge for the New Zealand education system is the persistent disparities in achievement. (Education Review Office, 2015, p. 3)

Ako for learners who have multiple cultural and lingual identities, languages, and cultures encounters interesting interfaces and relationships

across numerous social cultural contexts such as the government of the day and its priorities; governance, leadership, management, and administrative contexts; family; formal and informal sectors; curriculum and assessment; teaching as inquiry; and research evidence and its impact on theory and practice.

The importance of having strong identity, language, and culture is shown through the goals and strands of Te Whāriki, the early childhood curriculum, and the New Zealand Curriculum. The Education Review Office (ERO) found that the early childhood services that were strongly focused on supporting children's learning were those where:

- Teachers had in-depth knowledge of every child and a shared understanding of, and expectations for, their oral language learning and development
- Leaders and teachers worked in partnership with parents and whānau, and with external agencies and specialist support where necessary
- Their curriculum was highly supportive of children's oral language learning and development
- Evaluation, inquiry, and monitoring processes were driven by the need to promote and support children's oral language learning and development.

Similarly, the most effective primary schools that supported students' oral language learning and development included:

- Transition-to-school programmes through which information was shared about oral language learning and development (including any strengths and needs)
- Both formal assessment and informal daily monitoring of oral language progress of all learners, particularly in the early months after starting school
- Explicit oral language learning expectations developed as part of school-wide progressions
- Daily literacy programmes having a strong oral language focus
- Identifying students needing additional support early and responding appropriately. (Education Review Office, 2017, p. 4)
- Quality home-school relationships can also be affirming of students and parents' cultures and identities, and quality teaching respects and

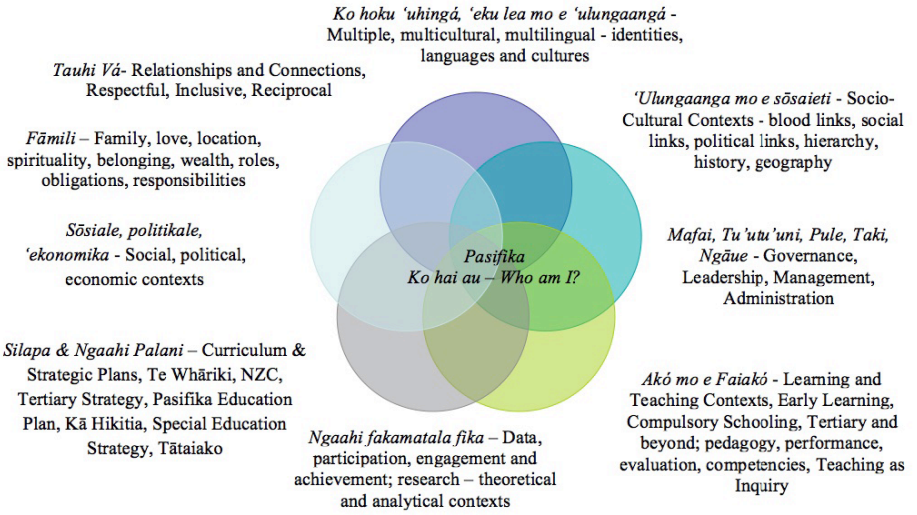
affirms cultural identity. These are founded on:

- Quality teaching effects are maximised when supported by effective school-home partnership practices focused on student learning
- When educators enable quality alignments in practices between teachers and parent/caregivers to support learning and skill development then student achievement can be optimised
- Teachers can take agency in encouraging, scaffolding, and enabling student/parent/caregiver dialogue around school learning
- Quality homework can have particularly positive impacts on student learning [with] effectiveness dependent upon the teacher's ability to construct, resource, scaffold and provide feedback upon appropriate homework tasks that support in-class learning for diverse students and do not unnecessarily fatigue and frustrate students. (Alton-Lee, 2003, p. vii)

The social cultural contexts that can influence Pasifika learners' education are shown in Figure 1, below. Understanding these is important in developing culturally responsive pedagogy from inside Pasifika contexts, acknowledging that the

> imposition of a [change] model from outside of the experiences, understandings and aspirations of the community is doomed to failure. (Bishop & Glynn, 1999, p. 12)

Figure 1. Navigating Ako Across the Oceans of Social Cultural Contexts



(Adapted from Tongati'o, 2010, p. 1)

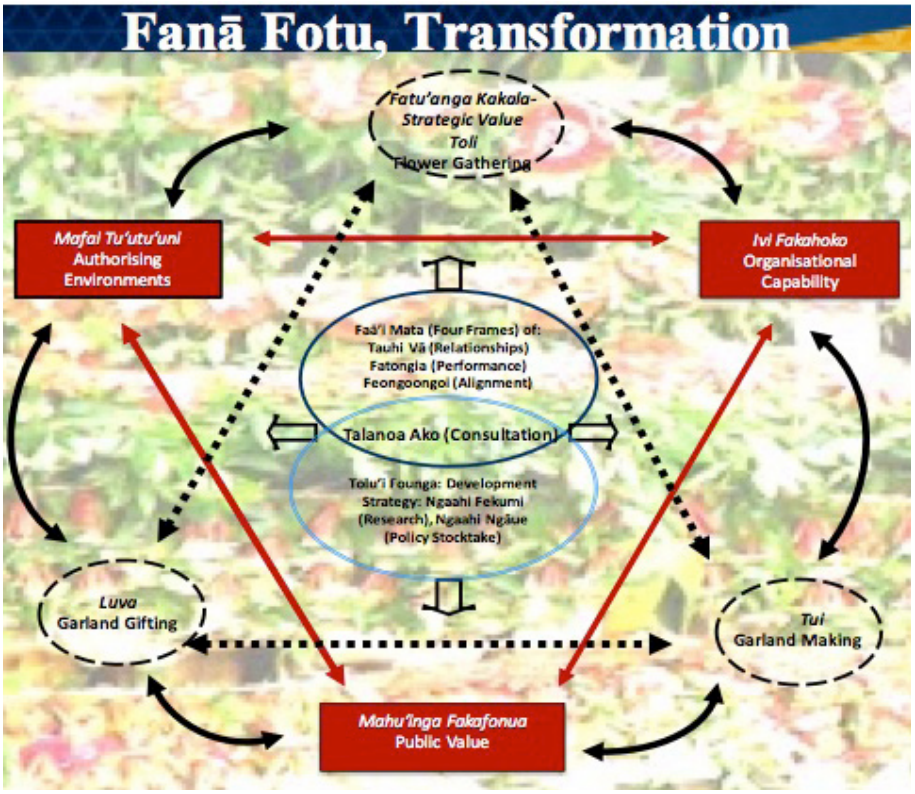
Fanā Fotu, Transformation

Influencing the education system requires ongoing policy adjustment using Pasifika voices, school leaders' and teachers' voices, data and evidence to co-construct culturally appropriate practices to raise achievement. The Fanā Fotu Transformation methodology provides a way of working and knowledge building that builds on existing evidence of what works to raise achievement. It brings together Pasifika and non-Pasifika methodologies with talanoa ako, tauhi vá, and Pasifika learners at the centre, from which to develop responsive leadership and pedagogical practices for personalised Pasifika success.

Fanā Fotu, Transformation brings together:

Tolu'i Founga (Development), Faā'i Mata (Relationships) and Fatu'anga Kakala (Strategic Value) … the focal point from which to set the national agenda … [where] … Pasifika Education Plans act as Fanā Fotu (flagships) across the education system … providing strategic leadership as well as monitoring implementation. (Tongati'o, 2010)

Figure 2. Fanā Fotu, Transformation Methodology



(Tongati'o, 2010, p. 337)

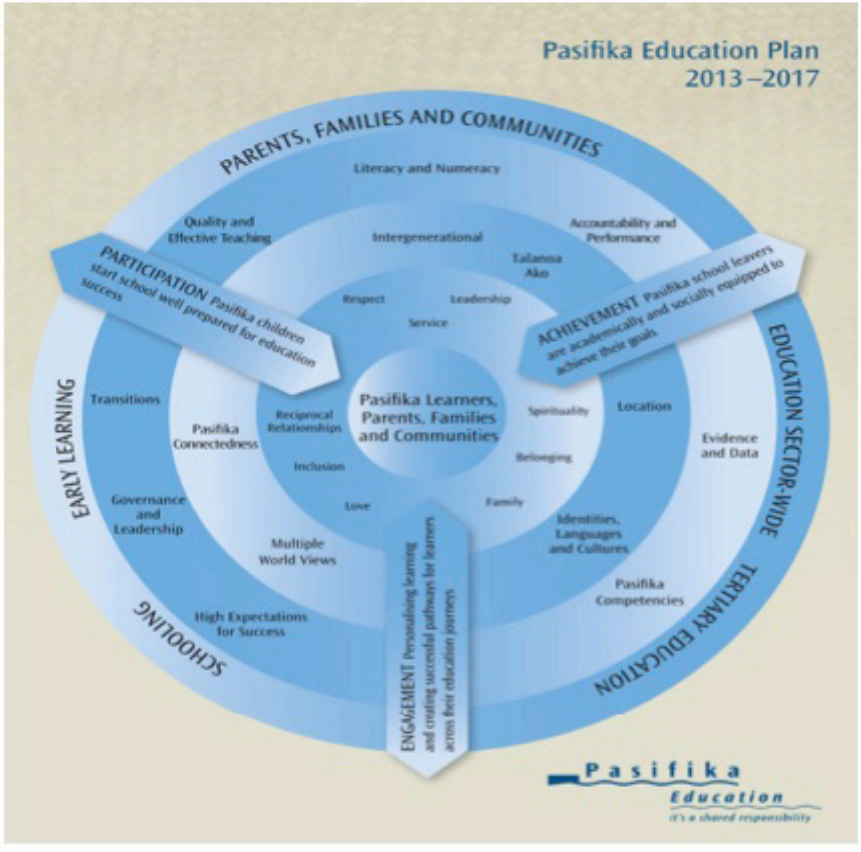
Central to the success of the Fanā Fotu Transformation Methodology is the use of Talanoa ako where:

- Successful engagement is built on developing genuine and long standing relationships and connections and responsibilities, highlighting the importance of Pasifika collective partnerships, where whole families and communities (or churches, or villages) work together for better results for their children, with shared clarity of purpose and multiple benefits for all
- Face-to-face talanoa ako is valued, involving going out to communities and meeting in their venues and on their cultural terms, as well as inviting communities into schools
- The language of engagement and of the subject content matters
- Information needs to be easily accessible, through a variety of media

- Strong Pasifika leadership is recognised as "serviceship" through culture, respect, reciprocity, well-being and sense of belonging
- Talanoa ako is conducted with openness, welcoming of critique, challenging perceptions and assumptions, and facilitating all voices to be heard
- Talanoa ako facilitators are Pasifika skilled, knowledgeable, able to follow through and report back to parents, families, communities, and agencies
- Educational leaders are honest and clear on purpose, how community voices will be used, and ways forward – where to next
- School leaders and agencies understand the meaning of potential silence – whether this means consensus, indifference, or diplomacy.

Using the Fanā Fotu, Transformation methodology resulted in the Pasifika Education Plan becoming the strategy through which Pasifika participation, engagement, and achievement is realised across the education system. Cabinet has approved five Pasifika Education Plans, with the first released in 2001. The key levers of the latest Pasifika Education Plan are shown in Figure 3, below.

From the Pasifika Education Plan, education services were able to create and sustain more focus on Pasifika education. Many schools have their own Pasifika plans, involving their community helping to facilitate strong partnerships, and better understanding of communities' education aspirations, expectations, and strengths. These plans are personalised to the schools' contexts.



Vision:

Five out of five Pasifika learners are participating, engaging and achieving in education, are secure in their identities, languages and cultures and contributing fully to Aotearoa New Zealand's social, cultural and economic wellbeing.

Ministry of Education, 2012, p. 5)

Figure 3. Pasifika Education Plan 2013-2017

Vision:

> Five out of five Pasifika learners are participating, engaging and achieving in education, are secure in their identities, languages and cultures and contributing fully to Aotearoa New Zealand's social, cultural and economic wellbeing. (Ministry of Education, 2012, p. 5)

In developing strategic plans, education services need to be bold and unafraid to consider the following:

- Are there goals embedded in school's Strategic Plan to achieve the stated commitment for Pasifika learners in the next 3-5 years?
- Does the board hold the school accountable for Pasifika success?
- Is the Charter/Strategic Plan published and shared with families at the start of each school year?
- Were Pasifika voices heard through talanoa ako and used to develop the school's plan?
- Are strategies and resources aligned towards achieving the plan's goals?
- Were student achievement data gathered, analysed, and effectively used to develop the plan of action, agreed by all, with regular meetings to discuss student learning and progress and asking:

    - Where are we at now?

    - Where do we want to be in the future?

    -What are our successes?

    -What are our challenges?

    -What do we need to do to be where we want to be?

    -What are our collective and individual strengths and needs?

- Are roles and responsibilities clear, published, and shared with teachers, students, and parents?
- Is there a line of sight across governance, leadership, school policies, teaching, and learning strategies, to learners and their parents, families, and communities? This creates seamless alignment of goals, actions, implementation, and monitoring for continuous improvement, with

successful strategies scaled up in real time.

- Is implementing and monitoring the plan's progress done through an accountability framework?

In support of raising student achievement, the Education Review Office suggested:

> that schools should be setting effective targets and creating the conditions in which all kids can excel … to reduce disparities … the focus to be on students with leaders and teachers adapting their practice to realise their students' potential … targets will … help schools to focus their actions, and ensure they make a difference for any students at risk of not achieving … leaders and teachers must also know whether their planned actions are having the desired effect on the students that need to make the most progress … successful schools [had]:
>
> • Optimum challenge in the targets, to 'stretch' expectations for success
>
> • Maximum visibility of targets, so that those needing to take actions (trustees, leaders, teachers, students, parents and whānau) shared responsibility. (Education Review Office, 2015, p. 3)

Creating value and raising achievement for all is the goal that needs to be achieved, and asking the following accountability questions will identify results alongside developing ways of strengthening ongoing opportunities and quality provision:

- How much did you do? (effort)
- How well did you do it? (quality)
- Is anyone better off? (effect)
- Where to next? (Friedman, presentation to NZ Ministry of Education 2006)

Ngāue Fakataha ki he Ako 'a e Fānau: Schools and Parents and Families Working Together to Better Understand and Support Pasifika Students' Progress and Achievement at School

An example of moving from strategic planning to operational activity – from operating on the balcony to operating on the dance floor (Heifetz & Laurie, 2001) – is this research and development project, intended to find out how schools were working with their Pasifika parents to support their Pasifika students' progress and achievement at school.

Initiated by the Ministry of Education, the project helped to increase understanding of Pasifika parents' relationships with schools and teachers regarding their children's learning, progress, and achievement. The Pasifika Education Plan and the New Zealand Curriculum both articulate the importance of regular, positive input from parents in support of their children's learning, which has a strong part to play in young people's success.

Ngāue Fakataha ki he Ako 'a e Fānau involved working with three primary schools that wished to develop ways to better engage with Pasifika parents, families, and communities in 2013 and 2014. The proportion of Pasifika students in these schools ranged from one-fifth to more than three-quarters. Interviews and workshops were conducted with parents, senior leadership team, board of trustee members, teachers, and students. Participants were able to talanoa in English or a Pasifika language of their choice and many chose to talanoa in Samoan and Tongan languages, enabling more depth and insights from participants.

There was a focus on reporting. The research literature reviewed as part of the project and the project findings, provide evidence that reporting practices and the wider aspects of partnering in relation to student learning, progress, and achievement vary widely in schools, and, are often problematic.

Valuable insights were gathered about the challenges faced by schools, parents, and students themselves in working effectively together to support student learning and progress, and practical guidance was offered to address these challenges.

Participant voices were gathered in response to some of the following questions: How much do you [as a student] like coming to this school … Do you enjoy learning at school? Does it feel like a friendly, welcoming place for you [as parents]? Do you think teachers in this school know much about Pasifika children, families, and communities … understand your Pasifika identities, languages, and cultures?

Student voices included:

> "There's a lot of cool teachers"; "I like their enthusiasm and they are fun".
>
> "[Our teachers], they set expectations but they don't put them so high we can't reach it … to prepare us for high school."
>
> "Our teacher says that all people are the same, even if we are different cultures, different skin colours [and] different languages. Like, we are all

human, we all have families, no-one's different … but we're not higher than anyone, in this school we are all equal."

Parent voices:

"You can feel it, that you are very welcome, the teachers are there … it is easy to relate or connect."

"They need to know more about us. They don't realise that we are very supportive people. We respect them but they don't respect us."

"There's nothing in the school environment that reflects me."

When asked about what parents most wanted teachers to tell them about their children, responses included

"What [our kids] are doing well in or not well in. Sometimes there's too much focus on the positive that we think our children are achieving well when in fact they are not".

Senior Leadership Team and Teachers voices:

"There is a sense of inclusiveness [throughout the school] and of welcoming the children. Most of the PI children are very polite, respectful children. They want to give their best."

"I'm not sure if there's a particular way … we all have our own way but we try to make children and their families feel welcome. Sometimes I will buddy a child up with another child especially if English is not their first language. The office staff are wonderful with new families."

"If a new child comes to my class I usually talk to them about where they've come from, who is in their family. Often they're related to someone at the school still so we try and find out family connections. And then what we do in my class in particular … It's more of a whānau, and 'Here is this amazing new person and we are going to look out for you'." (Tongati'o, Mitchell, Kennedy, 2016, p. 33-36)

It is interesting to note the similarities and differences in the student voices above to those gathered from a project conducted in Tonga last year where students articulated the characteristics of their best teachers based on the key indicators of relationships, engagement, management, dedication, and communications:

"Teaches with passion and care about other factors that might affect the students studies"

"Only teacher that I've seen that teach as a teacher, preach as a reverend and advise us students as a [parent]"

"Helps me … to achieve excellence … never gives up … hard working"

"Not only teach but cares more as a person than as a teacher"

"Hardworking, sets very high expectations, consistently a good teacher… very confident and passionate about teaching and working with students"

"Supports positive behaviour and discipline which helps with academic studies"

"Sets good examples and positive attitudes towards students"

"Build trusting fair relationships with students and teach them well"

"Uses every skill and every knowledge to teach us"

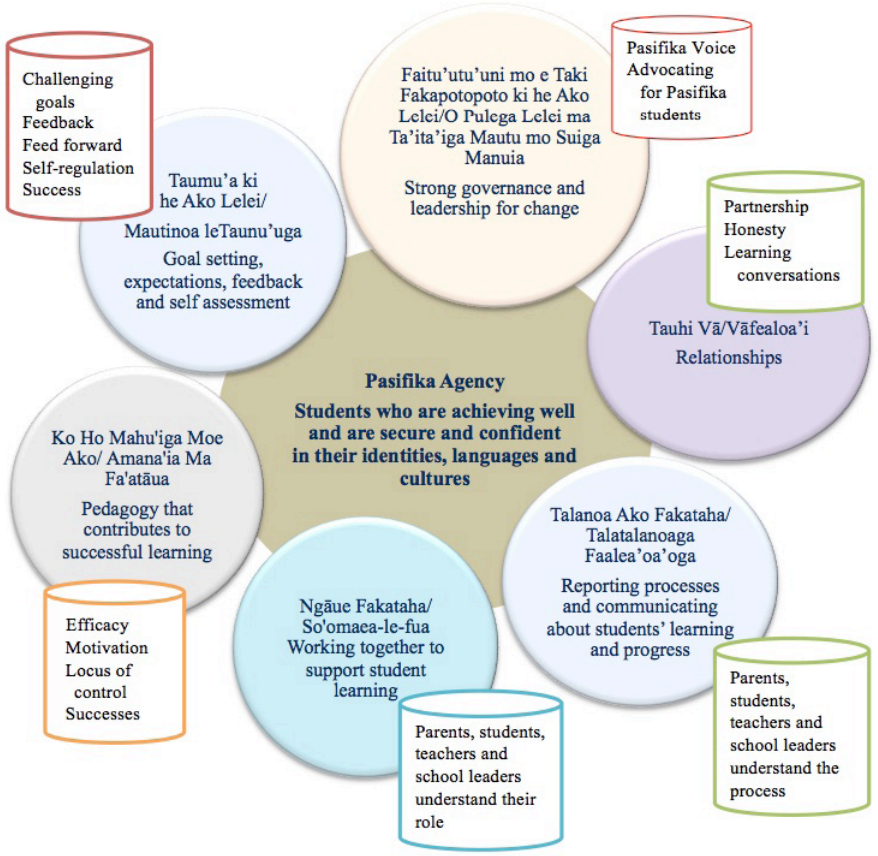
(Tongati'o, 2017, p. 6)

Ngāue Fakataha ki he Ako 'a e Fānau identified the following key findings, drawn together in Figure 4 below:

- Tauhi Vā/Vāfealoa'i – Relationships: The values important to Pasifika peoples are explored in the context of achieving educational success, and the conditions required for effective relationships between school and families.
- Talanoa Ako Fakataha/Talatalanoaga Faalea'oa'oga – Reporting Processes and Communicating about Students' Learning and Progress. Discusses the importance of effective reporting strategies and communication processes for parents and schools, and, the principles, processes, factors, and expected outcomes of effective reporting practices.
- Ngāue Fakataha/So'omaea-le-fua – Working Together to Support Student Learning. Explores the conditions for partnership within learning and reporting processes, and the roles of the school, teachers, parents, and students.
- Ko ho Mahu'igā moe Ako/Amana'ia ma Fa'atāua – Pedagogy that Contributes to Successful Learning. Draws together the relationships between cultural identities, personal identity, motivation, self-efficacy, and agency. Students displaying high levels of self-efficacy and strong self-belief display high levels of agency, and become much more active and involved in decision-making about their learning.

- Taumu'a ki he Ako Lelei/Mautinoa le Taunu'uga – Expectations, Goal setting, Feedback and Self-assessment. These provide further insights into the role that students, parents, teachers, and the school may each play in establishing learning goals and helping students to achieve these as they work towards successful outcomes at school and in life.
- Faitu'utu'uni mo e Taki Fakapotopoto ki he Ako Lelei /O Pulega Lelei ma Ta'ita'iga Mautu mo Suiga Manuia – Strong Governance and Leadership for Change. This has a fundamental influence on the ways and extent to which schools and parents and families work together to better understand and support students' progress and achievement at school.

Figure 4. Ngaue Fakataha Key Findings - Deepening Connections and Engagement



(Tongati'o, Mitchell, Kennedy, 2016. p. 9)

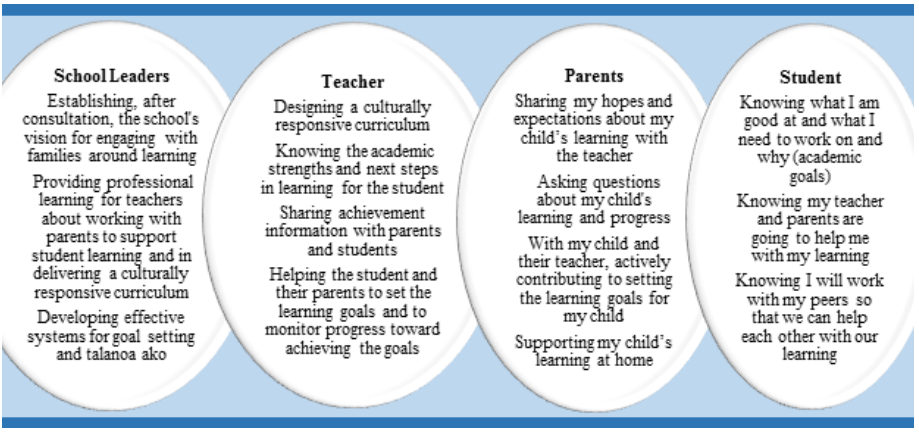
The evidence also indicates that while schools may wish to partner more meaningfully with parents in support of student learning, they do not necessarily have a clear philosophy or vision for what such deeper-level engagement would look like and this can lead to actions that, while well intended, may bear little fruit.

These findings led the project team to develop the Talanoa Ako Cycle, tested with improvements made during the development phase of the project. This aimed to help schools and parents work more effectively together throughout each school year (and across years) to help a school to adapt, refine, and build on their existing reporting and associated mechanisms, with key actions to help everyone to anticipate and understand what steps they need to take, and when to:

- Establish and reinforce respectful, inclusive relationships
- Reach a clear understanding of the purpose of working together and develop statements for inclusion in school policy documents that reflect this
- Establish clear, timely learning goals for students
- Support, track, clearly report on, and review learning goals
- Establish and build on students' and parents' strengths in relation to learning
- Help students address areas of difficulty in their learning
- Increase deeper-level talanoa ako among all participants throughout each annual cycle.

Guide tools were developed to help implementation, shown in the figure below.

Figure 5. An Overview of roles within a Talanoa Ako Cycle



(Tongati'o, Mitchell, Kennedy, 2016, p. 169)

When schools implemented the Talanoa Ako Cycle, there was evidence of less teacher-dominated talk during reporting meetings. Parents were being encouraged and better supported to ask questions and provide feedback, and parents and students were gaining greater understanding of the contents of the written report, particularly about progress and achievement. There was also more discussion occurring about the next steps to jointly support the child's ongoing progress.

This paper concludes by emphasising the importance of always keeping an eye on progress and results, through using the accountability framework (Friedman, 2006) and considering the effort, quality, and effect of all activities, and identifying next steps for improvement.

References

Alton-Lee, A. (2003). Quality teaching for diverse students in schooling: Best Evidence Synthesis. Wellington Ministry of Education.

Bishop, R., Berryman, T., Cavanagh, T., & Teddy, L. (2007). Te Kōtahitanga Phase 3 Whānaungatanga: Establishing a Culturally Responsive Pedagogy of Relations in Mainstream Secondary School Classrooms. Report to the Ministry of Education.

Bishop, R., & Glynn, T. (1999). Culture Counts, Changing Power Relations in Education. Palmerston North: Dunmore Press Ltd.

Earl, L., Timperley, H., & Stewart, G. (2008). Learning from the QTR&D Programme: Findings of the External Evaluation. Retrieved from www.

educationcounts.govt.nz/__data/assets/pdf_file/0004/49180/QTRD-Final-Report-November-2008.pdf

Education Review Office. (2015). Raising Student Achievement Through Targeted Actions December 2015.

Education Review Office. (2017). National Summary Report: Extending Their Language - Expanding Their World, 2017.

Friedman, M. (2006). Results, Accountability, Decision-making and Budgeting. Trying Hard is not Good Enough. How to produce measurable improvements for customers and communities. Ministry of Education

Heifetz, R. A., & Laurie, D. L. (2001). The work of leadership in Harvard Business Review, December 2001. Retrieved from http://www.hbr.org

Helu-Thaman, K. (1998). Learning to Be: A Perspective from the Pacific Islands, Education for the 21st Century in the Asia-Pacific Region. Paper presented at the UNESCO Conference, Fiji.

Ministry of Education. (2012). Pasifika Education Plan 2013-2017. Wellington.

Tongati'o, L. P. (2010). Ko e Fanā Fotu': Success in motion, transforming Pasifika education in Aotearoa, New Zealand 1993–2009. Christchurch: University of Canterbury.

Tongati'o, L. (2017). Students Voices : What makes a Great Teacher?

Tongati'o, L., Mitchell, K., & Kennedy, S. (2016). Ngāue Fakataha ki he Ako 'a e Fānau Schools and Parents and Families Working Together to Better Understand and Support Pasifika Students' Progress and Achievement at School: Ministry of Education.

Mathematical Thinking

CHAPTER 5

Being Constructive in Doing Mathematics

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Abstract

The traditional method of doing mathematics is primarily based on classical logic. By doing mathematics constructively, we mean doing mathematics using intuitionistic logic which can be seen as a generalisation of classical logic. Carefully selected examples are used to demonstrate the notion of constructivity in mathematics. The emphasis lies in the importance of the computational content of mathematics.

Introduction

Teaching mathematics at any level is not always an easy exercise. Depending on the subject matter taught and the background of the students in a class, the challenge could be higher than anticipated. It is an ongoing challenge and throughout the years the Pacific Island countries have been continuously invested in improving the skills and expertise of mathematics teachers through long-term and short-term trainings at tertiary institutes in the region and abroad. Research on mathematics education in the Pacific is well documented including recent work done by Begg, Bakalevu, and Havea (2018).

The purpose of this paper is to highlight and introduce the readers (especially mathematics teachers and interested students) to an existing alternative approach to doing mathematics. To be specific, this so-called alternative approach is what we refer to as doing mathematics with a 'twist' in the line of reasoning and is tied to what is widely-known in the realm of mathematics as constructive mathematics which is a very active and highly specialised research field. Constructive mathematics proper can be very technical and may require the sophisticated machinery of mathematical logic to unpack the subtleness and depth of how it works, but we shall keep all technicalities to a minimum and concentrate on presenting accessible demonstrations by means of examples borrowed from senior secondary and undergraduate mathematics. It is our intention that this article will serve as

a simple and brief guideline to teachers and students of mathematics so they can easily identify when an argument in mathematics is constructive (or non-constructive), which is not always easy for a non-specialist.

It should be clearly pointed out at the outset that this paper is not intended to be a piece of propaganda nor a suggestion to discredit and abolish the existing approach of how we teach and do mathematics. Furthermore, we give a slightly philosophical view of how one thinks and approaches doing mathematics in an "intuitive" manner.

The authors were brought up as students in the Tonga education system and had taught at secondary schools in Tonga. Based on years of experience through research and constantly questioning the status quo, the authors decided to share their opinions and it is our hope that this article will stimulate teachers and tertiary educators alike to be critical of how mathematics works, because it is a very vibrant discipline but that depends on how one looks at it. Some may think that mathematics is nothing other than routine and textbook discipline and there is no need to be philosophical about it simply because everything is either black or white without any grey area. Needless to say, it is always a healthy approach to explore alternatives as that would open new grounds be it in the epistemological or ontological levels of doing mathematics.

In the next section, we will give a quick tour of constructivism in mathematics. This is a very broad area and we cannot explain every single detail in few paragraphs or pages. As such, where necessary we may direct the reader to relevant sources while concentrating on demonstrations and using carefully chosen examples. Readers may find that having a decent working knowledge of undergraduate mathematics and (but not necessarily) elementary classical logic would be an advantage when reading this paper. However, for readers who are interested in foundation of constructive mathematics, see the works of Beeson (1985), Bishop (1967), Bishop and Bridges (1985), and Troelstra and van Dalen (1988).

What is constructive mathematics?

We try to give a short and less technical answer to the question posed as the title of this section. The literature is rich with information on a full-fledged discussion on what constructivity is all about, particularly in the context of mathematics. There is a widespread interest in constructivism in mathematics shared amongst mathematicians, mathematical logicians, and theoretical computer scientists. The authors recommend the works of Bridges and Dediu (1997) and Bridges and Mines (1984) as very accessible

introductory sources of information regarding constructive mathematics.

The terms "traditional mathematics" or "classical mathematics" refer to the usual way of how we do mathematics. In particular, this is the usual mathematics that is based on classical logic. As a refresher, let us look at a particular example where classical logic is used and it is manifested Abstract Algebra as a principle which says that if the product of real numbers a and b is zero, then at least one of them must be zero; that is, if $ab = 0$, then either $a = 0$ or $b = 0$. It is this very reasoning that allows us to solve many quadratic equations of the form $ax^2 + bx + c = 0,$ where *a,b,c* are real numbers with $a \neq 0$. In particular, take for instance the product $(x + 2)(x - 3) = 0,$ and courtesy of classical logic, we deduce that either $x + 2 = 0$ or $x - 3 = 0$giving us the solution that $x = -2,3$. But what is constructive mathematics? The answer to this question is very extensive and can be very technical. However, we shall adopt the Richman approach that *constructive mathematics is just doing mathematics using intuitionistic logic* (Richman, 1990). Under the umbrella of constructive mathematics, there are three varieties: Brouwer's intuitionistic mathematics, Markov's Russian constructivism, and Bishop's constructive mathematics (Bridges and Richman, 1987). These three varieties have subtle differences but they all share in common the strict interpretation of mathematical existence.

Existence means Computability

So, what does "computability" mean? It simply means that if you want to show that a mathematical object exists (mathematical objects are those that we use in our mathematics including numbers, functions, matrices, continuous functions, differentiable functions, to name a few), it means that you should be able to compute or construct that mathematical object. In other words, if you claim that the object in question exists, then you should be able to provide a routine or an algorithm that anyone (including a machine that is directed by instructions in codes) can follow and systematically find or at least approximate that object to whatever precision required. Anyone that is familiar with writing a computer programme may have a deeper insight right away because writing a piece of code is actually giving instructions to the machine to follow in order to successfully complete the required task. It is a very intuitive way of computing and establishing the existence of the mathematical object in question. As far as logic is concerned, intuitionistic logic allows you to avoid non-constructive decisions and gives you an opportunity to be very "honest" with your mathematics; that is, if you claim that an object exists, then you should be able to construct it. On the contrary, classical logic allows you to make certain moves in your reasoning where

you could prove that a mathematical object exists without even showing how to compute it, which is an issue that is very central to computing.

Most of us were taught and brought up learning (and eventually teaching) mathematics based on classical logic even if we weren't aware or told about it. There are several basic principles in classical logic that our mathematical reasoning relies on. One of the most notable principle is the Law of Excluded Middle (LEM) which simply states that any mathematical statement P is either true or false; in logical notation we write

$$P \text{ or } \neg P,$$

where ¬P stands for "not P'. LEM is a tautology which means that it is always true no matter what meaning we associate with the propositional variable P. This is because we can't expect a statement to be half-true or half-false; there is no grey area or anything in between true and false. You can only have one or the other; you cannot have both which is recalled in the following truth-value table.

P	***¬P***	***P* or *¬P***
True	False	True
False	True	True

(Note that a statement that involves the disjunction "or" is true when at least one of the disjuncts is true.) Although it is trivially acceptable in classical logic, LEM cannot be proved using intuitionistic logic and is, therefore, highly regarded as non-constructive. As such, any mathematical statement that is equivalent to or implied by LEM is considered highly non-constructive and, hence, not acceptable in constructive mathematics. But why does LEM allow one to be non-constructive? LEM allows you to "cheat" when you argue that an object x exists. Suppose we want to prove that x exists. An application of LEM allows us to argue that because LEM asserts that

"x exists" or "x does not exist",

we only have two alternatives to worry about. So instead of showing (directly) that "x exists" holds, we (indirectly) show that if we could rule out "x does not exist" that is enough to establish that the other alternative "x exists" must be true! How would you rule out "x does not exist"? We

assume that "x does not exist" holds, and based on that assumption we ended up with a contradiction and, hence, we reject "x does not exist" simply because it is contradictory. Therefore, we conclude that the other alternative, "x exists", must be the case. For more information on LEM, see the works of Bridges and Richman (1987) and Havea (2005).

Our next Example, 1, is a variation of a well-known classical theorem and we have rephrased it to demonstrate the power and application of LEM. Notice that it is an existential statement because it purports the non-existence of two integers.

Example 1. Consider the following statement which is trivially true in classical mathematics.

There are no integers p and q, with $q \neq 0$, such that $\sqrt{2} = \frac{p}{q}$.

Let us see how we translate this so that we could apply LEM. The statement clearly claims that there are no integers p and q such that the conclusion followed. The other alternative is that there are integers p and q such that the conclusion followed. In short, we have

"There *are no* integers p and q …" or "There *are* integers p and q…"

If we could rule out the alternative "There are integers p and q ...", then, by courtesy of LEM, we have to prove that the other alternative, "There are no integers p and q …" is true! We argue as follows. Suppose that there are integers p and q, with $q \neq 0$, such that $\sqrt{2} = \frac{p}{q}$, and we further assume that the rational expression $\frac{p}{q}$ is in its lowest and simplest form; that is, the numbers p and q have no common factor other than 1 which means that the greatest common divisor is 1 and we write $\gcd(p,q) = 1$. Then

$$\sqrt{2} = \frac{p}{q} \Leftrightarrow 2 = \frac{p^2}{q^2} \Leftrightarrow p^2 = 2q^2 \Leftrightarrow p^2 \text{ is even} \Leftrightarrow p \text{ is even} \Leftrightarrow p = 2k,$$

for some integer k. Furthermore,

$$p^2 = 2q^2 \Leftrightarrow (2k)^2 = 2q^2 \Leftrightarrow q^2 = 2k^2 \Leftrightarrow q^2 \text{ is even} \Leftrightarrow q \text{ is even} \Leftrightarrow q = 2l,$$

for some integer l. Hence,

$$\sqrt{2} = \frac{p}{q} = \frac{2k}{2l} \Rightarrow \gcd(p,q) \neq 1, \text{ a contradiction!}$$

Here we ended up with a contradiction because of the assumption that the existence of p and q such that $\sqrt{2} = \frac{p}{q}$. Therefore, we conclude that there are no integers p and q such that $\sqrt{2} = \frac{p}{q}$.

Apart from the finer details of the argument in the preceding example, the point to notice is the general form of the argument which is allowed by LEM. What we have done in the example is rule out one alternative, so

concluding that it must be the other alternative that is the case.

As mentioned earlier, there are other principles that are constructively unacceptable because they allow us to make certain moves and reasoning in our mathematics which are highly non-constructive; these are statements that have to do with mathematical existence. To be specific, because of the strict interpretation of "existence" as "computable", we need to be more elaborative and precise about what we assume and expect to get at the end. Some classical non-constructive principles could be converted into constructive principles by adding (or deleting) some assumptions to (or from) the classical versions. The reader is invited to see the works of Bridges and Dediu (1997), Bridges and Richman (1987), and Havea (2005) for more extensive discussions of a considerable number of well-known non-constructive principles in classical mathematics.

We list a few and commonly well-known principles below.

Axiom of Choice (AC). If A and B are sets and S is a nonempty subset of $A \times B$ such that for each $a \in A$ there exists $b \in B$ with $(a, b) \in A \times B$, then there exists a function $f: A \to B$ (called the *choice function*) such that $(a, f(a)) \in S$ for all $a \in A$.

There is an interesting relationship between AC and LEM whereby Goodman and Myhill (1978) showed that AC implies LEM. To be specific, under the assumption that AC is true, one could deduce that LEM is also true, and because LEM is non-constructive, hence, AC is also non-constructive.

Recall that a binary sequence (a_n) is simply a sequence that contains 0s and 1s.

Limited Principle of Omniscience (LPO). If (a_n) is a binary sequence, then either $a_n = 0$ for all n or else there exists n such that $a_n = 1$.

Weak LPO (WLPO). For any binary sequence (a_n), either $a_n = 0$ for each n, or else it is impossible that $a_n = 0$ for all n.

Lesser LPO (LLPO). If (a_n) is a binary sequence containing at most one term equal to 1, then either $a_{2n} = 0$ for each n, or else $a_{2n+1} = 0$ for all n.

There is a clear indication that Brouwer was very suspicious of the constructive status of the above omniscience principles although he used different names for LPO and LLPO (Bishop, 1970). For more detailed discussion of these principles, the reader is advised to see the work of Bridges and Richman (1987).

Examples and Demonstrations

In this section we look at some carefully chosen examples to demonstrate the constructive and non-constructive challenges that we encounter even in some very well-known theorems. It should be pointed out that when we say that a theorem is non-constructive it does not mean that we completely reject such a theorem outright but, rather, we look and apply or add necessary conditions so that we have a constructive version of that theorem. When doing so, we are also interested in checking to see what is the best we can hope for in a constructive setting by means of using Brouwerian examples; see the works of Bridges and Richman (1987) for detailed discussion and the role of Brouwerian examples in constructive mathematics.

Example 2. This example is due to Bishop (Bishop, 1972; Goodman and Myhill, 1972) showing how LEM is used to prove the well-known classical theorem:

There exist irrational numbers r and s such that r^s is rational.

We argue as follows. Consider the real number $\sqrt{2}^{\sqrt{2}}$. By LEM, either $\sqrt{2}^{\sqrt{2}}$ is rational or $\sqrt{2}^{\sqrt{2}}$ is irrational (using the fact that any real number is either rational or irrational). In the former case, if $\sqrt{2}^{\sqrt{2}}$ is rational, then we simply take $r = s = \sqrt{2}$ and we are done! In the latter case, if $\sqrt{2}^{\sqrt{2}}$ is irrational, then we take $r = \sqrt{2}^{\sqrt{2}}$ and $s = \sqrt{2}$ in which case both r and s are irrational and, hence, $r^s = \left(\sqrt{2}^{\sqrt{2}}\right)^{\sqrt{2}} = \sqrt{2}^2 = 2$ which is rational!

Carefully studying this proof reveals that under LEM, we were able to prove the statement without even showing how to find the irrational numbers r and s. It is very clever, neat, and classically an acceptable argument. However, if we are interested in the numerical content of the statement, then this proof is not helpful at all. A constructive proof of the statement would enable us to compute the two irrational numbers or even approximate them to any precision that pleases us. Thus, from a constructive standpoint, the proof is non-constructive. Why is it non-constructive? Simply because we appealed to LEM and it led us to such conclusion.

Example 3. In this example, we consider the classical *Intermediate Value Theorem*:

If $f: [a, b] \to \mathbb{R}$ is a continuous mapping such that $f(a) < 0$ and $f(b) > 0$, then there exists $c \in (a, b)$ such that $f(c) = 0$.

One way of proving this is using the interval-halving technique, more commonly known to a secondary school student as the *bisection method*. Following a similar presentation given by Bridges and Vîţă (2006), without

loss of generality, suppose that the interval in question is (a,b)=(0,1). We proceed in the following manner. Consider $f\left(\frac{1}{2}\right)$:

if $f\left(\frac{1}{2}\right) = 0$, then we take $c = \frac{1}{2}$ and stop the process

if $f\left(\frac{1}{2}\right) > 0$, then f satisfies the hypotheses of the theorem with $a = 0$ and $b = \frac{1}{2}$

if $f\left(\frac{1}{2}\right) < 0$, then f satisfies the hypotheses of the theorem with $a = \frac{1}{2}$ and $b = 1$.

In either of the last two cases above, we are guaranteed two things: either the process terminates and produces the required result, or it continues forever, thereby producing a descending sequence of compact intervals whose unique point of intersection is the required zero. What you should notice in the process is that this is a purely algorithmic proof! It gives you a step-by-step procedure of how to locate or at least approximate the root c.

There is an interesting phenomenon that a typical computer programmer may have noticed or find a bit confusing when implementing the algorithm in the preceding example. We demonstrate this phenomenon in our next example.

Example 4. In this demonstration, we showcase how a computer may get confused and register an incorrect answer based on the bisection method discussed in Example 3. Again, we follow and use the argument used by Bridges and Vîtă (2006) in the following way. Suppose we are implementing the algorithm on a machine that works with 50-bit precision. Consider the following cubic function defined on the closed interval [0,1]:

$$f(x) = \left(x - \frac{3}{4}\right)\left(x - \frac{1}{2}\right)^2 - 2^{-51}.$$

Using MATHEMATICA, it is easy to see that $f(x)$ satisfies the hypotheses of the Intermediate Value Theorem,

$$f(0) = -\frac{3}{16} - 2^{-51} = -\frac{422212465065985}{2251799813685248} = -0.1875 < 0,$$

$$f(1) = \frac{1}{16} - 2^{-51} = \frac{140737488355327}{2251799813685248} = 0.0625 > 0.$$

Carrying out the interval-halving technique leads to f having a zero between 0 and 1. Now, let us look at the evaluation at the midpoint, where $x = \frac{1}{2}$:

$$f\left(\frac{1}{2}\right) = -2^{-51} = -\frac{1}{2251799813685248} = -4.44089\times10^{-16}.$$

Since our computer's floating-point representation of $f\left(\frac{1}{2}\right)$ is 0 (Floating-point numbers are numbers that involve floating decimal points and

are mostly used when dealing with very small and large magnitudes. In engineering and most technical calculations, we use floating points to represent non-integer numbers with a certain fixed number of decimal points. This is very useful when talking about both small and large magnitudes; for example, with a fixed number of decimal points, we can speak of the diameter of a single hair, or the distance between two galaxies in the universe), we are faced with the problem of underflow where the machine registers a value (like, for example, 10^{-10}) that is very close to 0 as simply 0 which is not correct. However, the only (real) zero (or x-intercept) of f is actually $\frac{3}{4}$ which is quite a distance away from $\frac{1}{2}$.

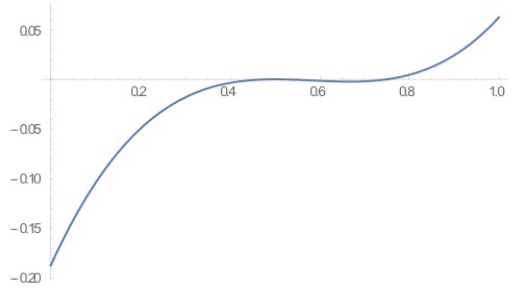

Figure 1. Graph of $f(x) = \left(x - \frac{3}{4}\right)\left(x - \frac{1}{2}\right)^2 - 2^{-51}$

The graph of f in Figure 1 shows the critical places where the machine mistakenly "thought" the zero might be which is 0.5 but actually it is at 0.75.

The preceding example is a demonstration of how mathematical existence is dealt with in a realistic and practical manner. The Intermediate Value Theorem guarantees the existence of a zero under certain favourable conditions but finding it using the bisection method can be problematic depending on the type of function that we are working with.

Our next example is another demonstration of how classical logic is used in a very appealing manner. The theorem is well-known and commonly taught in a typical undergraduate course in discrete mathematics.

Example 5. The following theorem was proved by Euclid using a very clever contradiction argument.

There are infinitely many primes.

The statement is about the existence of an infinite set of primes. So, we proceed by assuming that there is a "finite" set $\{p_1, p_2, \ldots, p_n\}$ of primes. We

define the integer

$$p = (p_1 \times p_2 \times \cdots \times p_n) + 1.$$

Clearly p is greater than the smallest prime 2. Thus p has prime factors and note that p itself may be prime. Since the primes p_k, for $k = 1, \ldots, n$, are not factors (i.e. divisors) of p, whatever the prime factors of p are must be distinct from each p_k. So, we have here another prime that is not in the set $\{p_1, p_2, \ldots, p_n\}$ of primes; that is, a contradiction. Therefore, there are infinitely many primes.

Looking at Euclid's proof from a constructive point of view, there are at least two ways in which it can be criticised. Following the ideas of Bridges and Vîtă (2006), we argue as follows.

1. We were able to construct a new prime out of an already known finite number of primes. This is perfectly fine and algorithmic but the unnecessary contradiction makes the computational side of the argument; that is, emphasis is on the derivation of the contradiction making the algorithmic process less significant.

2. We witness an application of some form of LEM which is very subtle. To be specific, the argument rests on the negativity of the statement about "infinite sets" which assumes that

> A set is infinite if and only if it is contradictory that it be finite.

It is worth pointing out that there is positivity in Euclid's proof as far as constructivity is concerned and is associated with and hinted at by the observation that one should be able to construct a new prime out of already known primes. Generally, it emphasises the possibility that if we start with a finite subset B of A, then we can compute an element of A that is distinct from each element of B; in the preceding example, take A to be the set of all primes and B the finite subset of primes.

Apart from abstract analysis, there is a wide range of examples and demonstrations of how constructive mathematics is carried out over the real number line. Interested readers having a background in classical real analysis are advised to look into the comprehensive work of Bridges (1994).

Conclusion

Constructive mathematics is honest mathematics! If you claim that an object exists, then you should be able to demonstrate how to actually construct, or compute, that object. It is all about the strict interpretation of mathematical existence as simply constructability. Mathematical existence in the classical

sense can be seen as being "ideal" or even "virtual" whereas in constructive mathematics it is more "realistic". In a more practical context, if you claim that an object exists, then you should be able to provide an algorithm or set of instructions where anyone (or even a programmable machine) can follow and find (or construct) the object in question to whatever precision you please.

So, why do we need to do mathematics constructively? It all depends on what you want to do. If you are interested in the computational content of your mathematics, then constructive mathematics, or doing mathematics using intuitionistic logic, provides a suitable platform and framework. We learn and teach mathematics primarily based on classical logic and at times we tend to neglect the very heart of doing mathematics which has to do with being able to compute mathematical objects. Further, we should be able to avoid certain decisions that would lead us to non-constructive moves but that can only be dictated by the very logical principles that we use. In particular, intuitionistic logic provides a better alternative as far as computability is concerned.

Anyone with a slight interest in the foundation of mathematics would welcome the varieties and different approaches in mathematics. It would be completely misleading for the authors to present as a case where constructive mathematics is the answer to everything and that we must abandon the classical approach – no, not at all. We believe that it is equally important and relevant for teachers and lecturers of mathematics to have at least an appreciation of the many approaches to doing mathematics. Of course, the traditional way of doing mathematics using classical logic will be the common approach in all aspects of teaching and doing mathematics but there are certain limitations when it comes to computational content. Having said that, in order to appreciate constructive mathematics, it is very important to have a full appreciation of classical mathematics.

We end this note with a challenge to all teachers and lovers of mathematics – How can we teach our students to think algorithmically?

References

Beeson, M. J. (1985). Foundation of Constructive Mathematics. Ergebnisse der Mathematik und ihrer Grenzgebiete 6. Berlin: Springer-Verlag.

Begg, A., Bakalevu, S., & Havea, R. (2018). Mathematics Education in the South Pacific In J. Mack & B. Vogeli (Eds.), Mathematics and its teaching in the Pacific-Asia Region Series on Mathematics Education 15, World Scientific, 2018.

Bishop, E. (1967). Foundations of Constructive Analysis. McGraw-Hill, New York.

Bishop, E. (1970). Mathematics as a numerical language. In 1970 Intuitionism and Proof Theory (Proc. Conf., Buffalo, N.Y., 1968) (pp. 53-71). North-Holland, Amsterdam.

Bishop, E. (1972). Aspects of constructivism. Las Cruses, New Mexico: New Mexico State University.

Bishop, E., & Bridges, D. (1985). Constructive Analysis. Grundlehren der Mathematischen Wissenschaften 279. Berlin: Springer-Verlag.

Bridges, D. (1994). A constructive look at the real number line. In P. Ehrlich (Ed.), Real Numbers, Generalizations of the Reals, and Theories of Continua (special issue of Synthèse (pp. 29-92). Amsterdam: Kluwer Academic Publishers.

Bridges, D., & Dediu, L. (1997). Paradise lost or paradise regained? EATCS Bulletin, 63, 141-155.

Bridges, D., & Mines, R. (1984). What is constructive mathematics? Math. Intelligencer 6(4), 403-410.

Bridges, D., & Richman, F. (1987). Varieties of Constructive Mathematics. Cambridge: Cambridge University Press.

Bridges, D. S., & Vîtă, L. S. (2006). Techniques of Constructive Mathematics. Universitext: Springer.

Goodman, N. D., & Myhill, J. (1972). The formalization of Bishop's constructive mathematics. In Toposes, Algebraic Geometry and Logic (Conference at Dalhousie University, Halifax, 1971), Lecture Notes in Mathematics 274 (pp. 83-96). Berlin: Springer-Verlag.

Goodman, N. D., & Myhill, J. (1978). Choice implies excluded middle. Zeit. Math. Logik und Grundlagen der Math, 24, 461.

Havea, R. (2005). Mathematics without the law of the excluded middle. In I. C. Campbell & E. Coxon (Eds.), Polynesian Paradox: Essays in Honour of Prof. 'I. Futa Helu. Suva: Institute of Pacific Studies, University of the South Pacific.

Richman, F. (1990). Intuitionism as generalization. Philosophia Mathematica s2-5, 124–128.

Troelstra, A. S., & van Dalen, D. (1988). Constructivism in Mathematics:

An Introduction (Vol. 2). Elsevier, Amsterdam.

CHAPTER 6

Card Sorting: Practical guidance from a Pacific perspective

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Abstract

Most higher education institutions do employ a website to publish the information they wish to communicate to their users in the most efficient way possible. However, many disputes come to users when using the website due to lack of both usability standard and information architecture design. Card sorting is a great first step to designing and re-designing the structure of a website to be aligned with users' expectation. This paper provides a practical guidance of card sorting from a Pacific perspective based on the authors' reflections on their experience from using card sorting to explore user perceptions towards revamping the quality of the University of the South Pacific's Research Office website. Building a website that involves users in defining the information architecture is the best possible way to be successful in terms of website usability. The authors' reflections have shown that card sorting with and for Pacific people can be more meaningful when the subjective meaning of their card sorting and their inseparable relationships with the researcher are taken into account. This offers new insights into contextualising card sorting in the Pacific.

Introduction

The design of an interactive and mutual website can be used to gain competitive advantage, an important part of the education process in higher education (Manzoor et al., 2012; Palmer & Griffith, 1998; Soegoto, 2018). It was found that at least 94 percent of students who were willing to study in higher education institutes have used related websites to generate information (Schimmel et al., 2010). A University website is also one of the primary resources for the prospective students when they seek information about their academic programmes. A survey of high school students shows that a well-organised website with easy access to application information and appropriate proportion of graphic and text increases the likelihood of application (Peker et al., 2015; Poock & Lefond, 2001).

With the support of the internet and the advantage of information technologies, universities can create globally competitive advantage to attracting prospective students, so websites are essentially used for promotion and marketing activities (Will and Callison, 2006; Mechitov et al., 2001). Utilising websites as a successful marketing tool requires good maintenance and strategic operation (Klassen, 2002). Despite the high marketing potential of university websites, many of them are poorly designed and suffer from usability problems and misleading issues.

Previous website quality research focuses mostly on the perspectives of website developers and designers, and not the website users (Carlos & Rodrigues, 2012). In this era of strong competition and customer responsiveness, the users are major stakeholders and should not be disregarded (Carlos & Rodrigues, 2012). Well-organised content with consistent structure on the website would help users to locate their piece of information more easily and inspire users to revisit and/or refer the website to their networks (Amritesh et al., 2018; Chen & Wells, 1999). This reveals that the usability of a university website is obviously essential to satisfy users' needs.

Card sorting can be used to improve a website's usability, design, and structure by evaluating its information architecture (IA) and designing a navigation structure that can offer an interesting variety of content and functionality (Righi et al., 2013; Rosenfeld & Morville, 2002). The term card sorting applies to a wide variety of activities involving ordering, grouping and/or naming of objects or concepts. The IA is the structural design of an information space, and the goal is to design an optimal architecture for organising the relationships between various information elements to meet users' expectations (Gullikson et al., 1999).

The method used for IA design in card sorting involves respondents being given one set of random cards to be grouped according to a particular label (Spencer, 2009). Card sorting is a well-established research technique for discovering how people understand and categorise information (Paea & Baird, 2018). You can use card sorting results to group and label your website information in a way that makes the most sense to your audience (Katsanos, et al., 2019). In card sorting, representative users are given a stack of index cards. Each card contains one word or phrase representing the information or services provided on webpages. Participants are asked to group the cards in stacks that make sense to them and subsequently name the resulting groups or group them under the already-named categories (Paea & Ross, 2018; Paul, 2014).

This paper aims to provide practical guidance to website developers and designers in the Pacific, using authors' experience from employing card sorting with their SC356 (Research Skills Development) students to explore users' views and experiences for reviewing the content and layout of the University of the South Pacific's (USP) Research Office website Thus, the data presented in this study was taken from this research and has been collected from 30 participants who submitted valid results from a total of 41 cards.

The primary motivation driving the focus of this paper comes from our personal experiences as current academics and professionals in the USP where there is a need to upgrade the content and layout of the USP's Research Office website in order to have a quality navigation structure. The authors' reflection of their experiences in card sorting brings a new dimension to strengthen the approach we use for card sorting in the Pacific and potentially abroad. The usage of card sorting in the Pacific to design higher education institutions' websites is minimal. However, the authors' reflections provided in this study could provide readers with important practical guidance relevant for undertaking card sorting with Pacific users.

This paper consists of six main sections: 1) Open and Closed card sorting; 2) Recruiting participants; 3) Gathering Data; 4) Sorting Cards; 5) Interpreting and presenting data; 6) Reflections and proposed guidelines. Sections 1- 5 involve a discussion of card sorting in general terms with examples from the process and data we employed with SC356 research students. The final section provides a specific proposed guideline on how to conduct card sorting appropriately with Pacific users.

Open and Closed Card Sorting

The manner in which the data is collected can have an impact on how it is analysed. We briefly cover the two most common methods used to gather the data and discuss the analysis implications of each method. Card sorting is done by two primary methods, an open card sort (OCS) or a closed card sort (CCS). The methods can be applied in a typical in-person session or by using suitable tools designed to moderate the process remotely (Paea & Ross, 2018, Righi et. al, 2013). The two types will each tell you something different about how users understand and group your information. Choosing the right technique at the right time is the key to gathering high-quality and relevant data to inform your design decisions. Here are the key activities for conducting an OCS:

- Participants/users to choose, classify, and label the cards into groups

that make sense to them

- Researcher(s) can come up with 30 to 60 cards for participants to get enough data to make informed decisions
- The time for the actual card sorting is quite flexible but preferably 15 to 20 minutes, and
- It is advisable to use the most relevant cards and appropriately disregard the rest.

In an open card sorting, each participant is given a stack of cards. The participants are then asked to group those cards together in any way they want. Then they create labels for the groups that they chose. This method is commonly used as a preliminary descriptive method. OCS methods are carried out in pre-designing to support information structure establishment; useful for comprehending, navigating, structuring, and labeling of relevant website information as viewed by participants/ users (Optimal Workshop, https://www.optimalworkshop.com/).

On the other hand, a CCS involves the following activities:

- Participants can choose and group the cards into pre-determined categories that are already labelled by the researcher(s); and
- Researcher(s) can come up with more than 60 cards because participants can provide more automatic responses and spend less time thinking, knowing the categories are already provided.

In a closed card sorting, the researchers create the labels for their respective groups. Participants are given a stack of cards and are asked to put each card into a group. This method is normally used when adding new content to an existing website or gaining a second round of insights after an open card sort. CCS is dealing with post-design evaluation and analysis of website information. Instead of trying to find out how participants understand and conceptualise your website information as in OCS, this time you want to know if participants' information reflects your ready-made conceptual framework. The CCS is useful for researcher(s) wanting to know if participants agree with your existing categories and labels, to identify and fix unclear category labels, and to reduce the number of categories by rejecting those that are ignored the most (Optimal Workshop).

Recruiting participants

One of the goals of card sorting is to get inside the minds of the people you design for; and it takes time to establish, recruit, and manage participants

that will give you the most true-to-life data. Card sorting may be performed individually or in groups. Keep in mind that the exercise will be performed multiple times. The researcher can recruit participants in a bunch of different ways, and how you do so will depend on a few different factors.

This is immeasurably easier with online sessions, as you will be able to share a link to your session online and invite specific users via email if you so wish, and most card sorting tools also provide their own recruitment forums. Finding participants for in-person card sorting session is a bit difficult because you will want to incorporate existing clients as much as possible. This is somewhat easier if your organisation/business has a public access point where you can invite clients to participate, but you may want to consider using a gift voucher or similar reward as an incentive to get them involved and ensure they do participate. In our experience, for in-person card sorting time will be needed to recruit participants to participate in your study if you do not have strong connections with the target sample at the personal level.

While remote card sorting tools will analyse data for you, in-person sessions require stricter invigilation and manual analysis. Therefore, you will want to stick to small groups at a time, with generally around fifteen people. If you do decide to use the integrated group sorting method, you would be best off keeping the pairings down to two or three participants. In this study, we recruited 30 participants who submitted valid results from a total of 41 cards.

Gathering data

The process of gathering data in card sorting can be made in an unmoderated or moderated fashion and can be conducted online/remotely or via an in-person study (Righi et al., 2013). Sessions for moderated/in-person card sorting are conducted using physical cards with users or participants in the presence of an observer, usually the researcher(s). In-person card sorting allows the researcher to watch a participant while they are actively performing the card sort. The researcher can detect the extent of the participant's ease and confidence as they sort the cards in real time. A user may move cards they are unconvinced about to the side/back of the pile, while placing easy-to-sort cards into their respective groups. In-person card sorting also allows the researcher to ask participants to talk through their thoughts and reasoning behind their decisions as they are sorting. A think-aloud process provides qualitative insight into a participant's thought processes as they rationalise the more complex categories or category labels. It also gives the researcher insights into the words the participants

use to describe the categories. The researcher has the opportunity to clarify any observations they are unsure of to gain a better insight into why the user has made those choices.

At the end of the in-person session, the observer can hold a debriefing whereby he/she can gather any additional feedback the participant might have and gain further insight into why an item was sorted into a particular category. This information shows which categories and labels make sense and which ones are confusing, providing important inputs to the design of the IA.

When conducting a remote card sorting session, participants will work independently via their own computers to sort the cards that are provided through an online software tool. There are a number of online software tools available on the market today which allow you to set up and distribute to as many users as you require for the test, and provide you with a number of ways to analyse the data. Some of the most common online software tools are *Optimal Sort*, *Simple Card Sort*, and *Usability test*. As the test is conducted remotely, there is no contact with participants so there is no way of understanding the reasoning behind why participants have arranged cards in a certain way.

Sorting cards

The researcher needs to make sure each card represents a concept or item that can be grouped. The goal is to discover how people think about and make sense of your information. So when you're deciding what cards to include, look underneath the language for the concept they represent. The cards also need to be on the same conceptual level and similar enough for participants to actually be able to sort them into groups. At conceptual level, we mean that if you want people to sort course items, you will not include the higher-level category, like "International Students", as a card at the same time as the lower-level "Application for international students". It is the role of a researcher to make sure that all cards are easy to be grouped by participants. Otherwise, the inconsistence and unrelated cards cannot provide much insight into how the content can be grouped on the website (Optimal Workshop).

The researcher also needs to include different words and expression to avoid obvious patterns. When you ask people to complete a card sort, you are asking them to create patterns with your cards. The human mind is so fond of pattern-finding that we use it regularly as a shortcut when making decisions, especially on intellectually-taxing tasks (Massaro, 1994; Science

News, 2018). It is also important that the researcher includes images with or without text as they can be as effective as text for representing concepts and items. You can include images to illustrate or clarify the text on your cards, or you can include images on their own. When you're creating a closed card sort, take care to craft categories that help you achieve your objectives. For closed card sorts, you need to create enough categories that people can find a connection for most of your cards, but not too many that only include categories that match your intentions for your website. The more categories you create, the more options participants will have, and the more likely it will be that you find out which categories are preferred over others.

The illustration of participants' pathway through the OCS and CCS.

Before we go in-depth with the explanation of the analytical tools, we first look at participants' pathway while they were actively performing the card sort in real time.

In Semester 1/2019, a group of students from the USP SC356 course did a research project titled "Card Sort Analysis to review the content of USP Research Office website". They used OCS and CCS to collect the data set. As illustrated in Figures 1 and 2 below, one participant's pathway displays the progress of categorising the 41 cards into groups in real time; in this instance, the participant was about one third or halfway through completing the categorising of the 41 cards.

Images shown in Figures 1 (a) and (b) were taken during an active card sorting performance executed by one participant in real time. These show how the in-person card sort is conducted using physical cards in both OCS and CCS. During the performance of the card sort, the participants were allowed to move cards they were unsure about to the back of the stack, while placing easy-to-sort cards into their respective categories. In Figure 1 (a), OCS is being conducted. On top of each column, there were yellow coloured papers that were given names or no names. These yellow coloured papers represented the category names that were either known or unknown; meaning that the number of categories was unidentified. The participants sorted and categorised cards into their own categories and labeled those categories in their own preferred time while they performed the card sorting. In Figure 1 (b), CCS is being conducted. The yellow coloured papers with names on them were placed on top of each column which represented the category name that had been pre-determined; meaning that the number of the categories had been known.

Figure 1. (a) Participant pathway through OCS with physical cards in real time for designing USP Research Office website

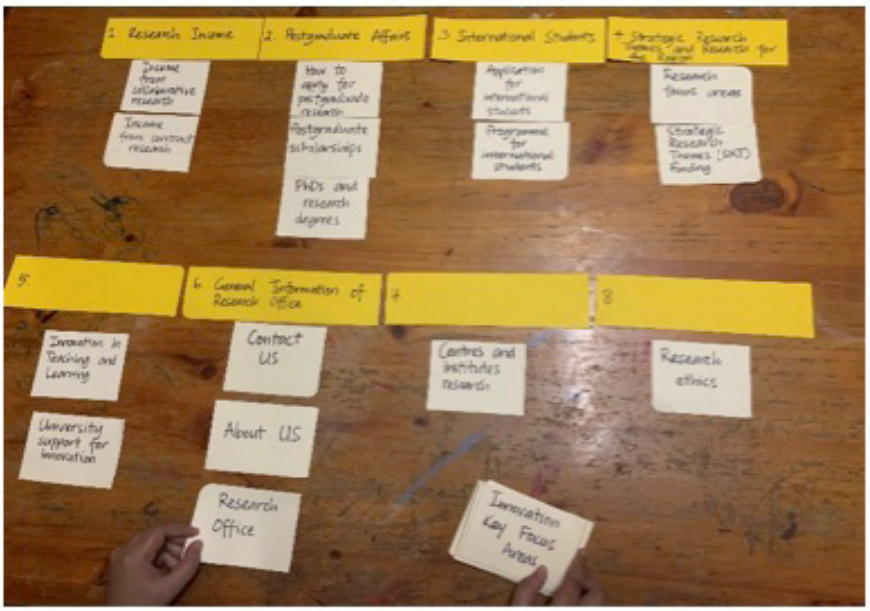


Figure 1. (b) Participant pathway through CCS with physical cards in real time for designing USP Research Office website

Figure 2 (a), below displays the one-third completion of the pathway of OCS shown in Figure 1(a) that consists of five known category names, three unknown category names and a total of 16 cards. When and how to name a

category during a card sorting performance depends entirely on each of the participants. From our experience, when a category has at least two cards or reveals a pattern then the participant can easily ascertain the category names. The participants were also advised to name their categories at the end of the completed card sort, but the time taken to label each category depends on the participant. The participant can change a category name or move a card from one category to another at any time during the card sorting process. Figure 2(a) also shows two cards "Income from contract research" and "Income from collaborative research" under the category name "Research Income Category". So far, the participant clusters one card "Faculty research" by itself without having named the category yet.

Figure 2 (b) shows the pathway of CCS in Figure 1(b) with eight pre-defined categories and 13 cards. Participants were asked to group the cards in the given 8 category names that made sense to them. We added a ninth category name, "Not sure" for cards that the participants were not able to group. The additional category was created to identify which cards portrayed most confusion; this provided important inputs to the design of the IA. Figure 2(b) also reveals one participant grouping three cards "Research Office", "Research concept at USP" and "Contact Us" under the category name "Home Category". The participant also groups two cards "Faculty research" and "Centres and institute research" under the "Research strength" category. The categories "Support our researchers" and "Not sure" received no cards during this pathway time.

Figure 2: 41 Card names and the example of OCS (a) and CCS (b) pathway in Figure 1 for re-designing the USP Research Office website.

Card #	Card Names
1	Information for international students studying at USP
2	Innovation Partnerships
3	Income from Intellectual Property
4	Pacific research guidelines
5	Research concept at USP
6	Regional research partnerships
7	Research success
8	Postgraduate scholarships
9	News
10	Consultancy income
11	University support for innovation
12	Programme for international students
13	PhDs and research degrees
14	industrial research partnerships
15	Publication and ranking
16	Strategic Research Themes (SRT) Funding
17	Research focus areas
18	Find a supervisor
19	About US
20	Research ethics
21	FAQs for international students
22	Innovation Key Focus Areas
23	Research Office
24	Income from contract research
25	Meet our research students
26	Research impact
27	Contact Us
28	Innovation Opportunities
29	Income from collaborative research
30	Faculty research
31	Intellectual Property
32	Active Research Projects
33	How to apply for postgraduate research
34	Centres and institutes research
35	International research partnerships
36	Find a researcher
37	Innovation in research
38	Application for international students
39	Current staff
40	Laucala Innovation Hub
41	Innovation in Teaching and Learning

a. Participant pathway through the OCS

1. Research Income	2. Postgraduate Affairs
• Income from contract research • Income from collaborative research	• How to apply for postgraduate research • Postgraduate scholarships • PhDs and research degrees
3. International Students	**4. Strategic Research Themes and Research for the Region**
• Application for international students • Programme for international students	• Strategic Research Themes (SRT) Funding • _Research focus areas
5.	**6. General Information of Research Office**
• University support for innovation • Innovation in Teaching and Learning	• About US • Research Office • Contact Us
7.	**8.**
• Centres and institutes research	• Research ethics.

b. Participant pathway through the CCS

1. Home Category	2. Research strengths category
• Research Office • Research concept at USP • Contact Us	• Faculty research • Centres and institutes research
3. Postgraduate research category	**4. Research partnership category**
• Find a supervisor • PhDs and research degrees …	• Regional research partnerships...
5. Research income category	**6. Support our researchers category**
• Income from contract research	
7. Innovation Category	**8. International Category**
• Innovation in research • Innovation Opportunities	• Application for international students • Programme for international students
9. Not Sure	

Figure 3 (a) and (b) shows the completed card sorting. There are 41 cards and both card sorts were carried out in a moderated card sorting exercise using physical cards. Figure 3(a) shows a completed OCS and Figure 3(b) displays a completed CCS. Both figures contain 41 cards and the card numbers are listed beside the card names under the category names.

Figure 3. (a) Completed OCS

1. Research Income (4 cards)	2. Postgraduate Affairs (5 cards)
•→Income from contract research (24) •→Income from collaborative research (29) •→Consultancy income (10) •→Income from Intellectual Property (3)	•→How to apply for postgraduate research (33) •→Postgraduate scholarships (8) •→PhDs and research degrees (13) •→Meet our research students (25) •→Find a supervisor (18)
3. International Students (4 cards)	4. Strategic Research Themes and Research for the Region (6 cards)
•→Application for international students (38) •→Programme for international students (12) •→FAQs for international students (21) •→Information for international students studying at USP (1)	•→Strategic Research Themes (SRT) Funding (16) •→Research focus areas (17) •→Regional research partnerships (6) •→International research partnerships (35) •→Active Research Projects (32) •→Pacific research guidelines (4)
5. Innovation at USP (8 cards)	6. General Information of Research Office (7 cards)
•→University support for innovation (11) •→Innovation in Teaching and Learning (41) •→Laucala Innovation Hub (40) •→Innovation Partnerships (2) •→Innovation in research (37) •→industrial research partnerships (14) •→Innovation Key Focus Areas (22) •→Innovation Opportunities (28)	•→About US (19) •→Research Office (23) •→Contact Us (27) •→Research concept at USP (5) •→Current staff (39) •→Find a researcher (36) •→News (9)
7. Research Institutes (2 cards)	8. Research Ethics Consideration (1 card)
•→Faculty research (30) •→Centres and institutes research (34)	•→Research ethics (20)
9. Research Impact of USP (4 cards)	
•→Research impact (26) •→Publication and ranking (15) •→Research success (7) •→Intellectual Property (31)	

Figure 3. (b) Completed CCS

1. Home Category (7 cards)	2. Research strengths category (2 cards)
•→Research Office (23) •→Research concept at USP (5) •→Contact Us (27) •→About US (19) •→Current staff (39) •→Find a researcher (36) •→News (9)	•→Faculty research (34) •→Centres and institutes research (30)
3. Postgraduate research category (5 cards)	4. Research partnership category (6 cards)
•→Find a supervisor (18) •→PhDs and research degrees (13) •→How to apply for postgraduate research (33) •→Postgraduate scholarships (8) •→Meet our research students (25)	•→Regional research partnerships (6) •→Strategic Research Themes (SRT) Funding (16) •→Research focus areas (17) •→International research partnerships (35) •→Active Research Projects (32) •→Pacific research guidelines (4)
5. Research income category (4 cards)	6. Support our researchers category (5 cards)
•→Income from contract research (24) •→Income from collaborative research (29) •→Consultancy income (10) •→Income from Intellectual Property (3)	•→Research impact (26) •→Publication and ranking (15) •→Research success (7) •→Intellectual Property (31) •→Research ethics (20)
7. Innovation Category (8 cards)	8. International Category (4 cards)
•→Innovation in research (37) •→Innovation Opportunities (28) •→University support for innovation (11) •→Innovation in Teaching and Learning (41) •→Laucala Innovation Hub (40) •→Innovation Partnerships (2) •→industrial research partnerships (14) •→Innovation Key Focus Areas (22)	•→Application for international students (38) •→Programme for international students (12) •→FAQs for international students (21) •→Information for international students studying at USP (1)
9. Not Sure	

Interpreting and presenting data

Interpreting card sorting data can be exploratory and/or statistical in nature. The exploratory analysis is basically intuitive and inductive based on the researcher's ability to interpret the creativity of the data and to draw out meanings to make a conclusion. In terms of statistical analysis, the interpretation of data is limited to numbers which might not be inductively supported but the two approaches are expected to go hand-in-hand for an in-depth analysis. Two analytical tools of card sorting data were utilised in this study: i) Similarity Matrix; ii) Dendrogram (Paea & Ross, 2018).

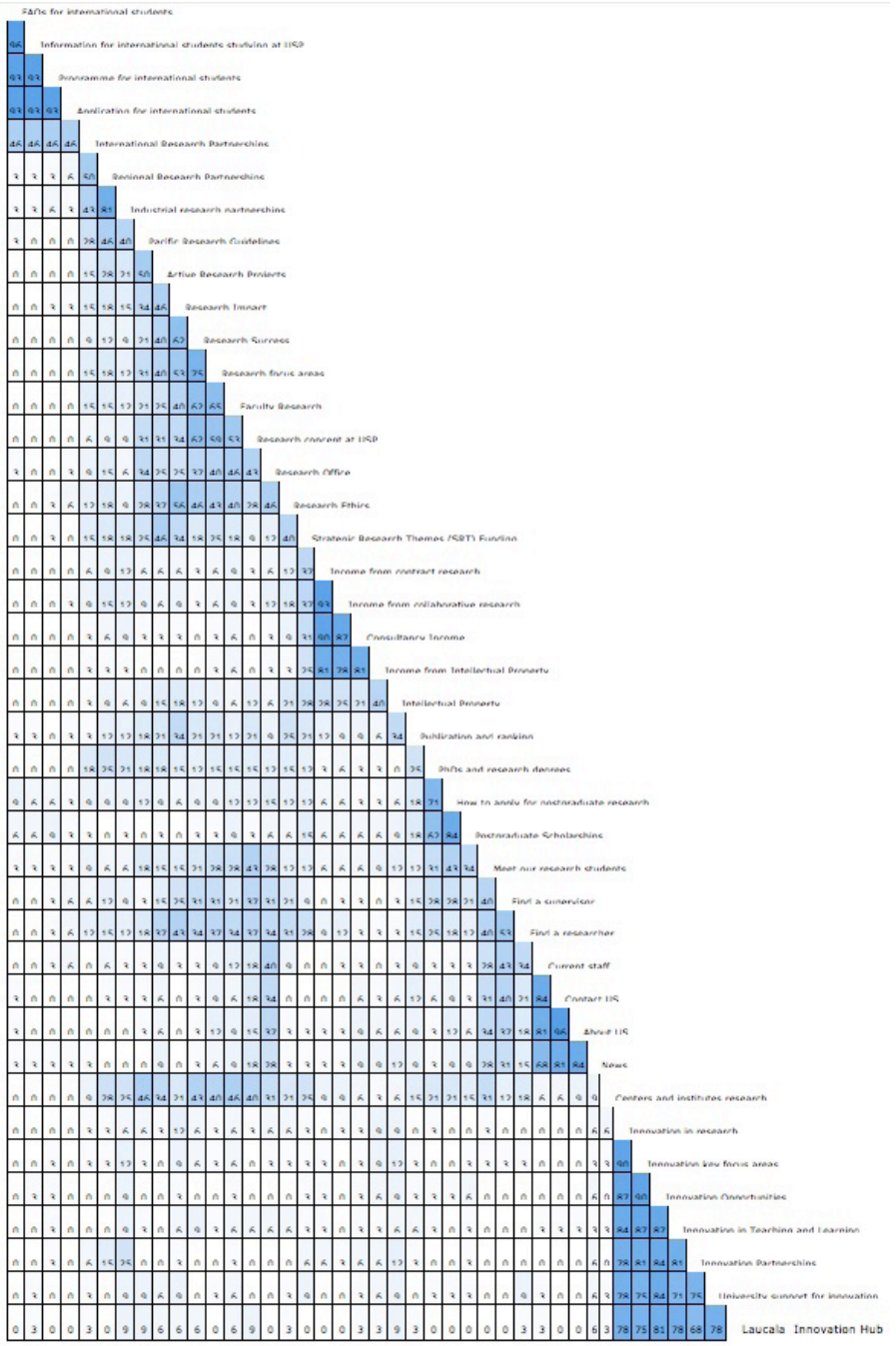
Similarity Matrix

The similarity matrix is a quantitative tool used to interpret how strongly the group elements of cards are related to each other. It identifies pairs of

individual cards or items that are closely related by assigning them higher similarity than those which are distantly related. Similarity is measured between two individuals in the cards, with the similarity matrix being formed by combining this information for all pairs of individuals. For many measures, the similarity between pairs of individuals is not just dependent on their own composition, but also on that of the rest of the cards. The similarity matrix is the key data structure for moving from user data to IA. A similarity matrix creates a table with all possible pairs and counts how many participants agree with each pair. For each possible pairing of two cards in the survey, a count is provided at the corresponding point in the matrix. The count describes how many participants placed the two cards in the same category. A pair is highlighted as strong when many participants have placed the cards together. As Figure 4, below, shows, the strongest pair is placed in the top left corner, grouping them with the next related strongest pair that either of those cards have, and then the process is repeated for that new pair. This way, clusters of cards that are strongly related to each other appear together in the same shade of blue on the matrix.

Figure 4 indicates how many participants agree with each paired combination of cards and groups related clusters together by colour. For example, the first column of the matrix shows that 29 people or 96 percent of participants put the cards “FAQs for international students” and “Information for international students studying at USP” in the same group. Looking further down that column, “FAQs for international students” and “Active Research Projects” were never placed together. The algorithm used to analyse the initial sort and produce this similarity matrix attempts to cluster similar cards along the right-hand edge of the matrix. The dark blue color indicates cards that are located close to each other and are perceived by the participants as being similar. The white colour indicates cards that are positioned far away from each other indicating a large difference in perception.

Figure 4. Similarity Matrix Table for re-designing the USP's Research Office website



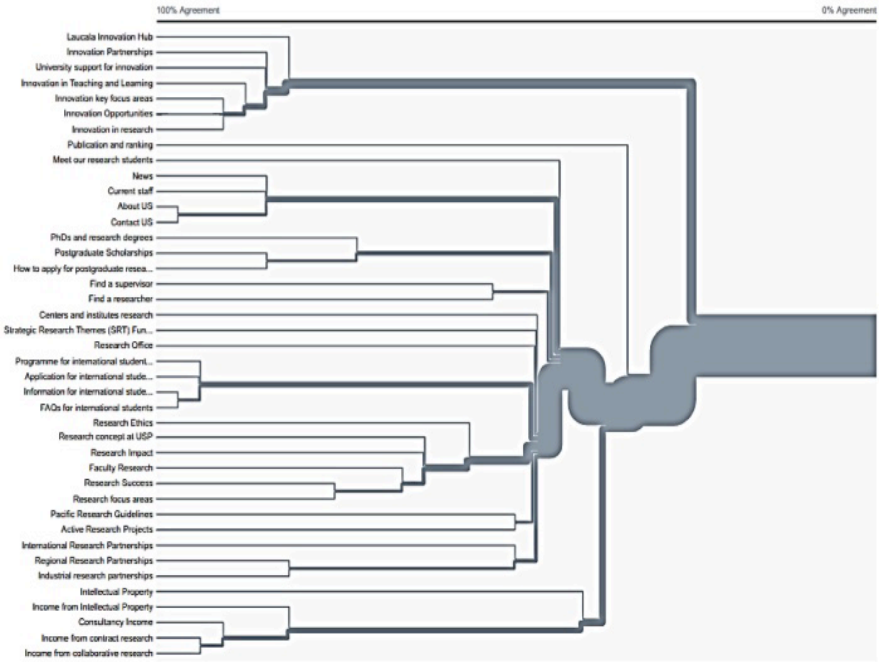
Dendrogram

Dendrogram is a statistical tool used to visualise the results of a hierarchical cluster analysis and may provide insights into high-level topics (Righi et al., 2013). As demonstrated in Figure 5 below, this study used the Best Merge Method (BMM) because it works better when there are fewer than 30 participants in total.

The BMM is derived from cluster analysis and widely used in the industry to see the patterns of the users' responses and provide an interpretation of how the cards are categorised. It also displays how the results are generated depending on the algorithm that is used. In general, the technique agrees that the bigger the category, the more people will disagree with it. This means, as the number of cards in a category gets larger, it is less likely that multiple participants will have created that exact combination of cards. However, while many users can agree on very small categories, this is not a very useful result. Providing the full range of viable categories along with scores allows us to make an informed compromise between practical requirements and what the participants are telling us. In the example shown in Figure 2 above, the dendrogram displays the results of performing a cluster analysis on the similarity matrix and displays the result in a dendrogram format. The dendrogram shows card clustering from strong to weak and from left to right. Hovering the mouse over any cluster circle will show you the strength of that cluster as a percentage. A 100 percent strength signifies that all participants were grouping those cards together, and 50 percent means that half of the participants were placing those cards in the same group.

The BMM algorithm dendrogram makes the most of a smaller number of completed card sorts by breaking each instance of a category from every participant down into their base pairs. The pair with the highest score is locked in. This repeats, and where the pair being locked in intersects with an existing locked category, it is agglomerated with that category. All subsets of this new category are eliminated. The scores that BMM provide tells us that X percent of participant agree with parts of this grouping. Figure 5 below shows the dendrogram results from the data sets given by Figure 2. The thicker the lines, the more cards are merged together.

Figure 5. The Best Merge Method Dendrogram for re-designing the USP's Research Office website



Reflections on Card Sorting

In the process of using card sorting with our SC356 research students to explore participants' views and experiences on ways to improve the USP's Research Office website, we found two points to be significant for conducting card sorting with Pacific participants:

i. The subjective meaning of participants' card sorting

ii .Inseparable relationship between researcher and participants

The first reflection point is in the value of meaning that participants give to their own card sorting. On the day of the data collection, we often conducted a quiet card sorting exchange with our participants whereby, after we had placed the cards on the table and requested participants to sort the cards, they often went through a quiet process and would only talk to us if further clarifications were needed. While performing data analysis, we found that we were only able to interpret participants' quantitative card sorting data and not in qualitative terms. For example, in the OCS one participant sorted the card name "What is research?" under the category "Research concept at USP", whereas in the CCS, this specific card was included

under the "Home" category. One researcher asked the participant why she considered this card under "Home". The participant replied, "because 'what is research' has an important link to the 'concept of research'". These types of exchanges provide in-depth insights into the thinking systems of participants while sorting data but are not reflected in the quantitative data presented in figures above. In fact, the meaning participants ascribed to their paired cards is a unique contribution to their own findings that needs to be understood and recognised.

The final reflection, but not the least, is in the importance for researcher and participants to be involved in a more relational or collaborative research relationship. We found our research relationship with participants to be more one-off rather than being relational. For instance, we developed the cards' names ourselves although participants had been given an opportunity during the actual card sorting to label new cards. This process, according to our experience, was like searching rather than constructing knowledge together with our participants. In fact, our relationship with participants ended after the actual data collection, probably because we did not have any "take back commitment" to our participants in recognition of their contribution to decision-making and change.

From the first author's card sorting research using online methods (Paea & Ross, 218), the finding was based entirely on participants' views and experiences regardless of any confusion that might have occurred. In our current experiences, we found that our Pacific participants might not willing to participate freely unless they have some sort of inter-personal relationship with the researcher. The recruitment method that worked for card sorting in this study was "meaningful cultural networking" where inter-personal greetings and collaboration with participants was considered more important than electronic and telephone recruitment ('Otunuku, 2011; Vaioleti, 2006). In particular, warm relationships should be considered first in any researcher-participant relationship that involves Pacific people, mainly to secure high trust and respect for authentic findings and long-term relationships (Paea, 2015).

Therefore, our reflections show us that a successful card sorting with and for Pacific people can be accomplished when the subjective meaning of participants' data and having an inseparable researcher-participant relationship are applied and adhered to accordingly. In light of this, our reflections have directed us to the next phase of this paper. That is, to incorporate Talanoa Methodology into card sorting for exploring and analysing subjective comprehension meanings in both quantitative and

qualitative terms that could illuminate a more collaborative nature of research relationship between participant, researcher, and the community they serve (Paea, 2015).

As researchers who live the Tongan culture and have used Talanoa in research, our reflections are culturally inclusive to how we understand the realities underpinning Talanoa Methodology (Paea, 2015; Vaioleti, 2006). Talanoa, literally meaning to talk or to communicate verbally, is a research method used by many Pacific researchers to offer not only rich data but to encourage participants to feel a sense of belonging to their data (e.g., ‘Otunuku, 2011). Imperatively, the reality of knowledge through Talanoa can be negotiated and realised through the process of warm relationships and inter-subjectivities (Paea, 2015).

The key to a successful Talanoa is the researcher who must be skillful in employing Talanoa in a way that can extract subjective meanings through researcher-participants interactions. This can be obtained when participants’ contribution to Talanoa Card Sorting is respected and protected by researcher(s). At its best, participants’ contribution is recognised from preparation through post-research, and the researcher cannot just conduct research for her/his own benefit but most importantly for the benefit of the community involved (Paea, 2015). For instance, the research we conducted with SC356 students was not intended only to prepare them to pass the course, but also to fulfill the role we, as Pacific people, have to play in taking the research back to the USP community.

The outcome of our reflections is outlined in Figure 6 below as a basic proposed guideline on the connection between card sorting and Talanoa Methodology from a Pacific perspective. The proposed guideline cannot be viewed as the absolute way to follow because card sorting can be implemented in one way or the other or even both. However, the proposed guidelines listed under the Talanoa Card Sorting column contains perhaps the most appropriate implications for quality and meaningful outcomes based on the authors’ reflections. It is our hope that they might stimulate further exploration, discussions, and analysis.

Figure 6. Talanoa Card Sorting - A proposed guideline from a Pacific perspective

	General Card Sorting	Talanoa Card Sorting
Recruiting participants	Online & In-person	Meaningful to do in-person through cultural networking
Gathering data	OCS & CCS Online & In-person	OCS and in-person are culturally acceptable, both have cultural implications for quality data and quality researcher-participants relationship
Sorting cards	Researcher-participants interaction during card soring can describe as a one-off relationship.	Researcher-participants interaction during card sorting can describe as a collaborative relationship.
Types of data	Quantitative & Qualitative	Qualitative
Interpreting data	Statistical analysis	Thematic analysis
Research commitment	Enhance publication and business achievements	Enhance community impacts, ownership and life-long relationships

Conclusion

Card sorting is an appropriate and acceptable way of gathering insights about users' thoughts on grouping, categorising, and labelling information on a given website. We also introduce the usefulness of card sorting to designing and/or redesigning the structure of higher education institutions' websites in the Pacific. However, it is recommended to use card sorting alongside other methods such as usability testing because it can assist in collecting useful insights on how users can get new projects up and running. The crux of card sorting lies in its ability to create and link the information architecture design of any website to the needs and expectations of users. To ensure a culturally effective application of card sorting in the Pacific, consideration of the subjective meaning of participants' data and inseparable researcher-participant relationship is crucial. This can be achieved through the incorporation of Talanoa Methodology into card sorting, as qualitative data from Talanoa findings can provide rich unique

insights into understanding of existing complex and subjective views. Working with a researcher who is skillful in implementing card sorting in the Pacific context could generate successful implementation.

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References

Amritesh Misra, S. C., & Chatterjee, J. (2018). Quality framework for credence-based informational services: applying Kano's method. Total Qual. Manag. Bus. Excell, 1-32.

Carlos, V. S., & Rodrigues, R. G. (2012). Web site quality evaluation in Higher Education Institutions. Procedia Technology, 5, 273–282.

Chen, Q., & Wells, W. D. (1999). Attitude toward the site. Journal of Advertising Research, 39(5), 27–38.

Gullikson, S., Blades, R., Bragdon, M., McKibbon, S., Sparling, M., & Toms, E. G. (1999). The Impact of Information Architecture on Academic Web Site Usability. The Electronic Library, 17(5), 293-304.

Katsanos, C., Tselios, N., Avouris, N., Demetriadis, S., Stamelos, I., & Angelis, L. (2019). Cross-study Reliability of the Open Card Sorting Method. CHI, 1-6.

Klassen, M. (2002). Relationship marketing on the internet: the case of top-and lower-ranked universities and colleges. Journal of Retailing and Consumer Services, 9, 81-85.

Manzoor, M., Hussain, W., Ahmed, A., & Iqbal, M. J. (2012). The importance of higher education website and its usability. International Journal of Basic and Applied Sciences, 1(2), 150-163.

Massaro, D. (1994). A pattern recognition account of decision making. Memory and Cognition, 22(5), 16–27.

Mechitov, A., Moshkovich, H., Underwood, S., & Taylor, R. G. (2001). Comparative analysis of academic web sites. Education, 121(4), 652–663.

Optimal Workshop. Retrieved from http://www.optimalworkshop.com

'Otunuku, M. (2011). Talanoa: How can it be used effectively as an

indigenous research methodology with Tongan people? Pacific-Asian Education, 23(2), 43-52.

Paea, M. K. (2015). Tauhi Vā Māfana: Tongan leadership and culture in the New Zealand Public Service. Retrieved from http://researcharchive.vuw.ac.nz/handle/10063/4895

Paea, S., & Baird, R. (2018). Information Architecture (IA): Using Multidimensional Scaling (MDS) and K-Means Clustering Algorithm for Analysis of Card Sorting Data. Journal of Usability Studies, 13(3), 138-157.

Palmer, J. W., & Griffith, D. A. (1998). Information Intensity: a Paradigm for Understanding Web Site Design. Journal of Marketing Theory and Practice, 6(3), 38-42.

Paul, C. L. (2014). Analysing card-sorting data using graph visualisation. J. Usability Stud, 9, 87-104.

Peker, S., Kucukozer, S., & Cagiltay, K. (2015). Exploring the relationship between web presence and web usability for universities. Program, 50(2), 157-174.

Poock, M. C., & Lefond, D. (2001). How college-bound prospects perceive university Web sites: Findings, implications, and turning browsers into applicants. College & University, 77(1), 15–21.

Righi, C., James, J., Beasley, M., Day, D. L., Fox, J. E., Gieber, J., & Ruby, L. (2013). Card Sort Analysis Best Practices. Journal of Usability Studies, 8(3), 69-89.

Rosenfeld, L., & Morville, P. (2002). Information architecture for the World Wide Web: O'Reilly Media.

Schimmel, K., Motley, D., Racic, S., Marco, G., & M, E. (2010). The importance of university web pages in selecting a higher education institution. Research in Higher Education Journal, 9, 1–16.

Science News. (2018). Retrieved from https://www.sciencedaily.com/releases/2018/05/180531114642.htm

Soegoto, E. S. (2018). Implementing Laravel framework website as brand image in higher-education institution. IOP Conference Series: Materials Science and Engineering, 407, 012066.

Spencer, D. (2009). Card Sorting. Designing Usable Categories: Rosenfeld Media.

Vaioleti, T. (2006). Talanoa research methodology: A developing position on Pacific research. Waikato Journal of Education, 12, 21-34.

Will, E. M., & Callison, C. (2006). Web presence of universities: Is higher education sending the right message online? Public Relations Review, 32(2), 180-183.

Art & Creativity

CHAPTER 7

Art and Wellness: Expressive Arts as Therapy in the Pacific Context

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Abstract

Expressive arts have been used for therapeutic purposes for centuries, and today therapists use the arts to heal a range of recognised psychological problems. Many of the current commentaries and research reports have been concerned with children, adolescents, and adults who have been traumatised. However, there is minimal robust research and investigation into the efficacy of impacts and therefore detailed descriptions of programmes are needed. In this case study, a Sāmoan "art as therapy" programme is briefly outlined along with the research describing the outputs and outcomes. This was designed to assist 177 children traumatised by a tsunami in 2009. Using different modes of the arts, the children displayed their sorrow, disbelief, and anguish initially; then, as the programme developed, a noticeable improvement in mood was detected. Almost all of the children indicated that it was a beneficial programme. In addition to this, an evaluation study some years later indicated the worth of the programme as a means that provided immediate and long-term coping strategies. The implications, recommendations, and limits of the programme and research are discussed.

Introduction

In an informal way, expressive arts have been utilised throughout the centuries for psychological/psychiatric therapeutic purposes. From the Nineteenth Century, there was an acknowledgement of the place of the expressive arts as a healing medium and in the Twentieth Century formal art therapy training programmes were established. There is now considerable literature documenting the use of the arts therapies for children and adults with a range of conditions including behavioural and emotional problems, physical ailments, accidents, abusive relationships, domestic violence, war, and the psychological trauma linked to natural disasters such as tsunami,

earthquakes, and flooding. There is a recognition however that there is a need for further development of the discipline and more rigorous research undertakings to assess the efficacy of the approaches for healing. In this paper, attention is directed to the Sāmoan programme although other successful programmes in the Pacific region are also noted. This is followed by a discussion highlighting key issues, recommendations, and the future research needs for expressive art therapies.

Literature Review

There is a range of expressive arts therapies and the following definition, although excluding music, provides an encompassing description:

> [Expressive therapies]….. are a form of psychotherapy that uses creative modalities, including visual art-making, drama, and dance/ movement to improve and inform physical, mental and emotional well-being. Arts therapy works by accessing imagination and creativity, which can generate new models of living, and contribute towards the development of a more integrated sense of self, with increased self-awareness and acceptance. (ANZATA, 2012)

These expressive modes are interwoven with psychological therapies to provide an integrated approach to facilitate healing. In one sense, expressive arts therapy can be considered an adjunctive approach as it is a means of promoting interaction and facilitating meaning that is incorporated within a traditional therapeutic response. However, one of the foremost specialists, Malchiodi (2005), has outlined that the expressive arts therapies have a significant and unique position in healing for two significant reasons. Firstly, thoughts, feelings, and voice can be readily accessed in a more speedy and efficient fashion than talking therapy; and secondly, the arts therapies are action-oriented rapidly promoting the release of the client's thoughts and feelings. The client reflects on the past, present, and future to assist with the resolution of issues via a positive psychosomatic response and alleviation of stress. This is particularly important reflective process when considering the psycho-neurological explanation of the alleviation of stress. The amygdala, one of two parts of the brain that affect how people feel emotions (especially fear and pleasure), is impacted upon and the level of the activity decreases when individuals describe or label an emotion (Lieberman, et al., 2007) – expressive arts therapy often enables this to occur more readily.

There is a growing commentary on the effectiveness of expressive arts therapies. In an expansive mainly philosophical positioning, Levine (2011)

and McNiff (2011) maintain that there is real value in expressive arts acting as a catalyst for individual and social action. On the one hand, there is indeed considerable clinical evidence accrued outlining the benefits of expressive arts. For example, Carey (2006) promotes a wide-ranging compendium of approaches to use with trauma survivors, Malchiodi and Crenshaw (2015) describing the importance of creative arts for attachment issues, and Wikstrom (2005) detailing the value of an individually-developed art therapies for hospitalised sick children. There are many such studies centred on similar clinical evidence. Dunphy, Mullane, & Jacobsson,(2013), have noted, however, that although there is a range of inconclusive scientifically rigorous studies in the literature, there is sufficient evidence to support it as a psychological healing intervention but that more research is necessary to consolidate its standing in the field of psychological treatment. In more recent times, researchers have been directing their attention to quantitative means of establishing the validity of the approach (Kirkcaldy & Hankir, 2018). For example, Quinlan, Schweitzer, Khawaja, and Griffin (2016) used an experimental design, and explored the value of the expressive arts approach with refugee adolescents and found that there was improved behavioural emotional responses. Furthermore, increased sophistication in the measurement of change is being developed. Gendler and Pinna-Perez (2018), for example, have advocated the use of tracking procedures via numeric values and visual mapping, shifts in a client's information processing, brain function, human development and creative intelligence to measure therapeutic changes. It is hoped that the combined value of improved quantitative and qualitative research will facilitate an increased realisation of the value of expressive arts as a healing medium.

Despite the growing evidence for expressive arts efficacy, one of the debates revolves around the criteria for its success. Is it the formal therapeutic interventions that promote change, or is it the activity that promotes the thinking, reflection, and change? This highlights the role of the therapist – is it the therapeutic role that the therapist adopts or is it the art making itself (encouraged by the therapist) that facilitates the change? Malchiodi (2014) opts for an integrated viewpoint and discusses a continuum of practice from "art as therapy" to "art therapy" with both having the potential to be therapeutic. A parallel argument has occurred in mainstream talking therapies with some acknowledging the importance of the client-counsellor relationship (e.g., Rogers, 1986) which endorses the provision of a context for change only, whilst other theoretical positions such as cognitive-behavioural acknowledge the importance of the relationship as well as action strategies. Jones-Smith (2014) notes

that both approaches can be effective in counselling. Malchiodi (2013) states that given such contexts for growth (and with adequate planning and resources), art therapies can contribute significantly to the alleviation of stress and psychological discomfort.

There are now many commentaries discussing the use of arts as therapy to promote healing. Much of the literature initially focused on mentally ill adults, children, and adolescents; what is clear, however, is that the numerous reports have attested to the effectiveness of the therapeutic intent. For example, Frost (2005), in a historical account, surveyed a 200-year period and outlined many scenarios including the holocaust, in which children had coped in adverse conditions being involved in play, work, and the creative arts. In a more focused account of the use of expressive arts therapies, Carey (2006) outlined how well-designed programmes with a range of modes promoted the psychological welfare of traumatised young people and adults. Similarly, Beauregard (2014) discussed programmed healing for USA school children who had experienced trauma as a consequence of country conflict, natural disasters, severe economic disadvantage, and refugee turmoil. Another successful programme, outlined by Chilcote (2007), was a four-week school-based arts therapies programme for children involved in the destructive 2004 Asian tsunami. In surveying the literature, it is evident, then, that expressive arts therapies have become a widely-accepted healing/rehabilitation process.

In the Pacific region, although there have been limited accounts of the use of expressive arts therapies, there is a growing literature outlining how the arts can be used to facilitate healing in this region. For example, in a visually evocative account which arose from an expressive arts therapy programme, Latai and Taavao (2102) produced a report of children's outputs following the Sāmoan tsunami in 2009. This programme (refer Latai & McDonald, 2016), designed to alleviate the stress and promote meaning, is elaborated upon below. Other contexts in the Pasifika region have also utilised the expressive arts in a healing manner. For example, Gray (2012) promoted empowerment, human rights, and social action in a South Auckland Maori and Pacific Island community. This programme resulted in fence paling designs and mosaic structures emphasising the restoration of a cultural identity and belonging – art was used as a political tool for personal and social change. In a Rarotongan setting, prisoners were introduced to art as a medium for personal exploration and rehabilitation (Art therapy project, 2016). The prisoners drew self-portraits, safe places, and emotions which had a therapeutic impact upon them. As one prisoner commented "Feels good, ay, this big-as weight dumped on paper and then

you can start again."

These accounts of the use of expressive arts therapies have been designed to facilitate growth in the individual although, as Varghese (2010) notes (and evident in the above examples) importance needs to be given to the cultural, ethical, and spiritual contexts to maximise recovery. Never-the-less, it is important that additional research is undertaken to clarify what specific features of the context and implementation characteristics are important for the success of an intervention. In addition to this, Van Westrhenen, and Fritz (2014) and Machiodi (2005) have urged that more research be undertaken to identify sound methodological approaches to assess the efficacy of the arts therapies approaches; this could promote it as being effective alternative to mainstream talking psychological therapies. A noticeable gap in the research literature is the lack of rigorous quantitative reports – these are needed alongside the qualitative accounts to assess the efficacy and usefulness of programmes.

A Sāmoan Case Study: The Moving On Art Therapy Programme

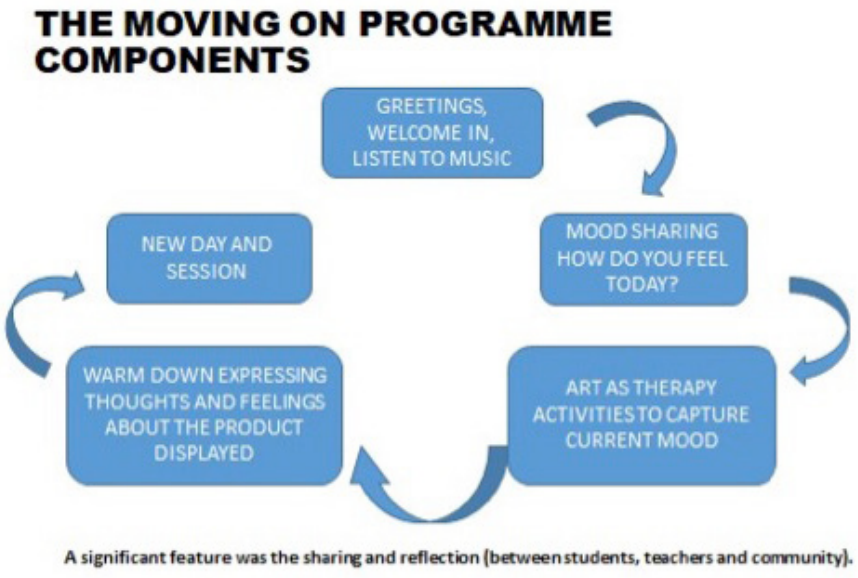
An earthquake of 8.3 on the Richter scale hit Sāmoa in 2009, and was followed by a tsunami devastating the southern side of Upolu, resulting in the loss of 143 lives. A major concern was the effect it had on the children of the Aleipata School district who encountered and experienced the aftermath of the earthquake and tsunami. Consequently, an intervention "Moving On: Art as Therapy" programme was created in 2010 to promote the healing progress of this community. It consisted of six workshops conducted over six months and offered creative self-discovery art experiences and opportunities for expression to heal the children and assist the community at large to recover from the emotional and traumatic experiences. What evolved was a Sāmoan contextualised model to assist the community in times of disaster, and it built on the existing international literature concerning the value of expressive arts therapies. Leua Latai, senior lecturer for visual arts at the National University of Sāmoa, developed and led the programme with the facilitation of the research programme undertaken in conjunction with Lex McDonald (Victoria, University of Wellington, New Zealand), an experienced child psychologist.

Three sites were targeted to facilitate the programme – Satitoa, and Lalomanu primary schools and Aleipata secondary school. These students were directly affected by the disaster and were either on their way to school, or at school, when the tsunami occurred. These children witnessed a calamity that had significant psychological, social, and community consequences with loss of lives and destruction of the environment.

Nevertheless, the national and international responses were directed toward physical and material restoration. The Moving On programme was designed to facilitate emotional regulation and healing.

The Moving On creative art therapy programme was comprised of a range of activities including drawing and painting, creative story writing, poetry, puppetry, drama, and creative movement to music. These outputs became a focus for discussion and exploration of feelings. The following graph (Graph 1) depicts the nature of the programme.

Figure 1. The Moving On Programme Components



Along with the children's outputs, a significant component of the programme was the family healing night community art exhibitions and anecdotal feedback which involved the sharing and reflection of student artworks, poetry, and storybooks between the children, facilitators, and community members. This community engagement became a catalyst to assist in the community's cathartic response. The children, teachers, parents, and wider community repeatedly reported that they benefitted from the programme and this was supported by the data gathered during the programme operation and in the findings of an evaluation undertaken some years later.

The research data examining the immediate programme outputs and outcomes was a mixed approach, whilst the evaluation, undertaken some

years later, was a qualitative outcome study. Ethical approval for both projects was obtained from the University Research Ethics Committee of the National University of Sāmoa and the anonymity, confidentiality, right of withdrawal, and intention to publish conditions were outlined to all participants. The facilitator for the Moving On programme was supported by the community including the principals, teachers, parents, and personnel from the Ministry of Education, Sports and Culture to implement the programme. The participants in the programme included 177 children and young adults ranging in age from 5 to 18 years who were affected by the tsunami; teachers and parents also participated in many of the activities.

The artefacts collected consisted of drawings, paintings, creative stories, and poetry and the production of these was recorded on video, photographed, and exhibited throughout the duration of the programme. Additional data were obtained via interviews/discussions with the programme coordinator. Large group interviews/discussions with approximately 15 children were undertaken and these were followed by smaller group discussions with 5-6 children. In addition to this, most of the children were spoken to individually to explore feelings and responses. The group sharing sessions were important because they provided peer support and assisted with the expressions of responses.

All the data that were collected were compiled and allocated codes by both researchers and these codes were then classified into categories whereby themes were noted. To confirm the reliability, the same process was repeated some weeks later. This was an approach based upon the thematic analysis ideas developed by Miles, Huberman, and Saldana (2014). Trustworthiness of the data was ensured by the range of responses, the many artefacts, colleague evaluation of data, and the fidelity of the constructed overall research plan.

Some simple quantitative data were also collected about the programme and this supported the qualitative data findings. This data consisted of identification of favourite art therapy activities, overall helpfulness of the programme, suggestions for improvement, and the project meaningfulness to the participants. The data revealed that the favoured art therapy activities included painting and drawing, and many (39%) reported an enjoyment of the sharing sessions. In response to questions about how the art therapy programme was beneficial, 89% reported it lessened the pain and sad memories and facilitated an alertness and happier thoughts. The programme was reported as being meaningful and timely to 90% of the children and over half (53%) wanted a continuance of it. A few of the

children (2%) did not want to explicitly explore the tsunami topic any further even though they indicated the programme should continue to remind them of the tsunami.

This quantitative data, although not directly measuring outcomes in terms of healing, provided an account of the activities and outputs that promoted opportunities for the participants' expressions. Some encountered challenges with the specifics of the programme, however, although it was difficult to assess whether this was because of the nature of the topic or the modes of expression.

On the other hand, the qualitative data revealed a range of emotions and thoughts. In the analysis, several themes were detected – death, fear, destruction, heroes, spirituality, and moving forward. The most powerful and haunting reports were the children's anxieties with death and fear of the tsunami as indicated in the following figures.

Figure 2. Illustrations of fear

Figure 3. The wounded and dead

Figure 4. Coffins of the victims

Overall, the qualitative and quantitative data revealed that the participants could communicate their feelings and emotions and this provided a powerful vehicle for healing. This provided an insight into the perceptions of the children and identification of the key responses that promoted sharing and community responsiveness creating a context for healing. Figure 4 is an example of the depiction of the beginning of the healing process.

Figure 5. Namu'a Island without the ravages of the tsunami

A qualitative summative evaluation impact study (Latai & McDonald, 2017) was undertaken several years later to assess the value of the Moving on Art Therapy Programme and to gauge the impact of the programme to support the students to overcome the trauma associated with the tsunami. The purposes were to assess, from a long-term perspective, the usefulness of such a programme and its impact and thereby forming a basis for planning future programmes, to share the findings, and to inform the growing literature base. A survey of the participants was undertaken and other indices such as anecdotal reporting were considered which provided additional feedback. This evaluation was implemented years after the intervention and provided data on the sustainability of the programme's objectives and outcomes, and whether the resources were adequate in helping with making meaningful assessment of the utility of the programme. This study was undertaken with a sample of 8 students and 6 teachers of the original Moving On programme participants.

Each semi-structured interview of 20-30 minutes was audio recorded and transcribed. The two researchers interviewed the participants in English; Sāmoan language was used when necessary to elaborate or clarify. In addition, many probes followed the answers and the children and teachers were also encouraged to elaborate upon their answers. The questions related to overall feelings and thoughts about the programme, the most memorable aspect of it, identification of any negative aspects, the impacts, and suggestions for improvements. Miles, Huberman, and Saldana's (2014) thematic analysis was used to interpret the data. Trustworthiness was established via use of the researchers' academic, research, and experiential backgrounds; the knowledge base of the local context and culture; understanding of the programme; and use of participants' narratives.

Overall, the participants in the evaluation study indicated a positive response and appreciated the opportunity to engage in the programme. From the analysis of the data, themes were identified: shared experience of the event, the value of emotional reactivity and well-being, unique personal recollections, teacher perceptions, the bringing of meaning and interpretation during chaos, the benefit of developing a framework for future calamities, the establishment of a historical record, and the cathartic experience of engaging with the art media. Several specific suggestions were also provided for improvement such as incorporating such art activities into the school curriculum. From an examination of these themes, a "meta-theme" of "healing and sharing" was evident as many ideas related to the opportunity the programme provided for recovery.

As indicated, there was considerable evidence from the data gathered that the Moving on Art Therapy programme assisted the children and community to deal with the tsunami. Being a local response programme it provided tangible unique healing and meaningfulness for the community at a time of calamity. The success of the programme resulted in wide interest from national and international spheres because the programme acknowledged the need for psychological and social healing activities beyond the physical need. It was regarded by many as a historical record and highlighted the need for a preparedness for future calamities.

What had been achieved was important. The outputs and outcomes of Moving On and subsequent evaluation of it indicated that the children and community were provided a nexus for healing following the disaster that occurred in the Aliepata district in 2009. The evidence indicated that there was a movement from distress to providing meaning and then to coping. for the children, families, and community. The findings in both studies (Latai & McDonald, 2016; 2017) were consistent with the international literature (e.g., Chilcote, 2007; Huss, Kaufman, Avgar, and Shouker, 2015) that identified the need to express fear, shock, anger, and re-engagement/ re-building. These sources have indicated that the provision of such interventions is a necessity if personal, family, social, and community psychological welfare is regarded as important when reconstruction is being implemented.

In acknowledging the success of the programme, it is important to recognise that there were several research limitations. In the initial study that explored the outputs and outcomes of the programme, it was unknown to what extent the art and stories captured the full meaning – was the event too painful and immediate for a wide-ranging valid response by

all the children? Some of the emotions may have remained submerged. Furthermore, the collection of narrative data was minimal because attention was directed toward expressive arts products – however, such descriptive evidence could have added further meaning to the outputs. Neither was there any data collected on the measurable quantitative impact of the intervention although there were numerous outputs indicating growth. The evaluation study also had some limitations. There was a small number of participants, one reason being that many had moved from the district and country and recall of the events may have been difficult for the participants as the evaluation was undertaken seven years later. A wider survey of participants, such as parents and community members, would have been useful as well though not undertaken due to unforeseeable circumstances. In both studies, an increased rigour of findings could have been achieved if more quantitative data had been gathered.

Feedback data from both studies, reflections by the facilitator/researchers, and the international literature indicated, however, that future programmes need to consolidate and increase the focus on a consistent holistic cultural approach which considers the need for an encompassing intervention emphasising the interactive forces of the culture and family. The spiritual, physical, psychological, and specific group/individual characteristics in Samoa are of vital importance and are intertwined. Further, a strengthening of the psychological therapeutic input and purposeful interaction with the expressive elements would add value to the approach to move beyond a solely "art as therapy" orientation – this necessitates facilitators having a knowledge of both expressive arts and psychological discourses to maximise benefits of any intervention. The facilitators' learning and programme outcomes of the Moving On programme made it apparent that there was a need for an expeditious implementation when calamitous events occur, and hence the need to promote education and training of other people was recognised as important. Another important conclusion of these studies, and indeed, as noted in the international literature, is the need for additional research to consider such issues as what specific contextual cultural modifications are needed, which expressive arts programme arrangements are the most efficacious, and what healing strategies the most influential. In addition to these specifics of research agendas, many commentaries indicate the need for future research gathering from a qualitative and quantitative perspective – this is needed to further consolidate growth grow into a professionally robust discipline.

The Moving On arts therapy programme was a unique intervention undertaken to promote healing and wellness in a community ravaged

by a natural disaster. The expressive arts activities assisted not only the children; it served the community at large to adjust to the event and it made a significant statement about the need to provide for more than the physical needs of victims – it impacted on their psyche. Furthermore, it enabled an important therapeutic response to be recorded as a healing and transformative approach for the victims and this has local and international significance audiences.

> The task of [art] therapy is not to eliminate suffering but to give a voice to it, to find a form in which it can be expressed. Expression is itself transformation; this is the message that art brings. The therapist then would be an artist of the soul, working with sufferers to enable them to find the proper container for their pain, the form in which it would be embodied. (Levine, 1992, p. 14)

References

ANZATA (Australian and New Zealand Arts Therapies Association). (2012). Retrieved from http://www.anzata.org/ Retrieved April 19, 2016 http://www.anzata.org/

Art Therapy Project. (2016, July 7). Art therapy project in Cook Islands prison changing inmate's lives. Cook Islands News. Retrieved from http://www.pireport.org/articles/2016/07/07/art-therapy--project-cook-islands-prison-changing-inmate%E2%80%99s-lives

Atkins, S., Knill, P. J., Simoneaux, G., Abbs, K., Kalmanowitz, D. L., Huss, E., Calderon, J. M. (2011). Art in action: Expressive arts therapy and social change. London Jessica Kingsley Publishers.

Beauregard, C. (2014). Effects of classroom-based creative expression programmes on children's well-being. The Arts in Psychotherapy 41(3), 269 –277. doi:10.1016/j.aip.2014.04.003

Carey, L. J. (2006). Expressive and creative arts methods for trauma survivors. Philadelphia, PA: Jessica Kingsley Publishers.

Chilcote, R. (2007). Art therapy with child tsunami survivors in Sri Lanka. Art Therapy 24 (4), 156–162. doi:10.1080/07421656.2007.10129475

Dunphy, K., Mullane, S., & Jacobsson, M. (2013). The effectiveness of expressive arts therapies: A review of the literature. Melbourne: PACFA.

Frost, J. (2005). Lessons from disasters: Play, work, and the creative arts. Childhood Education 82(1), 2–8. doi:10.1080/00094056.2005.10521332

Gendler, J., & Pinna-Perez, A. (2018). The Expressive Therapies Continuum Coordinate System: Quantitative Data in Expressive Arts Therapies.

Gray, B. (2012). The community fence project: A symbolic approach to healing a cultural wound on a housing estate in South Auckland. Australian and New Zealand Journal of Art Therapy, 7(1), 52-64.

Huss, E., Kaufman, R., Avgar, A., & Shouker, E. (2015). Using arts-based research to help visualize community intervention in international aidInternational Social Work (Vol. 58, pp. 673-688). Retrieved from https://doi.org/10.1177/0020872815592686

Jones-Smith, E. (2014). Theories of counseling and psychotherapy: An integrative approach. Thousand Oaks, CA: Sage.

Kirkcaldy, B., & Hankir, A. (2018). The Power of the Performing Arts in Healthcare. In Psychotherapy, Literature and the Visual and Performing Arts (pp. 69-91). Palgrave Macmillan, Cham.

Latai, L., & McDonald, L. (2016). Expressive arts a therapeutic intervention: A Sāmoan case study. Journal of Sāmoan Studies, 6, 21-40.

Latai, L., & McDonald, L. (2017). Evaluation of an expressive art as therapy program undertaken in Sāmoa. Journal of Sāmoan Social Sciences, 17(3), 63-74.

Latai, L., & Taavao, M. (2012). O le Galulolo: Stories, poems and artworks by the tsunamia affected school children of the Aleipata district. Apia, Sāmoa: Expressive Arts Department, Faculty of Education, National University of Sāmoa.

Levine, S. (1992). Poiesis: The language of psychology and the speech of the soul. Toronto, Canada: Palmerston Press.

Levine, S. K. (2011). Art opens to the world: Expressive arts and social action. In Art in action, Expressive arts therapy and social change (pp. 21-30).

Lieberman, M. D., Eisenberger, N. I., Crockett, M. J., Tom, S. M., Pfeifer, J. H., & Way, B. M. (2007). Putting feelings into words. Psychological Science, 18(5), 421-428. Retrieved from https://doi.org/10.1111/j.1467-9280.2007.01916.x

Malchiodi, C. (2005). Expressive therapies: history theory and practice. In C. Malchiodi (Ed.), Expressive therapies (pp. 1-15). NY: Guilford

Publishers.

Malchiodi, C. (2013). Defining art therapy in the 21st Century. Retrieved April 18, 2016 https://www.psychologytoday.com/blog/arts-and-health/201304/defining-art-therapy-in-the-21st-century

Malchiodi, C. (2014). Creative arts therapy and expressive arts therapy. Retrieved April 16, 2016 https://www.psychologytoday.com/blog/arts-and-health/201406/creative-arts-therapy-andexpressive-arts-therapy

Malchiodi, C. A., & Crenshaw, D. A. (Eds.). (2015). Creative arts and play therapy for attachment problems: Guilford Publications.

McNiff, S. (2011). From the studio to the world: How expressive arts therapy can help further social change. In Art in action, Expressive arts therapy and social change (pp. 78-92).

Miles, M. B., Huberman, A. M., & Saldana, J. (2014). Qualitative data analysis: A methods sourcebook. Thousand Oaks, CA Sage.

Quinlan, R., Schweitzer, R. D., Khawaja, N., & Griffin, J. (2016). Evaluation of a school-based creative arts therapy program for adolescents from refugee backgrounds. . The Arts in Psychotherapy, 47, 72-78.

Rogers, C. (1986). Carl Rogers on the development of the person-centered approach. Person-Centered Review 1(3), 257–259. doi:10.1037/0033-3204.42.1.37

Van Westrhenen, N., & Fritz, E. (2014). Creative arts therapy as treatment for child trauma: An overview. The Arts in Psychotherapy, 41(5), 527-534. Retrieved from http://dx.doi.org/10.1016/j.aip.2014.10.004

Varghese, S. B. (2010). Cultural, ethical, and spiritual implications of natural disasters from the survivors' perspective. Critical Care Nursing Clinics, 22(4), 515-522.

Wikström, B. M. (2005). Communicating via expressive arts: The natural medium of self-expression for hospitalized children. Pediatric nursing, 31(6).

CHAPTER 8

Why RPEIPP? Emerging/next generation Pacific academics, researchers, and educators

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Abstract

In this paper we share our insights on revisiting education and contributing to the broader general stream designed to mandate re-thinking and transforming education within the Pacific. The conference theme, It takes an island and an ocean: Rethinking Pacific Education for resilient, healthy communities, frames our approach with a focus on "an ocean" by exploring lan as a sub-theme. Lan refers to the sky in the Marshallese language; here we are the star gazers, navigators, the Moana, and the Maui; we dream of a new space, new direction, to go forward. Our innovators, creators, builders, designers, crafters, artists, musicians, poets, orators, dancers, and performers share their aspirations and hopes for our children and our future. The paper that follows presents ideas and concepts through poetry by four emerging Pacific academics, researchers, and educators. Poetry is a means and method to highlight our positionality and concerns. To re-think Pacific education by and for Pacific Peoples is a purposeful and deliberate disruption of what counts as useful knowledge. We argue that Pacific knowledge and world views are useful for us today and for future generations.

Introduction

During the colonial period, the value of indigenous knowledge and practice was undermined and, overall, it was believed to have very little value in the education of indigenous peoples (Smith, 1999). Often the dismissal or devaluing of indigenous knowledge and language was used as a means to demonstrate the power and positioning of the colonising regime. Beliefs

associated with this became widespread and embedded in the everyday life of many Pacific peoples; for example, Christianity is used as a tool to appropriate Pacific cultures, beliefs, lives, and language (Watson-Gegeo & Gegeo, 1991). This colonising process has brought much devastation to the Pacific region and can still be seen in aspects of the education systems; in particular, notions of who education is for, the content that is delivered, and what purposes it serves.

One way to contest this ongoing colonisation process is to reinvigorate traditional forms of expression and communication. The Vaka Pasifiki Education Conference 2018 offered the opportunity to explore different knowledge-sharing practices of Pacific peoples through four different sub-theme sessions. Each session format privileged a form of traditional knowledge or knowledge-sharing practice. Our session was styled around lan, a Marshallese practice of performance and creative expression to present and share knowledge.

Lan

The word lan is a Marshallese term for the skies. It is one of the three pillars of Marshallese society, making it an essential part of the Marshallese society's survival (personal communication, McKay, 2018). It is through lan that Marshallese possessed great navigational skills, enabling extensive journeys by following the patterns of the stars and winds. Understanding the changing colours of clouds and patterns of the winds enabled sailors to predict weather conditions and to forecast rain or the potential for long droughts (McKay, 2018). Lan can be seen as a space where learning takes place; in order to understand these natural weather patterns important learning must be occurring, learning for survival. Through lan we can foresee or predict what is going to happen in the future and how it is going to affect our society.

Lan forum

Four emerging Pacific academics, researchers, and educators were invited to each present a poem that expressed their positioning within "Rethinking Pacific Education Initiative by and for Pacific People" (RPEIPP). Each poem and a commentary about how it reflects the author's motivations, service, and aspirations within RPEIPP is presented here.

Kohai au? Who am I?

I am Pacific, ta'ahine mei he moana,
My laumālie, My mo'ui,
Inhale and exhale Pacific,
Fanongo mai ki hoku le'o.

Tupuhake 'e Aotearoa Niusila,
Lele mai me Tonga, Fisi, Ha'amoa, Uvea,
Fanongo mai kihe talanoa,
Koe 'au ta'ahine, fa'aē, tehina. Malie!

Manatu'i ho'o tupu'anga,
Remember where you come from!
Our ways of knowing, Our ways of being,
Ta'uhi lelei our vā 'ihe māmani ko'eni

Tupu hake to serve, inspire, talanoa,
Our mo'ui is to reshape, rethink, be bold,
To disrupt the vā in this world,
Tau ako, keu ilo, ke ma'u ha'a poto.

Fanongo mai kihe kalanga māfana.
Tau ngāue fakataha, ngāue lelei,
I am, We are, teachers, leaders,
Immersed in the koloa of learning.

Maria's commentary

This poem is a reflection of my personal journey and worldview of what it means to be Tongan in the Pacific. Reference is made to the moana (ocean) and spiritual connection to places of origin that centre on family, upbringing, and cultural heritage that is rich and integral in shaping identity. I embrace my role as a woman, mother, sister, in society. My poem is about identity which can be complex but done with humility and respect (Nabobo-Baba, 2006). Māhina (2004) stresses the importance of having a sense of history and harmony to capture Pacific knowledges, theories, and practices as Oceanic people. As an educator and researcher, mixing Tongan and Pālangi words into the poem is to inspire those of us working in education that walk in two worlds, anywhere, anytime. Pacific, or rather Tongan, theoretical concepts are woven into the poem to acknowledge

the past, present, and future. The words vā (relationship) (Māhina, 2004), talanoa (talk) (Vaioleti, 2006), ako (learn), ilo (know), poto (knowledge), koloa (gift) (Thaman, 1988) are used intentionally throughout the text to contextualise lived experiences that are meaningful.

Pacific identity is shaped by kinship ties and the collective (Nabobo-Baba, 2006; Thaman, 1988). In Kohai au? Who am I? I answer this question in the first three verses that draw on different elements of my identity. I see myself as a daughter of the Pacific moana, a New Zealand-born Tongan with ancestral connections to Fiji, Samoa, and ‘Uvea. I acknowledge my role as a woman and mother. I call for others to remember where they come from (manatu’i ho’o tupu’anga), embrace our knowledges, tauhi lelei our vā, that is, nurture our vā or relationships with each other. In the last two verses I speak of why I am here, ready to disrupt the vā as an agent of change through my education. Taumoefolau (2004) contends Pacific education is different from mainstream education because our ways of being in this world are shaped by our diverse experiences. Being part of the RPEIPP movement motivates us to be resilient, stargazers, creators of our own destiny where we work collaboratively to make a difference in what we do, say, think, as emerging or mature academics, researchers, and leaders.

I am grateful to my colleague, Dr David Fa’avae, who challenged us to write our poems reflecting our positionality in Pacific education. I lamented over his request knowing the process of creative writing would disrupt my realities. However, crafting the poem was a therapeutic experience as my talanoa is an expression of my worldview and experiences (Vaioleti, 2006). At the time I was in a political campaign running for a board position in local government. Writing Kohai au? Who am I? for me, is a spiritual awakening that calls upon my identity and place and questions my role as an educator and researcher in Aotearoa. I am proud to be Tongan in our moana, to share my talanoa with others, and to be brave. When I finished the poem, I had won the political election validating my aspirations of leadership in the community. Thaman (1988) argues our values and beliefs explain cultural behaviour to others, justify actions, and mobilise us into action. With our koloa (gifts) of education and roles in society we must act to change the world. Only then can we understand our history and embrace the beauty of our indigenous ways of knowing and being.

Tauhi e tau vā

Pāpālangi, white eyes
Awakened to my fatongia
Mother of Tongan boys
Challenges my white eyes always.
Confronted by the intimacy of tauhi vā
Honoured to nurture our ties

Seeking to disrupt and decolonise
Questions often asked from white eyes,
White ears and white minds
Raising intimate questions like:
Is Tongan knowledge really science?
Do Tongans even have science?

Through brown eyes
I see beauty, I see success
Through white eyes
I am expected to see failure, to see loss
I hear the calling of fish in Ha'ano
My husband's genealogical ties to Ha'apai

Seeing you both through coloured eyes
My duty, my obligation,
My service as a fa'e to
My beautiful sons
Be who you choose to be
Be proud and strong of your ancestral ways

Decolonised white eyes
Seeing through strength
To thrive and survive
Tongan ways and my Tongan sons
Makes more sense
Through coloured eyes, I see, finally.

Sonia's commentary

"Positionality" acknowledges the internal variation or heterogeneity of cultures, and where the researcher is positioned in relation to "the other"

is fluid and can shift depending on what is being compared (i.e. gender, social class, age, etc.) and may overshadow the cultural identity associated with insider/outsider status (Merriam et al., 2001). Critics of the insider/outsider binary argue that such a clear dichotomy between two states ignores the possibility that an individual could be one or other, or even both, depending on the situation (ibid). This focus on a binary system overlooks the "multi-dimensional power relationship shaped by cultural values, gender, educational background and seniority" (ibid, p. 408). Rather than seeing these as two distinct positions with clear boundaries, there can be fluidity between the two states and a complexity inherent in either. For example, Webster and John (2010) suggest the term "in-outsider" to describe the feelings an outsider researcher has when working with an indigenous community. The task they were engaged in and the process of working together made them feel "almost like an insider – at least during this process – maybe something like an in-outsider" (Webster & John, 2010, p. 182).

My positioning is informed by my perspective and experience as a university educator (or insider) with almost twenty years of teaching in positions that have continually highlighted the inequitable outcomes in achievement for Pasifika students. For the past fifteen years I have worked as an educator of indigenous (Māori) and Pasifika students in an indigenous-led university department where the majority of the staff is indigenous. As a Papālangi educator this has often challenged me, forcing me to critically reflect on myself, particularly on my privilege as a Papālangi, how I engage with practice, culture, and values and the power dynamic present when I teach Māori or Pasifika students. However, as I do not have Pasifika ancestry, I am also an outsider, at best, an "outsider expert" (Samu, 2014). Therefore, as a researcher with a focus on the education of Pasifika students, I am also an outsider.

These perspectives or interpretations of the researcher position helped me to explore and understand my third "situated position": I am married to a Tongan man, I have Tongan children, and I live with my extended Tongan family for whom their first language is Tongan. My lived experience is now more shaped by the contemporary expressions of Tongan culture demonstrated by my Tongan family, who maintain close ties to Tonga, than the Papālangi culture I was brought up in. This makes me feel that, rather than either of the binary states of insider or outsider, I am somewhere in the space that exists in between. By no means am I claiming to be Tongan (or an insider), but nor do I feel that I am completely an outsider to Tongan ways and values. I believe that my worldview situates me as an "external-

insider", someone who has become affiliated with an "outside culture" and who may adopt aspects of this culture, while critically regarding rejecting many of the values and beliefs of the culture they were first socialised in (Banks, 1998).

As an insider (and outsider) in the education system I have an on-going interest in what makes Pasifika students achieve in science. However, as the mother of Tongan children I am driven to understand why some Tongan students are successful in their science studies and what contributes to them engaging, achieving, enjoying, and continuing to study science. Having the opportunity to present my poem in what is traditionally a space for Pacific academics helped me to validate my position in the REIPP movement. I am eternally grateful to my brother, Dr Dave Fa'avae, for the validation that my work is relevant to the Pacific region. I intend that my research will always contribute to a new narrative about Tongan (and Pasifika) achievement and success, one that creates a place for my children to achieve their full potential in the education system and encourages them to value their culture including their indigenous Tongan science knowledge.

I am TOKO Tautua (Youth in Service)

I am an ofefine (daughter) of the Most High, our Heavenly Father (2 Tim 1:7)

I am a ta'ahine Tonga (Tongan girl) who proudly reigns from Tongata'eapa, Kolomotu'a, Hufangalupe, Vaini. My tupuna (ancestors) are connected to Hihifo, Niutatoputapu, Ha'avakatolo, Hihifo, Haveluliku, Hahake, Utungake and Utui. Vava'u, Piula. Lufilufi, Toamu'a. Upolu, Samoa and Koro Island, Fiji.

I am a child of God-fearing Tongan parents who migrated to NZ and brought their great work ethics.

I am a mokopuna (grandchild) of spirit-led grandparents who have paved a rich legacy and left a sweet alaha (aroma).

I am tehina and ta'okete/tokoua (sister) to two happy spirited and outgoing sisters. I'm a middle child and the eldest.

I am a fakafotu (niece) to my dear and loving mehikitanga (dad's sister), funny spirited fanga tamai (dad's brother), supportive fanga fa'e (mum's sisters) and compassionate fa'e tangata (mum's brother).

I am a fa'e (aunt) to helpful nieces and outgoing nephews.

I am a TOKO collaborator (colleague in service) working together with a variety of collaborative initiatives – Churches and Communities.

I am a faiako (teacher) who is loyal and committed to implementing blended learning into my 21st Century classroom.

I am a TOKO Tautua (Youth in Service) and #1 MMT enabler and fan

'Alisi's commentary

My poem highlights my positioning within the RPEIPP movement by identifying and knowing who I am, a TOKO Tautua. I have been working to develop trusting vā (relationships), safe spaces for positive talanoa (talk). Being an effective and confident communicator is an ongoing goal that has enabled me to provide genuine and interactive communities of learning within my family, my church family, my classrooms, and a variety of community initiatives I am passionate about. I have had the privilege to be part of founding, developing, implementing and promoting safe learning environments through TOKO Collaboration Charitable Trust (Suicide Prevention Initiative) and using Pasifika Frameworks. I have realised through numerous engagements with youth and students, that working with youth should be a persistent and a reflective exercise. Digital technologies have a key role to play in 21st Century students' learning and New Zealand schools are moving into finding provisions for students to utilise such modes of learning in the classroom, and in the wider community. More frequent interactive initiatives that encourage students to form meaningful relationships will enable students to go beyond the reefs of Moana Nui Pasifika and embrace 21st Century ako (teaching and learning) in the Pasifika region diaspora.

Lan – The Skies

I look up to the skies
There, I see my language
Beautifully painted
Up in the skies
Arched lines of different colors
A rainbow
Iia

From which derived my greeting word
Ia-Kwe
Iaa – Rainbow
Kwe - You
Iaa-kwe
You are a Rainbow!

I look up to the skies
There, I see my myths and beliefs
Locks of thick cloud forms
I know it's raining soon
I have been told
As part of my rearing
My ancestors perceived
Rain as a sign
A sign of blessing

I look up to the skies
There, I see my religion
Lan – The skies
And all it encompasses
The stars
The clouds
The Universe
As taught by my church
Are all God's creations

I look up to the skies
There I see my ways of living
Changes in the colours of the clouds
I know harvest season is approaching
I prepare ….
Changes in the wind pattern
I know a famine is nearing
I preserve….

I look up to the skies
There, I see my traditions
A star
That one particular star
Serves as my compass

As I travel my way
On a vast ocean of endless water
That one particular star
Leads me back to my homeland
That one particular star
Is my one navigation device
As instilled in me
By my forefathers

I look up to the skies
There, I see my heritage
A flock of birds
White as they are
Litakbouki
They are telling me
My journey is about
to come to its end
They are telling me
I am about to reach the land
Of Majuro Marshall Islands
Of which I belong

Yolanda's commentary

The poem titled Lan/The Skies is a reflection of how lan is one of the three pillars of the Marshallese society. It shows how almost all aspects of the Marshallese lives are derived from lan.

My poem highlights my positioning within the RPEIPP movement by identifying and knowing who I am; it literally tells a story of my identity as a Marshallese. This poem was inspired by the lan sub-theme. Almost all aspects of a Marshallese are connected to lan. Our greeting word "Ia-kwe" derives from the word "rainbow", which is something that you see in the skies (lan). The Marshallese navigational skills are connected to lan as well – through the use of the stars, Marshallese are able to sail the vast open ocean in their outrigger canoes. Through lan, forecasting and predicting weather patterns is possible. Our ancestors were able to look beyond what we can only see as a gloomy weather and tell whether a storm was coming or if the dry season was about to arrive.

While this poem is about lan and my identity and who I am as a Marshallese, it also gives the opportunity to look at our Marshallese ways of living and

knowing. Traditional navigational skills and traditional weather forecast skills are dying out. As a Marshallese and a participant of the RPEIPP movement, I ask, "How do I create a space where the continuous learning of such skills is being encouraged?"

Conclusion

Pacific Peoples have navigated the ocean for centuries expanding and adapting their culture and language over time. The four poems express identity (Maria), family (Sonia), relationships ('Alisi), and tradition (Yolanda) that reflect our indigeneity, positionality, and moana connections that are deep and meaningful. Our poems give us strength as a collective which transcends colonial discourses to forge a pathway for emerging and next generation Pacific academics, researchers, and educators.

Sanga (2002) argues that Pacific [academic] leadership must be strengthened by training and mentoring to build capacity in research and in education. We experienced this training and mentoring when Dr David Fa'avae invited us to write our poems. The opportunity he provided encouraged and guided us to understand our positioning in the transformation of education in the Pacific. The processes we all individually took to create our poems acknowledges the need to have the spirit and strength to be brave and courageous, to try something new, outside of our comfort zone. Recognising this disruption to our vā is a way to grow and develop ourselves as emerging Pacific academics, researchers, and educators helps us to create comfort for others in their learning spaces and identity.

Our poems highlight our positionality and our concerns, creating deliberate disruption to what is considered useful knowledge in a Western context. All of our performers wove Pacific knowledge and world views into their poems, using their languages and systems of knowledge sharing to express what could not be captured by a standard conference seminar or a presentation entirely in English. We are answering the call to disrupt the status quo and decolonise what is currently in place so that we can leave behind a better legacy for our future generations through our culture, education, and leadership. We know that Pacific knowledge and worldviews are useful for us today and for future generations and we want others to know this too.

References

Banks, J. A. (1998). The Lives and Values of Researchers: Implications for Educating Citizens in a Multicultural Society Educational Researcher, 27(4), 4-17.

Māhina, O. (2004). Issues and Challenges in Pacific Research: Some Critical Comments. In T. Baba, O. Māhina, N. Williams, & U. Nabobo-Baba (Eds.), Researching Pacific and Indigenous Peoples: Issues and Perspectives (pp. 186-200). Auckland: Centre for Pacific Studies, University of Auckland.

Merriam, S. B., Johnson-Bailey, J., Ming-Yeh, L., Youngwha, K., Gabo, N., & Muhamad, M. (2001). Power and positionality: negotiating insider/outsider status within and across cultures. International Journal of Lifelong Education, 20(5), 405-416.

Nabobo-Baba, U. (2006). Knowing learning: An indigenous Fijian Approach. Suva: University of South Pacific.

Samu, T. W. (2014). Metaphors and Mantras: Responding to the Personal Challenges of Writing a Theoretical Thesis. In J. Rath & C. Mutch (Eds.), Emerging Critical Scholarship in Education: Navigating the Doctoral Journey (pp. 23-137). Newcastle: Cambridge Scholars Publishing.

Sanga, K. (2002). Addressing Issues and Challenges facing Pacific Education. In Re-thinking Pacific Education Colloquium. Suva: University of South Pacific, Institute of Education.

Smith, L. T. (1999). Decolonising Methodologies: Research and Indigenous Peoples. Dunedin, New Zealand The University of Otago Press.

Taumoefolau, M. (2004). A place to stand. In T. Baba, O. Māhina, N. Williams, & U. Nabobo-Baba (Eds.), Researching Pacific and Indigenous Peoples: Issues and Perspectives. (pp. 63-67). Auckland: Centre for Pacific Studies, University of Auckland.

Thaman, K. H. (1988). Ako and faiako: Educational concepts, cultural values, and teacher role perceptions in Tonga. (PhD Thesis). University of South Pacific., Suva.

Vaioleti, T. (2006). Talanoa research methodology: A developing position on Pacific research. Waikato Journal of Education, 12, 21–34.

Watson-Gegeo, K. A., & Gegeo, D. A. (1991). Impact of church affiliation on language use in Kwara'ae (Solomon Islands). Language in Society, 20, 533-555.

Webster, J. P., & John, T. (2010). Preserving a space for cross-cultural collaborations: an account of insider/outsider issues. Ethnography and Education, 5(2), 175-191.

Climate & Sustainability

CHAPTER 9

Integrating Climate Change Adaptation and Disaster Risk Reduction – A key for education for sustainable development

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Abstract

Climate change impacts and disasters caused by natural hazards are known to affect people's lives worldwide. Many of these impacts are felt by the people of Fiji, Kiribati, Solomon Islands, Tonga, Tuvalu, and Vanuatu. While Pacific communities are strengthening their capacities via Education for Sustainable Development (ESD), which encompasses Climate Change Education (CCE), there is a limitation in the capacity of curriculum writers to integrate climate change into curricula and/or taught resilience (CCA [Climate Change Adaptation] and DRR [Disaster Risk Reduction]) into education. This paper describes the findings of a 2018 study on the integration of climate change into primary and secondary schools' curricula and taught resilience in education in TVET (Technical Vocational Education and Training). It involves teachers (n=30) from Kadavu and Levuka islands, and curriculum writers and editors from the Ministry of Education, GIZ (Deutsche Gesellschaft für Internationale Zusammenarbeit), SPC (South Pacific Community), and USP (University of the South Pacific) – in Fiji. An exploratory design was used to explore the curricula for Fiji and the EU PacTVET (European Pacific TVET) project at SPC. Information was collected from workshops and training events, interviews, and project documents.

Using BEKA (benchmarking, evidencing, knowing, applying) and the concept of Ako (education) as a guide, a model of climate change and resilience in education has been designed as part of this research and is presented here to help Pacific schools model their climate change curricula. Building resilience and safety will have impactful ESD results in spite of climate change and hazards. These results indicate how behavioural changes may shape climate adaptation and risk reduction, thus placing them in a better position to achieve the United Nations Framework Convention on Climate Change (UNFCCC), the Sustainable Development Goals (SDGs), the Sendai Framework and the Framework for Resilient Development in the Pacific (FRDP) targets and objectives by 2030 and beyond.

Introduction

The Pacific is known to be the most at-risk region in the world in terms of climate change and disasters caused by natural hazards (IPCC, 2014a, b; Nunn, 2013; Nunn et al., 2014; Singh et al., 2001; SPC & GIZ, 2016; United Nations University, 2016; United Nations University & Universität Bonn, 2013; WHO, 2015). As a result, many climate change programmes are ramping-up in an attempt to achieve resilient Pacific Islanders as per the 2030 agenda (Bell et al., 2011; EU PacTVET Project, 2017; EU PacTVET Project, SPC, & USP, 2016a, b; Luetz & Havea, 2018; Pacific Community, 2014; Pacific Community et al., 2016; Regmi, 2015; UNESCO, 2006; WHO, 2015; Yamamoto & Esteban, 2017). Raising the level of awareness by the people in the Pacific to be more self-conscious, sustainable, and resilient in nature (McIver et al., 2016; Pacific Community, 2015; Rochat, 2003; SPREP, 2017; Taylor, McGregor, & Dawson, 2016), through education is the most appropriate way to build resilient Pacific Islanders by 2030 and beyond.

From what is known in the Pacific, climate change education is already experienced by children and young people in the primary and secondary schools and Technical Vocational Education and Training (TVET) sectors in Fiji, Kiribati, Samoa, Tonga, and Vanuatu through integration into the primary school syllabus, secondary school basic science, geography, agricultural science and TVET education (Pacific Community, 2011). Importantly, this is in line with the regional SPC/GIZ programme "Coping with Climate Change in the Pacific Island Region" (CCCPIR), which aims at integrating climate change into primary and secondary education and TVET through its EU PacTVET project (EU PacTVET Project, 2017; EU PacTVET Project et al., 2016a, b; Hemstock S.L. et al., 2018; SPC &

GIZ, 2016). Therefore, albeit this integration of climate change into the Pacific schools curricula unquestionably has an essential, and active role to play in bolstering the next generation to be more resilient by 2030 and beyond, there is a need to think of Resilience (CCA & DRR) as a solution to the problems rather than the number of people affected by climate and/or disasters caused by natural hazard in the region.

There are two main reasons for integrating climate change adaptation and disaster risk reduction – key to education for sustainable development – in the region. First, the Framework for Resilience Development in the Pacific (FRDP) 2017-2030 (Pacific Community et al., 2016) goal 1 (to strengthen integrated adaptation and risk reduction to enhance resilience to climate change and disasters), and goal 2 (to strengthen disaster preparedness, response, and recovery). Both of these goals indicate the need for raising awareness, training, and education – both being significant in achieving the targets and objectives for Education for Sustainable Development (ESD) goals and Climate Change Education (CCE) orientation and encompassment.

Second, the qualifications at levels 1-4 were developed regionally by all 15 P-ACP (Pacific African Caribbean Pacific) countries facilitated by the Fiji Higher Education Commission (FHEC). Also, the EU PacTVET (European Pacific Technical Vocational Education and Training) project was given endorsement from 15 P-ACP countries (Cook Islands, Federated States of Micronesia, Fiji, Kiribati, Nauru, Niue, Palau, Papua New Guinea, Republic of Marshall Islands, Samoa, Solomon Islands, Timor-Leste, Tonga, Tuvalu, and Vanuatu) to proceed with the development of "regional qualifications" in Resilience, incorporating country priority needs, which were identified by national needs and gaps analysis.

National stakeholders at the EU PacTVET Inception Meeting were keen to ensure opportunities for learning via formal qualifications were available to all peoples affected by climate change. This was underpinned by the belief that capacity building opportunities should be applicable across the board from grassroots community members through to technicians and government and private sector managers. In this regard, vocational qualifications have been constructed around a "competency" and "skillset" approach, so that people can pick what competencies they need to "up-skill", in order to improve their own capacity – a menu of competencies and skill sets is available within the qualifications.

This paper used Resilience in education rather than climate change per se for the TVET because it is imperative and popular, and most importantly,

it is disaster-orientated. Resilience was first introduced into the English language in the early 17th century, derived from a Latin word resilire, meaning "to rebound or recoil". Usage of the term "resilience" became very popular in science (Woods, 2015), ecology (ecological resilience), individual (resilience of individuals), community (community resilience), organisation (organisational resilience), economics (resilience of the economy), national level (national resilience), humanitarian (humanitarian resilience), security (resilience and security), vulnerability (resilience and vulnerability), risk (resilience and risk) and now climate change (climate resilience) (Barrow Cadbury Trust, 2012; Flinders University, 2018; Vernon, 2004).

In the Pacific, resilience is now featured at the forefront of climate change leadership and hazards management platforms, not only in the framework for resilience in the Pacific (FRDP) but most importantly, it has defined and contextualised its development to fit the concepts of resilient Pacific Islanders, as indicated by the SDGs (UNDP, 2015) and the Sendai Framework (Maini et al., 2017; United Nations Office for Disaster Risk Reduction (UNISDR), 2015). As an integrated Climate Change Adaptation (CCA) and Disaster Risk Management (DRM) framework for sustainable development in education, resilience is defined as: "development processes and actions that address the risks and impacts of disasters and climate change while progressing to stronger and resilient communities" (Pacific Community et al., 2016).

This definition is deemed appropriate for capacity building in resilience or sustainable development in education because it is both climate and disaster-orientated – personalising and professionalising the resilience sectors in the Pacific Islands region (Hemstock, et al., 2018).

Using this definition as a guide, integrating climate change and using resilience in education is to be aligned with government development planning. To achieve this goal, Fiji will be used as a case study for integrating climate change in education and the EU PacTVET project for resilience in education. This integration of climate change into the school system was formally requested by the Government of Fiji via its Ministry of Education to the GIZ office in Suva. The basis is that since climate change is a cross-sectorial area, it is much cheaper and convenient to relate it and fill in gaps in the existing learning system (e.g integrating it into social science, agriculture, and science subjects, etc.) rather than having it as a stand-alone subject. Further, doing it in this way may also help the ministry to prevent issues arising from teacher turnover. Based

on this analysis, using the BEKA (benchmarking, evidencing, knowing, applying) framework as a guide, a model is be presented to illustrate how the integration of climate change in education has been used for the primary and secondary education sector in Fiji and the TVET sector for Resilience education in the region.

Methodology

This study used a mixed method approach named exploratory design (Creswell & Creswell, 2018). Quantitative data were collected from surveys of teachers who attended workshops and training on CCE and ESD. For the qualitative component of the study, data were collected from project documents and in-depth interview. Overall, this method relied heavily on the qualitative aspects of the study.

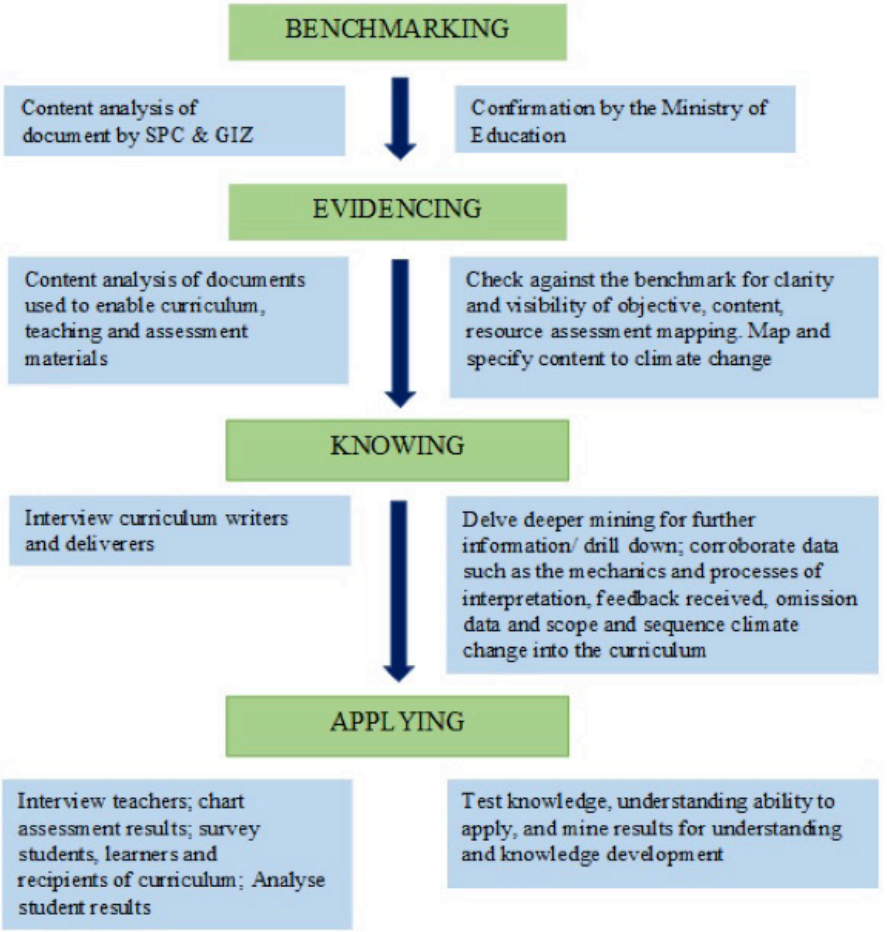
Information from the study was analysed using the BEKA (benchmarking, evidencing, knowing, applying) framework. The benchmark was used to assess the clarity of integrating climate change into primary and secondary education curriculum and resilience in education as a stand-alone certificate level 1-4 in TVET. Evidencing was used to assess the curriculum content and resources to map against the benchmarks. Knowing and applying were then used for deeper mining to understand completely and corroborate the evidence collected.

To achieve this, an exploratory design comprising desktop (printed documents) research, document analysis, surveying, and in-depth interviews was used to understand how the integration of climate change by the Ministry of Education in Fiji, SPC/GIZ from CCCPIR, EU PacTVET project, and FHEC was done. Then, when this information was gathered, the BEKA process was used to map the relevant data to the framework's content. Information on the integration of climate change was moved iteratively between code and text to derive themes related to how climate change had been integrated into the schools' curriculum using benchmarking, evidencing, knowing, and applying content as a guide (Hall, 2014).

Results

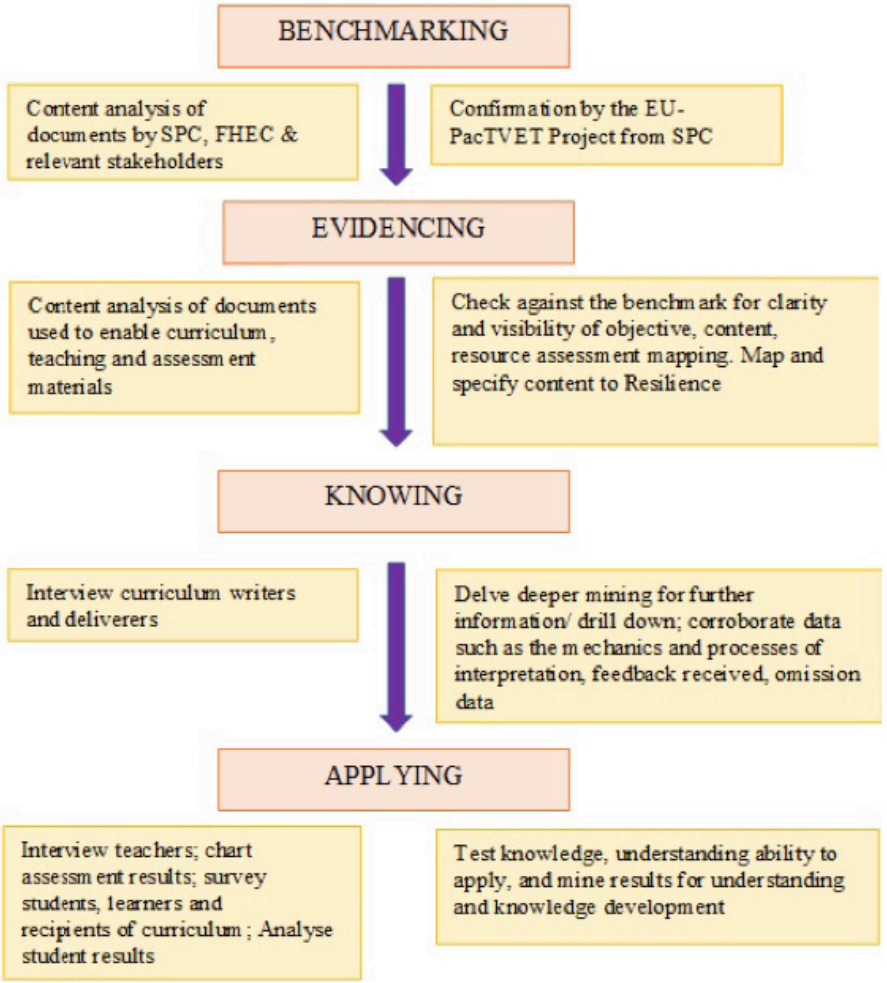
There are two models for merging and using climate change in education. The first one is the model for the primary and secondary education in Fiji (see Figure 1).

Figure 1. Integration model for primary and secondary education in Fiji



The second model is for the TVET education in the region (see Figure 2).

Figure 2. Model for Resilience in Education for the region



This model was developed by the EU PacTVET project and it was designed to deliver resilience qualifications at certificate levels 1-4 through eight streams: agriculture, coastal management, energy and infrastructure, fishery, forestry, health, tourism, and water resource management (EU PacTVET Project et al., 2016a, b).

Discussion

The BEKA process consisting of four components – benchmarking, evidencing, knowing, and applying – has been used successfully to demonstrate how the integration of climate change into the school

curriculum in Fiji and the incorporation of resilience in education for TVET's would benefit the children and young people of the Pacific now and in the future.

The integration of climate change and disaster risk management topics into the school curriculum was done by the SPC/GIZ CCCPIR programme to meet Fiji Education for Sustainable Development (ESD) and Climate Change Education (CCE) goals, and most importantly, the objectives of the FRDP framework. Fiji along with Kiribati, Samoa, Tonga, and Vanuatu are the first countries in the Pacific to pilot this programme of integration to schools at the national level. The strategies that were used to integrate climate change into the school curriculum comprised four major steps:

Step 1 – Integration of climate change into curricula

Step 2 – National curriculum consultations

Step 3 – Development of teaching materials

Step 4 – Training of teachers.

Several strategies were used to integrate climate change into the curricula: curriculum mapping (CAS-TVET), curriculum scoping and sequence, consultations and expert presentations, write-shops, and stock-take or collection of CCA/DRM education awareness materials for Fiji and/or from the regional climate change websites.

The study found that, for two reasons, the integration of climate change in education for primary and secondary schools is more appropriate than developing a stand-alone climate change subject. First, linking climate change to subjects (e.g. science and social science) strengthens the learning outcome units while preventing work overload.

Second, according to the Ministry of Education, integration of climate change is cheaper and so helps the school system to overcome staff turnover (e.g. from teachers' relocation to other schools, teaching other subjects and retirement), now and in the future. Since the primary and the secondary education in Fiji is now in the second phase of the integration programme including monitoring and evaluation of teachers teaching the integrated climate change programme, it is recommended that other Pacific Island countries who have not yet integrated climate change into their school curriculum can adapt Fiji's climate change education programme and pilot in their own context.

It is argued that addressing climate change with children at a young age is

one way of improving the understanding of the Pacific citizenry, including the dynamics, and processes that would help them build resilience now and in the future. The Tongan metaphor of the value the educating children, "the reef of today is an island of tomorrow", can also be applied to ESD and CCE. As a result, not only has the Government of Fiji contributed significantly to its national development and adaptation plan, but it has taken all concerned parties and relevant stakeholders into account.

Resilience in education – EU PacTVET Project

The other model to be used by TVET institutions in the region is the Resilience in Education that was developed by the EU PacTVET project. The EU PacTVET in Sustainable Energy (SE) and Climate Change Adaptation (CCA) project is the third component of a larger programme: Adapting to Climate Change and Sustainable Energy (ACCSE). The European Union-funded PacTVET project is a €6.1 million project currently implemented by The Pacific Community (SPC) and The University of the South Pacific (USP) (EU PacTVET Project et al., 2016a, b).

One of the goals of the EU PacTVET project that has been achieved recently is the development of a model of resilience curriculum from certificate levels 1-4 to be used by participating Pacific African Caribbean Pacific (P-ACP) countries: Fiji, Samoa, Tonga, Vanuatu, Papua New Guinea (PNG), Solomon Islands, Cook Islands, Kiribati, Tuvalu, Federated States of Micronesia (FSM), Marshall Islands, Niue, Nauru, and Timor Leste. This is an accredited-competency based curriculum that can be modified or contextualised to all Pacific countries and delivered and taught across eight streams – agriculture, coastal management, energy and infrastructure, fishery, forestry, health, tourism, and water resource management – in any institution as long as they meet the countries' expected national qualification criteria of deliverables.

It is argued that this resilience qualification, the first to be developed for the region, has the potential to serve as a benchmark to the development of a world-class, internationally recognised resilience institution, owned and operated by Pacific Island Countries (PICs). Therefore, it is imperative that the Pacific countries continue with this sustainable model for capacity development to 2030 and beyond.

Using the concept of Ako as a hallmark to the understanding of the learning of climate change and/or resilience in education, students at primary and secondary schools and TVET will be able to learn climate change through a formal learning environment using a mix of student and/or teacher-

based pedagogical approaches. Because information and technology are very advanced in this era, this paper recommends the use of the VARK (video, aural, reading/writing and kinesthetic) model of learning (Othman & Amiruddin, 2010). In this approach, students are not only prepared academically but also with a placement component whether classroom-based or industrial-based assessment or visitation. Both theoretical and practical components will be climate change- and hazard-related (e.g. sea level rise, temperature rise).

Conclusions

There are two major lessons to be learnt from this paper. First, Resilience can be integrated into the schools' curricula. Second, Resilience can be taught as a stand-alone subject. Because the Pacific has these options to help the education sector in the region achieve ESD by 2030 and beyond, it is recommended that schools in the Pacific to choose wisely from these options. For the future, these studies are recommended:

1) Teacher-student evaluation: Resilience study

2) Resilience education and employment: A longitudinal study.

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References

Barrow Cadbury Trust. (2012). Adapting to change: the role of community resilience. London, UK: The Young Foundation.

Bell, J. D., Johnson, J. E., Ganachaud, A. S., Gehrke, P. C., Hobday, A. J., Hoegh-Guldberg, O., . . . Waycott, M. (2011). Vulnerability of Tropical Pacific Fisheries and Aquaculture to Climate Change: Summary for Pacific Island Countries and Territories. Noumea, New Caledonia: Secretariat of the Pacific Community.

Creswell, J. W., & Creswell, J. D. (2018). Research design: Qualitative, quantitative, and mixed method approaches (5th ed.). London: SAGE.

EU PacTVET Project. (2017). The Pacific Regional Federation of Resilience Professionals (PRFRP). A professional organization to build

capacity in the climate change and disaster risk management sectors in 15 small island developing states in the Pacific - Submission to the Paris Committee on Capacity-Building. Retrieved from Fiji:

EU PacTVET Project, SPC, & USP. (2016a). Regional certificate 3 in Resilience (Climate Change Adaptation and Disaster Risk Reduction/ CCA & DRR). Retrieved from Suva, Fiji:

EU PacTVET Project, SPC, & USP. (2016b). Regional certificate 4 in Resilience (Climate Change Adaptation and Disaster Risk Reduction/ CCA & DRR). Retrieved from Suva, Fiji:

Flinders University. (2018). Concepts - Origins of the term. Torrens Resilience Institute Australia. Retrieved May 11, 2018 http://www.flinders.edu.au/torrens-resilience-institute/concepts/concepts_home.cfm

Hall, C. E. A. (2014). Toward a model of curriculum analysis and evaluation — Beka: A case study from Australia. Nurse Education Today, 34(3), 343-348.

Hemstock, S. L., Jacot Des Combes, H., Buliruarua, L. A., Maitava, K., Senikula, R., Smith, R., & Martin, T. (2018). Professionalising the 'resilience' sector in the Pacific Islands Region: Formal education for capacity building. Abigdon Oxon (In Press): Routledge Advances in Climate Change Research.

IPCC. (2014a). Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part A: Global and Sectoral Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change. In (pp. 1132). Cambridge: Cambridge University Press.

IPCC. (2014b). Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part B: Regional Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change. In (pp. 688). Cambridge: Cambridge University Press.

Luetz, J., & Havea, P. H. (2018). We're not refugees, and we'll stay here until we die!" – Climate change adaptation and migration experiences gathered from the Tulun and Nissan Atolls of Bougainville, Papua New Guinea. In L. F. W (Ed.), Climate Change Impacts and Adaptation Strategies to Coastal Communities. Switzerland: Springer.

Maini, R., Clarke, L., Blanchard, K., & Murray, V. (2017). The Sendai Framework for Disaster Risk Reduction and Its Indicators—Where Does Health Fit in? Int J Disaster Risk Sci.

McIver, L., Kim, R., Woodward, A., Hales, S., Spickett, J., , Katscherian, D., Hashizume, M., . . . Ebi, K. L. (2016). Health impacts of climate change in Pacific island countries: A regional assessment of vulnerabilities and adaptation priorities. Environ Health Perspect, 124(11), 1707-1714.

Nunn, P. D. (2013). The end of the Pacific? Effects of sea level rise on Pacific Island livelihoods. Singapore Journal of Tropical Geography, 34(2), 143-171.

Nunn, P. D., Aalbersberg, W., Lata, S., & Gwilliam, M. (2014). Beyond the core: Community governance for climate-change adaptation in peripheral parts of Pacific Island Countries. Regional Environmental Change, 14(1), 221-235.

Othman, N., & Amiruddin, M. H. (2010). Different Perspectives of Learning Styles from VARK Model. Procedia. Social and Behavioral Sciences, 7, 652-660.

Pacific Community. (2011). Climate change education. SPC: Fiji. Retrieved May 7, 2018 http://www.spc.int/coping-with-climate-change-in-the-pacific-islands-region-cccpir-programme/climate-change-education/

Pacific Community. (2014). Climate change adaptation in Kiribati - Solar Disinfection (SODIS) in Kiribati. Suva, Fiji: SPC.

Pacific Community. (2015). Pacific Community Strategic Plan 2016–2020. New Caledonia: SPC.

Pacific Community, Secretariat of the Pacific Regional Environment Programme, Pacific Islands Forum Secretariat, U. N. D. P., United Nations Office for Disaster Risk Reduction, & Pacific, U. o. t. S. (2016). Framework for resilience development in the Pacific: An integrated approach to address climate change and disaster risk management (FRDP) 2017-2030. Suva, Fiji The Pacific Community, Geoscience Division.

Regmi, S. (2015). Gender and Health Adaptation Measures to Climate Change in the Pacific: A Case Study of Papua New Guinea. In L. F. W (Ed.), Handbook of Climate Change Adaptation Berlin, Heidelberg: Springer.

Rochat, P. (2003). Five levels of self-awareness as they unfold early in life. Conscious Cogn 12(4), 717-731.

Singh, R. B., Hales, S., de Wet, N., Raj, R., Hearnden, M., & Weinstein, P. (2001). The influence of climate variation and change on diarrheal disease

in the Pacific Islands. Environ Health Perspect, 109(2), 155-159.

SPC, & GIZ. (2016). Coping with Climate Change in the Pacific Island Region (CCCPIR) Annual Report - Vanuatu Programme 2016. Vanuatu: SPC-GIZ.

SPREP. (2017). Celebrating island biodiversity achievements in the Pacific: case studies from the GEF-PAS Integrated Island Biodiversity Project. Apia, Samoa: SPREP.

Taylor, M., McGregor, A., & Dawson, B. (2016). Vulnerability of Pacific Island agriculture and forestry to climate change. New Caledonia: SPC.

UNDP. (2015). Sustainable Development Goals (SDGs). USA: UNDP.

UNESCO. (2006). Pacific Education for Sustainable Development Framework. Fiji: UNESCO.

United Nations Office for Disaster Risk Reduction (UNISDR). (2015). Sendai Framework for Disaster Risk Reduction 2015 - 2030. Geneva, Switzerland: UNISDR.

United Nations University. (2016). World risk report 2016: Focus (logistic and infrastructure). Tokyo, Japan: UNU.

United Nations University, & Bonn., U. (2013). World Risk Report 2013 - Focus: Health and Healthcare. Berlin, Germany Bündnis Entwicklung Hilft.

Vernon, R. F. (2004). A Brief History of Resilience. In C. S. Clauss-Ehlers & M. D. Weist (Eds.), Community Planning to Foster Resilience in Children. Boston, MA: Springer.

WHO. (2015). Human health and climate change in Pacific Island countries. Geneva: World Health Organisation.

Woods, D. D. (2015). Four concepts for resilience and the implications for the future of resilience engineering. Reliability Engineering & System Safety 141 5-9.

Yamamoto, L., & Esteban, M. (2017). Migration as an Adaptation Strategy for Atoll Island States. International Migration 55(2), 144-158.

Technology & Learning

CHAPTER 10

Na Lawa (ni Qoli/The Fishing Net) Conceptual Framework and the Institutional Web

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Abstract

This paper uses an indigenous Fijian methodology, Na Lawa (ni Qoli) or The (Fishing) Net that takes a holistic and relational approach, integral to indigenous epistemologies. The "nodes" or knots in the lawa (net) represent traditional and/or modern concepts. The connected nodes represent a network of relationships. Each node represents concepts that can be researched and examined to clarify the connections and to highlight what is relevant to, or what impedes, ako/vuli/learning, and what adaptation or intervention might be needed to improve ako. Using as a grid the institutional web of the Vanua, church, and state centering on education, and knots in the lawa to identify issues affecting iTaukei children's ako, the methodology offers a roadmap for researchers, academics, and policymakers as an overview. Identifying IT (Information Technology) as a problem, this paper uses Na Lawa methodology to demonstrate the application of the net and institutional web as a roadmap.

To illustrate conceptual linkages and the social relations that make up the institutional web, the concept of "technology" is used to demonstrate how the web of relations to other conceptual nodes can be strengthened. Using the lawa as a grid to identify each node representing a concept, constructs are inferred, based on the institutional attributes and their contributory roles to strengthening of relationships that build on ako. The nodes are the "talking points" for participants to clarify and identify overlapping issues to research.

The paper advocates a simultaneous effort by all institutions to strengthen relations between nodes to improve ako and reciprocal networking. Indeed, the voice of the community is essential in this approach.

Introduction

Numerous indigenous methodologies have been proposed by Pacific scholars; for example, Kakala by Thaman (1997) or Vanua by Tuwere (2002), adapted by Nabobo-Baba (2008). Koya-Vaka'uta (2017) has provided a summary of a selection of research methodologies for the Pacific, useful to any researcher in the area. A critical aspect of most of these methodologies is an emphasis on Indigenous knowledge and its preservation based on the philosophy of holism and relationship within indigenous epistemology (Ravuvu, 1988; Tuwere, 2002; Nabobo-Baba, 2006). Similarly, the fundamental basis of Na Lawa methodology discussed in the present paper is holism and relationship with methods that can be both interdisciplinary and transdisciplinary. Wilson (2008, p. 39) refers to the multimethod and transdisciplinary nature of such study as "strategies of inquiry" to map how a researcher should arrive at his or her destination.

Using the "connected" twine or string of the fishing net, Na Lawa methodology is a roadmap that guides researchers to achieve their objectives (see Figure 1). While the framework such as vanua or spirituality (see diagram) refers to concepts or ideas that are generalisable, the roadmap notion is more concrete. Roadmap involves constructs inferred from institutions which specifically outline "nodes" that represent phenomena to be researched. A research conducted in its natural setting will require participants' views to identify the characteristics of, to guide and reconfigure how to connect the different nodes. Design-implementation is important. In such a roadmap, the links between issues or concepts should be clear and their relationships should distinguish their different attributes as well as their commonalities, to guide researcher(s) on the most suitable method to adopt. The process also allows change in method(s) to suit the situation in different contexts. In my comparative reading, Wilson (2008) has also used a net metaphor in discussing Indigenous knowledge in Canada, suggesting:

> As long as the methods fit the ontology, epistemology and axiology of the indigenous paradigm, they can be borrowed from other suitable research paradigms.

Epistemology, Methodology, and Method

Epistemology, methodology, and method are intricately connected and influence each other during planning and implementation. Epistemology builds on knowledge and also justifies the knowledge produced from the analysis of the research data. In other words, data derived from methods

are analysed to either justify or evaluate and/or blend knowledge(s), if essential, or to create new knowledge. For example, if a finding from a study conducted in a village school confirms that children traditionally learn through observing, or emulating adults through participating in family or community activities, then the result justifies the old adage, Nomu i qaiqai ga Qei, na noqu i qaiqai, meaning, "How you walk mother, that's how I'll walk" (Nainoca, 2011, p. 151 - A metaphor referring to how a crab walks) . This metaphor from Rewa, a Fijian province, suggests that parents set examples and children naturally emulate and pick up their behaviour. However, other questions may arise. To improve learning in the classroom, can traditional method of learning be blended with other learning methods? Or, if children are not participating in family or community activities, what has affected the "nesting" relationships between children, parents, and the community? Should these relationships be strengthened and how? These questions may lead to another study or studies and will all impinge on the epistemology. It is the theory of knowledge, or how we know that we know something, that is axiological (value-based) which guides the methodological choices (Carter and Little, 2007, p. 1316). Gegeo and Watson-Gegeo's statement on epistemological process is pertinent:

> As a concept, indigenous epistemology focuses on the process through which knowledge is constructed and validated by a cultural group, and the role of that process in shaping thinking and behaviour. It assumes all epistemological systems to be socially constructed and (in)formed through socio-political, economic and historical context and processes. It also recognises that culture is variable, an ongoing conversation embodying conflict and change. (Gegeo and Watson-Gegeo, 2001, p. 59)

Methodology is defined as a "theory and analysis of how research should proceed" (Harding, 1987, cited in Carter and Little, 2007, p. 1317) which simply means that the methodology prescribes the research methods. Methodology is selected on the basis of its epistemology, so that an appropriate research method is chosen. The process also allows for adaptation, multimethod, or blending of approaches. There are obstacles and constraints in the blending of approaches or knowledge(s) (Christie, 2006) but it can be achieved (Botha, 2011; Cottrell, et al., 2012; Goulding, et al., 2016). In Na Lawa methodology, involving the community as participants in the research is an essential step towards consultation, corroboration, interpretation, and analysis (Bishop, 1998; Zavala, 2013).

A critical aspect of this methodology is involving community members – who can be non-academics or non-indigenous – as participants in conducting research, and in analysing, interpreting, and filtering the findings to arrive at a consensus. Indigenous projects can involve both indigenous and non-indigenous researchers. A project that consulted an indigenous community at every step, involving both indigenous and non-indigenous researchers, found that the approach opened up "new possibilities for meaningful social change" (Goulding, Steels, and McGarty, 2016, p. 783). Depending on the objective of the research, the selection of participants will depend on its "owners". It is also an important step for indigenous groups to work towards self-determination. The fundamental aim of methodology is:

> to describe and analyse…methods, throwing light on their limitations and resources, clarifying their presuppositions and consequences…to help us to understand, in the broadest possible terms, not the products of scientific inquiry but the process itself (Kaplan, 1964, cited in Carter and Little, 2007, p. 1318).

A methodology should be "thoughtful, historically and theoretically situated and flexible rather than dogmatic" (ibid, p. 1318; see also Kovach, 2012). The seven qualities of Indigenous methodology are holistic epistemology; narrative; purpose; the experiential; tribal ethics; tribal ways of gaining knowledge; and colonial influence (Kovach, 2012, p. 44). Indigenous research is historical, locally situated, and based on everyday social reality. Based on the participants' experience, it should be open to flexibility.

Ownership of Knowledge

Knowledge in the iTaukei culture is part of the cosmology. According to Ravuvu (1988), knowledge originates in the context of the Vanua, the "community" which has physical, social, and cultural dimensions all interrelated with animate and inanimate objects. In the iTaukei worldview the social and cultural system includes people, their traditions and customs, beliefs, and values. Vanua in its spiritual dimension is the source of power or mana derived from the world of spirits (Tuwere, 2002). Knowledge in the indigenous worldview is not individual in nature, but belongs to the cosmos which includes people (Wilson, 2008). Knowledge is constructed by communities, and is collectively owned, and the community is the agent (Gegeo and Watson-Gegeo, 2001, p. 58). Arguably, as researchers, we can only play the role of interpreters of that knowledge.

Using the holistic and relational approach to underpin research, whether

the issue is traditional or modern, Na Lawa research methodology can simultaneously map out concepts or issues on restoring relationships, knowledge building, or melding of constructs, whatever the case may be. This means that the metaphor of the net does not change markedly but can "sway" or expand to contain the "catch". Metaphorically when a fishing net is full with its catch, it bulges, swings, and expands to make room for the extra and new content. Putting it differently, the net or methodology can contain and adapt to new knowledge or values through "grafting", or melding or adopting. It also has room to be mended if the connection or twine has snapped. There is "space" to reconnect if the relationship is broken, or needs strengthening if weak.

Na Lawa Methodology

Fishing is a means of livelihood, an everyday activity in Fiji and the Pacific generally. One method is the use of nets. There are three types of net fishing in Fiji: individual, group, and communal. Individual and group fishing is referred to as taraki and communal as yavirau. This paper outlines a research methodology modelled on the yavirau fishing method.

Yavirau is often organised if there is an important function or guest, or during the festive season. Any communal fishing activity can take a week of preparation, from repairing the net to collecting vines and coconut palm leaves to extend the net. Yavirau involves a leader, usually the traditional head of the fisherman clan (gonedau) to plan, organise, and select a location for the fishing drive, in consultation with community members. Yavirau fishing can take the whole day, depending on the timing of low and high tides. As the community members go out into the water, the leader gives instructions and directions to the group from a canoe or punt as they form a horse-shoe shape and move to cover the area, manoeuvre the net and the catch towards the designated spot, usually a shallow pool close to the beach. Fishing can start at high tide or just before, when fish are expected to be swimming in. As the community forms a circle covering a wide area, they make a slow and deliberate orchestrated move to close the gap at the designated pool. The participants in the yavirau are carefully chosen and organised: the weaker and younger participants remain close to the shore or in shallow waters while the stronger, older swimmers move to the deeper end. They will pull and push the net according to instructions, dive to check that the net is intact and slap the water to keep the catch in. It can be an exhausting but also a rewarding exercise, because it is also a social activity.

By the time the participants arrive at the designated pool, it should be

around low tide. Everyone now helps in selecting the catch, leaving behind the nonedible ones such as poisonous or small sized fish. On land there is another sorting, from delicacies such as turtle meat to those items to be baked in lovo (earth oven) or those suitable as raw dishes and those to be prepared with vegetables. At the end of the day, the catch is shared equally amongst community members.

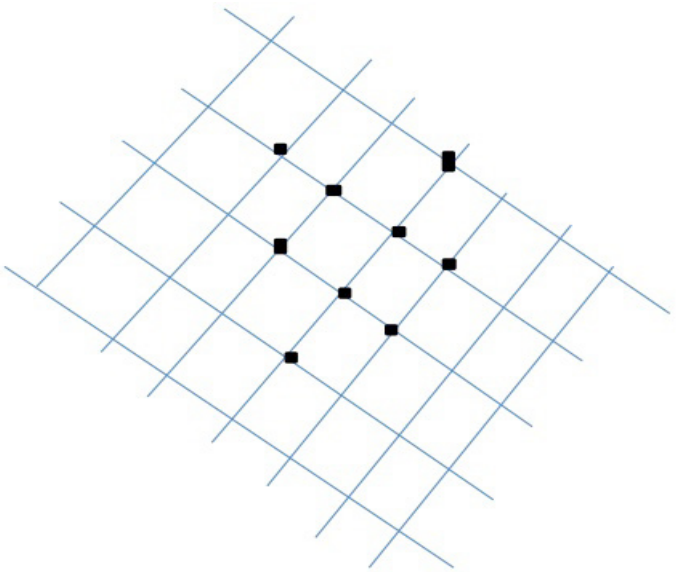
The fishing net metaphor illustrates the different role each part of the net plays to contain, or adapt or sieve "foreign" values and/or knowledge. The steps involved in yavirau fishing demonstrate the process of conducting research. The open end of the net circle has "floaters" (la), which keep the upper edge of the net floating while the bottom edge has heavy shells that weigh it down to keep the fish in and control it. Metaphorically, the open end represents the entry point for changes, new values, and knowledge from outside. From the fishing preparation to the harvesting of the product, there are four steps, each involving everyone. The first step is to consult important people in the community, such as the chief and gonedau. The second step is the preparation of the tools: repairing the net (the damaged twine, replacing broken shells or floaters), while the third step involves collecting vines and leaves (coconut) from the forest. Coconut leaves and vines are used as an extension to the fishing net if the net is too short to cover the designated spot. Because the net is often heavy, young and strong community members are chosen to stand close to each other and pull the vines and leaves towards land. Both the leaves and the closeness of the fishermen help to keep the fish at bay. The last step involves communal fishing and sharing of the catch. The metaphor represents the research process from the designated pool to preparation, selection, and analysis in relation to who shares in the catch, how it is prepared and for whom. Depending on the purpose of the yavirau, whether it is a social or communal/family function, the products are shared accordingly. In research terms, data analysis is shared with stakeholders. The iTaukei protocol prior to conducting research, discussed in detail by Nabobo-Baba (2008), involves seeking authorisation, observing rituals, and reciprocation.

Na Lawa (ni Qoli)/The (Fishing) Net Metaphor

The diagram below is a close-up image of the net with knots or nodes holding the corners of each square and showing the connections between each node. The nodes in a traditional net are pieces of bamboo with the twine strung around them to hold the corners together as a gauge before it is passed to the next node. The pieces of bamboo hold the net together

and when the twine, made of either sinnet or vau (hibiscus tiliaceus) string, becomes damaged, it is repaired by the traditional fishermen or women. In the net as metaphor for conducting research, the nodes represent the connectivity of each concept in real life and how important it is to keep strengthening the twine that holds all the knots together to make up the whole net. Each node stands for a concept or theme, principle or issue, and its relationship to other concepts/issues.

Figure 1. Na Lawa ni Qoli (The Fishing Net) Conceptual Framework



Nodes in a traditional fishing net

The net metaphor represents the fundamental underpinning of Indigenous research: the holistic relationships that hold the community together. Wilson (2008, p. 120) has made similar use of a net metaphor. He elaborates:

> You could try to examine each of the knots in the net to see what holds it together, but it's the string between the knots in the net that have to work in conjunction in order for the net to function. So any analysis must examine all of the relationships or strings between particular events or knots of data as a whole before it will make any sense.

The knots or nodes are "talking points" for the research community to identify and address the issues, and how each institution (see illustration) impinges on them. This should help in the selection of research method(s). It is at this point, too, that participants identify the relationships between

the nodes which may need further scrutiny to evaluate whether to strengthen or "repair" the damage. It is also here that the idea of melding of knowledge or values can arise. The choice of the method or methods to implement at this point can also be the outcome of the discussion.

The Institutional Web

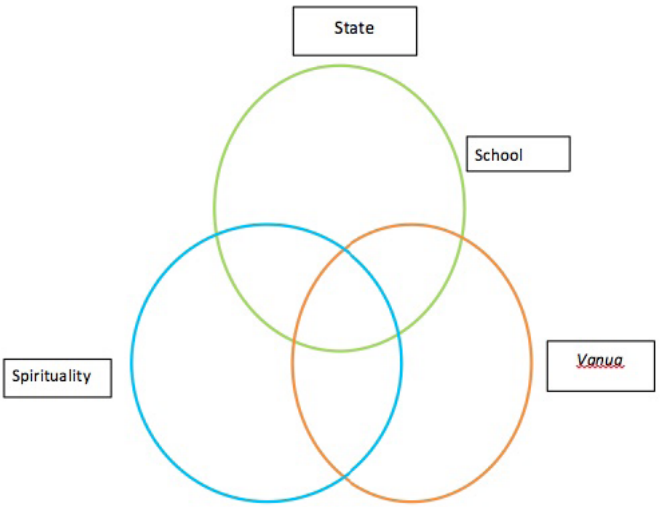
The diagram of the institutional web (see page 8) helps to clarify research concepts or issues and their complexities where institutions overlap. This overlap represents several institutions that shape the lives of children's ako or learning as well as community members and their social environment. For example, if evening church services in villages are mostly attended by parents, how much of their time is devoted to homework supervision? Or in urban village environments, how much quality time do working parents spend with their children? The institutional web clarifies the different issues and how each institution impinges on them. Some issues may come under the influence of two or more institutions which can help the researcher identify the variables and the most suitable method(s) to apply. As a hypothetical case, take the abuse of IT as a problem amongst students, identified in a talanoa (Tunufa'i, 2016) session with an iTaukei informant:

> Era suka mai, luva na unifomu curu e loma ni qara, tu ena internet shop me yacova na ciwa na kaloko me ra qai lako. Me sogo sara na internet shop. Sa vesuki ira sara tu ga na ka ya. O ira na gone lalai tu kina… Sa lailai na gauna vata na tubutubu kei na luvena. … Suka tu na gone ya me qai yaco tu yani e vale ena ciwa sa sega ni tarovi ni sa cakava tiko e veisiga (Tuidraki, September 28, 2017).
>
> (They knock off, take off their uniforms and put them in the hole, they remain in the internet shop till 9 o'clock. Until the internet shop closes. They are addicted. Even small kids…There is little quality time with their parents…. Kids knock off and get home at nine, its beyond control since it's happening every day).

Mapping can start from the centre (see below) with IT in schools as a node. If the use of IT is now a problem, how can curriculum or school pedagogy address it? Should themes such as responsible behaviour and attitude be incorporated into the curriculum? Other questions and ideas can link to another node such as policy area in state institution. The grid can also move to the overlap between the "state and vanua" with institutions such as the Ministry of Education collaborating with the Ministry of iTaukei to develop a non-formal programme to address the nodes (see Varani-Norton,

forthcoming). An off-shoot of this development for the Vanua institution could be an informal programme on parenting skills.

Figure 2. Institutional Diagram – Adopted partially from Niukula (1995)



The institutional web consists of the state, represented here mainly by the Ministries of Education and iTaukei Affairs, the Vanua, and the church (which I have broadly classified as Spirituality). Spirituality is defined as "the way we live out our relationships with our environment and with other people as well as with our secret selves (Episkenew, 2012, p. 2).

The institutional diagram above depicts these three institutions focusing their role in facilitating, improving, creating, and implementing sustainable programmes that contribute positively to children's ako or learning. These institutions overlap, all impinging on the ako/vuli or learning of the child. Mapping holistically is critical to afford an overall view of concepts or issues that impinge on each other and of the various contexts that can influence children's ako or learning. If the approach requires melding or building of knowledge, the onus is on the two ministries to work collaboratively to ensure the links between the "knots"' are clear, strong, and sustainable. IT can promote learning as well as potentially create behavioural problems. In this particular situation, addressing the quality of parent-child relationship needs urgent attention. Since the knots in the grid (net) represent connected concepts or themes/issues that become the "talking point" for researchers, the community can more readily have a holistic view of priorities needing urgent attention: relationships that require reconstruction, repairing or building to strengthen the fundamentals

of children's ako, both within and outside schools. Research questions, future deliberations, and other research activities should be part of this holistic approach.

Using IT as a research theme and using the net as a grid, with the institutional web to clarify the contexts, the logistics can cover formal, informal, and non-formal education within and outside schools. How can these educational approaches, centred on IT, for example, contribute to the building of relationships between the school, children, and parents; between children and parents; between community and parents; and relationships within the (village) community? Should new knowledge be incorporated as an "outcome" of such relationship building and will it require blending? These are guiding questions for mapping out the research grid using Na Lawa methodology. Building and strengthening relations at all levels is critical to the well-being of a child psychologically, socially, spiritually, culturally, and physically. More importantly, relational building is the warp and weft of the child's ako and outlook in life.

Conclusion

In an indigenous community, traditional knowledge is constructed and owned by the community. Researchers are only in a position to interpret that knowledge. This conflicts with the Western notion of individual ownership of knowledge. Gaining authorisation to blend or graft new knowledge in a traditional community will need the community's consent. A participatory involvement of community members, particularly indigenous community, can decide what should be investigated, collected, interpreted, selected, and analysed because it is in the community's interest to confirm, meld, or create new knowledge as part of their epistemology. The involvement of community members in implementing Na Lawa methodology also means that participants will be at liberty to meld different methods, if appropriate, and engage non-indigenous and non-academic researchers to achieve their objective. Essential to this approach is the mapping of different but related issues to help researchers identify the context of each issue and how, and to what extent different institutions impinge on the issues so that the researchers have a holistic understanding of the study, and can select appropriate methods. The outcome of the study will justify traditional knowledge, or encourage change to blend the old with the new, or create a new knowledge as part of their epistemology. Underpinning Na Lawa methodology is the fundamental basis of Indigenous knowledge: holism and relational, the warp and weft of iTaukei community.

References

Bishop, R. (1998). Freeing ourselves from neo-colonial domination in research: A Maori approach in creating knowledge. Qualitative Studies in Education, 19(2), 185-198.

Botha, L. (2011). Mixing methods as a process towards indigenous methodologies. International Journal of Social Research Methodology, 14(4), 313-325.

Carter, S. M., & Little, M. (2007). Justifying Knowledge, Justifying Method, Taking Action: Epistemologies, Methodologies and Methods in Qualitative Research. Qualitative Health Research, 17(10), 1316-1328.

Christie, M. (2006). Transdisciplinary research and Aboriginal knowledge. The Australian Journal of Indigenous Education, 35, 78-89.

Cottrell, M., Preston, J. P., & Pearce, J. (2012). The Intersection of Modernity, Globalisation, Indigeneity, and Postcolonialism: Theorising contemporary Saskatchewan schools. Diaspora, Indigenous and Minority Education, 6(242-257).

Episkenew, J.-A. (2012). Indigenous Author meets critics: Collaborative Indigenous Literary Scholarship. Canadian Literature, 214, 117-127.

Gegeo, D., & Watson-Gegeo, K. (2001). "How we know": Kwara'ae Rural Villagers Doing Indigenous Epistemology. The Contemporary Pacific, 13, 55-88.

Goulding, D., Steels, B., & McCarty, C. (2016). A Cross-cultural Research Experience: Developing an appropriate methodology that respectfully incorporates both indigenous and non-indigenous knowledge systems. Ethnic and Racial Studies, 39(5), 783-801.

Kovach, M. (2012). Indigenous Methodologies: Characteristics, conversations, and contexts. University of Toronto Press: Toronto.

Koya-Vaka'uta, C. (2017). Rethinking Research as Relational Space in the Pacific In U. Vaai & A. Casimira (Eds.), Relational Hermeneutics: Decolonising the Mindset and the Pacific Itulagi. Suva: University of the South Pacific.

Nabobo-Baba, U. (2006). Knowing and Learning: an Indigenous Fijian Approach. Suva: Institute of Pacific Studies, USP.

Nabobo-Baba, U. (2008). Decolonising Framings in Pacific Research:

Indigenous Fijian Vanua Researcher Framework as an Organic response – Protocols to conducting research. ALTERNATIVE, 4(2), 141-154.

Nainoca, W. (2011). The influence of the Fijian way of life (bula vakavanua) on community-based marine conservation (CBMC) in Fiji, with a focus on social capital and traditional ecological knowledge (TEK). (PhD Thesis). Massey University, New Zealand.

Niukula, P. (1995). The Triple Aspect of Fijian Society: The Three Pillars. Suva: Christian Writing Project.

Ravuvu, A. (1988). Development or dependence: The pattern of change in a Fijian village: University of the South Pacific.

Thaman, K. H. (1997). Kakala: a Pacific concept of teaching and learning. Paper presented at the Australian College of Education National Conference Cairns.

Tunufa'i, L. (2016). Pacific Research: Rethinking the Talanoa Methodology. New Zealand Sociology, 31(7), 227-239.

Tuwere, I. (2002). Vanua: Towards a Fijian Theology of Place. Suva: Institute of Pacific Studies, University of the South Pacific.

Varani-Norton, E. (forthcoming). Fiji at the Crossroad: Is the indigenous community (iTaukei) ready for quality school-community partnership? . Pacific Journal of Education.

Wilson, S. (2008). Research is Ceremony: Indigenous Research Methods: Fernwood Publishing.

Zavala, M. (2013). What do we mean by decolonising research strategies: Lessons from decolonising indigenous research projects in New Zealand and Latin America. Decolonization: Indigeneity, education & society, 2(1), 55-71.

CHAPTER 11

Enhancing students' learning through open ended tasks: Experiences of Technology Education Teachers in Solomon Islands

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Abstract

A newly-developed technical education curriculum for secondary schools known as technology was introduced into the Solomon Islands education system in 2013. This paper is based on a case study of four technology education teachers' experiences in preparation for teaching the new technical education curriculum using open-ended tasks. The findings revealed that the teachers did encounter some difficulties as well as successes. The successes include the impact of the open-ended task teaching approach on students' learning. It extends students learning beyond the walls of the classrooms into community involvement.

Introduction

Although, the Solomon Islands was colonised by Great Britain in 1893 (Groves, 1939), the provision for establishing a formal education system was not established until later in 1946 (Kii, 1994). The first education policy paper in 1957 set the provision for establishing primary, secondary, and tertiary education in Solomon Islands. In 1965, the first technical college was established by Dr. J.M. Creswell from the University of New South Wales in Australia (Solomon Islands Training College, 1981). Since then, technical education has also established, under various names for the identification of its curriculum, in primary and secondary schools. For instance, at primary school it is called arts and crafts, for secondary schools it is called industrial arts, and for tertiary it is called trade courses. During the latest curriculum reform done by Ministry of Education and Human Resource Development (MEHRD), an additional component known as the design process, which is more less an open-ended task approach to

teaching and learning, was included in the technical education curriculum. Therefore, this study sought to gain an understanding of how the open-ended task approach impacts on teaching practices and on students' learning in technical education.

Methodology

The methodology used for this inquiry is a qualitative approach within an interpretivist paradigm, by which a deeper understanding of the issues under investigation was obtained. The teacher participants were selected from four schools in Honiara. The teacher participants were asked to select the class they would prefer to participate in this study. The selection of students by the teacher participants was done on random basis. The research data gathered from the studies were obtained from interviews and documents from both teachers and students during the teacher professional development intervention programme. The data was then transcribed and thematically analysed.

Three approaches were used to analyse the data generated from the four teachers in this case study. First, the case study of each teacher was analysed individually to understand their conceptions of technology after intervention. Second, each analysed case study was compared with the other case studies to identify and categorise common features. Third, the case studies were thematically analysed by comparing case study themes with themes derived from the literature to identify common and contrasting issues. The findings of each of these case studies are discussed next.

Findings and Discussions

The findings revealed that all four teachers who were involved in this study shared similar sentiments. These sentiments are discussed in terms of success encountered when engaged in the professional development intervention programme.

Teachers' planning of teaching lessons

One of the successes teachers encountered was the opportunity to plan their own technology lessons. As curriculum development in the Solomon Islands is centrally oriented, most teaching materials are supplied by the Curriculum Development Centre of the MoE. Therefore, most teachers base their lessons on MoE-produced textbooks and do not get the opportunity to include their own planning of their lessons. A lesson planning exercise the teachers undertook during the PD planning session had exposed them to new lesson plan formats. These formats covered

a broad perspective of technology education. With the new lesson plan formats, teachers experienced the writing of generic and specific learning outcomes under four learning aspects: conceptual, procedural, technical, and societal (Jones & Moreland, 2004; Moreland, 2004). The lesson planning sessions enabled them to think about and write clearer generic and specific learning outcomes under these four learning aspects and these were also the focus for teaching their technology units. Jones and Moreland (2004) highlight that the use of all these aspects in planning lessons is critical for providing a comprehensive and balanced approach to teaching technology. Both lesson plan formats used by teachers indicated that their view of technology education broadened to include a design process and to combine knowledge of concepts and processes (de Vries & Tamir, 1997). It had also broadened to include societal aspects (Compton & Jones, 2004) rather than simply focussing on the technical aspects. Being able to identify learning outcomes under the four learning aspects demonstrated the teachers' enhanced understanding of technology and technology education.

Another change related to the teachers' lesson planning was the integration of theoretical and practical lessons. Ginner (2007) states that teaching of theory and practice separately should be done away with in technology education. The lesson formats provided the teachers with the opportunity to think about how theoretical lessons need to be integrated with practical activities in order to maximise students' learning. Teachers recognised the importance of integrating theoretical lessons in relation to the practical tasks, as there is an intimate connection between knowing and doing (Brown, et al., 1989; Hennessy, 1993; Resnick, 1991). Additionally, the integration of theoretical lessons with practical lessons was viewed as a way to save time, enabling students to get their technology tasks completed within the expected timeframe.

The shift from textbook-based teaching to teaching using their own lesson plans gave these teachers the confidence to teach without directly relying on the MoE textbooks. By taking this approach, teachers moved away from the dissemination/transmission approach towards a socio-culture/ social constructivist approach to teaching/learning. These experiences demonstrated to the teachers that there was less need to rely on the prescribed MoE textbooks, and helped boost their confidence for teaching technology from a broader perspective.

Change of teaching pedagogy

The change in their pedagogy was also influenced by teachers' enhanced

understanding of the nature of technology and technology education. The teachers' change of pedagogy for teaching technology education demonstrated that their understanding of technology pedagogical content knowledge (PCK) was enhanced. This included the understanding of a context-based teaching approach, the understanding of community involvement, the understanding of the design process teaching approach, and the understanding of the use of open-ended tasks.

Jones and Moreland (2004) list seven areas of pedagogical content knowledge (PCK) in technology that teachers need to understand in order to teach technology effectively, and state that one of the seven areas is to understand the role and place of context in technological problem-solving. The use of context-based lesson planning was another indication that the teachers' understanding of pedagogical content knowledge in technology education had been enhanced, as they talked about the context-based approach to planning their technology lessons. For example, teachers who had designed their technology task to be used at school talked about it as being based in a school context, and those who designed their technology task for community use talked about it being as based in a community context. However, the school context-based approach was dominant.

The involvement of community in assisting students to undertake their open-ended tasks was another teaching approach used by some teachers. This was a change from the traditional, confined-to-classroom teaching approach and was undertaken as an attempt to move students away from teaching and learning only within classroom settings. When teachers talked about community involvement they made references to sending students out into the community to research information related to their open-ended tasks task. This teaching approach enabled students to interact with people as they sought information for their tasks, reflecting the notion that technological knowledge is socially constructed (Compton & Harwood, 2007; Jones, 2001; Jones, 2003, Jones & Moreland 2004). By including the community as part of their open-ended tasks, the students were able to get the information they required for designing and constructing their tasks. Dakers (2005) states that learning is enhanced in technology education when learning experiences are extended beyond the classroom settings into the wider community. Community interaction engaged students in activities which extended to communities providing infrastructure to assist them to undertake their open-ended tasks. For example, a group of students in one of the schools engaged the aviation helicopter to fly over the school to take some aerial shots which they used for the school calendar, and engaged the business community to finance the production of their

calendar. By involving the community, students saw the importance of community involvement to enhance the quality of their open-ended tasks. Hence, students' learning was effective as they engaged in social activities and discourse within the communities of practices (Rogoff, 1990).

The use of a design process teaching approach was another indication of change to the pedagogy of these teachers. Most of the teachers talked about the design approach to teaching and learning as being a better pedagogy then the traditional prescriptive textbook-based teaching approach. Jones and Compton (1998) state that teachers only embrace changes when the rewarding role in the change process is acknowledged by the teachers themselves. The students' activities were not based on textbooks but on the identified needs of various groups of people. Therefore, when teachers talked about students' tasks they made references to activities undertaken in real life situations.

The key aspect of the design process undertaken by the teachers was the use of open-ended tasks and the use of a problem-solving approach. In open-ended tasks, the decision-making focused more on student than teacher input, and the students were given more freedom in designing their tasks and making their product based on relevant information gleaned from the community, or the users of the products. Consequently, some student products were made specifically to address a need which the students themselves identified at the start of the project. The open-ended nature of the technology tasks allowed individual students to participate in individual thinking as each student was able to contribute ideas or develop a possible solution to address the need and solve the problem. Unlike the previous prescribed tasks, which normally restricted all students to the same task, the nature of open-ended tasks provided individual students with an opportunity to design and make their own product. Consequently, the products made by each student were different from each other, having their own unique features. The uniqueness of each product was a true reflection on the character of open-ended tasks. Hence students learning through open-ended tasks, gathering information from the community and the users of the products, reflected the social constructivist view of learning.

The self-thinking part promoted by the design process teaching approach was another area teachers highlighted in their comments. Compton and Harwood (2007) point out that self- thinking fostered by the design process teaching approach reflects the theory of constructivism. This change indicated the teachers made a clear shift of teaching and learning

from the traditional learning approach to the constructivist approach. As students were given the task of designing what the product should look like, they had to do a lot of thinking themselves. This was a major change to learning from previous traditional teaching practices. The development of students' ideas showcased in their design folios were viewed by teachers as evidence of student thoughtfulness and self-thinking. Self- thinking and dominated learning activities were evident in the design process teaching approach that teachers had implemented.

Enhanced assessment practices

The teachers' formative interactions were focused on moving students' learning and work forward. An effective formative interaction is based on the principles of effective teacher feedback (Jones & Moreland, 2004; Moreland, 2004). Teachers used self-checking approaches in their conversations with students to ensure students were aware of the steps undertaken and that they had completed the necessary steps in preparation for the next stage. Teachers worked closely with students in understanding the problems they encountered and collectively made suggestions as to how best to solve the problem at hand. These kinds of teacher-student interactions enabled students to become self-learners, as they became actively involved in contributing ideas during teacher-student conversations, rather than passively accepting everything the teacher suggested. This more open interaction gave students the confidence to freely share their views and ideas with their teachers. This approach made teachers see themselves and their students in a partnership to enhance learning.

In summative assessment, the teachers' assessment criteria are broadened to include a wider range of assessment criteria. The change of pedagogy from the traditional textbook approach to the design process approach also impacted on the teachers' summative assessment criteria. The design process approach engaged students in designing; therefore, the assessment criteria became much broader to include a consideration of the designing aspects. Teachers drew up their own design assessment criteria to accommodate a broader assessment of their students' learning, and involved a detailed list of areas to be assessed. The detailed lists related specifically to the technology task at hand.

Students' Learning Experiences in Technical Education as an Effect of Technical Education Teachers' change of Teaching Practices

By engaging students in the design process approach teachers exposed

their students to the notion of using design as a solution when problem-solving. When undertaking the design process, technical drawing came to the forefront as a required skill for sketching their solutions to a given problem. The design process enabled students to learn and use technical drawing skills and also enabled them to see the usefulness and links between their technical drawings and their defined tasks. The links gave them a framework to guide the construction of their technology tasks. This approach was showcased in the students' design folios.

The design process approach also engaged students in a self-reflection process as they undertook self-assessment and evaluation of their technology tasks. This self-reflection process contributed significantly to students undertaking the process of self-thinking, engaging them in making decisions to enhance the development of their technology task to meet their required ergonomic and aesthetic expectations. Self-assessment was an exercise students undertook, when they self-reflected on their finished tasks and considered areas of weakness which could be improved and strengthened; thus, engaging students in active learning rather than keeping to their past traditional passive learning experiences. So the students' traditional learning experiences were transformed from passive to active.

Another emerging change to teaching practice was group work, exposing students to a new learning experience. In contrast to individual work, group work activities were undertaken officially by some students and unofficially by others. These activities enabled students to see the significance of group work in their technology tasks. Jones and Moreland (2004) state that learning does not always proceed well by students working alone, but, with assistance, they can perform at a higher level. Group work enabled individual students to get help from others, especially when they got stuck with what to do next with their technology tasks. The individual contribution of ideas to the group was highlighted by students as an important contribution to group work. Dakers (2005) emphasises how learning is enhanced when students are actively involved in learning processes that include interaction and inquiry. Thus, learning in groups seemed helpful for group members, as they interacted to find suitable technological solutions when undertaking technology tasks.

Involving the community in classroom technology tasks was also a new learning experience for students. This emerging change in teaching practice also impacted on students' learning, as students got the community involved to assist them with the information required for undertaking their

tasks. This approach drew students' attention away from teachers and textbooks as their traditional sources of knowledge or information. The students would never have been exposed to information within various communities of practice in society had they not undertaken activities outside their classroom settings (Dakers, 2005). Through the community learning experiences, the students were able to see the economic benefit of their technology tasks, and because the technology tasks were authentic, the potential monetary benefit associated with their technology tasks was not difficult to identify, and this also provided great motivation to students. Jones (1997) points out that one of the reasons for teaching technology education is the economic benefits and the awareness of this for both students and commercial sectors. The involvement of students with the commercial community had exposed students to commercially-based learning experiences.

All four teachers provided their students with hands-on experience exercises. Hence all students had the benefit of hands-on learning experiences in their technology tasks. Hands-on learning experience is one of the vital learning aspects of technology education, as it normally leads to the final outcome, which is a technological product in this case. The hands-on learning experiences that students engaged in built their confidence and competency in using various tools for their technology tasks. While the use of computers was a new learning experience for some students, the use of woodworking and metalworking tools was not new for them, as these were commonly-used tools for general woodworking and metalworking tasks which these students had already experienced. In addition, the hands-on learning experiences not only built students' confidence and competence in using various tools, but also gave those students who designed their own tasks the opportunity to see the link between their design tasks and the technological solution as they constructed their products. The final outcome also provided students with something to assess, as they followed the self-assessment process/exercise in evaluating their constructed product which, in itself, was a new learning experience for them.

Conclusion

The changes in teaching practices including planning more comprehensive and specific technology lessons, teaching open-ended tasks using the design process approach, encouraging student self-assessment, and covering a broader range of criteria in summative assessment were evident in this study. These changes that impacted on transforming students from passive to active learners included students designing their own technological

artefacts, researching information, undertaking self-assessment of their task through reflection exercises, active discussions in group work, and constructing their own designed artefacts.

References

Brown, J. S., Collins, A., & Duguid, P. (1989). Situated cognition and the culture of learning. Educational Researcher, 18(1), 23-42.

Compton, V., & Harwood, C. (2007). Moving from technical to technology education. Why is it so hard? . TENZ Conference 2007 Proceedings, 105-115.

Compton, V., & Jones, A. (2004). The Nature of Technology: Briefing Paper prepared for the New Zealand ULR. Retrieved from http://www.tki.org.nzcurriculum/whats_happening/index_e.php

Dakers, J. (2005). Creating communities in technology education – introduction to the Special Issue. [Editorial]. International Journal of Technology and Design Education, 15, 1–4.

de Vries, M. J., & Tamir, A. (1997). Shaping concepts of technology: What concepts and how to shape them. International Journal of Technology and Design Education, 7, 3-10.

Ginner, T. (2007). Implementing technology education: Not just a question of excellent steering documents. TENZ Conference 2007 Proceedings, 1-7.

Groves, W. C. (1939). Report on a survey of education in the British Solomon Islands Protectorate. Melbourne, Australia: Education Department of Victoria.

Hennessy, S. (1993). Situated cognition and cognitive apprenticeship: Implications for classroom learning. Studies in Science Education, 22, 1-41.

Jones, A. (1997). Technology education in the New Zealand curriculum. In J. Burns (Ed.), Technology in the New Zealand curriculum: Perspective and practice (pp. 46-59). Palmerston North, New Zealand: Dunmore.

Jones, A. (2001). Theme issue: Developing research in technology education. Research in Science Education, 31, 3-14.

Jones, A. (2003). Developing a national curriculum in technology for New Zealand. International Journal of Technology and Design Education, 13,

83-99.

Jones, A., & Compton, V. (1998). Towards a model for teacher development in technology education: From research to practice. International Journal of Technology and Design Education, 8, 51–65.

Jones, A., & Moreland, J. (2004). Enhancing practicing primary teachers' pedagogical content knowledge in technology. International Journal of Technology and Design Education, 14, 121–140.

Kii, L. (1994). Issues and problems pertinent to our education system. Paper presented at the Education Summit, Ministry of Education and Training, Honiara, Solomon Islands.

Moreland, J. P. (2004). Putting students at the centre: Developing effective learners in primary technology classrooms (Vol. 1): University of Waikato.

Resnick, L. B. (1991). Shared cognition: Thinking as social practice. In L. B. Resnick, J. M. Levine, & S. D. Teasley (Eds.), Perspectives on socially shared cognition. Washington, DC: American Psychological Association. . Washington, DC: American Psychological Association.

Rogoff, B. (1990). Apprenticeship in thinking: Cognitive development in social context. New York: Oxford University Press.

Solomon Islands Training College. (1981). The development of education in the Solomon Islands: Diploma in Education, Parts D and E. Honiara, Solomon Islands: SITC.

Tertiary Studies

CHAPTER 12

High Demand for Tertiary Studies Encourages Corrupt Practices for Entry

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Abstract

This study is about the increasing demand for tertiary studies in the Solomon Islands. With limited spaces available in our local institutions, parents are using bribes to get placements for their children. This is starting to get worse as more and more secondary schools are introducing year 12 and 13 to their schools, but our local tertiary institutions like the Solomon Islands National University are not expanding to cater for the growing numbers of secondary school leavers. Parents are competing for the limited spaces available at tertiary institutions for their children; therefore, they resort to bribes so that their children are selected.

My participants are 30 parents who have been looking for spaces and I have carried out my research over the three past years from 2017 to 2019. Participants are a mixture of both male and females. I interviewed each one for approximately five minutes. The interviews were transcribed and findings are based on the analysis of the transcriptions.

The key findings reveal that parents mostly use money and other valuables in trying to lure the officers of the university to issue them offer letters of placement. Parents also use their relatives working in the university to help them secure spaces for their children. This might sound like corrupt practice, but it indicates the high demand for tertiary education in the Solomon Islands. Parents are desperate for their children to enter tertiary education; therefore, they will try every possible way for their children to reach tertiary education level.

Introduction

My research focuses on the demand for tertiary studies in Solomon Islands. When a local tertiary institution puts a limit to the number of spaces for its programmes, parents will try their best to ensure that their children are

enrolled in the courses that are available, especially those courses that are in high demand in the job markets. This situation is intensifying as more and more secondary schools are introducing years 12 and 13 into their schools and, as a result, there are more senior secondary school leavers wanting to enroll at tertiary institutions. However, tertiary institutions cannot cater for the many senior secondary school leavers of the country. Parents are competing for the limited spaces available at tertiary institutions for their children; therefore, in an effort to ensure their children are selected, many resort to some form of corrupt practice before the actual selection process takes place.

The aim of this paper is to show that when there are not enough tertiary institutions available in a developing country such as Solomon Islands and, when there are many secondary school leavers, parents will try to use bribes for placements of their children. Use of bribes is also a big problem when it comes to scholarships because many parents in the Solomon Islands cannot afford to send their children to tertiary education overseas except through scholarships. When the competition for scholarships is very tough because of the limited number, parents opt to use bribes to lure scholarship officers to select their children.

This paper is very important because it reveals that corrupt practices exist within our public offices like the Student Academic Office and Scholarship Office. On the other hand, it also indicates that there is a high demand for tertiary education in the Solomon Islands and other South Pacific Islands countries today. It is a signal to the government that it must expand its tertiary institutions to cater for the vast numbers of secondary school leavers aspiring to enter tertiary institutions. It is feared that if these students are not absorbed by the tertiary institutions and the job markets, they are at risk of becoming engaged in criminal activity.

Contextual and theoretical framework

According to an Asian Development Bank (2012) report, there is very limited capacity in terms of both access and quality of higher education throughout the Pacific Island countries. Similarly, in the Solomon Islands, there is still inadequate access to education for all children. This situation contributed to the growth of an uneducated and idle youth that led to the social unrest in the Solomon Islands between 2000 and 2003 (UNICEF, 2014). Even today, nearly twenty years after the social unrest with considerable improvement in school access and retention rates, students at secondary and tertiary levels are still poorly equipped to compete for scarce jobs in the country (Maebuta & Spence, as cited in UNICEF Report,

2014). Even though the government of the Solomon Islands has claimed that tertiary education will be available at a wide variety of institutions both locally and overseas (Ministry of Education and Human Resources, 2010b), the intakes to these institutions do not cater for many of the Solomon Islands students completing their secondary education every year. To make the situation worse, the number of scholarships for overseas studies is also limited and sometimes nepotism is also involved.

According to Mauro (as cited by Larmour, 1997), in some countries in the South Pacific, some officials who hold high positions in any organisations might be favouring their own relatives and their own ethnic groups when comes to promotion, intake of new workers, allocation of scholarships, and selection of new students. This practice is known as wantokism in Solomon Islands and often involves the use of money and other valuables by parents to bribe officers to get placements for their children at the univerity or to get government scholarships. Gifts can range from a few hundred dollars up to several thousand dollars. This is regarded as corruption in this modern age, but to those parents, especially from the rural areas of the Solomon Islands, it is a Melanesian traditional practice of gift-giving to say, "Thank you for helping my child". According to Larmour (1997), the distinction between traditional gifts and modern bribes creates two posibilities to explore. He poses the questions," What did traditional bribes look like? And what do modern gifts look like?"

There are many hardworking Solomon Islands students who aim high to reach university level. At the end of their secondary life, they achieve very good grades but, because of nepotism and the limited number of scholarships for overseas tertiary institutions, they cannot make it. Using money and other valuables to get placements at the university or scholarship will deprive many very good students who do not have access to such money or valuables. Also, there are some parents who are quite shy about approaching officers for placements or scholarships for their children if they are not selected. Shyness is one of the characteristics of most Melanesian people who seem to accept what is given. The children of such shy parents will be left out from attending tertiary institutions or getting scholarships even though these students are academically capable.

The people of the Pacific Island countries are starting to realize the importance of modern education now more than before. There has been a great deal of change happening in the Pacific Islands countries during this century and one of those is in the education system. The development of a good tertiary education, either academic or non-academic is necessary,

as it prepares our human resources for the "knowledge economy" of any country (MEHRD, 2010a). However, despite the efforts of governments to diversify education and technical, agricultural, and other forms of non-academic institutions, the demand for academic-type institutions is still high, with many parents and pupils continuing to demand academic education and reluctant to accept non-academic forms of education (Baba, 2000).

Data participants and methods

My participants are mostly parents. They are the ones that usually approach the Student Academic Office and the office of programme coordinators for additional placements if their children are not accepted.

Bachelor of teaching secondary programme since it first started in 2013

Year	Projected number	Actual enrolled
2013	100	29
2014	100	45
2015	100	40
2016	100	80
2017	100	177
2018	150	300
2019	150	300

Source: Office of Bachelor of teaching secondary programme, SINU

I have interviewed about 30 parents since 2017 where the demand for Solomon Islands National University (SINU) placements has been rising since more secondary schools have been introducing year 12 and 13 to their schools. I have interviewed approximately 10 parents at the beginning of each year on how they managed to get offer letters. Many parents prefer their children to attend SINU especially for courses like teaching and nursing because these jobs are readily available. Doing courses at the USP (University of the South Pacific) center will take much longer than going

through SINU because it offers its courses through distance flexible mode and it is more expensive.

Many parents preferred their children who have reached year 12 and 13 in secondary schools to attend tertiary institutions like Solomon Islands National University, USP, University of Papua New Guinea (UPNG) and other universities overseas.

Parents reveal two things they can use to lure university officers to help them:

- Money or other valuables
- Relatives working at the university

Discussion and analysis

The demand for academic tertiary education is increasing

For their children to get tertiary qualifications from universities and colleges is a dream and a blessing for many parents in the South Pacific Island countries, including the Solomon Islands, who believe that good qualifications will lead to work in the government and private sectors of their countries (Ramoni, 2000).

A few top students completing year 13 will be given scholarships to study overseas mainly in Australia, New Zealand, Fiji, and Papua New Guinea. Most of the students that are awarded in- country scholarships will study at the Solomon Islands National University (95%) and only 5% at the University of the South Pacific Center through the distance and flexible learning mode (Ministry of Education and Human Resources Development, 2017). Most of our year 13 cohort is aiming to study overseas and this is their first option. Studying locally is their second option.

Many parents interviewed want their children to attend the Solomon Islands National University rather than doing courses through the distance flexible learning mode at the University of the South Pacific because of the time factor and cost. The programmes that are offered at SINU are mostly conducted by face-to-face mode and they are much cheaper than those offered by USP (Alijazer, 2019). Diploma programmes like teaching and nursing offered by SINU will only take two years and they are still in a high demand in the job market in the Solomon Islands. Parents prefer short courses like the ones offered by SINU so that their children can graduate early and help them as soon as they are employed by the government or private sector. However, the Solomon Islands National University limits

the numbers for each of its programmes because of the space problem in the classroom due to offering its courses through face-to-face mode, whereas the University of the South Pacific Center does not need to limit numbers because of its distance and learning mode. Most of our senior secondary students will end up attending the USP center rather SINU because SINU simply does not have enough spaces to enrol them.

The people of the Pacific Island countries are starting to realize the importance of modern education, more now than before. There has been a great deal of change happening in the Pacific Island countries, including Solomon Islands, during this century; including much change in the education system. The development of a good tertiary education, either academic or non-academic, is necessary as it prepares our human resources for the "knowledge economy" of any country (MEHRD, 2010b). In the Solomon Islands, the Ministry of Education and Human Resources Development (MEHRD) has taken the initiative to help strengthen the work of Vocational Rural Training Centers (RTCs) which are mostly run and funded by churches; Community-based Training Centers (CBTS) which are mostly run and funded by certain communities; and finally Village-based Education Programmes which are mainly run and funded by each individual village to help their people in certain life skills. The Ministry of Education established the Non-formal Education Division (Community Education) to look to the affairs of these schools (Ramoni, 2000).

However, as noted by Baba (2000), despite the efforts of governments to diversify education and to strengthen technical, agricultural, and other forms of non-academic institutions, the demand for academic institutions is still high, with many parents and pupils reluctant to accept a non-academic type of education which they regard as second class. Thus, parents resort to bribery or using relatives to secure places for their children in these academic institutions. However, as Larmour (1997) points out, the distinction between traditional gifts and modern bribes may be explored.

Bribery – corruption or traditional gift giving?

Solomon Islands, as a small developing island state just recovering from a period of political instabiliity and civil unrest, still has many weak central institutions and some specific governance challenges associated with the management of natural resources (Chene, 2017). Therefore, corrupt practices still exist in some public and private offices, especially with money. There are some public officers of the government who demand extra money for their own pockets for the fast processing of the job they usually do for the public. Sometimes it is the public who

lure the government officers to fasttrack what they want by giving the government officers extra money for their personal use. According to the Ministry of Education and Human Resources Development (2017), the findings relating to scholarships recipients in the Solomon Islands were enlightening but also raised many more questions and possible areas for enquiry.

Using money and other valuables to get placements at the university or to get scholarships will deprive many very good students who do not have enough money to provide bribes or do not have relatives working for the institution office. Many of the parents that I have interviewed are from the rural areas and they are desperate that their children attend tertiary institutions so that they can help them (the parents) in the future. The parents do not see the giving of gifts like money to responsible officers as bribery or corruption, but rather as a Melanesian traditional practice of giving a token of appreciation to say, "Thank you for helping my child".

Using relatives – nepotism or wantokism?

Parents are using their own relatives and friends working at the university to get placements for their children if they miss out in the selection process for the new intakes. According to Fangalasuu and Bateman (2015), "Solomon Islands National University and other university campuses in Solomon Islands are under pressure to provide space for increased student numbers and also face presure of staff student ratios and access to suitable equipments and facilities" (p. 53). This is getting worse every year as more secondary schools are expanding to cater for more years 12 and 13 resulting in more senior secondary school students leavers competing for places in tertiary institutions both locally and overseas.

Mauro (as cited by Larmour, 1997) states that some officials holding high positions in any organisations might be favouring their own relatives and their own ethnic groups when comes to promotions, intake of new workers, scholarships, and selection of new students. This is mainly refered as *wantokism* in Melanesian society. This is a problem when it comes to our culture because our relatives are expecting us (workers of the university) to help them to get placements for their children at the university. It becomes a cultural obligation that older siblings must help their younger siblings and relatives to be educated at the univerity. If we do not help our relatives in this way, then they will see us as bad relatives.

Conclusion

The demand for tertiary studies in Solomon Islands today is high compared to the past. When local tertiary institutions limit the number of spaces available for its programmes, parents will try their best to ensure that at least their children are enrolled in the courses that are available, especially those courses providing qualifications that are in high demand in the job market. This has led to parents feeling they have no option but to resort to some form of corrupt practices so that their children are selected. The most commonly-used bribes are money and other valuables. Parents also use their relatives working at the institutions to help them secure spaces for their children. Corrupt practices are also involved in certain government offices like the scholarship office. This situation indicates that there is a high demand for tertiary education in the Solomon Islands. It is a signal to the government that it must expand its tertiary institutions to cater for the vast numbers of secondary school leavers aspiring to enter tertiary institutions.

The study's strengths and weaknesses

This study's strengths are that the research work was carried over a period of three years with approximately 30 participants involved. The participants are mostly parents who have been looking for spaces for their children and who have ended up in my office.

The weaknesses are that the participants are not randomly selected, and my participants are only parents so I do not get the views of the students.

Recommendations

There is a need to do more research on this area on the views of both the parents and the students. The participants involved must be randomly selected. The data from the student academic office for all schools' enrolments must be obtained to see the trend of enrolment of the whole university for the past years rather than for one programme only.

References

Alijazer, J. A. (2019). 8 facts about education in the Solomon Islands. Retrieved from https://borgenProject.org/8-facts-about-education-in-the-Solomon-Islands/

Asian Development Bank. (2012). Higher Education in the Pacific programme (RRP Reg 4229). . Retrieved from www.adb.org/sites/default/files/linked-documents/42291-reg-ssa.pdf

Baba, L. T. (2000). Education in the Pacific Islands. Retrieved from https://scholarspace.manoa-hawaii.edu/bitstream/10125/15521/1/0p27-125-150.pdf

Chene, M. (2017). Solomon Islands: Overview of corruption and anti-corruption. Honiara, Solomon Islands: Transparency International.

Fangalasuu, J., & Bateman, A. (2015). Education White Paper. Honiara, Solomon Islands: Ministry of Education and Human Resources Development.

Larmour, P. (1997). Corruption and governance in the South Pacific. ANU: Research School of Pacific and Asian Studies.

Ministry of Education and Human Resources Development. (2010a). Policy statements and guidelines for tertiary education in Solomon Islands. Honiara, Solomon Islands: MEHRD.

Ministry of Education and Human Resources Development. (2010b). Solomon Islands National Curriculum Statement. Honiara, Solomon Islands: MEHRD.

Ministry of Education and Human Resources Development. (2017). Solomon Islands Government Ministry of Education and Human Resources Annual Report 2017. Retrieved from www.mehrd.gov.sb/documents?view=download&format=raw&field=2060

Ramoni, J. M. (2000). Education for all 2000 assessment country report: Solomon Islands. Bangkok: UNESCO Principal Regional Office for the Asia and the Pacific.

UNICEF East Asia and Pacific Regional Office. (2014). Solomon Islands case study in education conflict and social cohesion. Thailand: UNICEF.

Homes, Schools & Open Schooling

CHAPTER 13

The place of ako in strengthening home-school relationships for Pasifika secondary learners in Aotearoa/New Zealand

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Abstract

This paper explores connections between ako and home-school relationships for secondary Pasifika students in Aotearoa/New Zealand. It discusses how ako, a Tongan concept of learning that encompasses cultural continuity (Thaman, 1997), can be supported through closer connections between schools and families. Good practice in home-school relationships advocates collaboration and reciprocity between teachers and families (Bull, Brooking, & Campbell, 2008). Such good practice helps with an exchange of knowledge, thereby enabling teachers to develop their understanding of the cultural perspectives of families. An appreciation of the Pacific concept of va further endorses how strengthening home-school relationships can promote cultural understanding as highlighted in ako.

My doctoral study, which has explored home-school relationships for secondary Pacific learners, has been informed by an Appreciative Inquiry process (which recognises good practices). I have been able to draw out a number of strengths both from Pasifika families and the community, and from the schools. These strengths reflect a shared vision to see all Pasifika young people succeed in school. An analysis of findings also suggests there may be some areas for further development in terms of relationship-building between schools, Pasifika families, and the community.

This paper concludes that an Appreciative Inquiry model could be an effective tool schools can adopt to help strengthen home-school relationships, facilitating the process of ako, and, consequently, supporting students' successful learning outcomes.

Introduction

In this paper, I set out to explore connections between ako and home-school relationships for Pasifika secondary learners in Aotearoa/New

Zealand. I draw upon my understanding of ako from Professor Konai Thaman's work (1997, 2008), where she reflects on what learning means in Tongan society. This helps me to consider what kind of learning may be relevant for Pasifika students in a New Zealand context, and how families might best be able to support this kind of learning. I argue that strong relationships between home and school can be enormously beneficial for students, and I draw upon my understanding of the Pacific concept of va to support this idea. This then leads to a discussion of Appreciative Inquiry (AI), and how I incorporated AI into my research design for a doctoral study. I aim to show how AI has the potential to strengthen home-school relationships and, thereby, enhance the quality of ako and successful learning experiences for Pasifika learners in New Zealand.

This paper is, therefore, divided into the following sections where I discuss:

- My positioning
- Ako with its relevance to home-school relationships and its connection to va
- Appreciative Inquiry (AI) with an explanation of the 4-D cycle (a way of putting AI into practice), an account of how AI supported my doctoral study, and a word of warning about its implementation.

I finish with concluding comments which, overall, recommend AI as a tool for promoting ako through the development of home-school relationships.

My positioning

I would like to qualify that my background is European. Originally from England, I came to teach in New Zealand ten years ago. As such, I cannot explain from first-hand experience what ako means as I clearly do not belong to any Pacific culture. Instead, I enter this discussion as someone who has taught Pasifika (including Tongan) students in a New-Zealand context, and who has wondered how best to engage with students and their families whose cultural backgrounds are different to mine. This has led to my current doctoral journey, in which I am exploring how relationships between home and school for Pasifika secondary learners in New Zealand can enhance students' successful learning outcomes.

I appreciate that our understanding of the world is subject to the contexts in which we find ourselves. I align myself to a social constructionist worldview which acknowledges the existence of multiple realities (see for example, Gergen & Gergen, 2004; Shotter, 2013).

As we enter into dialogue with others, we continually edit and adapt our interpretation of the world around us. This means that our understanding evolves through the relationships and interactions in which we engage, so that we always have the opportunity to learn as we appreciate different perspectives. In relation to home-school relationships for Pasifika students in New Zealand, my understanding has evolved through interaction with the Tongan concept of ako. This paper explores the development of these thoughts, supporting my personal growth as I engage with Pacific concepts and consider how best to support Pasifika learners within the New Zealand education system.

Ako

The Tongan concept of ako, Thaman (1997) explains, refers to the ongoing process of learning. Someone, who has successfully experienced ako, can be said to be poto – someone who has acquired the skills and knowledge to be able to serve family and community well. Thaman (1997) acknowledges, however, that it has come to be associated with the formal education system whereby a focus on the acquisition of qualifications becomes the priority. Whilst this may well facilitate an educated person to be in the position to effectively support family and community, I appreciate Thaman's concerns; this is a Westernised approach which protracts the cultural richness of indigenous groups (1997). She reminds us of the importance of cultural continuity; that ako originally referred to the kind of learning which supported skills and knowledge necessary for survival in Pacific Island countries (p. 122). Extending this argument, I draw on Thaman (2008) to encompass a broader understanding of cultural continuity. She reminds us of the importance of the education system in supporting students' cultural identity. For instance, she emphasises the relational way that members of Tongan society interact with one another and the danger of a Western education system which prioritises personal achievement, thereby undermining a Tongan worldview (Thaman, 2008).

Thaman (2008) argues that, if learners are to operate with confidence across cultures, they need to be knowledgeable about and confident in their own families' culture. However, she is concerned that cultural identity has been eroded through the formal education system in countries like Tonga where Westernised worldviews have been superimposed (Thaman, 2008). Nakhid (2003) validates this argument concerning students who identify with Pacific cultures and who are educated in the New Zealand education system. Her research has captured the struggle for personal identity which such students may face within the New Zealand schools.

A lack of identity can erode confidence and, consequently, negatively impact upon successful academic outcomes. Thaman's discussion of ako has served well, therefore, in reminding us of the dual responsibility of an education system to promote both students' cultural identity and formal achievements. The successful accomplishment of the latter is, in actuality, dependent upon the inclusion of the former. This is just as relevant for students in a New Zealand context as it is for the learners in Tonga to whom Thaman refers.

The relevance of ako for home-school relationships

Ideally, home-school relationships might operate in such a way that they support students' successful learning experiences as highlighted through Thaman's definition of ako. Families may not only help schools to connect with students' cultural backgrounds but they may also work with teachers to support students' learning beyond the classroom. If schools are able to nurture their relationships with families, families can play a valuable role in helping students to achieve successful learning outcomes. Research literature advocates such support with the claim that effective home-school relationships, across diverse contexts, can have a positive effect on student achievement (Bull, Brooking, & Campbell, 2008, Jeynes, 2007). In the New Zealand context, ERO (the Education Review Office which reviews educational provision) has confirmed through a document analysis that positive links between home and school for Pasifika learners contribute to positive academic outcomes (ERO, 2013).

Whilst different contexts call for different ways in which teachers and families might work together for the benefit of the students, Bull et al. (2008) have drawn together some generic conclusions on effective practices. In their literature review on "Successful home-school partnerships" (which includes both international and New Zealand case studies), they note the importance of "collaborative and mutually respectful" relationships. Acknowledging the influence of families on learning, communication between home and school should be "two-way". Schools should also be "responsive" to the needs of the community, and ensure that home-school practices are well-planned, embedded into the school system and focused on learning (Bull et al., 2008, p. 1). A key point is that, if home-school relationships are to effectively support students' learning, then clarity is required on the learning focus. Relationships hinge on this understanding. Thaman's description of ako helps draw attention to the learning focus – where the promotion of cultural identity underpins the journey towards formal qualifications (Thaman, 1997). Families are well positioned, in this

regard, to give their support.

Va in home-school relationships

Furthermore, the Tongan concept of va, as identified by Thaman (2008), adds an extra dimension to the meaning of "mutually respectful" relationships between home and school. The Tongan worldview, in prioritising relationships over individuality, emphasises the need to inculcate respect when relating to others so that trust and harmony are achieved through appropriate conduct. The value placed in nurturing relationships is also common in other Polynesian cultures, as exemplified by the Samoan notion of "teu le va" – meaning to look after and protect the space that connects one person to another (Airini & Mila-Schaaf, 2010). Airini and Mila-Schaaf (2010) provide advice on recommended practices related to the forming of relationships in Pasifika education research. For those of us who are developing our understanding of Pacific notions and philosophies, we can appreciate how the nature of the relationship defines the quality of desired outcomes. Taking this discussion further, Māhina (2008) links the Tongan notion of va (space) to ta (time); he explains how Tongan people contemplate the past as they negotiate the present, since what has happened in the past informs what might happen in the future. Thus, a shared understanding of past experiences, formed through the unfolding of relationships in the present, helps forge an understanding of the way forward. A focus on future student targets, without acknowledging the capacity of the present to discuss the past, may not lead to successful results. As Māhina (2008) suggests, a linear path to decision-making (common to the Westernised school system) does not encapsulate the power of a circular concept of time where story-telling invokes the past to guide the future. Nurturing the va, it seems, is a critical process and schools would benefit from practices which enhance the relationship space when teachers are interacting with families.

Teachers may require the knowledge, skills, and time to develop such relationships with families. As Bull et al. (2008) argue, home-school partnerships are effective when there is reciprocity, and communication runs in both directions. Teachers need to listen to parents and understand the needs of the community, as much as families need to listen to teachers and understand the world of school (Flavell, 2017). Of course, each school context is unique. Home-school policies cannot be universally applied but recommendations, such as those from Bull et al. (2008), require a careful consideration as to how they may come into effect. How one school might plan to nurture relationships with families may or may

not work for another. The key is for schools to consider how they can best implement collaborative and respectful relationships with families which will engender successful learning opportunities for the students. This requires consultation. If home-school policies are planned by the schools for the benefit of families but without engaging in home or community relationships when forming policy, then relationships may be compromised. This is inconsistent with the recommended good practice on home-school partnerships and with the principles of teu le va (Airini & Mila-Schaaf, 2010; Bull et al., 2008).

For this reason, I turn to the Appreciative Inquiry model as a way that schools, families, and the community might work together to create collaborative practices that support the process of ako within schools.

Appreciative Inquiry

Cooperrider (1986) proposed the idea of Appreciative Inquiry (AI) when considering how action research might deliver worthwhile change in organisations once the focus is moved away from problems. He was concerned that a diagnosis of problems might just deliver short-term solutions that support the existing system, rather than questioning the system itself. Such a narrow focus could inhibit creativity, prohibiting a flow of generative ideas that has the potential to deliver a fresh approach. He, therefore, proposed that we consider the power of human interaction when experiences are shared and when engagement in meaningful and creative dialogue is encouraged (Cooperrider, 1986). Thus, the idea of AI emerged as an alternative way to conduct action research.

As its title suggests, the emphasis is on appreciating the best in people through a systematic inquiry (Cooperrider & Whitney, 2000). It is both a philosophical approach which appreciates the potential for vitality and energy in human relationships, and a methodological practice that can be applied to diverse contexts involving organisational change and human development. AI is firmly embedded within a social constructionist worldview, accepting a subjective reality where an understanding of the world can only be gained through relationships (Cooperrider & Whitney, 2000, p. 5).

The 4-D cycle

A recommended methodological approach for actioning the philosophical aims of AI is that of the 4-D cycle (Cooperrider & Whitney, 2000). The 4-D cycle provides specific guidelines which can facilitate practical situations

like, for example, how teachers and families might work together in order to support the learning process for students:

- The first D is for the discovery phase. This is an opportunity to discover what strengths can be found within individuals or within the organisation; it is a chance to share stories of success and positive experiences, and to explore important values.
- The second D is for the dream phase. Here participants can identity key themes which they believe are essential for the creation of success. Participants can use their imagination and be aspirational in thinking of what would be ideal.
- The third D is for design. In this phase, participants collaborate on rethinking values and processes which could turn their aspirational ideas into reality. It is an opportunity to create a shared vision through collective discussion. This phase could generate a provocative statement which crystalises the vision that participants collectively want to take forward.
- Finally, the destiny phase allows participants to embark on planning for the future, considering specific actions which work towards the desired vision. The word "destiny" is carefully selected over the word "delivery" to denote the possibilities for real transformation when there is a collective affirmation to adopt new pathways (Cooperrider & Whitney, 2000).

The word "cycle" reminds us that this an iterative process that can be applied to diverse contexts in order to encourage creative and constructive thinking (Finegold, Holland, & Lingham, 2002). The process has the potential to encourage commitment from individuals who can step up and work towards a shared vision, thereby channelling their creative energy towards positive outcomes for the greater good.

My doctoral study

In my own doctoral study on exploring relationships between home and school for Pasifika secondary learners in New Zealand, I drew on the 4-D cycle to support fieldwork. I conducted this study in a rural town in New Zealand which has two high schools with approximately ten per cent of the student population identifying as Pasifika. The discovery and dream phases enabled me to gather rich data, as participants (Pasifika parents, students, and their teachers) engaged with the topic of home-school relations. As Michael (2005) discovered (with her fieldwork with NGO

directors in Africa), a positive framing of questions is non-threatening. An AI focus permits the interviewees to celebrate, appreciate, and share what has enthused them. In my study, parents appreciated the commitment of teachers, teachers appreciated how hard some parents worked to support Pasifika students, and students valued support from both home and school. An overall finding that emerged was that the participants valued working together to support the career goals and learning needs of the students. Students tended to emphasise personal responsibility; parents generally emphasised the collective nature of decision-making, stressing the importance of being involved in important decisions related to their children's education; and teachers emphasised the value of closer cultural connections between home and school. Some participants acknowledged that a further strengthening of relationships between home and school would be beneficial. In particular, participants saw a need to help develop home-school relations for those families who were very busy and who did not understand the school system that well.

Since I was not in a position of responsibility, I could not implement the whole 4D cycle. The latter phases, design and delivery, rely on opportunities for shared decision-making and joint action planning which, in my role as researcher, I was unable to initiate. However, I did co-construct a report with some of the participants, and then present the findings from this report back to the schools and to members of the Pasifika community. Recommendations included: a working party to operate across the schools and Pasifika community to share good practice; further professional development for the schools; and a joint approach between the schools and the community to negotiate funding for a co-ordinator to support links between home and school. I hoped the report would be useful so that the schools and Pasifika families could potentially work together to progress ideas and actions. I take heart with a conclusion reached by Grant and Humphries (2006) in their Appreciative Inquiry-led research on Boards of Trustees in New Zealand schools. Whilst unable to confirm if the final phases of the 4-D cycle had come to fruition, they did feel that they had been able to "create something new" through the discussions they triggered (p. 412). Seen in this light, I hope that I was able to facilitate fruitful dialogue.

A word of warning

An important point to raise when implementing AI is that it has been criticised for its emphasis on the positive with the claim that significant problems are overlooked. It has been argued that this could render it ineffective as

a means of actioning change or enabling insightful evaluation (Grant & Humphries, 2006; Patton, 2003). It may appear to deliver empowerment by listening to voices; but, if there is no space to raise concerns, then the existing structures are maintained and the opportunity for people to express what they are feeling has been denied. This need not be the case, however. It is important to honour all viewpoints (Fitzgerald, Oliver & Hoxsey, 2010). The delivery of the 4-D cycle does provide opportunity for participants to work through any issues as they ponder the ideal dream scenario (Patton, 2003). When problems are raised, it does not necessarily lead to an exacerbation of them; instead, the sharing of concerns can be framed in such a way that it acts as a precursor to agreeing positive intent for planning a brighter future (Grant & Humphries, 2005). Indeed, I did find that participants needed to talk about what concerned them. It seemed to be an important process for them to go through before they envisioned what ideal home-school relationships might look like.

Concluding comments

An AI process emphasises the capacity for inclusive relationships to bring about collaborative and positive outcomes. It not only has the potential to expand the capabilities of an organisation but also the individuals within it. If an AI model were to be applied to a home-school context, it could be used to facilitate discussion between families and teachers so that effective ways of working together are formulated. Contextualised discussion could encourage forward-looking, creative, and collaborative ideas with the potential to energise current home-school practices. Furthermore, such discussion provides opportunity for developing va, and shows alignment with recommended practices for effective home-school partnerships (Bull et al., 2008). If schools are committed to working with families in order to strengthen students' cultural connections and formal achievements (as highlighted through Thaman's discussion of ako), then AI may be a tool worth considering to facilitate these endeavours.

References

Airini, D. B., & Mila-Schaaf, K. (2010). TEU LE VA—Relationships Across Research and Policy in Pasifika Education. Wellington: Ministry of Education.

Bull, A., Brooking, K., & Campbell, R. (2008). Successful home-school partnerships. Wellington: Ministry of Education.

Cooperrider, D. (1986). Appreciative Inquiry: toward a methodology for

understanding and enhancing organizational innovation. (PhD). Case Western Reserve University,

Cooperrider, D., & Whitney, D. (2000). A positive revolution in change: Appreciative Inquiry. In D. Cooperrider, D. Whitney, & T. F. Yaeger (Eds.), Appreciative Inquiry: Rethinking human organization toward a positive theory of change. Champaign, Illinois: Stipes Publishing

ERO (Education Review Office). (2013). Making connections for Pacific Learners' Success: Education Review Office.

Finegold, M. A., Holland, B. M., & Lingham, T. (2002). Appreciative Inquiry and Public Dialogue: An Approach to Community Change. Public Organization Review, 2(3), 235.

Fitzgerald, S. P., Oliver, C., & Hoxsey, J. C. (2010). Appreciative inquiry as a shadow process. Journal of Management Inquiry, 19(3), 220-233.

Flavell, M. (2017). Listening to and learning from Pacific families: The art of building home-school relationships at secondary level to support achievement. Set: Research information for teachers, 2, 42-48.

Gergen, K. J., & Gergen, M. (2004). Social construction: Entering the dialogue.

Grant, S., & Humphries, M. (2006). Critical evaluation of appreciative inquiry: Bridging an apparent paradox. Action Research, 4(4), 401-418.

Jeynes, W. H. (2007). The Relationship between Parental Involvement and Urban Secondary School Student Academic Achievement A Meta-Analysis. Urban Education, 42(1), 82-110.

Māhina, H. O. (2008). From Vale (Ignorance) to 'ILO (Knowledge) to Poto (Skill) the Tongan Theory of Ako (Education): Theorising Old Problems Anew. AlterNative: An International Journal of Indigenous Peoples, 4(1), 67-96.

Michael, S. (2005). The promise of appreciative inquiry as an interview tool for field research. Development in Practice. 15(2), 222-230.

Nakhid, C. (2003). "Intercultural" Perceptions, Academic Achievement, and the Identifying Process of Pacific Islands Students in New Zealand Schools. Journal of Negro Education, 297-317.

Patton, M. (2003). Inquiry into Appreciative Evaluation. New Directions for Evaluation, 100, 85-98

Shotter, J. (2013). Agentive Spaces, the "Background", and Other Not Well Articulated Influences in Shaping our Lives. Journal for the Theory of Social Behaviour, 43(2), 133.

Thaman, K. H. (1997). Reclaiming a place: Towards a Pacific concept of education for cultural development. The Journal of the Polynesian society, 106(2), 119-130.

Thaman, K. H. (2008). Nurturing Relationships and Honouring Responsibilities: A Pacific Perspective. International Review of Education, 54(3/4), 459-473.

CHAPTER 14

Examining the Potential of Open Schooling to Support Second-chance Education in Tonga

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Abstract

This paper briefly describes several Open Schooling (OS) models used worldwide, and some of the models used in the Pacific, followed by a brief description of an empirical research case study conducted at The University of the South Pacific (USP), Tonga Campus. The study involved analysing both qualitative and quantitative data collected from the 2012-2014 Post School Bridging Programme (PSBP) student cohorts, tutors, Tongan educational managers, USP Tonga campus administrators, and students' parents.

Constructivism Theory was used to frame the study and the Kakala Research Framework was applied as an appropriate methodology to use in the context of the study.

The research findings showed that PSBP Open Schooling model was successful in Tonga. About 73% of the students who completed OS continued on to do USP certificate and degree courses. It was found that the best OS model was for the USP Tonga Campus to continue to offer the programme as an alternative to secondary schooling, and recommended that USP Tonga Campus form partnerships with some secondary schools and technical schools in Tonga. The findings also indicated that the curriculum course materials be reviewed, appropriate pedagogies (that is, both teacher-centred and pupil-centred) be employed, and a range of modes of delivery be utilised. Findings also suggested that the programme would benefit from the use of information communication and technology (ICT) for teaching and learning, and a mixture of different types of assessment (both formative and summative) would better ensure that students are learning actively. Furthermore, and importantly, financial assistance from the government is needed to review the course programmes, to provide more educational resources and equipment, to employ full-time tutors to

avoid extensive staff turnover, and to implement the special training of tutors.

Introduction

The research was designed to examine the effectiveness of the Post School Bridging Programme (PSBP) as an appropriate Open Schooling (OS) model for Tonga. The study was based on the premise that the programme needs to be sustained to meet the educational needs of the students, who, for various reasons, leave school without a formal secondary school level qualification, including school dropouts. It aimed to provide evidence that:

i. this programme enables Tongan students to gain certification to continue on to higher education, or to seek employment in Tonga or abroad

ii. there are various strategies used to upgrade the programme and to inform policy and practice of OS in Tonga, and

iii. financial assistance is required from the Tongan government to ensure that the PSBP OS is sustainable.

The overarching research question was:

What is the potential of using OS as a vehicle for second-chance education in Tonga?

The guiding sub-questions were:

i. What does the literature identify as the best current OS models?

ii. How is OS currently implemented in Tonga?

iii. What are the students', tutors', and educational managers' perceptions of the OS programme?

iv. What are the students' and tutors' experiences of the OS programme?

v. What are the benefits of the OS programme?

vi. What are the challenges of the OS programme?

vii. How might policy related to OS in Tonga be improved?

viii. How might practice of OS be improved in Tonga?

Study Design, Settings, Participants

The research design used a mixed-methods approach, collecting and analysing a mixture of quantitative and qualitative data in a single study site; that is, USP Tonga Campus. A literature survey was conducted. Questionnaire surveys were administered using a large sample which primarily assists with gathering descriptive statistics (demographic characteristics and important relationships of the OS learners, tutors, educational managers, and administrators). These surveys provided the quantitative data. As an example, Table 1 below shows the number of students that responded to the questionnaire surveys that provided this quantitative data. After the data collection, the researcher conducted semi-structured interviews with seven tutors and 35 students; and "talanoa" sessions with 10 students' parents, three USP administrators, and seven Tongan educational managers to provide qualitative data in this research study.

Table 1. Questionnaire Responses from PSBP OS Students in Tonga

Year that OS students started the programme	Number of Females/Males	Total number of returned completed surveys	Percentage Return
2012	10/17	27	90%
2013	11/12	23	77%
2014	15/30	30	100%
2015	36/80	80	80%

According to Thaman (1997, 1988), Manu'atu (2001), and Johansson-Fua (2011), the Kakala Research Method (KRM) can be used by Tongan researchers in New Zealand and the Pacific countries as a theoretical and methodological framework. The researcher chose the KRM as the most appropriate method to be used in this study. The KRM comprises six stages:

- Teuteu – Careful preparation of the research study
- Toli – Data collection through survey, talanoa, and interview
- Tui – Analysis of both qualitative and quantitative data
- Luva – Reporting and outcomes
- Malie – Relevancy and usefulness
- Mafana – Application, transferability, and sustainability

The study was carried out at USP Tonga Campus where this PSBP OS programme was offered to students who were unable to finish their secondary education at traditional or conventional secondary schools (Du Vivier, 2013). This was the first short consultative study that was carried out in this OS programme. The student cohort included single mothers, dropout youths, and early school leavers enrolled in OS as a form of "second-chance" education.

The USP Tonga campus is located at 'Atele, in the Kingdom of Tonga, an archipelago of small islands in the South Pacific region. It has a total land area of 748 square kilometers, spread over 176 islands of which 52 are inhabited. It is made up of six main groups of islands: namely, Tongatapu, Vava'u, Ha'apai, 'Eua, Niuatoputapu, and Niuafo'ou. The 2016 National census reported a total population of 100,651 inhabitants in Tonga, with 74% of the total population residing in Tongatapu; 14% in Vava'u; 6% in Ha'apai; 5% in 'Eua and 1% residing in Niuatoputapu and Niuafo'ou (Tonga Statistics Department census, 2016).

This empirical research study was carried out in two Phases: Phase 1 was the pilot study and Phase 2 was the main study. There were 30 participants in the pilot study. In the main study, 80 former OS students and seven tutors completed the surveys, and semi-structured interviews were conducted with 35 students and seven tutors. The talanoa sessions were carried out with 10 OS students' parents, seven educational managers, and three USP administrators totaling 107 participants.

Findings and Discussion

The analysis identified five themes and issues in relation to the research questions. The themes themes, well supported by literature, showed the potential of OS as a vehicle to support "second-chance education" in Tonga. These are discussed below.

The Participants' Demographics and Profiles

This section considers participant demographics and profiles in relation to the literature. Of the students who participated in this study, 55% were male and 45% female. Rumble and Koul (2007) report that more males than females enrolled in OS in the National Institute of OS (NIOS) in India. Pant (2009) notes that India is the country in the world with the greatest number of students enrolled in OS programmes; that is, 1.5 million students. Similar results were also observed in relation to the students' age distribution. The majority of the students, 93%, who enrolled at USP Tonga

Campus's OS were aged between 16 and 25 years, with many students who had dropped out of secondary schools in Tonga at an early age. 70% of the students were single, 25% were married, and 5% were divorcees and single mothers. Interestingly, most of the married students had better grades in OS than the younger students. Bakalevu (2011) reports similar results in Fiji: most of the students in the OS programme in Fiji were under 25 years old and most were single; however, married students tended to perform much better. She offers the example of a married woman being the Dux of the Nabua Secondary School OS in 2003. This shows the potential of OS as a vehicle to support second-chance education in various countries in the world including the Pacific Island countries.

The best OS model for Tonga

With reference to the findings collected in the semi-structured interviews and talanoa sessions, participants fully supported the notion that PSBP is the best OS model to be practised in Tonga. This aligns with the findings of Abrioux and Ferreira (2009) who report that Papua New Guinea University and National Institute of Open Schooling (NIOS) in India practised this OS model in these countries, while Pant (2009) reports that these two countries practised this OS model successfully.

The majority of the participants of this study – 98% of the students and 100% of the tutors – strongly agreed that USP Tonga Campus should continue to offer the PSBP OS as an alternative to the conventional secondary schools until the government is able to offer it. As one tutor reported, "USP Tonga campus should continue to offer the OS until the government is well prepared to take over in the future, as the USP has all the experiences and skills since it has been offering this programme for five years" (I,T1). Furthermore, both students and tutors felt that if the government was to establish an OS institution, then a private provider such as USP Tonga Campus could administer it independently.

The findings show that 60% of the students and 86% of the tutors strongly agreed with the idea that the University could form partnerships with some schools and institutions in Tonga, and agreed that the USP should form partnerships with a government secondary school to offer the OS. However, the majority of the students (89%) and, tutors (86%) strongly agreed or agreed that the USP should form partnerships with some TVET institutions and secondary schools. This is similar to the MATUA OS programme that is currently operating successfully in Nabua Secondary school in Fiji (Bakalevu, 2011).

Participants' perceptions of the OS Programme

This theme focuses on the OS curriculum course materials; pedagogies and delivery modes; types of assessment; educational resources and equipment; finance and management; policies, staff capacity, and training of tutors.

The results from the surveys showed that both students and tutors liked the PSBP OS curriculum course materials. However, the majority of the participants – 83% of the students and 71% of the tutors – wanted the curriculum to be offered as an alternative to the secondary school curriculum. Both students and tutors agreed that some extra-curricular activities could be included in the curriculum course units. Data from the interviews and talanoa sessions indicated that some of the curriculum course materials need to be reviewed as the participants believed that these are out of date.

The findings showed that both tutors (86%) and students (91%) wanted the tutors to use a variety of pedagogies/teaching techniques. Both teacher-directed and pupil-centred pedagogies were used in this PSBP OS programme; 100% of the tutors prefer to use pupil-centred techniques while 89% of the students prefer the tutors to use teacher-directed approaches. To sum, the tutors and students preferred the tutors to use both teaching techniques. In addition, 97% of the students like the tutors to use face-to-face lectures and tutorials.

Both tutors and students liked the tutors to use different types of assessments: 90% of the students like tests, homework, and practical tasks, while 100% of the tutors either strongly agreed and agreed with the use of tests, homework, and practical tasks.

The students and tutors wanted the OS programme to have more educational resources and equipment such as computers and science equipment. As one student commented:

> Tutors should give us more computer training, especially on how to use online satellite sessions and moodle, as there are gaps when we continue on to do CFS course programmes. We ought to have some training also on usage of various computer programmes such as spreadsheet, paint, publisher, blogs, wiki, and e-portfolio. (I, S78)

With regard to finance and management, both students and tutors expressed that the school fees are fine. However, the majority of the students (95%) and tutors (86%) either strongly agreed or agreed that the government could

fully fund this OS programme. Funds are needed to review the curriculum course materials, for more educational resources and equipment, and for training of tutors. One educational manager said:

> I wish the government would assist us with some funds to develop the course programmes as well as pay the tutors. Self-learning materials need to be reviewed as they are out of date. More computers are also needed in the computer centre to be used by the students. (T, EM 1)

Findings show that participants – 85% of students and 100% of the tutors – think the OS policy should be enforced and ICT policies should be set. In addition, 85% of the students either strongly agreed or agreed that tutors should have some training. However, 71% of the tutors strongly disagreed or disagreed that the tutors should have some training.

Benefits to students of the OS Programme

Various studies conducted in Asia, UK, Australia, Canada, and Africa have shown the huge benefits of OS (Daniel 2012; King, 2012). The OS programmes addressed issues of access and equity by opening up opportunities driven by national goals of work force development. Daniel (2012) argues that widening access and improving participation through OS enables out-of-school youth, working mothers, people of disability, young girls, and those who have been denied the opportunity to continue their education because of geographical location access to higher education. OS has removed most of the restrictions faced by girls and women and improved gender equity on education especially at the secondary schools' levels.

Another major benefit of OS identified by the literature is the extensive use of ICT. Daniel (2013) reports that while OS started as print-based, the introduction of the internet has changed the way it is offered globally. Today, the adoption of technologies such as audio, video, teleconferencing, the internet, and mobile technologies has aided OS to reach large population OS students. ICT is integrated into the teaching and learning at all levels of the education system (Raturi et al., 2011; Raturi, 2014).

A further benefit of the use of digital technology is the production and sharing of Open Educational Resources (OERs) which include lessons, modules, full course programmes, e-texts, articles, videos, multimedia, and other learning materials (Downes, 2007). Mishra (2012) argues that the usage of OERs in OS allows lecturers and tutors more time to engage with students and help them complete their courses on times. Kanwar

(2013) notes that OERs have been used as supplementary textbooks in rural areas with shortages of textbooks, especially in African countries.

Table 2 shows the benefits of OS to students in Tonga. The findings show that 73% of the students continued on to take the University's CFS Preliminary and Foundation course studies. Some of the students subsequently pursued educational pathways locally or abroad, while some pursued various careers and employment locally and abroad.

Table 2 – What students are doing post OS

What students are currently doing	**Total Percentage of male/ female participants**	**Plans for the future**
Continuing to do the CFS Preliminary course at USP Tonga Campus	37/46%	15 students will continue to do their Foundation course in Semester 1 2016
Continuing to do the CFS Foundation course at USP	21/27%	4 students will start doing their degree course at USP in Semester 1 2016
Working in a full-time job	8/10%	Work full time as carpenters, or work in hotels etc.
Studying abroad	5/6%	Two students continue on to study in New Zealand universities; one study in the UK, and two are studying in USA
Continuing study in a tertiary institution locally	3/4%	Two students study in Tupou Tertiary Institute intending to work as engineers and one in Fokololo TMPI
Continuing Technical and Vocational study locally	2/2%	One student completed a certificate in Carpentry and is currently doing the CFS course programme
Student returned to study in a secondary school to do Forms 6-7 after the PSBP OS	4/5%	Students were directed by their parents to return to secondary schools due to social problems
Total	**80/100%**	

Challenges to the PSBP OS programme

The PSBP OS programme faces a number of challenges: high costs, lack of IT equipment and basic infrastructure for the usage of ICT to deliver the OS course programmes, and lack of skills and expertise are the major challenges for the delivery of the OS at the secondary level.

Strong political commitment from the government is needed to ensure the necessary funding and resources for the sustainability of the OS programme

and to remove perceptions that this OS is second rate to conventional secondary schools. In other words, funding from the government has been the backbone of OS and sustainable funding sources for OS needs to be worked out with stakeholders as well. The challenge is for adequate and regular disbursement of funds to deliver the OS.

Another challenge is the determination of the minimum admission requirements to take the OS programme (Okonkwo, 2012).

A further challenge is the absence of a coherent policy on OS programmes. Du Vivier and Ellis (2009) emphasise that there should be a coherent policy development for OS programmes.

There also challenges of access, equity, and quality of education; however, the Tonga Ministry of Education has worked collaboratively with the university to alleviate these challenges.

Financial assistance is very much needed to ensure the sustainability of the PSPB OS in Tonga, and to assist with curriculum review, training of tutors, improving educational resources and equipment etcetera. Full-time staff is needed rather than part-time tutors and extensive staff turnover.

Summary, Conclusions and Recommendations

Between 2012 and 2014 the majority of the students (that is, 73%) who completed the USP Tonga Campus PSBP OS programme continued on to take the USP CFS Preliminary and Foundation course programmes. The benefits of OS include widening access and allowing out of school youths, single mothers, and mature students who left school early to have these educational opportunities. After being awarded with the PSBP OS certificates, many have pursued different educational pathways, careers, and employment, locally or abroad. Some students left Tonga to continue tertiary education abroad in the United Kingdom, United States of America, Australia, New Zealand, and Fiji. Some left the university to seek employment, some continued on to do TVET and VET in local institutions, and a few returned to finish their secondary school education. This shows that the potential of OS as "second-chance" education in Tonga is good, successful, and achievable.

It is important that the government and all education stakeholders are well informed of the outcomes of this research study to convince them there is a great need to continue to offer this course to cater for the educational needs of Tongans, and to ensure the sustainability of this PSBP OS.

Based on the findings it is recommended that:

- The USP Tonga Campus continue to offer the OS programme as an alternative to conventional secondary schooling in Tonga
- USP form partnerships with secondary schools to share their resources and experiences
- MET and USP work collaboratively to set national OS and ICT policies and develop strategic plans with a view to improving policies and practice in Tonga and to the Government taking over the programme in the future
- The usage of ICT be incorporated into the OS and a blended mode of delivery be sustained; that is, face-to-face and online modes be used for the students in the outer islands to have access to the OS programme
- The government provides financial assistance for the implementation of the USP Tonga campus PSBP OS to ensure its sustainability; for educational resources such as computers and science equipment; for ongoing staff development, and for student counselling
- The government include in its strategic plan the establishment of OS institutions to cater for the educational needs of the country, especially to achieve national educational policies to ensure education for all students aged 4-18
- OS national educational and ICT policies be established and enforced
- Scholarships be awarded for those who perform outstandingly to continue on doing tertiary level and degree courses
- That steps are taken to ensure the programme has a stable full-time staff rather than extensive part-time staff turnover
- That the curriculum course materials are reviewed and the modes of delivery and assessment upgraded
- That further research of this kind is funded to investigate the potential future partnership between USP Tonga campus, secondary schools, and TVET institutions for the implementation of the OS programmes
- That similar projects be conducted in other Pacific Island countries to investigate the potential of OS to support second-chance education.

References

Abrioux, D. A., & Ferreira, F. (Eds.). (2009). Perspectives on Distance Education: Open Schooling in the 21st Century. Vancouver, BC, Canada: Commonwealth of Learning.

Bakalevu, S. (Ed.) (2011). Open Schooling as a Strategy for second-chance education in the Pacific: A desk study report. . Vancouver, BC, Canada Commonwealth of Learning.

Daniel, J. (2010). Education for the 21st century: Time for open schools to raise their game COMOSA Journal of Open Schooling, 1(1), 1-8.

Daniel, J. (2012). The future of (open) education Paper presented at the UNESCO Bangkok Special Seminar 2012 (No. IV) Bangkok, Thailand.

Daniel, J. (2013). Education across space and time Paper presented at the Open and Distance Learning Association of Australia 2013 Summit, Sydney, Australia.

Downes, S. (2007). Models for sustainable open educational resources Interdisciplinary Journal of Knowledge and Learning Objects, 3 29-44.

Du Vivier, E. (2013). Open Schooling Programmes for the Kingdom of Tonga – Report of a Short Term Consultancy USP Tonga Campus: COL.

Du Vivier, E., & Ellis, J. (2009). Formulating policies to enable the development of Open Schooling. In D. Abrioux & F. Ferreira (Eds.), Perspectives on Distance Education: Open Schooling in the 21st century (pp. 21-33). Vancouver, BC. Canada COL.

Johansson Fua, S. (2011). Kakala Research Framework – A Garland in Celebration of 'A Decade of Re-thinking Pacific Education, . Paper presented at the Vaka Pasifiki: Celebrating a Decade of Re-thinking Symposium, USP Laucala Campus, Suva, Fiji.

Kanwar, A. (2013). Democratising higher education through Open Educational Resources: What are the possibilities? Paper Paper presented at the International Conference on Science and Technology for Economic Diversification, Port of Spain, Trinidad and Tobago

King, B. (2012). Distance education and dual-mode universities: An Australian perspective Open Learning: The Journal of Open, Distance and e-Learning, 27, 9-22.

Manu'atu, L. (2001). Tuli ke Ma'u Hono Ngaahi Malie: Pedagogical

Considerations for Tongan Students in NZ Secondary Schooling. (Doctoral Thesis). The University of Auckland, New Zealand. ,

Mishra, S. (2012). Openness in education: Some reflections on MOOCs, OERs and open and distance learning. Paper presented at the International Council for Open and Distance Education Standing Conference of Presidents Hamdan Bin Mohammed University, Dubai.

Okonkwo, C. (2012). Assessment of challenges in developing self-instructional course materials at the National Open University of Nigeria. International Review of Research in Open and Distance Learning, 13(2), 1-6.

Pant, M. C. (2009). National Institute of Open Schooling, India: A Case study. In D. Abrioux & F. Ferreira (Eds.), Perspectives on Distance Education: Open Schooling in the 21st century (pp. 111-128). Vancouver. BC. Canada: COL.

Phillips, S. (2006). Exploring the Potential of Open Schooling. Connections 11(1), 8-10.

Raturi, S. (2014). Online tools in elearning in the context of developing countries: A study at the University of the South Pacific. MOOC, Innovation and Technology in Education (MITE), 112-117. doi:10…1109/ MITE, 2014.7020 252

Raturi, S., Hogan, B., & Thaman, K. (2011). Learners' access to tools and experience with technology at the USP: Readiness for e-learning. Australasian Journal of Educational Technology, 27(3), 411-427. Retrieved from http://wwwascilite.org.au/ajet/ajet27/raturi.html

Rumble, G., & Koul, B. (Eds.). (2007). Open Schooling for Secondary and Higher Secondary Education: Costs and Effectiveness in India and Namibia. Vancouver, British Columbia, Canada: COL.

Thaman, K. H. (1988). Ako and Faiako: Educational ideas, culture, and teachers' perceptions of their role. (Unpublished PhD Thesis). USP, Suva.

Thaman, K. H. (1997). Kakala Towards a Pacific Concept of Teaching and Learning. Keynote address. Paper presented at the Australian College of National Conference, Cairns.

Tonga Statistics Department. (2018). Tonga National Population and Housing Census, 2016: Results. Nuku'alofa, Tonga Statistics Department of Tonga.

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