



Research Pathways Conference



Book of Abstracts

15 & 16 October 2025

‘Exploring Global Perspectives’

Table of Contents

Acknowledgement from the Acting Dean Graduate Research	1
Organisers	1
Conference Committee	1
Sponsors	1
A Message from the Conference Convenor	2
Session Chairs	2
Keynote Speakers	3
Panel Discussions	4
Abstracts	6
Informal Religion: Ethno-Religious Minorities' Contribution in the Spiritual Context of Sylhet City, Bangladesh	6
Sayed Ahmed ¹ , Stephen Wood ² , Sonya Glavac ³ , Sanaz Alian ³	
The Permaculture Movement and the Global South	7
Anuradha Alahakoon ¹ , Bertram Jenkins ² , Rhiannon Smith ³ , Nick Reid ⁴	
Predicting Dropout and Relapse in Addiction Recovery Using AI	8
Nicholas Bowditch ¹ , Elizabeth Temple ² , Bernadine Cocks ³	
Australian Validation of the Universal Mental Health Literacy Scale for Adolescents	9
Julie. C. Clark ¹ , Warren Bartik ² , and Kylie Rice ^{1,2}	
Determinants of Resilience in Global Undergraduate Students: Systematic Review	10
Tilahun Abdeta ^{1,2} , Rikki Jones ¹ , Kim Usher ¹ , Md. Shahidul Islam ¹	
Measuring Fiscal Sustainability: A Novel Multidimensional Index, a Developed Country Perspective	11
Susantha Dissanayake ¹ , Priyantha Mudalige ² , Nam Hoang ³ , Shawn Leu ⁴ , George Chen ⁵	
Population Ageing: Implications for Economic Growth and Fiscal Sustainability	12
Susantha Dissanayake ¹ , Priyantha Mudalige ² , Nam Hoang ³ , Shawn Leu ⁴ , George Chen ⁵	
Fostering Green Innovation: How Patent Law Incentivises Shape Technological Development in the Green Economy	14
Elham Ghaffarian ¹	
The Relationship Between Social Anxiety and School Refusal in Australian Adolescents	15
Jenni Gilmour ¹ , Kylie Rice ¹ , Natasha Loi ¹ , Adam Rock ¹ , Ryan Davie ¹	
AI-Driven Innovation in Australian SMEs	16
Paul Girgis ¹ , Professor Sujana Adapa ¹ , Professor Renato Villano ¹	
Identifying Themes of Curiosity for Reading Materials in the Sri Lankan ESL University Context ..	17
Ruwan Gunawardane ¹	
From Perception to Adaptation: Farmers' Responses to Climate Change in Bangladesh	18
Md Fazlul Haque ¹ , Renato Andrin (Rene) Villano ² , Omar Al Farooque ³ , Nam Hoang ⁴	

Assessing Deep-sea Mining Activities' Compliance with the Environmental Protection Standards set forth by UNCLOS and Related Treaties	20
Brittany Hili ¹	
Guiding the Guides: Peer Work Supervision in Mental Health	21
Liam Hodge ¹ , Tania Pearce ¹ , Sarah Wayland ^{1,2}	
The Legal Status of Rohingya Refugees in Indonesia: Between Humanitarian Response and Legal uncertainty	22
Aisyah Wardatul Jannah ¹	
Leveraging Sentinel-2 for Field-Scale Nitrogen Estimation in Australian Rice Fields	23
Sunil Kumar Jha ¹ , James Brinkhoff ¹ , Andrew J. Robson ¹ , Brian W. Dunn ²	
Patients' Decision-making on Antibiotic Use for Acute Respiratory Tract Infections in a Primary Healthcare Setting in Ethiopia: The Role of Antimicrobial Resistance Knowledge, Concerns, and Previous Antibiotic Use Experience	24
Gashaw Enbiyale Kasse ^{1,2} , Judy Humphries ¹ , Suzanne M. Cosh ³ , Md Shahidul Islam ¹	
My Convict Ancestor Sarah, Her Gender Agency & The Blended Family	25
Dr Des Lambley ¹	
Exposing an Intergenerational Convict Stigma and Assuaging its impact	26
Dr Des Lambley ¹	
Soundwaves Between Sandstone; the acoustic fingerprint of Carnarvon Gorge	27
Simon Ling ¹ , Deborah Bower ¹ , Paul McDonald ¹ , Slade Allen-Ankins ²	
Diasporic Theatre as Cultural Memory and Continuance	28
Yashodhara Sarachchandra Liyanaarachchi ¹	
Cronulla's Saturday Matinee and the Enduring Appeal of Participatory Cinema	29
Claire S Ramos ¹	
Fragmented Governance and the Rise of Regulatory Dark Matter	30
Michael McGuinness ¹	
Price Shock Transmission between Coastal and Freshwater Fish in Bangladesh: Implications for the Industry and Food Security	31
Farhana Arefeen Mila ¹ , Luis Emilio Morales ¹ , Nam Hoang ¹ , Sujana Adapa ¹ and Garry Griffith ¹	
Insights into Post-streptococcal Glomerulonephritis: Contributions of Streptococcal Inhibitor of Complement and Nephritogenic Antigens	32
Mohammad Raguib Munif ^{1,2} , Rukshan AM Rafeek ¹ , Robert A Hart ¹ , David McMillan ^{1,3} , Kadaba S Sriprakash ¹ , Natkunam Ketheesan ^{1,3}	
The Role of Education in Shaping Future Biodiversity Stewards	33
Kathleen Murphy ¹ , Navjot Bhullar ² , Wesley Leedham ³ , Heidi Kolkert ¹	
Citrulline Supplementation Improved Egg Mass and Bone Strength in Aged Laying Hens Fed a Reduced Protein Diet	34
A. Nawab ¹ , T.H. Dao ^{1,2} , Sukirno ¹ , Nasima Akter ¹ , C. Tamsyn ³ , A.F. Moss ^{1,3}	
Exploring Subjectivity through Q Methodology	35
Victoria Norford ¹ , A/Prof Leonardo Veliz ¹ , A/Prof Helen Harper ¹ , Dr Carly Steele ²	
Autoethnographic Reflections: Linking Early Educators' Burnout and Feeling Overwhelmed to Emotional Intelligence	37
Elysia Phillips ¹	

Supply Chain Finance: A Collaborative Approach to SMEs Sustainability in Ghana	38
Joseph Quartey ¹ , Priyantha Mudalige ¹ , George S. Chen ¹	
Effect of seed storage conditions on the germination of <i>Stellaria media</i> and <i>S. pallida</i>.	39
Dinusha Debarawatta ¹ , Brian Sindel ¹ , Paul Kristiansen ¹	
Factors Affecting Routine Healthcare Check-Ups by Female Sex Workers in Bangladesh	40
Shaharior Rahman Razu ¹ , Kim Usher ¹ , Rikki Jones ¹ , Md Shahidul Islam ¹	
Genetic Background and Selection Strategies for Reducing Tail Biting in Pigs: A Scoping Review. 41	
A.A. Reda ^{1,2} , P.M Gurman ¹ , S. Hermesch ^{1,3} , M.N. Aldridge ¹	
'Cultural Marxism': Global Conspiracies and Australian Politics	42
Steph Rey ¹	
Multimodal Visual Fables as Pedagogy for Second Language Vocabulary Acquisition	43
Anna-Olimpia Rosenblum ¹	
A Machine – Human Model: For Improving Workplace Safety	44
Divya Sukumar ¹ , Ljiljana Brankovic ¹ , Sujana Adapa ¹ , Shan Chen ² , Stephan Chalup ³	
Bhutanese Teacher Educators' Attitudes Towards Information and Communication Technology Acceptance and use in Teaching: Implications for Rural Developing Countries	45
Tshering ¹	
Justice of Geography: Legal Services and Justice in Western NSW	46
Patricia Vagg ¹	
Pigs Being Tail-bitten: Genetics, Environments, and Interactions.	47
Dirk van Winden ¹ , R.Y. Galea ² , Bernadett Hegedűs ^{3,4} , Phillip Gurman ¹ , Susanne Hermesch ^{1,5} , Michael Aldridge ¹	
Challenges and Opportunities for Integrating Traditional Healing Approaches with Biomedical Care for Mental Illness: A Scoping Review from Healers' Perspectives	48
Alemayehu Molla Wollie ^{1,3} , Kim Usher ¹ , Kylie Rice ² , Md Shahidul Islam ¹	
Exploring Global Perspectives on Determinants of AI Acceptance in Healthcare.	49
Usman Yousaf ¹ , Shahidul Islam ¹ , Karl Robert ¹ , Judy Humphries ¹ , Fareed Ud Din ¹	

Acknowledgement from the Acting Dean Graduate Research



The Research Pathways Conference was held on 15-16 October 2025 at the University of New England.

This year's conference was a celebration of research excellence and innovation at UNE. We were privileged to hear from two engaging keynote speakers who inspired the audience, and to receive a special address from UNE's Pro Vice-Chancellor Indigenous, which enriched our understanding of Indigenous research. Two panel discussions featured postgraduate candidates at various stages of their research journey, from current students to PhD graduates. They shared invaluable insights and practical advice for navigating every phase of postgraduate study.

I extend my sincere thanks and congratulations to the 43 emerging researchers who presented their work. Your contributions demonstrate the depth and diversity of research being undertaken across our institution.

The conference's success was evident in the strong attendance, with over 100 attendees joining us on campus and more than 35 attending online. This level of engagement reflects the vibrant research culture that we have at UNE.

Thank you everyone who contributed to making the Research Pathways Conference such an outstanding success.

Professor David Miron
Acting Dean Graduate Research
Graduate Research School
University of New England

Organisers

Dr Prash Goundar – Conference Convenor
Amanda Rose – Conference Organiser
Michael Hoult – Online Support (Zoom)
Thank you to all the Graduate Research School staff for their help and support.

Conference Committee

This included Abstract Review, attending regular committee meetings, sharing of ideas and providing feedback

Abigail Addo-Danso
Sayed Ahmed
Julie Clark
Susantha Dissanayake

Sponsors



A Message from the Conference Convenor



This year's Research Pathways Conference was an inspiring and vibrant event held under the theme "Exploring Global Perspectives." The conference brought together a diverse community of scholars to exchange ideas, challenge assumptions, and celebrate the breadth of research undertaken across the three faculties at the University of New England — the Faculty of Humanities, Arts, Social Sciences and Education; the Faculty of Science, Agriculture, Business and Law; and the Faculty of Medicine and Health.

We were delighted to welcome over 100 attendees on campus and more than 35 online, including 43 presenters, Higher Degree Research (HDR) candidates, early career researchers, and academic staff. Our distinguished keynote speakers

included Professor Emerita Raewyn Connell—University of Sydney, Professor Peter Anderson, and Professor Renato Andrin (Rene) Villano from UNE who delivered thought-provoking presentations that reflected the conference theme, offering critical insights into global issues of education, social justice, research practice, and prospects for HDRs.

The program also featured two engaging panel discussions: one organised by the Graduate Research School, focusing on the UNE HDR Experience, research leadership and collaboration, and another hosted by the UNE Postgraduate Student Society, which highlighted the PhD journey, challenges, opportunities and success stories.

We gratefully acknowledge the supervisors of HDR candidates who attended to support their students, contributing to the collegial and intellectually enriching atmosphere. With participants travelling from Melbourne, Sydney, Brisbane, and the Gold Coast, the conference truly embodied the spirit of global engagement and scholarly community that defines UNE's research culture.

We extend our sincere gratitude to all presenters, attendees, the Graduate Research School and the RPC Committee whose dedication and enthusiasm made the 2025 Research Pathways Conference a resounding success.

Dr Prashneel Goundar
Convenor—Research Pathways Conference
Graduate Research School
University of New England

Session Chairs

Associate Professor Nam Hoang
Dr Prash Goundar
Dr Bernadine Cocks
Associate Professor Kylie Rice
Ms Lisa Ward
Associate Professor Leonardo Veliz Dr Sara de Las Heras-Saldana
Professor David Miron
Sayed Ahmed
Jon Clay
Dr Emilio Morales
Dr Andrew Lawson

Keynote Speakers

DAY ONE: Professor Emerita Raewyn Connell

Keynote Title: "Research-Based Knowledge: Exploring Global Perspectives"



Professor Emerita Raewyn Connell is Professor Emerita at the University of Sydney and Life Member of the National Tertiary Education Union in Australia. Born in Australia, she was foundation Professor of Sociology at Macquarie University, Sydney 1976-91, Professor of Sociology at University of California Santa Cruz 1993-95, Professor of Education and University Professor at University of Sydney 1996-2013. She is a widely-cited researcher on gender relations, education, class structure, social justice, and the global economy of knowledge. Her books include *The Good University*; *Southern Theory*; *Masculinities*; *Gender & Power*; *Making the Difference*; and *Ruling Class Ruling Culture*; her work has been translated into twenty-four languages. She has received the American Sociological Association's Jessie Bernard

Award and the International Sociological Association's quadrennial Award for Excellence in Research and Practice. She has been involved in work for gender equality, in the labour movement, and in the unending struggle for peace.

DAY TWO: Professor Rene Andrin Villano

Keynote Title: "Beyond Boundaries: Research Pathways to Global Relevance"



Professor Renato Andrin (Rene) Villano is Professor of Economics and Interim Head of the UNE Business School at the University of New England, Australia. A Distinguished Fellow of the Australasian Agricultural and Resource Economics Society (AARES), Rene is recognised for his expertise in multi- and inter-disciplinary research and teaching, spanning applied econometrics and data analytics, agricultural economics, and development policy. His work has led him across Asia and Africa, advancing projects that drive agricultural innovation, strengthen supply chains, and improve rural livelihoods. A widely published author and committed mentor, Rene is dedicated to empowering the next generation of scholars and delivering evidence-based research with global impact.

SPECIAL ADDRESS: Professor Peter Anderson

Title: Navigating Ethical Frontiers in Indigenous Research: Indigenous Rights-Based Methodologies



Professor Peter Anderson is the Pro Vice Chancellor Indigenous, UNE. He is from the Walpiri and Murinpatha nations in the Northern Territory. He researches in the area of Indigenous education and educational systems and its relationship with indigenous peoples globally. Within the Australian context he examines the protocols of engagement with Aboriginal and Torres Strait Islander peoples in educational settings.

Author of Peter Anderson , Levon Blue , Thu Pham , Melanie Saward (2022), "Higher Degree by Research: Factors for Indigenous Student Success" , <https://link.springer.com/book/10.1007/978-981-19-5178-7>

Panel Discussions

DAY ONE - The UNE HDR Experience



Wayne Arnold is originally from the Gold Coast but recently completed his PhD in Neuroscience at UNE. His research aimed to improve our understanding of 'camouflaging' or 'masking', in autistic people. This was done by offering alternative theoretical perspectives, and by developing a new psychometric scale to measure this behaviour.



Elizabeth Chappell completed her PhD (Creative Practice) at the University of New England, Armidale, Australia, in 2024. Her doctoral project reimagined the life of early Australian feminist and political activist, Catherine Spence. At the confluence of history and fiction, this reflects her special interest in recovering life stories of women from Australia's colonial past. She holds a BA (Communication) from UTS and a MA (Writing) from UNE and has had a long career in journalism, working for women's magazines and regional newspapers. She is the author of *Celebrate the Seasons: Garden Memoirs of New England*. Her scholarly articles have been published in *TEXT Journal*, *Rethinking History* and *Baptist Quarterly*.



Joseph Quartey is an Accountant by profession, a member of the Association of Chartered Certified Accountants (ACCA UK) and the Institute of Chartered Accountants Ghana (ICA-Ghana). Joseph holds a Master of Science degree from Coventry University, UK. He has over 15 years of industry experience in the cocoa marketing, financial accounting, and auditing processes. He is passionate about bringing his industry experience into Academia, contributing to the advancement of knowledge through teaching and research. His research focus is on supply chain financing for SMEs in emerging economies.



Yaser Fazel is a last-year PhD student at the Animal Genetics and Breeding Unit at UNE, working on Genomic Prediction of the Australian Beef Industry. He was a university lecturer in Afghanistan, teaching bachelor's students for 10 years before coming to Australia. He has a number of publications and a deep interest in genetics, biochemistry, data science, and programming.



Erin Smith submitted her PhD thesis titled "Examining the genetic variance of resilience in sheep using wool fibre diameter variability" in June of 2025. Previous to this, she completed a Bachelor of Rural Science Honours in 2021 and now works as a research fellow within the Animal Genetics and Breeding Unit here in Armidale.

DAY TWO - Navigating the PhD Journey: Challenges, Opportunities, and Success Stories

Hosted by the UNE Postgraduate Students Society



Nivetha Sivarajah (Facilitator) is a PhD student at the University of New England, Australia, researching microplastic pollution in agricultural soils. Her work focuses on developing and optimising methodology to extract microplastics from agricultural soils, aiming to understand their distribution in soil and potential impacts on plants. She completed her Bachelor of Science at the University of Jaffna, Sri Lanka. Alongside her PhD, Nivetha serves as the President of the UNE Postgraduate Student Society, a Resident Leader at Wright College, and the International Student Representative in the UNE Student Council. She was recently awarded the Wright Citizen of the Year for her contributions to Wright College and the wider UNE community.



Elandri de Bruyn was born in South Africa, where she completed her Bachelor's and Master's degrees in Animal Science, specializing in Animal Physiology and Productivity, at the University of Pretoria. She spent four years working in the beef cattle industry, holding both technical and executive roles in South Africa and with an international organisation. During this time, she contributed to key initiatives supporting the development of the South African beef industry. In 2023, Elandri began her doctoral studies with the Animal Genetics and Breeding Unit (AGBU) at the University of New England (UNE). Alongside her PhD research, she serves as the AGBU Student Representative and as Vice-President of UNE MOSAIC, a newly established club that supports and connects international students at UNE.



Professor Natkunam Ketheesan is an academic researcher and educator with over 25 years of experience across the traditional pillars of academia – research, research training, teaching, and service. He completed his high school studies at St. John's College, Sri Lanka and later undertook his undergraduate education at the Vinnitsa State Medical University, Ukraine. After obtaining his MSc in Clinical Immunology and PhD at the University of Leeds, he held combined academic and research positions at universities of Leeds, Western Australia, Queensland and at James Cook University before joining UNE in 2018. Ketheesan's research focus is on investigating immune complications of bacterial infections enabling the development of strategies to better combat these diseases. He has supervised to completion over 50 Honours, Masters and PhD students.



Dr Leah Macdonald is currently an Assistant Director of Residues and Trade - Agricultural Chemicals at the Australian Pesticides and Veterinary Medicines Authority (APVMA). She joined the APVMA in 2018, the same year in which she received her PhD (Title: Metal Complexes and their Role in Wine Chemistry) from UNE. Leah works as a regulatory scientist, which involves assessing pesticide residue data and making recommendations regarding consumer safety and trade risk. Leah has also recently begun serving as an expert on the United Nations FAO/WHO Joint Meeting on Pesticide Residues.



Victoria Norford is an online PhD candidate in the School of Education. She is a graduate of UNE's online Master of Applied Linguistics and also holds a Bachelor of Arts with a double major in English Literature and French, a Diploma in Education, and a Graduate Certificate in TESOL. Her research focuses on plurilingualism, heritage language education, inclusive pedagogical approaches and Q methodology. She is an experienced secondary school teacher of French, English and English as an additional language or dialect. She is an Accredited Linguist with the Australian Linguistic Society and a member of the Q Down Under research group. Victoria was

recently awarded 2025 Secretary of the Year by UNE Life for her service in the Postgraduate Student Society, a role she undertook remotely from Sydney. In this role she has worked to improve the experience of online students by facilitating online networking events, and face-to-face networking and study sessions at the Sydney campus, creating opportunities for online students to build community and connect with others.

Abstracts

(in alphabetical order by surname)

Informal Religion: Ethno-Religious Minorities' Contribution in the Spiritual Context of Sylhet City, Bangladesh

Sayed Ahmed¹, Stephen Wood², Sonya Glavac³, Sanaz Alian³

¹ *PhD student, Geography and planning, UNE*

² *Ex-Associate Professor, Geography and planning, UNE*

³ *Lecturer, Geography and planning, UNE*

Sylhet has a unique blend of Muslim and Hindu traditions; such deviation is rooted in Buddhist heritage and the rich folk culture of Bengal. Surprisingly, such a mix creates cooperation rather than conflict between the two mainstream religions. As a consequence, Sylhet's urban places are also influenced by the integration of cultural attributes, practices, and events, and the presence of sacred symbols is felt everywhere. However, despite extensive research on urban morphology and religion separately, there is very limited literature to capture religious perceptions and experiences in urban spaces from the same platform, or it has never been highlighted before. These 'leaky' relationships are often overlooked by Western researchers due to operationalism and functionalism, as they are not hopeful about the future of religion. But this research aims to fill that existing gap using the very Western sociological and philosophical tools (mainly Baudrillard). The research aims to map key streets' religious 'dissonances' in the city, including festival trajectories, local experiences, economic contributions, and blurred boundaries between sacred and profane activities. Four case studies will be selected to capture socio-political hegemony, image-making quality, and interaction with urban public spaces, where interviews with inhabitants about religious sites will be conducted, coded, and compared accordingly. The possible findings might show how Sylhet's elites and politicians patronise this informal religion, which is productive, creative, and profitable for its socio-economic contribution, though it is challenged or even denied by the rising influence of fundamentalists who identify it as profane from the framework of conventional religion and theological practice and for the presence of forbidden activities, meaning the sacred cannot survive without the profane. Informal religion, if regarded as profane, still is an effective catalyst, not a parasite.

Keywords: Sylhet, Religion, Urban morphology, Symbolic exchange, Baudrillard.

The Permaculture Movement and the Global South

Anuradha Alahakoon¹, Bertram Jenkins², Rhiannon Smith³, Nick Reid⁴

¹ *PhD student, Ecosystem Management, School of Environmental and Rural Science, UNE.*

² *Adjunct Senior Lecturer, School of Humanities, Arts and Social Sciences, UNE.*

³ *Senior Lecturer, Ecosystem Management, School of Environmental and Rural Science, UNE.*

⁴ *Emeritus Professor Ecosystem Management, School of Environmental and Rural Science, UNE.*

To address the environmental impact of conventional western industrialised resource-intensive agriculture, researchers are exploring alternative eco-friendly agrarian methods. Agroecological movements are vehicles for such a transition. Permaculture is an agroecological movement originating in Tasmania in the mid-1970s. Its founders, Bill Mollison and David Holmgren, coined the term 'permaculture' to describe permanent agriculture. Permaculture is a design system based on ethics and principles creating agricultural settings for human communities that mimic natural patterns. Permaculture has spread to over 45 countries.

While permaculture is gaining popularity in society and academia, it has also been criticised. According to critics, it remains a global north movement with colonising middle-class 'white man' roots, and barriers, albeit unintentional, to inclusivity, gender diversity and ethnic minorities. A failure to properly acknowledge the traditional knowledges, which permaculture draws and is based upon, and loss of its aggressive grassroots authenticity when operating in capitalist societies are additional criticisms.

'Southern theory', which stresses the need to listen to voices at the periphery, offers answers to some of the criticisms. Embracing ideas such as 'principle zero', which originated with practitioners in the global south, can improve acceptance of permaculture in different cultural settings. The first permaculture principle, 'observe and interact', can also be a starting point to engage with and gain respect of global south communities, by not only observing and mimicking local patterns in Nature but also by observing, respecting and integrating with the socio-cultural beliefs and customs and economic mores in different social-ecological systems.

Keywords: permaculture, southern theory, agroecological movements

Predicting Dropout and Relapse in Addiction Recovery Using AI

Nicholas Bowditch¹, Elizabeth Temple², Bernadine Cocks³

^{1,2,3} *University of New England*

Substance use disorder (SUD) treatment remains limited by high rates of dropout and relapse following initial care. This study addresses a critical gap in addiction recovery: the inability to predict in real time who is most at risk of disengagement and recurrence. The current research is a longitudinal digital phenotyping study using SHARON (Structured Hybrid Analysis of Recovery Outcomes using NLP), a machine learning model designed to predict dropout and relapse in participants following SUD treatment. Over 13 weeks, multimodal data is collected from participants exiting structured treatment. This included psychometric scales (DTCQ-8, SOCRATES, BAM-R), digital behaviour data (via the AWARE-Light app), and weekly language samples (voicenote submission transcripts). SHARON integrates these data to generate dynamic risk predictions and interpretability outputs. The model has been evaluated on its predictive accuracy, bias across demographic groups, and clinician usability. Early results with synthetic data demonstrate that SHARON predicted both dropout and relapse with high accuracy ($F1 > 0.99$) and retained performance even when certain modalities (e.g., psychometric scales) were unavailable. Explainability methods were incorporated to support ethical accountability and clinical transparency. This study contributes original insight into how ethical, interpretable AI can extend structured recovery engagement (SRE) and improve outcomes in post-treatment care. This research aligns with themes of AI in mental health and ethical digital intervention. It offers both technical innovation and practical clinical application, making it relevant to researchers, clinicians, and policymakers both nationally and internationally who are interested in reducing relapse risk and supporting sustained recovery. This research is supported by an Australian Government RTP Scholarship.

Keywords: addiction recovery, dropout prediction, relapse, digital phenotyping, interpretable AI

Australian Validation of the Universal Mental Health Literacy Scale for Adolescents

Julie. C. Clark¹, Warren Bartik², and Kylie Rice^{1,2}

¹*School of Psychology, University of New England*

²*Faculty of Medicine and Health, University of New England*

Through this presentation audience members will gain insight into the importance of being able to accurately compare global perspectives, and the methodology behind validating a questionnaire to ensure psychometrically sound measurement. To illustrate these objectives this presentation draws from recent research which validated a mental health literacy (MHL) measure.

In order to support mental health help-seeking for Australian adolescents it is imperative to understand and improve their MHL. MHL measures are required to identify MHL needs and to evaluate MHL interventions; however, a standardised MHL measure is yet to be validated for Australian adolescents. The current study aimed to validate the Universal Mental Health Literacy Scale for Adolescents (UMHL-A) with Australian adolescents.

Participants were recruited through a national recruitment company and included 402 Australian youth, 15-to-18-years-old. First, the factor structure of the UMHL-A was evaluated through confirmatory factor analysis. Second, reliability was assessed through internal consistency and item-total score reliability. Finally, convergent and divergent validity were appraised.

Confirmatory factor analysis validated the structure of the UMHL-A with good fit indices for the four factors of help-seeking efficacy, stigma, knowledge of mental health, and knowledge of mental illness. Moreover, adequate reliability, convergent and divergent validity were demonstrated.

This evaluation of the UMHL-A enables theoretically grounded and psychometrically validated measurement of MHL with Australian adolescents. UMHL-A has widespread application in research and practice, for clinicians, schools, mental health services and government policies. The presentation regarding this research will highlight how the UMHL-A facilitates valid measurement of MHL with Australian adolescents and reliable comparison with global MHL perspectives.

Keywords: Validation, Adolescent, Mental Health Literacy, Australian, UMHL-A

Reference: Clark, J. C., Bartik, W., & Rice, K. (2025). Australian validation of the Universal Mental Health Literacy Scale for Adolescents. *Australian Journal of Psychology*, 77(1). <https://doi.org/10.1080/00049530.2025.2555651>

Funding Support: Julie C. Clark is a recipient of the Australian Government Research Training Program Stipend and Fee Offset Scholarship.

Determinants of Resilience in Global Undergraduate Students: Systematic Review

Tilahun Abdeta^{1,2}, Rikki Jones¹, Kim Usher¹, Md. Shahidul Islam¹

¹*Faculty of Medicine and Health, School of Health, University of New England, Armidale, NSW 2351, Australia*

²*College of Health and Medical Sciences, Psychiatry Department, Haramaya University, 138 Dire Dawa, Ethiopia*

Resilience enables students to cope with psychological distress which is common in university settings and supports motivation, persistence, and performance, leading to improved retention and academic outcomes. Identifying factors that influence resilience can guide strategies to support student well-being. This review aimed to identify factors associated with resilience among undergraduate higher education students globally. English-language articles were searched from 6 electronic databases including EMBASE, ERIC, PsycINFO, PubMed, Scopus, and Web of Science. Reference lists of included studies were also screened. Study quality was assessed using the mixed methods appraisal tool, and findings were synthesized narratively. This review included 16 studies from an initial pool of 2,346 articles. The identified factors were categorized into three groups: protective factors, risk factors, and those showing no significant association with resilience. Protective factors identified were higher socioeconomic status, adequate sleep, strong friendships, and perceived strong support from friends, high self-esteem, good self-rated health, high levels of perceived self-efficacy, mindfulness, and active coping. Stress and repeated negative thinking were risk factors. Gender, age, faculty of study, and smoking showed no significant association. This global systematic review found that resilience among undergraduate students is strongly influenced by psychosocial and behavioural factors rather than demographics. Universities should promote resilience by strengthening peer support networks, offering stress management and mindfulness programs, and addressing socioeconomic disparities through targeted support. Future research is needed to evaluate the long-term effectiveness of such interventions across diverse cultural and educational contexts. First author receives Australian Government RTP International Stipend Scholarship for doctoral studies.

Keywords: Resilience, Determinants, Undergraduate Students, Global

Measuring Fiscal Sustainability: A Novel Multidimensional Index, a Developed Country Perspective

Susantha Dissanayake¹, Priyantha Mudalige², Nam Hoang³, Shawn Leu⁴, George Chen⁵

^{1,2,3,4,5} UNE Business School, University of New England, Armidale NSW 2351 Australia

Achieving fiscal sustainability (FS) for a country is complex and challenging. Inappropriate expenditure patterns and instability in macroeconomic variables can adversely impact fiscal sustainability. A deteriorated position in fiscal sustainability increases the risk of economic crises, insolvency, or debt default (Terzi, 2023).

This study constructed a novel composite Fiscal Sustainability Index (FSI) using nine macroeconomic variables to measure fiscal sustainability. By construction, the FSI indicates stronger fiscal sustainability levels as the index approaches zero, while values close to one signify weaker fiscal sustainability. We applied the new index to 37 OECD countries over 29 years and found interesting results.

The findings indicate that during the COVID-19 crisis, the fiscal sustainability of most OECD countries was significantly weaker than before, and it is much weaker in comparison to the 2008 global financial crisis. The main factors influencing fiscal sustainability are government expenditure, external debt stock, and the GDP growth rate. We find our results are consistent with the fiscal sustainability status of sample countries, indicating the FSI as a robust tool for measuring the fiscal sustainability of any country. Additionally, the FSI provides helpful information for practitioners, researchers, and policymakers.

Keywords: fiscal sustainability, index, OECD countries

References

- Alkire, S., Kanagaratnam, U., Nogales, R., & Suppa, N. (2022). Revising the Global Multidimensional Poverty Index: Empirical Insights and Robustness. *Review of Income and Wealth*, 68, S347-S384. doi.org/10.1111/roiw.12573
- Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2010). *Multivariate data analysis* (7th ed.). Prentice-Hall.
- Kayal, T. K. (2023). *Index Construction Using Principal Component Analysis: An Application in Primary Education in India*. *Sage Research Methods Cases Part 1*. Sage Research Methods Cases. 2455 Teller Road Thousand Oaks, CA 91320. doi.org/10.4135/9781529627473
- Schmid, C. B., Cook, R., & Jones, L. (2023). Measuring Gender Inequality in Great Britain: Proposal for a Subnational Gender Inequality Index. *Social Politics: International Studies in Gender, State & Society*, Volume 30, Issue 2, Pages 580–606. doi.org/10.1093/sp/jxac005
- Svirydzhenka, K. (2016). Introducing a new broad-based index of financial development. *International Monetary Fund*. Retrieved from <https://www.imf.org/en/Publications/WP/Issues/2016/12/31/Introducing-a-New-Broad-based-Index-of-Financial-Development-43621>
- Terzi, A. (2023). Fiscal sustainability under a paper standard: two paradigms. *Journal of Post Keynesian Economics*, 46(1), 1-31. doi.org/10.1080/01603477.2022.2144383

Population Ageing: Implications for Economic Growth and Fiscal Sustainability

Susantha Dissanayake¹, Priyantha Mudalige², Nam Hoang³, Shawn Leu⁴, George Chen⁵

^{1,2,3,4,5} *UNE Business School, University of New England, Armidale NSW 2351 Australia*

Globally, the issue of population ageing is becoming increasingly prominent, presenting significant challenges to economic growth and, consequently, fiscal sustainability. However, previous studies have often failed to provide a clear numerical measure of fiscal sustainability (Honda and Miyamoto, 2020; Lopreite and Zhu, 2020; Mamun, Rahman, and Khanam, 2020; Temsumrit, 2023). To address this gap, the newly introduced fiscal sustainability index (FSI) offers a viable solution.

This study aims to assess the impact of population ageing on economic growth by collecting annual data from thirty-seven OECD countries spanning the years 1995 to 2023. The findings of this study are as follows: 1) Population ageing has a significant negative effect on economic growth; 2) Fiscal sustainability mitigates the negative effects of population ageing on economic growth by 7.17%, indicating that it plays a moderating role in this context; 3) While population ageing hinders economic growth, this effect can be offset by higher labour force participation, with the participation rate in the labour force also serving as a moderating factor.

This study offers new insights into how population ageing affects economic growth and provides essential empirical evidence for developing targeted sustainable development goals for OECD countries.

Keywords: Population ageing, economic growth, fiscal sustainability

References

- Aiyar, M. S., & Ebeke, M. C. H. (2017). The impact of workforce aging on European productivity. International Monetary Fund.
- Brändle, T., Bruchez, P. A., Colombier, C., Baur, M., & Hohl, L. (2022). Do the COVID-19 Crisis, Ageing and Climate Change Put Swiss Fiscal Sustainability at Risk? *Intereconomics*, 57(1), 48-55. DOI: 10.1007/s10272-022-1027-8
- Chen, F.M., Mao, S., & Huang, R. (2024). Age structure of the population and household consumption expenditure on tourism. *Finance Research Letters*, 60, 104896. <https://doi.org/10.1016/j.frl.2023.104896>.
- Daniele, F., Honiden, T., & Lembcke, A. C. (2019). Ageing and productivity growth in OECD regions: Combatting the economic impact of ageing through productivity growth? *OECD Regional Development Papers*, 2019(8), 0_1-58.
- Honda, M. J., & Miyamoto, H. (2020). Would population aging change the output effects of fiscal policy? International Monetary Fund.
- Lopreite, M., & Zhu, Z. (2020). The effects of ageing population on health expenditure and economic growth in China: a Bayesian-VAR approach. *Social science & medicine*, 265, 113513. <https://doi.org/10.1016/j.socscimed.2020.113513>
- Maestas, N., Mullen, K. J., & Powell, D. (2023). The effect of population aging on economic growth, the labor force, and productivity. *American Economic Journal: Macroeconomics*, 15(2), 306-332. DOI: 10.1257/mac.20190196
- Mamun, S. A. K., Rahman, M. M., & Khanam, R. (2020). The relation between an ageing population and economic growth in Bangladesh: Evidence from an endogenous growth model. *Economic Analysis and Policy*, 66, 14-25. <https://doi.org/10.1016/j.eap.2020.02.001>

Temsumrit, N. (2023). Can aging population affect economic growth through the channel of government spending? *Heliyon*, 9(9).

Wen, H., Shang, J., & Nghiem, X. H. (2025). Does artificial intelligence matter for the population aging-inclusive growth nexus? International evidence. *Telecommunications Policy*, 102932. <https://doi.org/10.1016/j.telpol.2025.102932>

Fostering Green Innovation: How Patent Law Incentivises Shape Technological Development in the Green Economy

Elham Ghaffarian¹

¹*UNE, School of Law*

Drying wetlands, lakes, rivers, water scarcity, biodiversity loss, deforestation, salinization, desertification, pollution, ocean acidification, or depletion of natural resources, are the signs of human selfishness and ego for a better and wealthy life. The question is that does economic development worth sacrificing our planet for the short deserves? Nations started to ask this question, after the global financial crisis during 2008-2009, and it has been elevated through the 2030 Agenda for Sustainable Development which is designed with 17 main goals to bring peace and prosperity for all people with respect to the environment. Growing sustainable development strategies emphasize the importance of the Green Economy concept. The green economy's central requirement is knowledge and technology which not only promote economic development processes but also be environmentally friendly. Intellectual property rights are one of the oldest yet controversial instruments used by nations for economic development as well as the protection environment. This research will examine the role of IP system, particularly the patent system, to response one of the global concern which is green economic development.

Keywords: Green Economy, Intellectual Property Rights, Green Patents, Green Innovation Flow

The Relationship Between Social Anxiety and School Refusal in Australian Adolescents

Jenni Gilmour¹, Kylie Rice¹, Natasha Loi¹, Adam Rock¹, Ryan Davie¹

¹*University of New England*

Social anxiety is a condition known to worsen with social avoidance, and symptomology may have been exacerbated by the COVID-19 pandemic across the globe. A recent systematic review revealed that social anxiety increased in adolescents from before to during the pandemic in many countries; however, post-pandemic prevalence rates for Australian adolescents is yet to be determined. Social anxiety is a known predictor of school refusal, and school attendance rates have fallen across the globe since the COVID-19 pandemic. In 2023 the Australian Senate requested research into current predictors of school refusal in an effort to combat this growing problem. This study provides current social anxiety prevalence data and explores its link to school refusal from an Australian perspective for the first time. A nation-wide community sample of 315 Australian adolescents aged 11 to 17 and their parents were surveyed, with 26% found to have social anxiety symptoms in the clinically elevated range, a substantial increase from the previous community estimate of 3.4% in 2018. Furthermore, independent t test analyses revealed that adolescents with clinically-elevated social anxiety reported significantly higher school refusal on the School Refusal Assessment Scale-Revised than those below the clinical threshold, and were most likely to refuse school to avoid negative stimuli and aversive social situations according the functional model of school refusal. We propose that social anxiety should be routinely screened for and targeted for intervention by mental health clinicians, particularly those working with youth with school refusal.

Keywords: Social Anxiety, School Refusal, Adolescents, Australian

AI-Driven Innovation in Australian SMEs

Paul Girgis¹, Professor Sujana Adapa¹, Professor Renato Villano¹

¹*University of New England*

This study examines whether innovation through artificial intelligence (AI), web applications, and customer relationship management (CRM) systems can enhance the competitiveness of Australian small and medium enterprises (SMEs).

Drawing on the significance of SMEs—which account for over 97% of Australian businesses and contribute over 32% of GDP (Australian Small Business and Family Enterprise Ombudsman, 2020)—the research employs an action research methodology, integrating mixed-method data collection (built-in analytics, surveys, interviews) and iterative intervention cycles across diverse SMEs.

Findings demonstrate that accessible, low-cost AI-CRM-web-app suites improve operational efficiency, foster human-machine synergy, and stimulate novel management practices.

Conclusions are grounded in quantitative metrics (e.g., usage rates, cost reductions, customer engagement indices) and qualitative insights (e.g., staff perceptions, process adaptability), substantiating the efficacy of tailored innovation packages.

The study's original contribution lies in developing an integrated management theory that reconciles Diffusion of Innovations, Technology Acceptance Model, and Theory of Planned Behaviour, offering a scalable framework for sustaining SME digital transformation. This research addresses the conference theme of Digital Transformation in SMEs by providing empirical evidence and a practical toolkit for practitioners.

Keywords: Artificial Intelligence; SMEs; CRM Systems; Web-Apps; Action Research; Management Theory

Identifying Themes of Curiosity for Reading Materials in the Sri Lankan ESL University Context

Ruwan Gunawardane¹

¹University of New England

Inadequate English language proficiency of Sri Lankan undergraduates is a long-standing issue, largely ascribed to insufficient levels of intrinsic motivation to learn English. Curiosity – an intrinsic desire to know something – is proposed as an underutilized avenue, which if integrated into English language learning may enhance motivation and language learning success. However, language learning opportunities that are likely to inspire curiosity among Sri Lankan English language learners are not well-known. To fill this gap, Phase I of this mixed methods study involved administering an open-ended online questionnaire among 182 undergraduate English language learners to determine suitable themes associated with greatest levels of curiosity in reading. Data from Phase I was thematically analysed to procure six themes associated with highest levels of curiosity. Phase II entailed a sub-cohort of 103 students scoring a collection of 90 news articles, aligned with the six themes identified in Phase I, using a seven-option Likert scale. A non-validated curiosity instrument was used in this exploratory quantitative phase to gauge participants' responses to selected reading texts, with findings interpreted in light of the study's preliminary scope and methodological limitations. The data collected during Phase II was subject to a one-way repeated measures ANOVA and indicated that four themes had significantly higher mean curiosity scores than the other two themes. This study suggests a context-specific approach to identifying reading materials that may engage learner curiosity, particularly within the Sri Lankan university context.

Keywords: Curiosity, intrinsic motivation, reading material, contextualization, English as a second language

From Perception to Adaptation: Farmers' Responses to Climate Change in Bangladesh

Md Fazlul Haque¹, Renato Andrin (Rene) Villano², Omar Al Farooque³, Nam Hoang⁴

¹Associate Professor, Department of Economics, University of Rajshahi, Bangladesh, and PhD Fellow, UNE Business School, UNE Armidale NSW Australia 2351

²Professor of Economics, UNE Business School, UNE Armidale NSW Australia 2351

³Professor of Financial Accounting, E Business School, UNE Armidale NSW Australia 2351

⁴Associate Professor, UNE Business School, UNE Armidale NSW Australia 2351

This study examines the responses of rice-growing farmers to climate change in Bangladesh, underscoring the need for more effective adaptation policies. It examines their perceptions, adaptation strategies, challenges, and the socio-economic and institutional factors influencing their decisions. While national policies aim to improve climate resilience, understanding local dynamics is essential for successful implementation.

Using data from 150 farming households in Gurudaspur Upazila, Natore District, the research reveals that although farmers are aware of the climate impacts, their ability to adapt is limited by a lack of access to information, credit, and extension services, as well as low educational levels and inadequate infrastructure.

The findings indicate that 96.7% of farmers report more frequent floods, 85.3% experience reduced rainfall, and 83.3% notice higher temperatures. Almost all respondents (99.3%) say that farming is affected, with drought (85.3%) and heat (80.7%) being the main stressors. Many encountered significant barriers to adaptation, including shortages of fertilizers (96.7%), pesticides (92.7%), and seeds (86.7%). Approximately 30% of farmers have not adopted any climate adaptation strategies, while over 40% of those who have implemented strategies have adopted between one and three strategies, and nearly 68% have adopted between one and four strategies. Findings of farmers' climate adaptation behaviors demonstrate that economic capacity, climate knowledge, and institutional support are far more powerful influences on adaptive behaviour than demographic characteristics alone.

The study also examines how intra-household decision-making and climate shocks affect adaptive behaviours. The results aim to guide more effective adaptation policies and improve farmers' climate resilience in Bangladesh.

Keywords: Climate Adaptation, Farmers' Perception, Barriers to Adaptation, Bangladesh agriculture
References (optional)

Ahmed, Z., Guha, G. S., Shew, A. M., & Alam, G. M. (2021). Climate change risk perceptions and agricultural adaptation strategies in vulnerable riverine char islands of Bangladesh. *Land use policy*, 103, 105295.

Alam, G. M., Alam, K., & Mushtaq, S. (2017). Climate change perceptions and local adaptation strategies of hazard-prone rural households in Bangladesh. *Climate risk management*, 17, 52-63.

Aryal, J. P., Sapkota, T. B., Rahut, D. B., Krupnik, T. J., Shahrin, S., Jat, M. L., & Stirling, C. M. (2020). Major climate risks and adaptation strategies of smallholder farmers in coastal Bangladesh. *Environmental Management*, 66(1), 105-120.

Kabir, A., Hasan, M. M., Ahmed, B., & Islam, S. (2020). Climate change perception and adaptation strategies of southwest coastal Bangladesh. *American Scientific Research Journal for Engineering, Technology, and Sciences (ASRJETS)*, 66(1), 47-68.

Uddin, M. B. (2022). Perception of climate change in Bangladesh: Local beliefs, practices and responses. *International Journal of Anthropology and Ethnology*, 6(1), 12.

Uddin, M. N., Bokelmann, W., & Dunn, E. S. (2017). Determinants of farmers' perception of climate change: a case study from the coastal region of Bangladesh. *American Journal of Climate Change*, 6(1), 151-165.

Assessing Deep-sea Mining Activities' Compliance with the Environmental Protection Standards set forth by UNCLOS and Related Treaties

Brittany Hili¹

¹*University of New England*

This thesis critically evaluates the regulatory frameworks overseeing deep-sea mining. With a focus on the United Nations Convention on the Law of the Sea (UNCLOS) and the International Seabed Authority's (ISA) draft Exploitation Regulations, this research examines current deep-sea mining techniques and how they weigh up against the environmental protection provisions as set out by UNCLOS, the ISA and related treaties. It highlights the tension between industrial demand for minerals required for renewable energy technologies and the need to conserve the deep-sea bed in areas beyond national jurisdiction, emphasising the uncertainties of deep-sea ecosystems.

After considering the Exploitation Regulations, current exploration methods and future impacts on marine ecosystems, it advocates for a more adaptable and flexible legal framework that prioritises ecological integrity, guided by principles of international environmental law such as the precautionary principle and intergenerational equity. Furthermore, this thesis evaluates current governance frameworks, identifies regulatory gaps, and suggests reforms to enhance accountability and transparency.

In conclusion, this research reveals insufficient environmental protection measures and weak monitoring and compliance requirements, suggesting that the current regulatory frameworks could cause permanent harm and undermine global biodiversity conservation efforts.

This research aligns with the Research Pathways Conference's theme as it explores International Law in contexts beyond national jurisdiction. This alignment is strengthened by the ongoing global consultations on the Exploitation Regulations and rising calls for a moratorium, which highlight the international aspects of environmental governance and the need for comprehensive involvement in policy development.

Keywords: Deep-sea, mining, environmental, maritime.

Guiding the Guides: Peer Work Supervision in Mental Health

Liam Hodge¹, Tania Pearce¹, Sarah Wayland^{1,2}

¹*School of Health, Faculty of Medicine and Health, University of New England, Armidale, NSW, 2351, Australia*

²*School of Nursing, Midwifery and Social Sciences, Central Queensland University, Sydney, NSW 2000, Australia*

Peer Work, rooted in lived experience and underpinned by the principles of empowerment, mutuality, and recovery, has become an essential element of mental health services both in Australia and internationally. Despite its increasing prominence, Peer Work continues to lack a clearly defined supervision framework that aligns with its distinctive ethos.

To support the continued development of this vital workforce, the National Lived Experience (Peer) Workforce Development Guidelines were introduced, representing a foundational step in articulating the role of Peer Workers within the mental health sector. Prior to this, Peer Workers were frequently marginalised and disconnected from the broader system, encountering numerous systemic and structural challenges. Many of these challenges persist in the current landscape.

While supervision is widely acknowledged as a cornerstone of professional practice across health and mental health disciplines, access to appropriate supervision remains limited for Peer Workers. Both research and practice consistently demonstrate that supervision is critical to the development, wellbeing, and sustainability of the mental health workforce. This raises an important question: why are Peer Workers so often excluded from, or provided with inadequate, supervision that supports their growth and longevity?

At present, there is no formal accreditation process or established model of supervision tailored specifically to Peer Work. Through a combination of scoping reviews, qualitative research, and consultation with advisory groups, the authors are seeking to build an evidence base that can inform meaningful change within the sector.

Keywords: Peer Work, Supervision, Mental Health, Lived Experience

There are no funding sources to declare.

The Legal Status of Rohingya Refugees in Indonesia: Between Humanitarian Response and Legal uncertainty

Aisyah Wardatul Jannah¹

¹ *University of New England*

The massive wave of Rohingya who came to Indonesia occurred in the end of 2023 and continues to this day through the maritime route. At first the Indonesian government firmly reject their arrival through the migration law Number 6 year 2011 which confirm that they are unauthorized immigrant. However, the customary law in Aceh bound the society to accept them through the role of panglima laot which believe that “everyone who stranded in the sea must be rescued or it will put them in misfortune if they are not doing so”. This customary obligation ultimately influenced the issuance of Presidential Regulation No 125 year of 2016 for the first time as a legal mechanism to assist the refugee who came to Indonesia. However, Indonesia is not ratifying the 1951 convention and remains to show no intention to ratify them. So, what will happen if Indonesia ratify this convention? Until today, the Rohingya is recognize as asylum seeker, UNHCR stated that they hold a refugee rights, other regulation stated that they are unauthorized immigrant, and the international framework recognize them as stateless population. In order to determine their rights, then it should come up with their legal status first. This research is doctoral research and currently in its early stages, the research will use socio legal approach grounded in legal pluralism to explore the intersection between state law, international law, and customary law in defining the legal status and rights of Rohingya refugees in Indonesia.

Keywords: Rohingya, Refugee, Panglima Laot

Leveraging Sentinel-2 for Field-Scale Nitrogen Estimation in Australian Rice Fields

Sunil Kumar Jha¹, James Brinkhoff¹, Andrew J. Robson¹, Brian W. Dunn²

¹*Applied Agricultural Remote Sensing Centre, University of New England, Armidale, NSW 2351, Australia*

²*Department of Primary Industries and Regional Development, Yanco, NSW 2703, Australia*

Effective nitrogen (N) management is critical for optimizing rice production. This study utilized Sentinel-2 (S2) spectral bands and vegetation indices (VIs) to predict N uptake at panicle initiation (PI) in Australian rice fields using data from 2022 to 2024 ($n = 238$). We employed various regression models—including linear, ridge, lasso, elastic net, random forest, and XGBoost—to validate predictions across seasons, locations, and field types (experimental and commercial). The results indicated that the normalized difference red edge index $(NDRE1 + NDRE2)^2$ was an effective predictor when combined with the linear regression model, achieving root mean square errors (RMSEs) ranging from 18.6 to 28.2 kg/ha ($R^2: 0.6-0.75$) across the three test years. Notably, the linear regression model performed slightly better than all other machine learning models tested, demonstrating both simplicity and robustness. Models trained on commercial fields predicted experimental fields with an RMSE of 22.36 kg/ha ($R^2 = 0.67$), while the reverse yielded an RMSE of 30.98 kg/ha ($R^2 = 0.36$). Location wise validation showed RMSEs ranging from 23.88 kg/ha to 26.13 kg/ha, with corresponding R^2 values of -0.18 to 0.70. These findings underscore that $(NDRE1 + NDRE2)^2$, combined with linear regression, can be effectively utilized for field-scale N monitoring.

Keywords: Nitrogen Uptake, Panicle initiation, Remote Sensing, Rice Nitrogen

Patients' Decision-making on Antibiotic Use for Acute Respiratory Tract Infections in a Primary Healthcare Setting in Ethiopia: The Role of Antimicrobial Resistance Knowledge, Concerns, and Previous Antibiotic Use Experience

Gashaw Enbiyale Kasse^{1,2}, Judy Humphries¹, Suzanne M. Cosh³, Md Shahidul Islam¹

¹*School of Health, Faculty of Medicine and Health, University of New England, Armidale, 2351, Australia*

²*Department of Clinical Medicine, College of Veterinary Medicine and Animal Science, University of Gondar, 196, Gondar, Ethiopia.*

³*School of Psychology, Faculty of Medicine and Health, University of New England, Armidale, 2351, Australia.*

Antimicrobial resistance (AMR) is a major global health threat caused largely by antibiotic misuse and misunderstandings about resistance. This study investigated patients' prior antibiotic use, their awareness and concerns about resistance, and how these factors influence decisions to use antibiotics for acute respiratory infections.

A multicenter cross-sectional study was conducted from February 2024 to July 2024 among outpatients aged 18 and above with acute respiratory tract infections at primary healthcare facilities. Data were collected via structured face-to-face interviews, and multivariable logistic regression analyzed how previous antibiotic use, AMR awareness, and concerns influenced antibiotic use decisions for ARTIs.

The study involved 420 participants from seven primary healthcare centres. It found that 57.4% used antibiotics without a prescription, 55.2% stopped early, and 50.5% shared them in the past year. While 76% had heard of "AMR," 33.8% showed low awareness, and 34.3% were unconcerned if antibiotics were used correctly. Misuse of antibiotics for ARTIs was more likely among those using antibiotics without prescriptions (OR = 4.23, $p < .001$), sharing antibiotics (OR = 6.38, $p < .001$), having low AMR awareness (OR = 3.13, $p < .001$), or lacking concern about AMR (OR = 2.48, $p < .001$).

Most participants knew of AMR but had significant knowledge gaps. Antibiotic use without prescriptions was common, especially for ARTIs. Targeted health education and stronger regulation are essential to promote responsible use and curb AMR.

This research highlights the critical role of patients' prior behaviours, awareness, and concerns in driving antibiotic misuse for ARTIs, offering evidence to guide interventions against AMR in Ethiopia. It uniquely contributes by linking behavioural patterns with AMR awareness, providing actionable insights for public health strategies and responsible antibiotic use.

Keywords: Acute respiratory tract infection, Antibiotic use, antimicrobial resistance awareness, Concerns, Primary healthcare.

My Convict Ancestor Sarah, Her Gender Agency & The Blended Family

Dr Des Lambley¹

¹School of Humanities, Arts and Social Sciences, University of New England

This paper is drawn from a creative writing project that disputes that Sarah Rose was a whore, or of the recidivist criminal class that so many historians have ascribed to women who were transported as convicts to New South Wales. The work aims to illustrate that some convicts did not reoffend in the colony, but instead survived despite institutional and environmental constraints, and formed successful families. The project is a speculative biography constructed through a humanities lens, built upon 60 years of family history research. The lives of five central characters of a blended family have been reconstructed despite a conspiracy by a subsequent generation to keep their heritage a secret. They are my ancestors.

It will be demonstrated how a speculative biographical approach to family history aligns with the protocols of creative nonfiction writing, through the mobilisation of responsible imagination to fictionalise the flesh around the limited facts. Together, fact and fiction provide an insight into their lives and nature in a novel and challenging way. The outcome provides a better understanding of how ordinary convict families established themselves on small parcels of land at the extremity of colonial development, and were able to survive and prosper.

Keywords: Convicts, Gender power, Speculative biography, Rural isolation and prosperity.

Exposing an Intergenerational Convict Stigma and Assuaging its impact

Dr Des Lambley¹

¹School of Humanities, Arts and Social Sciences, University of New England

Gender powerlessness of my convict ancestors in colonial Australia is the focus of my creative writing research project. They were powerless as convicts. Three males and one female were transported between 1817 and 1832 for committing crimes in England and Scotland. The curves of their lives intersected near Clarence Town in New South Wales. This presentation delves into the impact of the convict stain across the subsequent generations.

Thousands of transportees saw a wonderful opportunity in a new land, and they worked hard to achieve their aspirations. The next generation learned experientially in the remote bush, and perhaps they accepted the truth of their origin with good humour and without needing to make class comparisons. The second-born generation were told of their heritage. No evidence exists to suggest the first or second-born Australians in my family suffered from the stain. However, the third-born generation benefited from public schooling after it was introduced in the 1880s. They too were told of their convict origins but regarded it as an embarrassing social burden. The result was a conspiracy to keep it a secret, and the following two generations were denied a knowledge. My inquisitiveness has revealed the truth despite cranky gran's desire for the secrecy. Heritage is an important element in determining human identity and existence.

Keywords: Convict stigma, Gender powerlessness

Soundwaves Between Sandstone; the acoustic fingerprint of Carnarvon Gorge

Simon Ling¹, Deborah Bower¹, Paul McDonald¹, Slade Allen-Ankins²

¹*School of Environmental and Rural Science, University of New England, Armidale, New South Wales, Australia.*

²*College of Science and Engineering, James Cook University, Townsville, Queensland, Australia 4811.*

Biodiversity monitoring is increasingly important as human threats to ecosystem function, such as climate change, continue. However, the cost of traditional field assessment of biodiversity can be prohibitive. Passive acoustic monitoring offers a cost-effective alternative, and soundscapes, quantified by suites of acoustic indices have been found to vary across time, e.g. the high rate of bird vocalisation after dawn compared to other times of day. However, the combination of indices that best quantifies a soundscape through time differs at continental and regional scales.

Ecological refugia are locations that have allowed biota to survive for significant periods of time compared to surrounding areas. As potentially stable ecosystems resistant to anthropogenic changes, their conservation and management is increasing in importance.

We deployed 12 audio recorders in an ecological refuge in Central Queensland for two years from late 2022. Principal component analysis was used to determine which indices best capture variation in recordings. Using these results, we documented the seasonal and daily patterns of sound as baseline information for future biodiversity monitoring. To verify the stability of the patterns described, we tested the reliability of randomly selected recordings to be classified into the seasonal and diel category of origin using linear discriminant analysis.

Early analyses show most acoustic indices deployed in this study are sensitive to seasonal and daily patterns of sound but differ in their response to those patterns. Ongoing analyses will focus on determining the combination of indices that best encapsulates the temporal patterns in the soundscape in comparison to elsewhere.

Keywords: Soundscape ecology, ecoacoustics, acoustic indices, seasonal variation.

Diasporic Theatre as Cultural Memory and Continuance

Yashodhara Sarachchandra Liyanaarachchi¹

¹*School of Humanities, Arts and Social Sciences, University of New England*

Drawing on my theatre practice with the Sri Lankan Sinhalese diaspora in Melbourne and New Zealand, my research explores how diasporic theatre in Australia can serve as cultural memory and a tool for cultural continuance. This paper is a preliminary glance into my current research and theatre practice.

The play world of the diasporic performance space occupies a 'third space' (Bhabha 1994), allowing the Sinhalese Melbournians, to articulate and explore their complex diasporic experiences and identities. This is a culturally safe performance space that creates a liminal space wherein the interweaving of cultures in performance (Fischer-Lichte, 2009) can foster cultural memory and cultural continuity. The study embraces the methodology of practice-led research to augment theoretical understanding through the creation of a substantial written work and performance.

The theatre practice fosters language, traditions, values, myths, legends, folktales and folk cultures unique to Sri Lanka and is performed by the Sinhalese diasporic community. Hence, the practice-led research approach suggests both the creative work and performance are a form of exploration and outcomes, together with self-reflection, observation and discussion, generating both scholarly and experiential, embodied insights.

The paper contributes towards the global perspectives on diasporic theatre and generates exploratory insights into the broader academic discourse on the efficacy and functionality of diasporic theatre across differences in Australia.

Keywords: Diasporic Theatre, Cultural Memory, Identity, Sri Lanka, Performance Arts

References

Bhabha, HK 1994, *Location of Culture*, Routledge, London; New York.

Fischer-Lichte, E 2009, 'Interweaving Cultures in Performance: Different States of Being In-Between', *New Theatre Quarterly*, vol. 25, no. 4, pp. 391-401.

Cronulla's Saturday Matinee and the Enduring Appeal of Participatory Cinema

Claire S Ramos¹

¹School of Humanities, Arts and Social Sciences, University of New England

This paper examines the children's Saturday matinees at Cronulla's Odeon Theatre in the post-war period as a formative example of accessible, participatory, and mildly anti-establishment cinema culture in Australia. For local children, these extended screenings, which included two feature films, short cartoons, newsreels and a national anthem, offered more than entertainment; they created a rare, child-centred space of freedom and expression. Accounts from Cronulla locals recall a lively, rule-bending atmosphere marked by cheering, booing, and the now-legendary act of rolling Jaffas down the steep wooden aisles. This chaotic secondary soundtrack provided by the audience, embodied the spirit of playful rebellion. Such moments reveal a 'sweet spot' of youthful larrikinism; subtly defiant, yet never entirely disobedient. Indeed, the aim of the Odeon National Cinema Club was to create worthy citizens for the future.

Today, as cinema-going becomes increasingly passive, expensive, and individualised, the enduring nostalgia for these matinees speaks to a deeper cultural desire for communal and interactive viewing experiences. This desire is echoed in contemporary phenomena such as A Minecraft Movie's 'Chicken Jockey' which merges Gen Alpha gaming culture, film, and live performance into an immersive theatrical event. The exuberance of young audiences reflect the same spirit of rule-breaking joy once found in the Odeon's aisles. This paper suggests that the legacy of the children's Saturday matinee in Cronulla offers valuable insights into reclaiming participation, accessibility and shared emotion in contemporary cinema culture.

Keywords: Cronulla, matinee, participatory cinema

Fragmented Governance and the Rise of Regulatory Dark Matter

Michael McGuinness¹

¹*UNE Business School, University of New England*

This research examines Queensland's evolving regulatory governance landscape through the lens of Intelligence-Led Regulation (ILR) and its interaction with informal governance mechanisms, collectively known as regulatory dark matter (RDM). Drawing on postmodern regulatory theory, the study investigates how ILR, characterised by data-driven, risk-based decision-making and predictive analytics, influences the development and oversight of quasi-regulatory frameworks outside formal legislative boundaries. The research critically assesses the implications of this shift for transparency, accountability, and legitimacy within a fragmented and decentralised regulatory environment. Using a mixed-methods approach, including surveys, semi-structured interviews, and case studies across various sectors, the study evaluates stakeholder perceptions and trust in institutions regarding ILR and informal governance practices in Queensland. It explores ILR's potential to improve adaptive governance and operational efficiency while considering risks such as increased opacity and diminished democratic oversight. This work advances postmodern regulatory theory by analysing the complex interactions between formal regulation, ILR, and informal rule-making, providing a new framework for understanding and managing regulatory dark matter. The study concludes with practical recommendations to strengthen transparency and accountability in intelligence-led regulatory models, offering valuable insights for policymakers, regulators, and scholars addressing contemporary governance challenges.

Keywords: Intelligence-Led Regulation, Informal Governance, Adaptive Governance, Regulatory Dark Matter, Postmodern Regulatory Theory.

Funding: This research is supported by an Australian Government Research Training Program (RTP) Scholarship.

Price Shock Transmission between Coastal and Freshwater Fish in Bangladesh: Implications for the Industry and Food Security

Farhana Arefeen Mila¹, Luis Emilio Morales¹, Nam Hoang¹, Sujana Adapa¹ and Garry Griffith¹

¹*UNE Business School, Faculty of Science, Agriculture, Business and Law, University of New England, Armidale, Australia*

This study examines the asymmetric transmission of retail price shocks between coastal and freshwater fish markets in Bangladesh, where fish is a critical source of nutrition and rural income. Data were ethically obtained from the Department of Agricultural Marketing, and the study did not receive external funding. Drawing on monthly real retail price data from 2012 to 2023, we employ a Structural Vector Autoregression (SVAR) model to explore price transmission among two culturally significant coastal species—Hilsa (*Tenualosa ilisha*) and Silver Pomfret (*Pampus argenteus*)—and two widely consumed freshwater species—Rohu (*Labeo rohita*) and Catla (*Catla catla*). The results reveal that price shocks originating from coastal fish, especially Hilsa, exert a strong influence on freshwater fish prices, while the reverse effect is minimal. In contrast, Rohu and Catla exhibit strong mutual interdependence, indicating a high degree of substitutability within freshwater markets. These findings suggest that coastal price volatility may compromise affordability and stability in the broader domestic fish market, particularly for low-income consumers. The study underscores the need for targeted policy responses, including investment in cold storage, improved market logistics, and the establishment of a real-time fish price observatory to promote transparency and market resilience. Furthermore, enhancing consumer awareness about the nutritional and economic value of freshwater species can mitigate demand-side pressure during coastal fish supply shocks. By offering original empirical evidence on cross-species market integration in fisheries sector of Bangladesh, this research contributes to sustainable food system planning and value chain development. This work offers timely, practical insights for researchers, practitioners, and policymakers working on agri-food market integration in developing economies.

Keywords: Fish Price Transmission, Cross-species Relationships, Coastal Fish, Freshwater Fish, SVAR.

Insights into Post-streptococcal Glomerulonephritis: Contributions of Streptococcal Inhibitor of Complement and Nephritogenic Antigens

Mohammad Raguib Munif^{1,2}, Rukshan AM Rafeek¹, Robert A Hart¹, David McMillan^{1,3}, Kadaba S Sriprakash¹, Natkunam Ketheesan^{1,3}

¹*School of Science & Technology, University of New England, New South Wales, Australia*

²*Department of Surgery and Obstetrics, Faculty of Veterinary Science, Bangladesh Agricultural University, Mymensingh, Bangladesh*

³*School of Science, Technology, Engineering and Genecology Research Centre, University of the Sunshine Coast, Queensland, Australia*

Post-streptococcal glomerulonephritis (PSGN) is an immune-mediated complication of group A streptococcal (GAS) skin or pharyngeal infections. Pathogenesis of PSGN is complex. However, nephritogenic antigens [streptococcal pyrogenic exotoxin B (SpeB) and nephritis-associated plasmin receptor], are implicated in the pathogenesis. Additionally, seroepidemiological studies indicate an association between streptococcal inhibitor of complement (SIC) and PSGN, but its exact role remains unclear.

To investigate the role of GAS antigens in PSGN, Lewis rats were subjected to a series of experiments: (1) controlled subcutaneous (s.c) delivery of purified SIC via mini-osmotic pumps over 56 days; (2) initial injections (s.c) of SIC emulsified in complete Freund's adjuvant (CFA), followed by pump delivery for the same duration; and (3) primary injections (s.c) of SIC alone or in combination with inactivated whole-cell GAS (IWG) in CFA, followed by boosters in incomplete Freund's adjuvant (IFA) over 45 days. Urine was collected weekly, and all rats were euthanised for blood and kidney sampling. Biochemical analyses (urea, creatinine, and urinary albumin), urinalysis (microhaematuria), and renal histopathology were performed.

Significant anti-SIC antibody responses ($p < 0.01$) were observed in SIC-exposed rats. However, no renal pathology or urinary abnormalities were detected, suggesting that SIC alone or with IWG may not induce PSGN. To explore potential synergistic factors in the pathogenesis, our current studies involve exposing Lewis rats to a combination of SIC with SpeB in CFA, followed by boosters in IFA over 65 days. In these studies, we investigate the contribution of SIC in combination with SpeB in the development of PSGN.

Keywords: glomerulonephritis, streptococcal inhibitor of complement, inactivated GAS, streptococcal pyrogenic exotoxin B, rat model

The Role of Education in Shaping Future Biodiversity Stewards

Kathleen Murphy¹, Navjot Bhullar², Wesley Leedham³, Heidi Kolkert¹

¹*Ecosystem Management, School of Environmental and Rural Science, University of New England*

²*Adjunct Professor (Psychology), University of New England*

³*Warrumbungle National Park Environmental Education Centre, NSW Department of Education*

Global environmental crises, such as climate change and biodiversity loss, demand urgent and collective action. One effective approach is implementing evidence-based environmental education programs targeting school children. This study evaluated the effectiveness of the NSW Department of Education Warrumbungle Environmental Education Centre's *Koalas and Others: A Schoolyard and Community Biodiversity Project*. It focused on shaping primary students' pro-environmental behaviours, attitudes, and knowledge through attracting local wildlife to school grounds. The program involved installing 'TreeTroff' water drinkers and camera traps, enabling student learning about species visiting their school. An online survey was conducted with 155 students (mean age = 10, SD = 1.38; females = 51.6%) from 15 schools to evaluate key outcomes, and 12,365 camera trap images from 12 schools were analysed to observe wildlife interactions. Findings revealed nearly 40 species interacted with the TreeTroffs over a 12-month period in 2024. Additionally, the program enhanced knowledge, promoted positive attitudes towards native wildlife, and, critically, resulted in statistically significant changes in pro-environmental behaviours, especially in students' willingness to protect native animals and conserve trees. This research adds a regional Australian perspective to global environmental education studies and highlights the importance of long-term, early-intervention environmental education programs.

Keywords: conservation education, primary students, biodiversity, wildlife monitoring, pro-environmental actions

Citrulline Supplementation Improved Egg Mass and Bone Strength in Aged Laying Hens Fed a Reduced Protein Diet

A. Nawab¹, T.H. Dao^{1,2}, Sukirno¹, Nasima Akter¹, C. Tamsyn³, A.F. Moss^{1,3}

¹*School of Environmental and Rural Science, Faculty of Science, Agriculture, Business and Law, University of New England, Armidale, NSW 2351, Australia*

²*Faculty of Animal Science, Vietnam National University of Agriculture, Trau Quy Town, Gia Lam District, Hanoi, 100000, Vietnam*

³*Poultry Hub Australia, University of New England, 2351, New South Wales, Australia*

This study evaluated the effects of arginine (Arg), guanidinoacetic acid (GAA), and citrulline (Cit) supplementation in reduced protein (RP) diets on the production performance, serum uric acid level and bone quality of aged laying hens. Increasing Cit supplementation increased feed intake during 60–67 weeks ($P = 0.007$) and 60–75 weeks ($P = 0.014$), while Arg and GAA did not. Also, Cit supplementation significantly increased egg weight ($P = 0.049$) compared to GAA from 60–67 weeks. From 68–75 weeks, Cit supplementation improved egg mass ($P = 0.014$) and feed intake ($P = 0.009$) compared to Arg and GAA. Over the entire 60–75 weeks period, Cit diet increased egg weight ($P = 0.048$) and egg mass ($P = 0.019$) compared to GAA. Additionally, Cit supplementation at 0.12% in RP diets significantly increased feed intake ($P < 0.001$) compared with standard protein (SP) and RP diets from 60–67 weeks (one-way ANOVA). Both Cit and Arg supplementation increased yolk weight compared to GAA ($P = 0.018$). Arg supplementation to RP diet at 0.06% significantly increased energy digestibility compared to the SP and RP diets ($P = 0.037$). Increasing Cit level enhanced tibia ($P = 0.014$) and femur ($P = 0.006$) bone breaking strength, whereas Arg and GAA reduced it. Thus, a moderate reduction in dietary protein level by two percentage points, combined with Cit supplementation at the high level (0.12%), was effective in enhancing egg mass, egg weight, yolk weight, and bone breaking strength in aged laying hens.

Keywords: Citrulline, laying hens, performance, bone health

Acknowledgements

We would like to acknowledge and thank Australian Eggs Pty Ltd for their guidance, support and funding of this project.

Exploring Subjectivity through Q Methodology

Victoria Norford¹, A/Prof Leonardo Veliz¹, A/Prof Helen Harper¹, Dr Carly Steele²

¹*School of Education, Faculty of Humanities, Arts, Social Sciences and Education, University of New England*

²*School of Education, Faculty of Humanities, Curtin University*

This paper explores the process of planning and designing a project employing Q methodology to research beliefs and perspectives. The systematic study of subjectivity using Q Methodology offers a robust method for researching viewpoints with an established ninety-year history (Stephenson, 1935). It is valued for its statement sorting and ranking procedure that 'mimics the typical human thought process for ideas, which is in relation to other ideas, not in isolation' (Mackinnon et al., 2022). Increasingly, researchers studying beliefs are employing Q methodology (Camenzuli et al., 2023; Fraschini et al., 2024; Lundberg, 2019; Sung & Akhtar, 2017) due to its unique ability to 'uncover patterns of beliefs, experiences or viewpoints that exist within a group' (Brown, 1996). In addition, Q research methods are reported to be more engaging for participants and less time consuming to complete (ten Klooster et al., 2008) when compared to Likert scale surveys, and promote abstract thinking (Gao & Soranzo, 2020), generating findings that can be valued for their basis on 'holistic thinking rather than on isolated ratings' (Takács et al., 2024). Q methodology may be fruitful for researchers across several fields of study, contributing to the exploration of global perspectives.

Keywords: Q methodology, subjectivity, beliefs, viewpoints

References

- Brown, S. R. (1996). Q methodology and qualitative research. *Qualitative health research*, 6(4), 561-567.
- Camenzuli, R., Lundberg, A., & Gauci, P. (2023). Collective teachers' beliefs about multilingualism in Maltese primary education. *International journal of bilingual education and bilingualism*, 26(4), 379-394. <https://doi.org/10.1080/13670050.2022.2114787>
- Fraschini, N., Lundberg, A., & Aliani, R. (2024). Introduction: Q Methodology, Subjectivity and Language Research. In F. Nicola, L. Adrian, & A. Renata (Eds.), *Advancing Language Research through Q Methodology* (pp. 1-21). Multilingual Matters. <https://doi.org/doi:10.21832/9781800419803-003>
- Gao, J., & Soranzo, A. (2020). Applying Q-methodology to investigate people's preferences for multivariate stimuli. *Frontiers in psychology*, 11, 556509.
- Lundberg, A. (2019). Teachers' beliefs about multilingualism: findings from Q method research. *Current Issues in Language Planning*, 20(3), 266-283. <https://doi.org/10.1080/14664208.2018.1495373>
- Mackinnon, C., Akhtar-Danesh, N., Palombella, A., & Wainman, B. (2022). Using Q-methodology to determine students' perceptions of interprofessional anatomy education. *Anatomical sciences education*, 15(5), 877-885. <https://doi.org/10.1002/ase.2109>
- Stephenson, W. (1935). Technique of Factor Analysis. *Nature (London)*, 136(3434), 297-297. <https://doi.org/10.1038/136297b0>
- Sung, P., & Akhtar, N. (2017). Exploring preschool teachers' perspectives on linguistic diversity: A Q study. *Teaching and teacher education*, 65, 157-170. <https://doi.org/10.1016/j.tate.2017.03.004>

Takács, R., Takács, S., Kárász, J. T., Oláh, A., & Horváth, Z. (2024). Applying Q-methodology to investigate computer science teachers' preferences about students' skills and knowledge for obtaining a degree. *Humanities & social sciences communications*, 11(1), 332-310. <https://doi.org/10.1057/s41599-024-02794-z>

ten Klooster, P. M., Visser, M., & De Jong, M. D. (2008). Comparing two image research instruments: The Q-sort method versus the Likert attitude questionnaire. *Food quality and preference*, 19(5), 511-518.

Autoethnographic Reflections: Linking Early Educators' Burnout and Feeling Overwhelmed to Emotional Intelligence

Elysia Phillips¹

¹School of Education, University of New England

Early childhood educators' work is emotionally challenging, often depleting their reserves of emotional intelligence which leads to burnout and feeling overwhelmed. Despite this, there is little work linking the ongoing emotional intelligence required to support young children and families, and the impact this has on educators' workplace flourishing. To address this gap, our presentation links the reflections of an experienced Australian educator and director (the lead author) to the literature about emotional intelligence and workplace flourishing. Many international educational organisations emphasise the importance of social and emotional learning for children; however, they do not recognise the link for adults. Understanding how early childhood educators in various countries interpret and apply emotional intelligence strategies can contribute to a global discussion about best practices for a sustainable and long-term workforce. This is critical for creating global standards that support early childhood educators in their ability to flourish in the workplace. This aligns with the literature where it was revealed that there is a relationship between educators' emotional intelligence and workplace flourishing. In addition to this, emotional intelligence has been linked to better problem solving, more cohesive social relationships and an increase capacity to understand and manage emotions effectively. This demonstrated the need to research educators' experiences of emotional intelligence within the groups of children with whom they work, given emotional intelligence influences their interactions with children and their families, as well as their own ability to survive and flourish in the workplace. Due to the high rates of attrition in the sector and the shortage of educators, this will be of interest to researchers, policymakers, and those who support educators.

Keywords: autoethnography, emotional intelligence, early childhood educators, burnout, workplace flourishing

Supply Chain Finance: A Collaborative Approach to SMEs Sustainability in Ghana

Joseph Quartey¹, Priyantha Mudalige¹, George S. Chen¹

¹UNE Business School, University of New England, Armidale. NSW, Australia.

There is an increasing recognition of supply chain finance (SCF) as a critical mechanism for enhancing sustainable performance. Despite this growing interest in SCF, a limited understanding remains of how the adoption of SCF by small and medium-sized enterprises (SMEs) influences sustainable practices, particularly within emerging economies like Ghana, where access to finance is limited. This study examines the role of SCF in improving the sustainability performance of SMEs in Ghana. The research investigates the mediating effects of working capital management, information sharing, collaboration, and technology & systems platform integration on the relationship between SCF and sustainability.

Data were collected from 321 SMEs in the Greater Accra and Ashanti regions of Ghana using a structured questionnaire. The study employs a quantitative research approach, utilizing Partial Least Squares Structural Equation Modeling (PLS-SEM).

The findings reveal that SCF adoption helps SMEs to free up working capital through a reduction in costs, improvement in cash flow, and increased liquidity. These financial incentives enable SMEs to allocate more resources toward sustainability initiatives. In addition, SCF shows a positive relationship with working capital management, collaboration, and information sharing. These factors play key mediator roles in the SCF-sustainability nexus.

On the other hand, technology and systems platform integration does not significantly mediate the SCF-sustainability nexus, indicating that technology alone is insufficient to improve sustainability outcomes without strategic alignment.

Our findings inform financing policy decisions among SME owners, financial institutions, and SCF practitioners and contribute to SCF literature and sustainable policies for SMEs in Ghana and other countries in the world.

Keywords: Supply Chain Finance, Sustainability Performance, Working Capital Management, Collaboration, SMEs

Effect of seed storage conditions on the germination of *Stellaria media* and *S. pallida*

Dinusha Debarawatta¹, Brian Sindel¹, Paul Kristiansen¹

¹*Department of Agronomy and Soil Sciences, School of Environmental and Rural Science, University of New England*

Stellaria media (chickweed) and *S. pallida* (lesser chickweed) are closely related non-native problematic weeds in cooler agricultural and environmental systems in Australia. Understanding weed emergence is essential for planning effective weed management. Seed dormancy is a common attribute of many weed species, enabling them to persist through time and avoid weed control treatments. This study was conducted to examine the seed germination of two *Stellaria* spp. following different storage conditions.

Fresh seeds of both species were stored either wet or dry in freezing (-20°C freezer), cold (5°C fridge), temperate (20/10°C) and tropical (30/20°C) conditions for 6 months. Seeds were extracted monthly, pre-treated with 0.2% KNO₃ and then germinated at 20/10°C.

Storage duration, temperature, level of moisture and species all affected seed germination. Tropical storage conditions induced germination of both *Stellaria* with wet stored *S. media* seeds showing >90% germination throughout the storage period, whereas *S. pallida* germination peaked after 3 months of storage and then declined. *Stellaria media* germinated at higher rates compared with *S. pallida* regardless of the storage conditions. No *S. pallida* seeds and ≤ 30% of *S. media* germinated after storage in the fridge or freezer.

High summer temperatures are likely to break dormancy in the seeds of both *Stellaria* spp. and induce mass germination, accounting for their typical winter lifecycles and lack of persistence in tropical environments due to reduced dormancy. *Stellaria media* showed greater adaptability in cold conditions with a combination of germination and dormancy, which may account for its occurrence in alpine and sub-Antarctic environments.

Keywords: *Stellaria media*, *Stellaria pallida*, Seed germination, Storage

Factors Affecting Routine Healthcare Check-Ups by Female Sex Workers in Bangladesh

Shaharior Rahman Razu¹, Kim Usher¹, Rikki Jones¹, Md Shahidul Islam¹

¹School of Health, Faculty of Medicine and Health, University of New England

This research examines the factors that affect routine health check-up behaviors among female sex workers (FSWs) in Bangladesh, a group experiencing distinct and considerable health vulnerabilities in developing settings. Regular health check-ups are essential for the early identification of infectious diseases, thereby preventing extended illness and safeguarding public health. The study employed a cross-sectional design, surveying 384 female sex workers via purposive sampling and structured interviews, with data analyzed using bivariate and multivariate statistical methods. The findings indicate that 64.1% of participants reported having completed at least one routine health check-up within the previous six months. The results indicated that female sex workers from larger families exhibited a significantly higher likelihood of attending routine check-ups, whereas those from joint families demonstrated a lower likelihood of participation. Higher income was correlated with a reduced likelihood of seeking routine health care, while increased healthcare spending demonstrated a positive correlation. Residential-based sex workers exhibited a lower likelihood of seeking routine care in comparison to their brothel or street-based counterparts. Furthermore, individuals with a higher number of clients per day and those who had encountered physical or verbal abuse demonstrated an increased likelihood of seeking routine check-ups. The findings demonstrate that socio-demographic and behavioral factors, including family dynamics, economic status, abuse, and occupational demands, significantly influence healthcare-seeking behavior. The research highlights the necessity for specific interventions aimed at enhancing the financial capacity and health awareness of female sex workers, while simultaneously advocating for comprehensive policy reforms that tackle poverty, education, and social discrimination to guarantee equitable health rights for marginalized women.

Keywords: Public health, Female sex workers, Routine health check-ups, Sexual health, Health care Access

Genetic Background and Selection Strategies for Reducing Tail Biting in Pigs: A Scoping Review

A.A. Reda^{1,2}, P.M Gurman¹, S. Hermesch^{1,3}, M.N. Aldridge¹

¹AGBU, a joint venture between the NSW Department of Primary Industries and Regional Development and the University of New England, University of New England, Armidale, NSW, 2351, Australia

²School of Veterinary Medicine, Wollo University, Dessie, 1145, Ethiopia

³UNE Business School, University of New England, Armidale, NSW 2351

Reducing tail-biting through selection and breeding in the Australian pig industry is essential for improving the welfare, health, and productivity of pigs. There is no summarised information on the extent of genetic variation and selection strategies that help mitigate tail-biting in the pig industry. Following the method of 'PRISMA-Extension for scoping review', this scoping review assessed the scientific evidence on the genetic background of tail-biting and identifies potential indicator traits and selection strategies. The findings indicate that both the tendency to perform tail-biting and the likelihood of being bitten vary across breeds. These behaviours are influenced not only by the genetics of the individual animal but also by its social interactions with pen mates. The probability of becoming a tail-biter or a victim has a genetic component that is inherited from parents to the offspring. Estimates suggest only a small proportion of the variation is explained by the genetics, up to 5.0% for biters (Breuer et al., 2005) and 3.0% to 16% for victims (Gorssen et al., 2024; Reda et al., 2025). Importantly, an individual's genetics can also influence the likelihood of group members being bitten. These so called social genetic effects, may account for as much as 80% of genetic differences in tail-biting outcomes (Canario & Flatres-Grall, 2018). Animals with similar genes can show different tail-biting rates depending on their environment. Selection against tail-biting may also produce beneficial correlated responses in resilience and welfare traits, with reported correlations ranging from low to moderate (Gorssen et al., 2024; Hegedús et al., 2025). Further research is required to refine these estimates, validate effective selection strategies, and assess the economic feasibility of breeding for reduced tail-biting. This review helps inform the pig industry of the gaps and outlines opportunities for designing future breeding programs in the pig industry.

Keywords: damaging behaviours, direct genetic effect, tail biting, social genetic effect, selective breeding.

References

- Breuer K, Sutcliffe M, Mercer J, Rance K, O'Connell N, Sneddon I, et al. Heritability of clinical tail-biting and its relation to performance traits. *Livestock production science*. 2005;93(1):87-94.
- Reda A, Aldridge M, Gurman P, Hermesch S. Genetic parameters of being a tail-biting recipient in pigs. *Proceedings of the Association for the Advancement of Animal Breeding and Genetics (AAABG)*; 2025; 26: 66-69.
- Canario LL, Flatres-Grall L, editors. Genetics of tail-biting receipt in gilts from the Tai Zumu line. 70 Annual Meeting of the European Association for Animal Production (EAAP); 2018: Wageningen Academic Publishers.
- Hegedús B, Galoro Leite N, Bolhuis JE, Bijma P. Genetic parameters and potential of reducing tail and ear damage in pigs through breeding. *Genetics Selection Evolution*. 2025;57(1):39.
- Gorssen W, Winters C, Meyermans R, Chapard L, Hooyberghs K, Depuydt J, et al. Breeding for resilience in finishing pigs can decrease tail biting, lameness and mortality. *Genetics Selection Evolution*. 2024;56(1):48.

'Cultural Marxism': Global Conspiracies and Australian Politics

Steph Rey¹

¹School of Humanities, Arts and Social Sciences, University of New England

Scholarship examining how global far-right trends impact Australian politics is limited. It has been argued that Australia's compulsory, preferential, and proportional voting system protects Australian democracy from political extremes. Further, the lack of support for outwardly far-right parties and the rejection of the coalition in the 2025 federal election, has fuelled discussions that Australia may be immune, or at least inoculated, against the global rise of the populist far-right.

This paper will challenge such assumptions by presenting findings of a work-in-progress study using qualitative content analysis. Hansards and media are examined to determine the impact of global far-right mainstreaming on Australian politics in relation to the 'cultural Marxism' conspiracy. This conspiracy claims that Marxists seek to destroy Western civilisation by taking over every aspect of society. Using Cas Mudde's theory of populism and the economic and social theories of Weberian scholars such as Charles Tilly, Wolfgang Streeck, and Colin Crouch – the frames, themes, and repertoires politicians use are traced to their origins.

The findings show the far-right, global, mainstreaming project operates differently in Australia - and in some cases, covertly, however, Australia's political culture and compulsory voting system does not provide inoculation. Therefore, claims to the contrary are at least in part, consequential to the established Australian socio-political culture. The paper argues that assessments and perspectives of those within nations further down the far-right mainstreaming path can assist in understanding Australia's far-right creep, despite the temptation to dismiss them based on the Australian exceptionalism mythos.

Keywords: Far-right, Australian Politics, Christian-Nationalism, Mainstreaming, Populism

This research has been conducted with the support of the Australian Government Research Training Program Scholarship.

Multimodal Visual Fables as Pedagogy for Second Language Vocabulary Acquisition

Anna-Olimpia Rosenblum¹

¹*School of Humanities, Arts and Social Sciences, University of New England*

As teaching methodologies continue to evolve, many subjects increasingly incorporate visual and multimedia approaches to enhance student engagement and comprehension. Similarly, in second language learning, the contribution of multimedia input to outcomes and processes is well documented. However, few studies examine which combination of multimedia elements aligns with current curriculum demands, particularly for developing viewing skills. While acknowledging a substantial body of research that supports multimodality in second language vocabulary learning, this study responds to the gap between theory and practice and offers a model that integrates these theories through an innovative learning tool. In response to the identified classroom needs, this project presents the Visual Language Learning (VLL) tool, a classroom-tested prototype that quantifies vocabulary per minute gains using whiteboard-animated fables integrated with synchronised audio and captions, a metric missing from earlier multimodal research. The rich vocabulary in fables provides an excellent resource for second language vocabulary learning and cultural awareness. Drawing on dual coding, cognitive load, and multimedia learning theories, the study employs a mixed-methods approach to assess the VLL tool's positive impact on vocabulary acquisition in both sample and control group studies. Results reveal that the VLL tool achieves higher immediate vocabulary gains and short-term retention than traditional narration, emphasising the need for reinforcement strategies. The theory derived, the progressive immersion hypothesis (PIH), advances the concept of interstitial immersion (II)—brief, culture-rich, multimodal encounters between scheduled lessons that, combined with classroom or independent VLL engagement, intensify vocabulary growth and cultural literacy. This innovative approach to second language acquisition offers an efficient, engaging, and appealing method of teaching languages that resonates with contemporary learning styles. Further large-scale testing is recommended.

Keywords: Language learning, Fables, Multimodal texts, Comprehensible input, Global competence

A Machine – Human Model: For Improving Workplace Safety

Divya Sukumar¹, Ljiljana Brankovic¹, Sujana Adapa¹, Shan Chen², Stephan Chalup³

¹*University of New England*

²*Macquarie University*

³*New Castle University*

In high-risk sectors such as construction and mining, accurate classification of workplace incidents is critical for regulatory compliance and proactive risk mitigation. Despite structured reporting templates provided by agencies like SafeWork NSW and WorkSafe QLD, incident descriptions are predominantly unstructured, limiting analytical utility. Over the past decade, over one million serious injuries have been recorded, with mechanisms including falls from height, vehicular accidents, and entrapment (Safe Work Australia, 2024). However, causal factors—such as insufficient training, mechanical failure, or psychosocial risks—are often embedded in free-text narratives, impeding scalable analysis.

This study evaluates three methodological approaches for extracting and linking causal and mechanistic elements from textual incident data:

- 1. Manual Interpretation** – accurate but resource-intensive and unsuitable for large-scale datasets.
- 2. Semantic Clustering** – using linear (PCA, hierarchical clustering) and non-linear (t-SNE) techniques; while t-SNE improved contextual grouping, it failed to preserve global semantic structure.
- 3. Large Language Models (LLMs)** – leveraging OpenAI and custom-trained models via Together.ai, integrated into data pipelines with active learning and Named Entity Recognition.

Custom LLMs achieved 98% classification coverage across historical records, with flagged anomalies undergoing expert review. A hybrid human–AI framework was tested, combining automated classification (using LLM) with domain expert validation to ensure semantic consistency and regulatory relevance. This approach enables scalable, accurate incident categorisation, transforming compliance data into actionable intelligence. The model supports a shift from reactive documentation to predictive safety interventions, enhancing operational resilience and regulatory responsiveness.

Bhutanese Teacher Educators' Attitudes Towards Information and Communication Technology Acceptance and use in Teaching: Implications for Rural Developing Countries

Tshering¹

¹*School of Education, University of New England*

Information and Communication Technology is a powerful tool for transforming education, and in developing, largely rural countries such as Bhutan, where its widespread access is relatively recent. Information and Communication Technology acceptance and use among teacher educators is crucial for effective contemporary teacher education. Acceptance and use depends on well-established factors, including teachers' attitudes; however, little is known about teachers' attitudes in rural developing countries, especially Himalayan and Buddhist countries, which are culturally different to other developing countries. Accordingly, this mixed-method study investigated how Bhutanese teacher educators' attitudes influence acceptance and use of Information and Communication Technology in teaching. Analysis of survey (n = 90) and semi-structured interview (n = 21) data indicated that teacher educators generally held positive attitudes toward its use. Age, gender, teaching experience and subject of specialization did not influence attitude, while perceived usefulness, facilitating conditions and Information and Communication Technology use, did. Positive attitude was associated with perceived usefulness, while negative attitude aligned with Information and Communication Technology incompetence and slow internet connectivity. Some agreement exists between findings in Bhutan and other developing, rural contexts, however, differences in factors, including gender, and the presence of Buddhist zhenphen highlight the need for policymakers, researchers and interventions to account for context, alongside continued improvement of Information and Communication Technology infrastructure.

Keywords: perceived usefulness, facilitating conditions, Bhutan, developing countries, zhenphen

Justice of Geography: Legal Services and Justice in Western NSW

Patricia Vagg¹

¹*Institution details The Australian Centre for Agriculture and Law (The AgLaw Centre); School of Law; Faculty of Science, Agriculture, Business and Law; UNE*

People who live in western New South Wales (NSW) are not always able to access legal and justice services. The absence of legal help, or the existence of barriers that prevent access to help, may mean that people living in these remote or very remote places are exposed to unmet legal need, or to the snowballing of legal problems into bigger problems. Also, though, people in this region use creative and effective ways to access some services.

This research project explores not only whether legal services exist in western NSW, but also whether the services exist in ways that meet people's needs. Access to services is conceptualised in a way which is well-recognised in health (Levesque et al 2013), but has not yet been applied in law. Framework analysis is used to analyse semi-structured interview data from the perspectives of both the users of services and the providers of services. The users are people who need legal help, and the providers are the systems and organisations that design and deliver legal and justice services.

This part of NSW has been beyond the scope of previous research which focused on legal services in regional and rural, but not in remote and very remote, Australia (Kennedy et al 2017). Other states and territories in Australia have places that are similarly remote or even more remote, as do other countries in the world. The results of this research could inform policy and practice in NSW, in Australia and in other jurisdictions.

Keywords: justice, legal, access, remote, NSW

Funding source: RTP scholarship

References

Levesque, Jean-Frederic, Mark F Harris and Grant Russell, 'Patient-Centred Access to Healthcare, Conceptualising Access Interfaces, Health Systems and Population' (2013) 12(1) *International Journal for Equity in Health* 18

Mundy, Trish, Amanda Kennedy and Jennifer Nielsen (eds), *The place of practice: lawyering in rural and regional Australia* (Annandale, NSW The Federation Press, 2017).

Pigs Being Tail-bitten: Genetics, Environments, and Interactions

Dirk van Winden¹, R.Y. Galea², Bernadett Hegedűs^{3,4}, Phillip Gurman¹, Susanne Hermes^{1,5}, Michael Aldridge¹

¹AGBU, a joint venture between NSW DPIRD and University of New England, Armidale, NSW, 2351 Australia

²AWSC, The University of Melbourne, Parkville, Victoria, 3010 Australia

³Animal Breeding and Genomics, Wageningen University & Research, Wageningen, 6708WD The Netherlands

⁴Adaptation Physiology, Wageningen University & Research, Wageningen, 6708WD The Netherlands

⁵UNE Business School, University of New England, Armidale, NSW, 2351 Australia

Pigs are social animals and like to explore and interact with other pigs. However, on pig farms, tail biting behaviour may lead to economic losses and welfare issues. Solutions may lie in investigating how pig genetics affect the rate of tail biting victims. In this research, we investigated genetics (breed, and line which is a group of pigs within a breed that share a common ancestry), and their interaction with sex and environment (temperature stress) as risk factors for tail biting. As additional genetic-environment interaction, pigs were also investigated on if the breed of their group mates in their final stage of life was a risk factor for receiving a tail bite. Data from around 55,000 animals were collected over 2 years from 8 Australian farms. Tail damage was recorded for each animal, which was converted to binary (bitten or not bitten). Logistic models were developed to determine the risk per animal of receiving a tail bite for line, breed, sex, temperature stress, breed of group mates, and interactions thereof. Line had the most variation in risk, as different lines were between 0.15 and 3.94 times as likely to be tail bitten compared to a base line ($P < 0.001$). For breeds, Duroc pigs were at highest risk, followed by Large White, and then Landrace ($P < 0.001$). Female pigs were 1.13 times more likely to be bitten compared to males ($P = 0.005$), but this effect differed per line ($P < 0.001$). Temperature stress increased tail biting odds for all animals, but the impact differed per line and breed ($P < 0.001$). Lastly, all breeds housed in the same group as Duroc pigs had lower risk, all breeds housed with Landrace pigs had increased risk, and for the lowest risk possible we recommend not mixing any breeds. Producers are encouraged to monitor their own lines for differences in tail biting behaviour, maintain adequate temperature control, and minimize mixing of different pig breeds into the same group.

Keywords: Pigs, pig tail biting, animal welfare, genetics

Challenges and Opportunities for Integrating Traditional Healing Approaches with Biomedical Care for Mental Illness: A Scoping Review from Healers' Perspectives

Alemayehu Molla Wollie^{1,3}, Kim Usher¹, Kylie Rice², Md Shahidul Islam¹

¹*School of Health, Faculty of Medicine and Health, University of New England, Armidale, NSW 2351, Australia*

²*School of Psychology, Faculty of Medicine and Health, University of New England, Armidale, NSW 2351, Australia*

³*Department of Psychiatry, College of Medicine and Health Sciences, Injibara University, Injibara, Ethiopia*

Integrating traditional healing practices with modern treatment may improve the outcomes for individuals experiencing symptoms of mental illness. However, there have been limited collaborative efforts toward the integration of the two approaches. Therefore, this review aims to summarize the challenges and opportunities of integrating traditional treatment approaches with biomedical treatment for mental illness from the perspective of traditional healers.

The scoping review was conducted following Asksey and O'Malley's framework, as well as the Preferred Reporting Items for Systematic Review and Meta-Analysis Extension for Scoping Review (PRISM-ScR) guidelines. Searches of databases, including PubMed/Medline, PsycINFO, CINAHL, Scopus, and the Web of Sciences were conducted. Themes and subthemes were created using Nvivo-12 software. A thematic synthesis was used to report the evidence.

Based on the eligibility criteria, 54 of the 4071 initially identified articles were included. From the healers' perspectives, governmental policy (guidelines, recognition, education, training, and financial issues), intellectual property issues, attitudes, understanding differences in diseases disease understanding differences, and referrals are the major challenges for integrating traditional healing approaches with biomedical treatment for mental illness. Healers' willingness for integration, the effectiveness of the healing approaches, and the World Health Organization's recognition of traditional healing are identified as enablers for integration. This review outlines the challenges that hinder the effective integration of traditional and biomedical care, as well as the factors that could facilitate integration. The evidence can support policymakers and other stakeholders in reducing the major challenges of integration noted by healers and maximising opportunities for collaboration.

Keywords: Challenges, integration, mental illness, opportunities, scoping review, traditional healing

Exploring Global Perspectives on Determinants of AI Acceptance in Healthcare

Usman Yousaf¹, Shahidul Islam¹, Karl Robert¹, Judy Humphries¹, Fareed Ud Din¹

¹*School of Health, University of New England, Armidale, NSW, Australia*

Artificial intelligence (AI) is rapidly finding its way into hospitals, clinics and other healthcare settings. Yet, its success depends on more than technical capability, it relies heavily on whether healthcare professionals are willing to embrace it? While many studies have examined what shapes this willingness, there has been no clear global picture of the most important factors. This systematic review, registered with PROSPERO (CRD42024590910), brings together evidence from around the globe to identify the key drivers of AI acceptance among healthcare professionals.

Following PRISMA guidelines we conducted a search of five databases (PubMed, Web of Science, Scopus, Embase, and EBSCOhost). Thirty six quantitative studies met the inclusion criteria and were assessed for quality using the Mixed Methods Appraisal Tool.

The review found a small group of factors that consistently influenced acceptance across countries and professional roles. These included beliefs that AI will improve job performance (performance expectancy), confidence that it will be easy to use (effort expectancy), support from colleagues and leaders (social influence) and adequate organisational resources (facilitating conditions). Trust in AI systems also played a central role, with low trust often limiting adoption. Other influences, such as job type, perceived risk and workplace setting, varied by context.

Most studies used well known technology acceptance models such as TAM and UTAUT but often had to adapt them to capture the unique realities of healthcare, particularly issues of trust, culture and organisational support. These findings point to a shared set of global acceptance drivers, while emphasising that successful AI implementation must be tailored to the local context.

Keywords: Artificial intelligence; healthcare professionals; technology acceptance; UTAUT; global review.

