

Conference Proceedings

“Intersections of Knowledge”

UNE Postgraduate Conference 2018

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Business School
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Acknowledgement

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Postgraduate Conference Organising Committee: – Stuart Fisher, Julie Orr, Grace Jeffery, Emma Lockyer, Michael Hault, Kerry Gleeson, Anne O'Donnell-Ostini, Sanaz Alian.

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As the convener of the third UNE Postgraduate Research Conference, and on behalf of the conference organising committee it is my pleasure to welcome you to the 2018 “Intersections of Knowledge” conference. It is important we acknowledge that this event continues to be offered free to UNE postgraduate researchers through the ongoing support of the university, the commitment of individual professional and academic staff and the participation of postgraduate candidates and their supervisors.

As this is the third year that the conference has been run, it is timely that we take stock and acknowledge that this forum offers a range of skill and professional development opportunities for postgraduate researchers which include, the:

- Experience of preparing and presenting research in a conference setting;

- Benefit of preparing and presenting to a “friendly” or “home” audience;

- Opportunity to hear how research in your own School and discipline is carried out;

- Opportunity to hear how researchers from other disciplines are approaching their research and;

- Ideas and opportunities that emerge for exposure to research practices carried out in different contexts.

In addition to the benefits to your research knowledge and training that the UNE conference offers, there is the benefit of the networking that the event facilitates. In taking advantage of this networking opportunity, formal and informal communication skills can and should be exercised and developed. The effort that postgraduate researchers put into the preparation of their abstracts and presentations also provides an excellent springboard for their attendance at international conferences and the preparation of manuscripts for publication.

A challenge associated with the Intersections of Knowledge Conference comes from the necessity of combining the excellent but eclectic mix of research that occurs across UNE into a two-day program. By resisting the tendency to silo the conference sessions into schools and disciplines, the rich mix of research presented here provides a fantastic and novel opportunity for researchers and delegates to identify new skills and possible problem solving approaches, from across the suite of methods and contexts that frame the research carried out at our university.

This year we have again looked to provide delegates with the benefit of presentations by professionals that are themselves higher degree graduates, now working in their chosen professional fields. Our Keynote and Special Sessions have been included with the intention of prompting our postgraduate researchers to identify and acknowledge the skills they are

acquiring within their studies. In doing this they can then also explore the range of opportunities that the training and skill development provided within their higher degree, offers to their ongoing careers.

I trust you will enjoy and benefit from your 2018 conference. It has again been a great pleasure and privilege to convene this event at UNE and to Chair the Organising Committee. The continuing successes of this event is only possible through the participation of postgraduate research candidates and their supervisors and I would like to acknowledge their support that is clearly demonstrated in the Conference Program.

I would also like to especially acknowledge the ongoing support of the Research Services Directorate, the continued support of Ms Kerry Gleeson, from the Information Technology Directorate and the support that UNE Life provides each year.

A handwritten signature in black ink, appearing to read 'P. Thomas', is centered on a light-colored rectangular background.

Dr Philip Thomas
UNE HDR Coordinator

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Abstracts by Streams and Sessions

STREAM ONE

Session One	Mixed Methods and Quantitative – Business
Session Two	Mixed Methods and Qualitative - Social Sciences
Session Three	Mixed Methods and Qualitative - Sciences
Session Four	Qualitative, Quantitative and Mixed Methods - Arts

Foreign Direct Investment, Institutional Quality and Sustainable Economic Development in ASEAN and SAARC Countries

S. Akhter
Doctorate
UNE Business School
Oral Presentation

The main purpose of this study is to analyse the effect of foreign direct investment (FDI) and institutional quality (IQ) on sustainable economic development measures encompassing economic, social and environmental aspects in some selected emerging Asian countries, in particular ASEAN and SAARC countries, covering the period 2000-2016. The focus of the study is of threefold: Firstly, to investigate the effect of FDI and IQ on economic growth. Secondly, to investigate the effect of FDI and IQ on poverty reduction and finally, to investigate the effect of FDI and IQ on environment protection. The present research will employ a panel data analysis using a well-developed dynamic panel generalised method of moments (GMM) estimator to alleviate endogeneity concerns relating to sustainable economic development proxies, FDI and IQ, and provide an in depth insight on the relationship between FDI, IQ and sustainable economic development measures in ASEAN and SAARC countries.

Keywords: FDI, Institutional Quality and Sustainable Economic Development

Research Methods: Quantitative

Development of Inclusive Business Model for Indonesian Beef Industry

Z. Asikin

Doctorate

UNE Business School

Oral Presentation

Beef cattle have a strategic role in the Indonesia economy that contributes to Gross Domestic Product (GDP) and employment. In addition, beef cattle provide a noticeable role in the livelihood of smallholders, so it is an important pathway out of poverty. However, smallholder farms have primary problems that are inefficient production systems and weak chain linkages. As a result, these cause high cost and/or low throughput. Therefore, innovations focus on improving the value chain performance to reduce costs and/or increase throughput. What is the best way to achieve these improvements? Indonesia has various crops that produce residues and by-products to feed the beef, and so contributes to beef nutrition and productivity, while beef produces manure to enhance crops production. How does one make crop-beef interactions work together? The objectives are to explore and to analyze the current condition of beef value chain performance, to analyze the key drivers for improved beef value chain performance, and to create inclusive business models for crop-beef interactions. Therefore, innovation lies in the new business model. This research will use a mixture of the qualitative and quantitative methods, and a combination of primary surveys, focus groups and in-depth interviews with key informants and stakeholders (e.g. smallholders, traders, feedlots, local and national government), observations, and secondary data. The research has the overall objective of reducing cost and/or increasing throughput, so as to increase the profitability rate. The results are expected to improve the livelihood of smallholder farms in Indonesia.

Keywords: value chain performance, crop-beef interactions, business models, Indonesia

Research Methods: Mixed Methods

Analysis of the impacts of Trade Facilitation on the South Asian economic growth

M. S. P. Ahangamage (Subashini Perera)

Doctorate

UNE Business School

Oral Presentation

South Asia faces enormous challenges due to poverty, income inequality, and poor economic growth. Growing economic imbalances among countries is a serious impediment to economic development in the region. Recently, it has been identified that trade liberalisation itself is insufficient for optimising the potential contribution of trade to the alleviation of poverty. Therefore, trade economists are now paying attention on addressing the issue of Trade Facilitation (TF) since measures related to TF can contribute to economic growth and poverty. Poor TF limits trade among countries as it increases Trade Transaction Costs (TTCs). Trade delays can be relatively more costly when compared to tariffs on trade in developing countries. This is more crucial in landlocked countries. A more facilitated trading system is enabling unlocking these countries to actively participate in global trade. This motivates us to quantify the economy wide impacts of improved TF on development and poverty alleviation in South Asia. Analysing the economy wide impacts of TF is complex and the impacts depend on the size of the economy and trade structure. This is a challenge for Computable General Equilibrium (CGE) modellers due to lack of data on TTCs. This paper quantifies the economic impacts of TF in South Asia by incorporating Ad-Valorem Equivalents (AVEs) of trade delays (proxy for TF) database into the GTAP model. TF was implemented in the GTAP model based on the iceberg approach. Two simulations were carried out. First simulation considered a reduction in trade delays by 10 days in South Asia (scenario 1). A second simulation (scenario 2) was performed to identify the impact of the reduction of trade delays (as scenario 1) combined with further tariff removal under South Asia Free Trade Area (SAFTA). The simulation results show that the reduction in trade delays has a considerable impact on trade balance, regional income and economic welfare. Scenario 1 shows that aggregate imports and exports are expected to increase by 14% and 11% respectively. Gross Domestic Product (GDP) will increase significantly in landlocked countries (4 %), Bangladesh (3%) and Sri Lanka (4%). Reduction of time to imports in these countries are projected to assist more diversified trade towards other South Asian countries. GDP is projected to rise in these countries even at a faster rate in scenario 2. These results are comparable with pervious estimations. Especially, this paper provides evidence.

Keywords: Trade Facilitation, GTAP, Poverty, South Asia

Research Methods: Quantitative

The Effects of Fiscal Policy on GDP and Unemployment in Australia

H. L. Nguyen

Doctorate

UNE Business School

Oral Presentation

We used vector autoregression model to investigate the effects of fiscal policy on GDP and unemployment rate in Australia based on Australian quarterly data from the first quarter 1984 to the fourth quarter 2014. By using signs restrictions identification method, we found that under the fiscal policy shocks in Australia, both GDP and unemployment rate have been dramatically affected by fiscal policy shocks. Specifically, when government expenditure increases, GDP will increase but unemployment rate decrease. However, GDP will fall and unemployment rate rise if tax revenue increases. The unexpected tax revenue increase has a contradictory effect on output. Our results differ from the benchmarks of Ricardian equivalence and tax smoothing the best fiscal policy for stimulating the economy appears to be a balanced budget spending fiscal policy scenario

Keywords: Fiscal policy, Vector autoregression, time series

Research Methods: Quantitative

New Evidence on the Origin of Modern Crocodylians from Lightning Ridge, NSW

L. Hart

Masters

School of Environmental and Rural Science

Oral Presentation

The Australian record of Mesozoic crocodyliforms is sparse in comparison with most other Gondwanan continents. To date, only two taxa have been formally named: *Isisfordia duncani* from the Winton Formation in Queensland; and 'Crocodylus (Bottosaurus) selaslophensis' from the Grimman Creek Formation, Lightning Ridge, NSW. The latter taxon is enigmatic and has historically been considered a nomen dubium. New fossil evidence, and reanalysis of previously described material shows sufficient similarity between *Isisfordia* and the Lightning Ridge crocodyliform to suggest they belong to the same genus. This is significant as it extends both the geographical and temporal range of the genus *Isisfordia*, which is currently considered the oldest known member of the Eusuchia, the clade which contains extant crocodylians. This research further cements Australia as the origin of modern crocodylians.

Keywords: Crocodyliforms, Cretaceous, Gondwana, Lightning Ridge, *Isisfordia*

Research Methods: Qualitative

Authoritarian Regimes in Small Island Developing States (SIDS): Three Anomalous Cases of Electoral Autocracies

M. Bhim
Doctorate
School of Humanities
Oral Presentation

Coups and authoritarian regimes are nearly as prevalent in the world as ‘full’ democracies and ‘near’ democracies. Small Island Developing States (SIDS) have peculiar characteristics that largely appear to discourage coups, however, in a few SIDS, coups and authoritarian regimes have been successful. This presentation will examine the coups in Fiji, Seychelles and Maldives – SIDS with populations of less than one million - after the attainment of independence from Great Britain in the 1960s and 1970s. The paper will examine the nature of politics, the reasons for coups, the situation before and after coups, and the features of authoritarianism that emerged in post-coup regimes. It will investigate why the countries returned to multiparty elections and if elections resulted in electoral democracy? It will analyse the features of democracy and autocracy that were present after multiparty elections and reveal that authoritarianism has continued in the 21st century in the new form through manipulation of multiparty elections to produce electoral autocracy, rather than electoral democracy. It will look at features and length of time in power of ‘personalist’ dictatorships that prevailed in elected governments in these SIDS and reasons for cessation of personalist rule. Using the theories of SIDS and authoritarianism, it will find out why autocracies persisted in the three SIDS, the impact of the actions of citizens and civil society to bring about change, and propose solutions to phase out its presence. The responses of the international community to the post-coup authoritarian regimes will be critiqued for lack of intervention.

Keywords: Authoritarian, electoral autocracy, Fiji, Maldives, Seychelles

Research Methods: Qualitative

Understating Ancient Iron Metallurgy at Saruq Al-Hadid by Means of Invasive and Non-Invasive Archaeometric Techniques

I. Stepanov, K. Franke, L. Weeks

Doctorate

School of Humanities

Oral Presentation

Saruq al-Hadid is an archaeological site, located in the desert region of Dubai. Despite the site's remote location from all known regional ore deposits, it features abundant metallurgical residues from copper, gold and iron-making operations. Significantly, Saruq al-Hadid is the only known Iron Age site in South-eastern Arabia with large-scale evidence for iron fabrication and use – several hundred kg of iron remains have been excavated at the site so far. Until the discovery of Saruq al-Hadid, archaeological evidence from the region had suggested that iron use in the early Iron Age was small scale and insignificant. The archaeometric analysis of the Saruq al-Hadid ferrous remains presents particular challenges: the ferrous remains from Saruq al-Hadid are very poorly preserved, with virtually no metallic iron remaining. Nevertheless, new insights into ancient iron technology have been provided through application of the classical invasive method of optical metallography, SEM and La-ICP-MS in tandem with innovative non-invasive investigation by neutron tomography. The results of chemical analyses reveal that the majority of iron artefacts from the site were likely to have been produced from iron ores of Northwestern Iran. Overall, the characterisation of ferrous remains from Saruq al-Hadid is critical in gaining insight into the origins, spread and adoption of iron metallurgy in Arabia and the Near East more widely.

Keywords: iron metallurgy, south-eastern Arabia, archaeometry

Research Methods: Mixed Methods

The Faunal Remains from Saruq al-Hadid: A New Insight into Human-Animal Interactions in Prehistoric South-East Arabia

J. Roberts, L. Weeks, M. Fillios, C. Cable,
Y. Yousif al Aali, M. Boraik, H. Zein

Doctorate

School of Humanities

Oral Presentation

South-eastern Arabia has a rich and complex human past, extending far beyond the modern day metropolises of Dubai and Abu Dhabi. Extensive human occupation is evidenced in the region from the 5th millennium BCE and ebbs and flows alongside a changing local environment. Studying human activity in the region throughout this time can elucidate how humans behave in changeable environments. Excavations at the archaeological site of Saruq al-Hadid, located in the United Arab Emirates on the fringes of the Rub al-Khali desert, have greatly enhanced our knowledge of this behaviour. The programme of excavations, undertaken by a team from the UNE, have recovered a vast collection of archaeological material dating from the local Bronze and Iron ages (c.2200 – c.800 BCE), including a large assemblage of animal bone. A range of animals are evidenced to have been hunted at the site in large numbers, both for their meat and hides, indicative of a close relationship between these humans and their environment. Exploring this relationship has provided insights into an important regional debate; the timing and nature of the domestication of the dromedary camel. Current research suggests that this occurred prior to 1000 BCE, however the precise timing of this process is unclear. Studying the camel remains from this site has contributed to this discussion. Overall this research has provided a unique and valuable insight into the way in which humans were living at Saruq al-Hadid during this period, in turn greatly contributing to our understanding of prehistoric humanity in the region.

Keywords: Archaeology, Prehistory, Faunal, Middle East

Research Methods: Mixed Methods

Opportunities and Challenges of Visualization and Open Data in the Food Security Analysis

T. C. Hlaing

Doctorate

School of Environmental and Rural Science

Video Presentation

Statistical literacy presents many aspects about food security in the world. It highlights weaknesses, it creates awareness of threats in current situations, helps overcome challenges and creates opportunities for the future. Statistical data analysis enables existing food security interventions and programs to be reviewed and revised, and this better understanding of current situations enables more authoritative and relevant decision-making processes for the future. Statistical literacy involves skills and expertise in data description and interpretation (in words as well as in numbers) to name, explore and amend beliefs, opinions and suggestions. It helps decision-making processes about food security in a sub-nation, nation and region, as well as the world. This paper will demonstrate the importance of open data and visualization, including its challenges and opportunities, in the food security context at national and global level to make decision-makers aware of the need to enhance their capacity for and investment in statistical literacy.

Keywords: Visualization, Open Data, Food Security, Decision-Making

Research Methods: Mixed Methods

Poo Smell: How it Attracts Dung Beetles

A. P. Kaur, J. M. Holley, N. R. Andrew

Doctorate

School of Rural and Environmental Sciences

Oral Presentation

Insects play important roles in a range of ecological processes (e.g. nutrient cycling, bioturbation, seed dispersal and pollination). Dung beetles mediate several important ecosystem processes. The mechanism of adult host preferences has been investigated in many insects, however dung beetles have received very little attention. After finding a dung source, dung beetles quickly relocate the manure, either by burying it under the soil, or rolling it away from the dung pat for feeding and/or nest building. Laboratory olfactometer bioassays have shown that many dung beetles are able to choose between volatiles emitted by different types of faeces. As the resource selection process in dung beetles is assisted by olfactory cues from dung, we want to answer the following question: what kind of volatiles attracts dung beetles. We have used GCMS (Gas Chromatography Mass Spectroscopy) to record volatiles emitted from cattle dung; and we will use bioassays to assess the actual encounter of the dung beetles with the resource. Together this will identify the predominant volatiles that are responsible for dung beetles attraction to dung. This information is part of a larger project to construct artificial diets for dung beetles, and will assist in mass rearing programs for dung beetles requiring a constant food source throughout the year.

Keywords: Olfactory cues, Dung volatiles, Dung beetles

Research Methods: Mixed Methods

Can Annual Ryegrass, *Lolium Rigidum*, be Managed in Crop by Triticale Competitive Cultivars?

H. Khalaf, B. Sindel, P. Kristiansen, C. Birchall, R. Jessop

Doctorate

School of Environmental and Rural Science

Oral Presentation

Annual ryegrass is considered to be the most serious and costly weed species in Australian cereal cropping systems. It can strongly compete with crops such as wheat causing a significant yield disadvantage especially when it emerges before the crop. There have been several issues that have caused researchers to look for new strategies to manage annual ryegrass in cereal crops. One of those issues is herbicide resistance. Annual ryegrass is one of many weed species in Australia that has developed resistance to one or more herbicides such as glyphosate. It also produces an extremely large number of small seeds that can be easily distributed in the field. Crop competitive ability is an alternative strategy to herbicides for the management of annual ryegrass. Triticale is a hybrid that combines the environmental stress traits of rye and the high yielding traits of wheat. Although wheat is a higher yielding crop than triticale, triticale is considered to be more competitive than wheat. Five glasshouse experiments and one large field trial were conducted at the University of New England during the PhD project between 2014 and 2017 to examine the competitiveness of a range of triticale cultivars and two wheat cultivars with annual ryegrass under different environmental conditions. The results generally showed that triticale is more competitive than wheat, but that competitive ability varied between triticale cultivars and depending on the factor. The results indicate that certain triticale cultivars may well be able to be used effectively in weed management strategies that place less reliance on herbicides, to help combat the problem of herbicide resistance, which is now widespread in cereal cropping systems.

Keywords: Ryegrass; Triticale, Competitive ability

Research Methods: Mixed Methods

A Comparison of Methods of Assay for Assessing Aggression Behaviour of Meat Ants in the Field

N. Ranawaka

Doctorate

School of Environmental and Rural Science

Oral Presentation

Aggression behaviours among ants are primarily observed within field enclosures due to difficulty in observing their behaviours in open spaces. Over the past decades 90% of studies have undertaken ant aggression behavior assessments, primarily using enclosed space trials. Here, I investigated how the methodology used to assess aggression behavior in meat ants (*Iridomyrmex purpureus*) influences the outcome of meat ant interactions. Intruder ants were introduced on to resident ant nests either using within an enclosure or no enclosure. Within enclosure behavioural assays were conducted using blind and non-blind scores and ants were marked for identification. Aggression behaviour was recorded as 'non-aggression', 'ritualized display' and 'fight' over a 5 minute period post first contact between the resident ant and the intruder ant. Aggression percentages were calculated in each method for each observation type, in order to determine the amount scored of each behaviour type against method or observation type. In no-enclosure treatments the most prevalent type of aggression shown by the meat ants was 'fight'. However within enclosures, the most prevalent was 'ritualized display'. There was no difference between blind and non-blind scoring. These results suggest that, the true outcome of behavioural assays are impacted by the human interference due to stress caused by marking and ants kept inside enclosures.

Keywords: aggression behavior, meat ants, field assays

Research Methods: Mixed Methods

Ecology and Integrated Management of Blady Grass (*Imperata cylindrica*) in Perennial Pastures

H. A. A. Alqaderi

Doctorate

Environmental and Rural Science

Oral Presentation

Blady grass (*Imperata cylindrica*) is a serious issue in countries such as Iraq where it threatens native plant biodiversity and in perennial cropping systems reduces quantity and quality of yield. There is very little information about the ecology or management of blady grass in Australia. Blady grass control needs to consider both the size and longevity of the soil seed bank as well as the rhizomes. Climate change may present a new challenge for the management of blady grass. Control may well be more effective with the application of Integrated Weed Management (IWM) where several methods of control are combined. The objectives of this research are to understand aspects of the ecology of blady grass (factors that promote and deter its growth) that will inform better weed management, and test integrated strategies for its control. In our first experiment, the soil seed bank of blady grass was sampled from amongst native pastures growing on the Newholme Research Station of the University of New England north of Armidale, NSW, Australia (latitude 30.423°S, longitude 151.652° E, elevation 1013 m). The soil cores down to a depth of 10 cm were collected from the centre, edge, and outside of three different patches of blady grass. Seeds in the samples were then germinated under glasshouse conditions and seedlings counted and later identified as mature plants. The preliminary results of this study indicate that blady grass at these locations had a negligible germinable seed bank while at least 21 other monocot and dicot species were present. The reasons for the lack of a persistent blady grass seed bank are being explored in further experiments.

Keywords: Blady grass, Ecology, Management, Longevity, soil seed bank, Pastures

Research Methods: Quantitative

"I Sing in Change": The Reception of Philomela's Voice in Milton Babbitt's 1964 Cantata, "Philomela"

K. Constantine
Doctorate
School of Arts
Oral Presentation

The story of Philomela in book VI of Ovid's "Metamorphoses" is a vibrant lesson in powerlessness and empowerment, teaching us that a voice, even when silenced by violence, can still be heard. In fact, Ovid's Philomela has more than one voice, as her human voice transforms into the voice of her loom and then bird song. Over the centuries, Philomela has learned many new ways of speaking, as the cultural trope of Philomela-nightingale has been appropriated and adapted. Philomela's internal, silent voice is present in early Christian traditions while she whispers like a lover to Romantic poets to incite creativity. More recently, her voice has become a war-cry, as her story is used to champion the rights of women and victims of sexual violence. Philomela also inspires musicians, with early evidence in Ovid's own "tempora carmen" and the traditions of ancient poetry (Met. I. iv). The plurality of Philomela's voice is perfectly captured in music, since music itself weaves together voice, text, melody, and rhythm to tell a story. Despite this, very little research has been conducted on the reception of Ovid's Philomela in music, particularly in the twentieth and twenty-first centuries. In this paper, I consider Milton Babbitt's 1964 cantata, "Philomel", which combines live voice, pre-recorded voice, and electronics to capture Philomela's voice at the point of her metamorphosis. Babbitt's serial composition, incorporating John Hollander's purpose-written text, is an experiment in creating a new form of vocal and musical expression, with Philomela's voice perfectly positioned as its conduit.

Keywords: Music, Philomela, Reception, Voice

Research Methods: Quantitative

Documentary Filmmaking and the Intersections of Government Policy, Aboriginal Education and Anthropology

M. Brogan
Doctorate
School of Arts
Oral Presentation

This paper describes the lines of inquiry that higher degree research (HDR) provides an opportunity to pursue, in a documentary project motivated by a long-running encounter with anthropological filmmaking and educational policy and practice. Focusing on research and development, and pointing forward to preproduction, it contributes to broader discussions about documentary uses of knowledge, protocols, ethics and the politics of representation. My paper outlines my aims in discovering a starting point between personal and professional experiences of working in the field of education in relation to challenges faced by the Northern Territory regarding the education and social integration of Aboriginal people, particularly the Aboriginal children who featured in the film *Walking in the Sunlight, Walking in the Shadow* (1971). Recent research enables me to consider the proximity of texts in relation to one another – and the wider historical projects they represent – and what relationship they may have with *Walking in the Sunlight, Walking in the Shadow* being made. This paper serves two purposes. Firstly, an opportunity to engender a foundation towards my exegesis, enabling me to demonstrate all things being considered in relation to the Aboriginal children, their family and community and all issues to be discussed regarding the historical context of education, Policy and assimilation where my film is concerned. Secondly, an opportunity to convey how research continues to be an ongoing process when examining theoretical frameworks in relation to documentary filmmaking, role of filmmaker and proximity between institutions, academic and professional fields of inquiry to delve deeper in my understanding of my film.

Keywords: Documentary Filmmaking, Government Policy, Aboriginal Education and Anthropology

Research Methods: Mixed Methods

The Intimate and the Epic: Excavating Ghosts in Narrative-led Site Performance, PLUNGE

K. Shearer
Masters
School of Arts
Oral Presentation

This practice-led research is a creative enquiry into the dynamics between complex listening and multi-layered viewing in contemporary site-specific performance. To answer this question, I have written and directed PLUNGE, a multi-artform promenade performance at the Gold Coast Aquatic Centre. Inspired by the very venue that will play a prominent role in the 2018 Commonwealth Games and the people (or ‘ghosts’) who inhabit that site, PLUNGE takes a polymodal and intermedial approach that uses theatre, contemporary dance, small and large-scale AV, headphone technologies, site practice and sport itself to delve into the internal and external pressures on athletes and the pool community’s responses to profound change. Most theatre is attended from a fixed point of view – PLUNGE asks what is the effect of a moving/changing point of view for an audience? Drawing inspiration from the architecture of the building and experimenting with scale and distance - audiences travel from the darkened intimacy of the children’s pool, look up at the 10m dive tower and then down from the stadium heights viewing large-scale images projected on the pool, on the body and on the building. The phenomenology of “embodied attending” (Di Benedetto, 2007:126) is explored as the audience experience a layered sound design through headphones which fuses composition, verbatim taken from interviews with the pool community and the fiction of the ‘play’ itself, combined with the smell of chlorine, splashes of the water and proximity of the performers to audience as they travel across the site. “Such play with the multi-dimensional and holistic capacity of the full human sensorium allows for a new protocol of interaction and exchange to establish itself, reconnecting an individual with his or her own body.” (Machon, 2013:80) This practice-led research reflects the rise of hybridity in contemporary performance making in Australia and contributes to the field with the emergence of site practice globally as a dominant language in contemporary performance-making.

Keywords: site-specific performance, modes of viewing and listening

Research Methods: Qualitative

References:

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- Machon, J. 2013 *Immersive Theatres – Intimacy and Immediacy in Contemporary Performance*, Palgrave Macmillan, London.

Hewett's Transgressive Women: A Phenomenological Exploration of the Feminine Body through Monodrama

L. Goldzieher
Honours
School of Arts
Oral Presentation

This creative practice led research investigates the bodily experience of Dorothy Hewett's subversive female characters through the theatrical performance of monodrama. It further examines the autobiographical nature of Hewett's feminist writing, exploring the boundary between imagination and memory. To answer these questions I adapted, directed and performed some of Hewett's plays, poetry and prose into a one woman show - Wild Card. Wild Card explores the boundary between fact and fiction, subject and performer, viewer and participant through Hewett's literary representation of self in performance, as well as examining the personal, domestic, sexual, bodily, everyday experiences of women as they search for autonomy and self fulfilment. For women "freedom is not absolute, but situated" (Moi, 1999, pp. 65-66), it is influenced and affected by the experience of the body in the world. This phenomenological lens enables the bodily experiences of Hewett's subversive characters to be further explored through the sensory elements of theatrical production: set, props, costume, lighting, sound, music, physical and vocal embodiment and spatial relationship to the space and audience. The physical body of the performer becomes a site of translation through space and time, portraying the mythic legend of Hewett through thirteen different characters, exploring the difficulty in distinguishing the boundary between fact and fiction, where Hewett stopped and the characters began.

Keywords: autobiography, monodrama, phenomenology, feminist, bodily experience

Research Methods: Qualitative

References:

Moi, T 1999, What is Woman? Oxford University Press, New York.

Staging the Silences: Creating a Theatre of Disruption through Subversive Practice

L. Kershaw
Doctorate
School of Arts
Oral Presentation

The Australian Writers' Guild's 2016 analysis of theatre programming trends in ten major theatre companies across Australia revealed an annual decrease in work with 'an Australian writer attached' (p.2), majority of whom were male. Additionally, just 34 of these plays represented original works, with the remaining 19 being adaptations (ibid.). This data is indicative of a culture in Australian theatre that is increasingly removed from contemporary issues and local voices. Furthermore, the lack of gender parity offers limited scope to adequately represent the stories and experiences of Australian women. This results in a theatre culture that, rather than challenging ideologies that homogenise culture and implicitly contribute to marginalisation, reinforces these perspectives as definitive of 'good' theatre. This presentation seeks to explore theatre as a disruptive force, and practically examine how Australian playwrights can create new, locally relevant work that capitalises on the element of risk associated with the creation of new art, with a focus on the representation of women in theatre. Utilising creative practice as research facilitates an exploration of what disruptive theatre might look like, its potential as a method of contemporary Australian theatre practice, and the possibility of using it to promote active social change. A section of original script will be presented, followed by a brief discussion of the techniques that have been used.

Keywords: Theatre Disruption Australia Subversive

Research Methods: Mixed Methods

Abstracts by Streams and Sessions

STREAM TWO

Session Five	Qualitative - Social Sciences
Session Six	Quantitative - Sciences
Session Seven	Mixed Methods - Sciences
Session Eight	Mixed Methods - Arts

The Limits of Clothing Measurement Systems: Towards a New Body Ideal

L. J. Hackett

Doctorate

School of Behavioural, Cognitive and Social Sciences

Oral Presentation

Increasingly, the body has become the site of a person's status within society (Entwistle 2000, 73-75) and the thin body is held to be the ideal. Consumer goods can be used to create cultural categories (McCracken 1986, 76) and clothing sizes allow women to be sorted into inclusive 'normal' sizes and exclusive 'plus' sizes. The complexity of clothing construction is beyond that of any other consumer good. Whereas many products, such as a chair, can be designed to fit a wide range of body sizes, apparel demands a more nuanced approach. Clothing size systems were developed in response to the problem of mass-manufacturing a good that demanded high amounts of variation. Ideally, clothing size systems should be developed after undertaking an anthropometric survey of the population and statistical analysis employed to devise a useful set of sizes. The reality has seen clothing size systems developed from second-hand data or less than ideal methodological approaches that incorporated erroneous assumptions about body size and shape. As clothing sizes became standardised so too did the social view of female bodies. Yet the last century has seen a radical change to female body size and shape, driven by factors such as nutrition, sanitation and medical advances. Despite this, the ideal has remained firmly entrenched in the sizes encoded in the size systems. Recently, this has been challenged as social media provides a platform through which women can challenge this status quo by presenting alternative dialogues of the clothed body.

Keywords: women's clothing sizes; measurement standards, fashion, plus size, right women's clothing sizes; measurement standards, fashion, plus size, size zero

Research Methods: Qualitative

The Power of One Voice: Australian Women Advocating Change in Policy and Social Justice

A. Heurich

Doctorate

School of Behavioural, Cognitive and Social Sciences

Oral Presentation

During the twentieth century, women stood for equal rights and personal empowerment through collective action. Significant periods include the early 1900s, with suffragettes gaining the vote for women; the 'interwar' period of 1919 to 1938, with campaigns for family endowment, and the 1970s, when feminist movements highlighted rights of women at work. In today's social and political climate women are taking a stance as individuals. It is the intention of this research to interview prominent women, influential across a number of social issues and from diverse cultural backgrounds. The aim is to discover what drives these women to make a stand, how they view the 24/7 media and social media cycle, and how they maintain resilience. A comparison will be made between the effectiveness of this individual action and that of the collective movements of the 1970s, including the Femocrats, Women's Electoral Lobby and Women's Liberation Movement. To gain an understanding of the reasons for this transition from collective to individual action, this research explores the concepts of political change, such as the shift to neoliberalism, and the notion that dissatisfaction leads to the use of voice from outside the traditional frameworks of organisations and political parties. This study expands on initial research undertaken as an Honours degree in 2016.

Keywords: Women, Voice, Empowerment, Resilience, Social Justice

Research Methods: Qualitative

Growth Performance of Village Chickens Fed Different Dietary Energy and Protein Levels From 6 To 18 Weeks

H. J. Gausi^{1,3}, M. M. Bhuiyan¹, J. P. Gibson¹, T. N. Gondwe², P. A. Iji¹

Doctorate

School of Environmental and Rural Science

Oral Presentation

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A study was conducted to evaluate gross performance of normal (multi-coloured with full plumage) mixed-sex village chickens from 6 to 18 weeks of age. The birds (initial weight, 232.0 ± 22.3 g) were raised intensively and feed and water were provided ad libitum. Three diets varying in energy and protein were formulated. The control diet, containing high energy and high protein (HEHP) was formulated to meet the energy requirements of Hyline pullets. Two other diets were formulated, containing 90 and 80 % of the energy and protein contents of the HEHP diet, and designated medium-energy-medium-protein (MEMP) and low-energy-low-protein (LELP), respectively. Sixty chicks of mixed sexes were randomly allocated to the three diets. There were five replicates per group and four birds per replicate. The diets, in mash form, were fed from 6 to 18 weeks of age. Data were collected on feed intake and body weight. Data were analyzed using one-way analysis of variance (ANOVA) of Minitab 17. Feed intake, final body weight, body weight gain and feed conversion ratio (FCR) were not influenced ($P>0.05$) by diet. At the end of the experiment (18 weeks), the birds on MEMP gained more weight (637 g) than those on HEHP and LELP that gained 591 and 489 g, respectively. On the other hand, FCR at 18 weeks was 6.2, 6.0 and 8.0 g feed per g weight gain for the groups on HEHP, MEMP and LELP diets, respectively. The growth performance of the birds in the current study was not influenced by energy and protein levels in the diets. It was thus, concluded that low-nutrient diets could be adequate for the growing phase of village chickens.

Keywords: Village chickens, dietary energy and protein levels, growth performance

Research Methods: Quantitative

Cranial Morphology and Ecological Factors in Anthropoids (Primates)

H. Y. Luk

Doctorate

School of Environmental and Rural Science

Oral Presentation

Understanding the relationship between morphological variation and extrinsic factors like diet or ecology provides insights into how biodiversity is created and maintained. The diversity in skull shape and ecology makes Primates an excellent taxon to explore the importance of one's form to its function. Geometric morphometrics analysis were used to determine if there is a relationship between cranial morphology and diet or locomotion in the Suborder Anthroidea. Computed tomography scans of the crania of 378 specimens in 93 species were used to create 3D digital models. Fifty landmarks and 20 curves were digitally placed on each model to capture features that were crucial in mastication. The 3D landmark coordinates were then subjected to Generalised Procrustes Analysis and principal components analysis to identify major axes of shape variation among all specimens. The effect of phylogeny and size were also examined using phylogenetic generalised least squares regressions and allometric analysis respectively. In general, no convergence in cranial shape was observed based on dietary category or locomotion method. There was an allometric relationship in the anthropoid crania with old world monkeys tending to be larger in size and showing a wider size and shape range compared to the new world monkeys. While past studies showed a strong relationship between diet and skull morphology in various taxa, the results of this study suggested otherwise. The opposing results may be caused by factors like geographic niche, social selection pressure, variation in bone density and mechanical properties.

Keywords: Cranial morphology; diet; locomotion; primate; shape; geometric morphometrics

Research Methods: Quantitative

The Contribution and Stability of Root Carbon from Rhodes Grass

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Doctorate

School of Environmental and Rural Science Education

Oral Presentation

To fully understand the potential for soils to store additional carbon, it is necessary to quantify the contribution and stability of carbon from roots. In this research, we aimed to determine the amount of 'new' C inputs from the root system and their stability down the soil profile across multiple growth and decomposition phases. Specifically, our objectives were to investigate 1) whether a change in $\delta^{13}\text{C}$ values reflected the change in contributions of root biomass with respect to depth and 2) do multiple growth and decomposition phases results in an accumulation of 'new' carbon. We utilised a pot experiment using a soil with a characterised history of C3 plant growth, in which we grew Rhodes grass (*Chloris gayana*), a C4 subtropical species. The experiment ran for two seasons, with each season consisting of a growth phase and decomposition phase of three months. Subsamples were destructively harvested for soil and roots at four depths at the end of each phase. Using Isotope Ratio Mass Spectrometry (IRMS) and the difference in $\delta^{13}\text{C}$ signature between the C3 and C4 carbon, we quantified the amount of C4 derived carbon and its distribution down the soil profile. The results showed that the treatment phase determined the change in $\delta^{13}\text{C}$ values and not the root biomass concentrations. In the second season, the changing $\delta^{13}\text{C}$ values compared to season one, seem to suggest a possible priming effect.

Keywords: Soil carbon; Roots; Rhodes Grass

Research Methods: Quantitative

Improvement of Bali Cattle Reproductivity to Develop Livestock Model in Nusa Tenggara Barat, Indonesia

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Doctorate

School of Environmental and Rural Science Education

Oral Presentation

The high demand for meat in Indonesia continues to increase, but not yet fulfilled from domestic cattle production. Currently, the government focuses on developing Bali cattle (*Bos javanicus*) in Nusa Tenggara Barat (NTB). Livestock farming in NTB is mostly done by smallholders with semi extensive systems, as a result, the livestock productivity is low. The aim of this research is improving the reproductive and health performance of cattle at smallholder's level based farming systems using adoptable interventions and involving stakeholders to participate in the livestock development. The approach that will be used is to collect information through survey fields and collect and review the data related to the livestock reproductivity and disease. An inventory of primary data will be made through interviews conducted by the survey, questionnaire, case study research, and on-farm sampling. These will be carried out with the smallholder groups and stakeholders, also the focus group discussion (FGD) will be conducted. Secondary data will come from social and demographic farmers, stakeholders participation, climatological data, and diseases investigation data. The pattern and statistical analysis in cattle reproduction and animal health will focus on developing research and innovation both on adoption and scaling out. The model will be created through an understanding of the potency of cattle in NTB. It can be used to create a model of cattle development in NTB, either as breeding livestock or cattle production in supporting the fulfillment of the national meat production targets.

Keywords: Bali Cattle, Reproductivity, Livestock Model

Research Methods: Mixed Methods

Occupancy Estimation: its use in Amphibian Studies

S. Collins

Doctorate

School of Environmental and Rural Science Education

Oral Presentation

Frog species are under threat worldwide. The widespread decline of frog species is problematic from a biodiversity perspective and that of the viability of many ecosystems. A viable method of understanding changes in species presence and persistence is through the resurveying of historical sites; the results being analysed using the method of occupancy estimation. Occupancy estimation, the determination of the proportion of sites occupied by a species adjusted for the confounding effect of detection, is a versatile method of monitoring frog species populations. A decline in occupancy is often linked with a decline in species viability and as such is a suitable method for monitoring changes in a species distribution. A further advantage of this method is that of being able to combine environmental covariates with the serial presence/absence data to give a more comprehensive understanding of both occupancy and detection. For the purpose of conducting such a study, the New England Tablelands region of New South Wales is unique in that there exist substantial historical records of frog species once present there; these records extending back to up to fifty years. Further, some preliminary work has recently been undertaken with regard to the current distribution of frog species in the region; predominantly in the areas around Armidale, Uralla, Bundarra and Ebor. The main purpose of this study is to determine which frog species still occupy their historic sites and if their general occupancy has changed over the prevailing fifty years. As a part of this exercise, present day occupancy will be modelled in relation to select environmental covariates to give a more comprehensive idea of both occupancy and detection.

Keywords: Frog, occupancy estimation, detection, environmental covariates, occupancy modeling

Research Methods: Mixed Methods

Innovation Pathways: Frameworks of Safety Risk Analysis and Quality Assessment of Beef Produced in Nusa Tenggara Barat (NTB), Indonesia

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Doctorate

Oral Presentation

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Indonesian meat supply for domestic consumption relies mostly on imports of live animal and imported boxed meat covering 38% of the total Indonesian beef consumption in 2016. Imported beef is of high nutritional quality and available at a low price. These advantages challenge the development of the local beef sector, which is warranted to stabilise their economy. In recent years, local cattle farmers have adopted integrated Forage Tree Legume to produce high quality carcasses. Beef produced using Forage Tree Legume is a potential competitive product for beef offered in retail stores. However, data supporting the NTB beef quality remains indistinct and lack of evidence. Standard operating procedures for production, processing, and marketing of these products needs to be developed to ensure local beef brands can deliver a safe product to the consumer. The development of a scientific systematic approach for safety risk analysis is critical to ensure food safety, hygiene, and traceability of products. Furthermore, the development of a pathway framework which could improve quality standards of NTB beef is essential to ensure reliable, consistent quality of beef to the consumers. The research focus is to improve quality and safety of NTB beef through creating adequate frameworks of safety risk analysis and quality management system. Frameworks development will benefit all parties including supply chain participants, consumers, food authorities, governmental agencies, researchers, and related stakeholders in terms of knowledge, best practice, opportunity, partnership, income, and other spill-over profit. Firstly, pilot studies on assessing value chains of NTB beef and the current management system of beef production (data collections and interviews) need to be conducted. Secondly, a profound literature review studies and strategic collaboration with relevant stakeholders about local food regulations and decision making process are required. Thirdly, identification of possible contamination risks based on quantitative risk assessment methods will be undertaken prior to the development of a risk analysis framework including beef testing on hazardous contamination, risk identification, risk characterization, and control strategy. Therefore, quality assessment compiles an on-farm study and investigation regarding existing cattle management systems (feeding, animal welfare, breeding, animal growth rate, et cetera), slaughtering methods, beef processing, and distribution. This step also includes beef testing on nutritional values, organoleptic properties, pH and temperature decline, pre-slaughter stress, and meat ageing or packaging.

Keywords: Forage tree legume, nutritional properties, risk assessment methods, value chains

Research Methods: Mixed Methods

Transdisciplinary Imaginings and the 'Poetics of Carbon'

M. Cotter
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School of Arts
Oral Presentation

The marked acceleration in fossil fuel consumption reported since the mid-20th century is currently understood to have led to global carbon emissions of a rate and scale unsustainable of current earth systems. Hence, at both local and global scales, anthropogenic climate change is increasingly reported as being negative in impact, cumulative in consequence, and irreversible in outcome. Indeed, recognition of the primacy of human agency in those disruptions to the earth's biogeochemical systems noted since the mid - 20th century, have led to the new millennial attribution of this period as the 'Anthropocene'. In the emergent lexicon of the 'Anthropocene', it is apparent that the term 'carbon' is, of itself, also in flux. It is a noun whose use, meaning and attribution is transitional. Thus, whilst 'carbon' remains a scientific term used to refer to the fourth most abundant (and inherently 'natural') chemical element in the universe, it is now also the basis of number of complex nouns that variously imply human influence, ingenuity, mediation and control (e.g. 'carbon fibre', carbon footprint' 'carbon tax'; 'carbon neutral' and 'carbon credit'). In both scientific literature and public discourse 'carbon' is both material to - and metaphor for the expression of - concern for current human-environment interactions and their sustainability. It is in the context of the transitional nature of its use and understanding(s) that lends the noun 'carbon' to study and critique from within the emergent field of environmental humanities. In the context of a 'Transdisciplinary Creative Praxis' this paper will outline how research focused on the 'poetics of Carbon' is expected to provide both substance and nuance to our understandings of the interrelationships between humanity and our environment, and thereby, develop new interconnections across and through the nature-culture divide.

Keywords: Carbon, Anthropocene, Ecopoetics, Transdisciplinarity, Environmental humanities

Research Methods: Mixed Methods

Piecing Together the Past: A Creative Approach to Understanding Material Heritage in Museums

P. Reynolds
Doctorate
School of Arts
Oral Presentation

This presentation describes how the reconstruction of an object can give greater understanding of its qualities and shed light on the intentions of the artefact's creators. In 2017 I visited museum collections in the UK and Germany in order to document and study tapa (barkcloths) made in Tahiti and Pitcairn Island in the late eighteenth to early nineteenth centuries. Included in these collections are a group of tiputa (traditional tapa ponchos or tunics) made on Pitcairn which are unlike those of other Polynesian islands. By reproducing a tiputa with modern textiles, I was able to explore ideas around their conceptualisation and composition, with a view to understanding the objects and the women who made them, who are also my foremothers. This paper outlines my experience of engaging with these cloths with three different perspectives: as a historian, as a descendant of the makers, and as a textile artist, and how such an approach can enable the disruption of the dominant museological narrative surrounding the Pitcairn tiputa and Pacific artefacts in general.

Keywords: barkcloth, tapa, museum, Tahiti, Pitcairn, Pacific

Research Methods: Mixed Methods

Abstracts by Streams and Sessions

STREAM THREE

Session Nine	Quantitative - Sciences
Session Ten	Qualitative and Quantitative - Health
Session Eleven	Quantitative – Sciences
Session Twelve	Qualitative - Education

Structure-Property Relationships in Macrocyclic and Tridentate N-Heterocyclic Carbene Metal Complexes

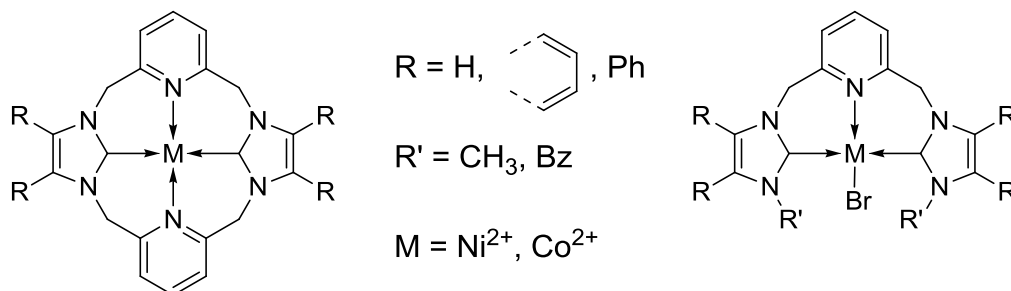
D. Woods

Doctorate

School of Science and Technology

Oral Presentation

N-heterocyclic carbene (NHC) metal complexes are a class of coordination compound that show promise for applications in medicine and catalysis. Interest in this class of compound arises from the structural diversity possible, with the ligand motifs offering structures that are able to impart various properties to the ligand-metal complex. The ligand motif can accommodate alternate donor atoms which, with the metal, allow tuning of the ligand-metal complex properties. A number of macrocyclic and tridentate proligand precursors have been prepared as imidazolium salts. The imidazolium salts are treated with a suitable base and metal source to form a suite of NHC ligand-metal complexes with imidazol-2-ylidene, benzimidazol-2-ylidene, 4,5-diphenylimidazol-2-ylidene and pyridyl donors and nickel(II) and cobalt(II).



The relationship between structure and chemical properties has been investigated with a number of NHC metal complexes with the aim to assess their suitability towards reaction catalysis and medicinal applications.

Keywords: NHC, organometallic chemistry, imidazolium salt

Research Methods: Quantitative

Looking for Molecules in the Milky Way Which Can Help Measure Magnetic Fields

M. Sharpe

Doctorate

School of Science and Technology

Oral Presentation

Star formation is most likely to occur in dark (dust-containing) clouds in the equatorial plane of galaxies like our own. The comparative weakness of gravity compared to magnetism and turbulence has to pull enough matter together to form a star. There is still much to be learnt about how these factors interact. My task has been to measure the presence and abundance of the cyanogen radical (CN) within half a degree of the Galactic equator in the fourth quadrant of the Milky Way (from near the Southern Cross and Pointers towards the Galactic Centre). This data was obtained from the Mopra radio telescope near Coonabarabran, observing in the microwave wavelength (3mm). With an odd number of electrons and the improving power of telescopes to detect circularly polarised light, the results can be used to measure the magnetic field strength in quite weak magnetic fields.

Keywords: astrophysics, CN, microwave radiation, cold dark clouds in the Milky Way (cold dark clouds in the Interstellar Medium), radio telecopy

Research Methods: Quantitative

Investigating Contradictory Findings Related to Auxin and THOUSAND GRAIN WEIGHT 6 (TGW6) Gene and their Relationship with Grain Weight in Wheat

M. R. Kabir, H. M. Nonhebel, D. Backhouse

Doctorate

School of Science and Technology

Oral Presentation

Thousand Grain Weight 6 (TGW6) is a gene found in rice and wheat that produces significant effect on grain weight and yield. TGW6 encodes a protein that hydrolyses the inactive glucose conjugate of the plant hormone indole-3-acetic acid (IAA). Publications on rice and wheat have found that inactive TGW6 alleles result in lower IAA levels in grains and higher grain weight. These papers contradict previous findings showing a positive correlation between IAA and grain yield in cereals. In plants, most IAA is produced from tryptophan rather than hydrolysis of IAA glucose (IAA-glc); this is not mentioned in the papers reporting on TGW6. Additionally, the authors did not investigate the amount of IAA-glc in grain. The rice and wheat papers also disagree markedly on the timing of TGW6 expression in grains. Re-investigation will be required of the timing of TGW6 expression during grain filling. My study started with the identification of IAA biosynthesis genes using the newly available wheat genome sequence. We show that wheat has 13 tryptophan aminotransferase related (TAR) genes for the first step in IAA production. In addition we found 10 YUCCA genes from a grain-specific clade important for the rate limiting enzyme for IAA production. Three Iaglu genes encode enzymes for the production of IAA-glc. Most interestingly, we found not one but nine TGW6-related genes in wheat. This is an interesting finding as it is unclear how a single inactive TGW6 gene could have the reported major effect on hydrolysis of IAA-glc and IAA content of grains.

Keywords: Plant hormone, Auxin, Gene, Grain fill

Research Methods: Quantitative

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Using Electroencephalography (EEG) to Measure the Effects of Sensory Features (SF) upon Functional and Effective Connectivity in Children and Adolescents with Autism Spectrum Disorder (ASD)

K. Sarmukadam

Doctorate

School of Science and Technology

Oral Presentation

Autism Spectrum Disorder (ASD) is a heterogeneous neurodevelopmental disorder exacerbated by deficits in social communication and presence of restricted and repetitive behaviours. Sensory features, or atypical behavioural responses to sensory stimuli in the environment, are considered to be a key characteristic of ASD, affecting 90-95% of children and adolescents with ASD on a daily basis. While there are behavioural measures to identify and treat these sensory features, electrophysiological techniques have been increasingly used in the ASD field as a way to identify the neural underpinnings associated with ASD. Electroencephalography (EEG) is one such technique applied in the ASD field due to its cost effectiveness and non-invasive nature. By using social elements embedded with sensory information that individuals with ASD may have challenges with on a daily basis, this study aims to explore the effects of sensory features upon EEG brain connectivity in children and adolescents with ASD.

Keywords: Autism Spectrum Disorder, ASD, EEG, Sensory features, brain connectivity

Research Methods: Quantitative

“The Challenges of Researching Illicit Drug-Related Emergency Department Presentations in a Medical Chart Review Study”

R. Jones
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School of Health
Oral Presentation

An integrated literature review was conducted looking at the rates and features of methamphetamine-related presentations to emergency departments. The quality appraisal of the studies from this literature review highlighted some key challenges with methodology and study designs that limit the generalisability and validity of the findings of included studies. Researching accident and emergency department data via information recorded in patients’ medical records is a commonly used and useful strategy to understand reasons for presentations related to the impact of illicit drugs. However, there are several inherent problems in methods when undertaking this kind of research. Challenges include recruitment/measurement of drug use, abstraction of data from medical records, length of time study was conducted over, location of the study, and sampling method were a few of the issues highlighted by this literature review. The researcher not only needs to be aware of these inherent problems in methods but must plan to address wherever possible to ensure the research has a valid outcome.

Keywords: drug-related, emergency department, challenges, methodology, illicit drugs

Research Methods: Quantitative

Sun Protective Behaviours during Maximum Exposure of Ultraviolet Radiation When Undertaking Outdoor Activities

F. Barrett, J. Conway, K. Usher, C. Woods

Masters

School of Health

Oral Presentation

Background: Worldwide, skin cancers including melanomas continue to be linked to high rates of death directly related to sun exposure. The relationship between skin cancer and ultraviolet radiation (UVR) is now well established. The aim of this review was to describe current patterns of sun protection behaviours in Australia and overseas.

Aim: To describe current patterns of sun protection behaviours in Australia and overseas.

Results: The review found that self-reported sun protective behaviours differ markedly from observed behaviours, with observed behaviours indicating lower levels of sun protection. Sun protection behaviours are highest among outdoor workers with mandatory personal protective equipment (PPE), boaters and snow skiers.

Discussion: A majority of the studies reviewed revealed that sun protective behaviour continues to be poor during outdoor activities, indicating people are at risk of developing sun-related skin conditions such as skin cancer. These findings offer important insights for future sun safety campaigns.

Conclusion: Despite numerous sun safe campaigns over time, it appears that perceptions of risk are undermining the messages. Future health promotion campaigns should focus on avoidance of harmful UVR exposure in all climates, and the importance of sun protective clothing and eye protection necessary during necessary periods of high UVR exposure.

Keywords: Leisure activities, outdoor workers, review, sun protective behaviours, ultraviolet radiation

Research Methods: Qualitative

An Investigation into the Expression & Experience of Compassion in a Hospital Setting

J. Durkin
Doctorate
School of Health
Oral Presentation

Compassion has been used widely in the healthcare literature with the absence, or presence of, compassion seen as crucial to effective healthcare. Despite compassion being viewed as important in healthcare and considered as an essential component of healthcare professionals practice it remains a poorly understood concept. Despite the growing use of the term compassion in healthcare, there remains a lack of consensus on what this represents. Understanding compassion is seen as significant within the current healthcare context. Perceived deficits in compassionate behaviours have been mentioned in a variety of government reports and healthcare workers have been accused of not demonstrating compassionate behaviour. However, upon review of the literature it is very hard to determine the maturity of the idea that there is a lack of compassion in healthcare. Research into the subject is in the early stages of development and there is concerns as to the limited level of understanding on the concept. As such, to blame 'others' for not having or demonstrating compassion is a hard task. This research is significant as it addresses the need to unpack and reveal a more in depth understanding of compassion in healthcare from (1) those who research it (2) those who receive it and (3) those who express it. This research aims to provide a fuller understanding of how compassion is experienced or received by patients within a hospital setting while further providing an understanding of how compassion is expressed by their health care personnel.

Keywords: Hospital; healthcare; compassion; patient-experience

Research Methods: Qualitative

Student Nurses Experiences in Primary Healthcare Clinical Practice

Z. Byfield

Masters

School of Health

Oral Presentation

Background: Primary Healthcare is an essential mode of service within the Australian healthcare system. Due to an aging population and changing demographic; increasing prevalence of chronic disease; and increasing pressures associated with health technology there is a need to better integrate healthcare service delivery. Likewise, it is essential to better prepare the student nurse for a healthcare system with changing workforce priorities. By understanding the experiences of student nurses attending clinical placement in the primary healthcare setting, educators and stakeholders will be better informed to put into place strategies to better support the student nurse.

Aim: The aim of this study was to explore the experiences and perceptions of student nurses attending clinical placement at a primary healthcare setting in Regional NSW, Australia.

Design: This study utilised a qualitative research design. Data collection will take place via semi-structured interviews with the interview transcripts subject to thematic analysis.

Participants: Purposive sampling will be used to recruit current student nurses who have attended a clinical placement at a primary healthcare clinic. Participants may be enrolled in either bachelor or master level studies which lead to qualification as a registered nurse.

Findings: Preliminary findings of this study will be presented focused on the experiences and perceptions of the student nurse participants.

Conclusion: To support the student nurse in their learning within primary healthcare it is essential to first understand the student perceptions and the experiences they have while on clinical placement within the setting.

Keywords: Nursing, Education, Primary Healthcare

Research Methods: Qualitative

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Giving Voice to at-risk Young People: The Ethical Challenges of Data Collection using Narrative Inquiry

L. Douglas, K. Usher, D. Jackson, C. Woods

Doctorate

School of Health

Oral Presentation

Aim: The purpose of this paper is to highlight the methodological issues that can arise when research is being conducted with a vulnerable population.

Background: The conduct of research has inherent responsibilities and challenges, particularly when researching with a vulnerable population. Researchers are faced with a variety of complex issues and choices in relation to ethical concerns. While there is literature available to assist researchers with methodologies and design, there is no pre-existing template to guide researchers with research processes as each project comes with a unique set of circumstances

Narrative Inquiry: Narrative inquiry is a form of qualitative research that involves gathering narratives or stories. Importantly, the narrative is focused on the meanings people give to their experiences. Narrative inquiry is particularly suitable when researching with a vulnerable population. Narrative research offers the opportunity for participants to have a voice; it also offers an opportunity for participants to share their experience with others.

Discussion: Researching with a vulnerable population can be complex and challenging. The position of the researcher can affect the collection of data when there is a developed relationship between the researcher and participant. Ethical challenges arise; including power differentials, pre-existing relationships, vulnerability, and the emotional impact to both the participants and researcher when the pre-existing relationship is altered for research purposes.

Conclusion: Understanding and embracing these challenges when working with vulnerable young people and learning how to effectively manage them is imperative to the integrity of ethical conduct in qualitative research.

Keywords: Qualitative research, narrative inquiry, at-risk young people, data collection, challenges, research ethics

Research Methods: Qualitative

Improving Performance of Breeding Cattle by Feeding *Leucaena Leucocephala*

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Doctorate

School of Environmental and Rural Science

Oral Presentation

Improving quality and supply of feed is important to increase the reproductive performance of cows. *Leucaena leucocephala* (*leucaena*) is a tree legume, which is commonly used as high quality feed to increase cattle productivity in the tropical areas. *Leucaena* contains 20–30% of crude protein, is palatable; grow faster and tolerant to drought. It offers the best opportunity to enhance cattle production, particularly in village systems. Although *Leucaena* is nutritionally valuable, its utilization as cattle feed is still limited. *Leucaena* possesses a toxin called mimosine in the leaves and seeds. The negative impacts of mimosine and its derivative products 3,4- and 2,3-hydroxypyridone (3,4- and 2,3-DHP) on cattle can include loss of appetite, reduced body weight, and alopecia. Moreover, farmers assume that feeding high level of *leucaena* to breeding cows' diet will result in poor calving performance and abortion. This study will include three experiments. First: survey on current practice of experiences introducing *leucaena* in Indonesia and Australia. Second: identify physiological impact of mimosine or DHP on cows, foetus, embryos, and reproduction tissue through mechanism trial using in-vitro or sheep model. Third: evaluate the effectiveness of *leucaena* adaptation with mineral supplementation in a village-based experiment. In a village-based experiment of *leucaena* introduction to breeding cows in the perinatal period, mineral status will be observed in breeders as they adapt to *leucaena* to assess whether essential metal deficiencies aggravate indications of toxicity, and whether these can be alleviated by mineral supplementation. The outcome of this research will enhance the understanding and management of this exceedingly-productive legume, in order to improve cattle production and to prevent negative effects on cattle reproduction.

Keywords: tropical forage, mimosine, reproduction, cows

Research Methods: Quantitative

Effect of Meat and Bone Meal, Phytase and Antibiotics on the Ash Content and Breaking Strength of Broiler Femurs, Tibia and Toe

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Doctorate

School of Environmental and Rural Science

Oral Presentation

Worldwide pressure to remove in-feed antibiotics from the poultry industry has resulted in heightened presence of the disease necrotic enteritis (NE) in broilers. Meat and bone meal (MBM) is readily used in broiler diets as a good source of protein, calcium and phosphorus, but it is also a predisposing factor for NE. A potential alternative to both antibiotics and MBM is the enzyme phytase, due to its ability to enhance nutrient digestion, particularly calcium and phosphorus. Enhancing mineral utilization and limiting nutrient availability for feeding pathogenic bacteria in the gut. The aim of this study was to use analysis of bone formation as a tool to assess the effects of phytase, MBM and antibiotics in broilers challenged with NE. Tibia and femur breaking strength and ash content and toe ash content was measured in NE challenged Ross 308 broilers (n=96) fed diets either with or without MBM, with or without antibiotic and either 500 or 1500 FTU/kg phytase, on d42 post-hatch. Results showed that MBM inclusion increased the tibia and femur ash content ($P = 0.003$ and $P = 0.002$, respectively) and breaking strength ($P = 0.001$). Toe ash content was highest in birds fed the low phytase level with antibiotic, as illustrated by a phytase x antibiotic interaction ($P=0.031$). Antibiotic had very little effect on bone ash content or strength. In conclusion, toe ash analysis suggests phytase has potential as a replacement for MBM, but further investigation is warranted into its ability to improve tibia and femur formation.

Keywords: Meat and bone meal, phytase, antibiotics, bone ash and broilers

Research Methods: Quantitative

How the Native and Introduced Dung Beetles Are Faring In Paddocks along the Elevational Gradients of NSW Northern Tablelands

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Doctorate

School of Environmental and Rural Science

Oral Presentation

Dung beetles are well known in Australia for controlling bush flies and livestock parasites along with their ecological services. In the context of nearly 45 years of exotic dung beetle introduction into Australia, a seasonal dung beetle monitoring was conducted in native and improved grasslands at eight different locations along elevation gradients from 385 to 1357 masl during summer and autumn of 2017. The major objective of the survey was to assess the native and introduced dung beetle assemblage among altitudes, seasons and pasturelands in the northern tablelands of NSW. Three different dung types (cow, sheep and kangaroo) were used as the baits in the standard pitfall traps. A total of 1924 dung beetles and 18 different dung beetle species were recorded in the pitfall traps. The average number of dung beetles trapped to sheep dung baits was highest (126.75 ± 56.70 SE) followed by cattle (97 ± 39.03 SE) and kangaroo dungs (16.75 ± 6.73 SE). There was no significant differences in the number of beetles trapped in native (51.7%) and improved (48.3%) pasturelands, 75% of the specimens were introduced species. *Euoniticellus fulvus* Goeze, *Onthophagus binodis* Thunberg and *Aphodius lividus* (Olivier) were three most dominant introduced species and *Onthophagus dandalu* Matthews, *Onthophagus granulatus* Boheman and *Onthophagus australis* (Guerin) were the most dominant native species. Community composition among seasons shows in detail how the introduced and native dung beetle species are structured. Future research will start to assess the thermal physiological tolerances of species, and the role this plays in structuring the communities along the elevational gradient.

Keywords: Dung beetles, dung baits, grasslands, seasons, native, introduced

Research Methods: Quantitative

The Emergetics and Economics of Urban Agriculture

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Oral Presentation

It has been suggested by numerous authors, that food system sustainability could be improved through producing greater quantities in the urban areas where it is ultimately consumed. However, little quantitative research has previously examined the productivity of urban farming systems. We conducted a year-long case study of 13 organic urban agriculture systems in Sydney, Australia, managed primarily by amateur gardeners, and assessed their efficiency using emergy analysis, a form of environmental accounting that tallies all previous energy used in producing a product or service, measured in a single energy unit called the Solar Emjoule (seJ). Average yields were 6.97kg m⁻², around twice that of typical commercial vegetable farms, however whilst these systems used land efficiently, our analyses showed they were relatively inefficient in their use of other resources. High levels of labour and material inputs resulted in 2.29*10⁷ seJ being used for every Joule of edible crop produced, 2-3 orders of magnitude greater than many conventional rural farms. Emergetic analysis of renewability found that sites overall had an Environmental Loading Ratio of 9.81, better than most broad Arce farms but worse than most organic systems, with only around 20% of material inputs coming from local renewable sources. However, when all non-recycled inputs capable of being substituted with local recycled inputs were so replaced in a hypothetical scenario, the Environmental Loading Ratio improved to 1.6, in line with typical organic cropping systems. Our results show that urban agriculture can be highly productive, however this productivity comes with many trade-offs and care must be taken to ensure its sustainability.

Keywords: Emergy, Urban Agriculture, Cost Benefit Analysis

Research Methods: Quantitative

Modelling Habitat Distribution of Himalayan Musk Deer (*Moschus chrysogaster*) Under Climate Change

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School of Environmental and Rural Science
Oral Presentation

Future warming climate could either expand, contract or shift the habitat of biota from their historical place. To understand the extent of possible changes in the climatic niche of Himalayan Musk Deer (*Moschus chrysogaster*), an endangered native ungulate of high altitude region of Nepal Himalaya. As we used MaxENT to model current and future habitat distribution based on two representative concentration pathways (RCP 4.5 and RCP 8.5) for the year 2050 and 2070 using MIROC 5 global climate model (GCM). Annual mean temperature, altitude, isothermality and land cover are the major contributing variables to the model. Currently 11,342 km² (7.7%) area of the country has been found to be suitable for the deer which will be decreased almost by 23.8% in 2070 under RCP 4.5; while a small increase in the suitable area has been observed under RCP 8.5. The shift in habitat shows a longitudinal pattern. Majority of suitable habitat will remain stable in both RCPs compared to current time that accounts almost 6% in average of the total area of the country. Transboundary conservation program is needed to offset the likely climate change impact on the deer habitat in Nepal and other surrounding Himalayan ranges.

Keywords: Climate change; MaxENT; Himalayan Musk Deer; habitat suitability; Nepal Himalaya

Research Methods: Quantitative

Children's Imaginative Play with Provided Technologies in Early Childhood Settings

J. Bird

Doctorate

School of Education

Oral Presentation

With technologies becoming more and more common in children's lives, educators attempt to navigate how to provide devices in ways that support children's play and learning. Some educators are reluctant to incorporate technologies in their classroom, fearing the reduction of children's creativity and imaginative play. When an iPad is provided for the children's use, educators turn to educational apps but find many are structured with no ability for the child to be creative or deviate from the set script. Instead, when open-ended apps are provided, children control the device, displaying their agency, enthusiasm and interest in technologies. This in turn, encourages their play and learning and moves children from consumers of digital technologies to creators of technologies. This study investigates technology provision from the children's view and explores how they accepted or manipulated the situation in order to meet their play needs. Also considered is how the increase in technologies in children's lives is impacting their play themes and the required play props. In this consideration are the non-working technologies, that are often broken or no longer working devices provided for children's play. In particular, how children engage with what is provided and then exhibit their imaginative abilities in order to achieve the kinds of play they want to engage in. Play with these devices can assist children to become confident users of technologies, competent digital citizens and children who expand the possibilities around technologies in early childhood.

Keywords: early childhood, digital technologies, imaginative play

Research Methods: Qualitative

Young Children's Understandings of Parental Deployment within an Australian Defence Force Family

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Doctorate
School of Education
Oral Presentation

Children from Australian Defence Force (ADF) families experience parent absences due to deployment and training episodes. Globally, research about how children experience and understand deployment has been limited to secondary data from parents and occasionally interactions with high school and primary school students. To address this gap, my PhD research entitled 'Young children's experiences and understandings within an ADF family' sought to listen to children's voices within these families. Mosaic and narrative approaches were employed to co-construct data and privilege children's voices that had been previously marginalised within the literature. The study also listened to parent's and educator's voices as sources of knowledge and to assist with interpretation of the children's data. Thematic and narrative analysis were employed to analyse the data, then a socio-ecological framework was applied. The children's understandings of parental deployment were influenced by: changes over time, acculturation and narrative, reinforcement within the contexts of family and education, developmental phases, time and place, parental perceptions, resources, discussions and activities and the child's resilience during family transitions. Recommendations for the ADF were documented in the last chapter of my thesis and it is hoped they will inform policies impacting ADF families with young children and the support provided to military families within their education, workplace and community settings.

Keywords: military families, mosaic, narrative, early childhood, findings

Research Methods: Qualitative

Pedagogies for Sustainability in Bush Kinder

F. Hughes

Doctorate

School of Education

Oral Presentation

While there is a growing awareness of the need for children to spend more time in natural settings, the pedagogical link between education for sustainability (EfS) and nature play requires further investigation. The assumption that children's connection with nature equates with (EfS) is a key issue, as is educators' understandings of their own pedagogical roles in relation to a nature sustainability nexus. This doctoral study explored how the links between nature and sustainability are perceived by early childhood educators in bush kinder settings in Australia, and the implications for their pedagogy. This study evolved from my concerns about how slowly the early childhood sector has addressed sustainability issues and the lack of curriculum guidance around Early Childhood Education for Sustainability (ECEfS). Australian policy requirements for early childhood education (ACECQA, 2013) promote stewardship, respect and care, but often the 'romanticised' sensory, immersion nature discourse is the route promoted and subsequently taken by educators. With the rapid growth of Australian bush kinder programs, I argue that the time is right to question whether EfS is being implemented, or are educators assuming that connections with nature are enough to develop strong approaches to EfS. Initial study findings suggest that the distinctions between nature and sustainability were often not easily identifiable by the participating educators and there is a need for cultural change to rethink pedagogy in bush kinder. Further findings suggested that the participating educators perceived relationships with nature, awareness of Indigenous connections to the land and place responsive pedagogies, played an important role in reimagining their agency and their place in the world.

Keywords: Early childhood education for sustainability, bush kinder, nature play

Research Methods: Qualitative

Facilitating Participation in Early Childhood Services for Families from Refugee Backgrounds

C. Lamb
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Oral Presentation

Children from refugee backgrounds are one of the most developmentally vulnerable population groups in Australia, yet they remain significantly underrepresented in early childhood education and care services due to a range of systemic barriers. Parents who do enroll their children frequently withdraw them or educators recommend their suspension. In drawing upon a case study of a four year old boy, I will focus on indicators of wellbeing to highlight the complex interplay of child behaviour, parental refugee experience and the impact of deprived societal, economic and environmental conditions in resettlement. I will discuss one response to working with refugee children with complex trauma by using an ecological approach within a resilience framework.

Keywords: Refugees, families, early childhood, participation

Research Methods: Qualitative

Abstracts by Streams and Sessions

STREAM FOUR

Session Thirteen	Quantitative, Qualitative and Mixed Methods - Sciences
Session Fourteen	Quantitative and Qualitative - Social Sciences
Session Fifteen	Quantitative – Sciences
Session Sixteen	Qualitative Mixed Methods - Education, Health and Rural Medicine

Synthesising Medicine from Waste

J. Klepp, E. Leddingham, B. Greatrex
Post-Doctorate
School of Science and Technology
Oral Presentation

We have successfully synthesised molecules by recycling waste that can potentially help in the synthesis of medicinal compounds. These helping molecules are called chiral auxiliaries. Chiral auxiliaries are chemical motifs incorporated into a compound through covalent linkages which can direct the selectivity of a reaction or enable the separation of stereoisomers. This is of crucial importance, as the stereochemistry of a compound defines if it is bioactive or not. That is why chiral auxiliaries are widely used in the production of organic and pharmaceutical compounds. The value of those chiral auxiliaries used industrially is without doubt, however, there are many disadvantages with current technologies such as their very high production cost or difficult chemical synthesis. To address these inconveniences is the overall goal of this project. This includes the development of efficient and economically friendly synthetic strategies to access chiral auxiliaries from renewable and extremely cheap starting material (sugar derivatives from biomass waste). The novel molecules have then been evaluated by their performance in various reaction types. Analytical investigations using tools such as NMR, UV-Vis, X-ray, LC-MS and GC-MS as well as theoretical approaches (DFT-calculations) have shown how structural and electronical modifications on the auxiliaries affect the outcome/selectivity of chemical transformations. The obtained insights will help to find possible large-scale industrial applications and effectively target new reaction applications.

Keywords: Chemistry, Medicine, Chiral Auxiliary, Waste, Biomass, Recycling

Research Methods: Qualitative

A Domino KornblumDeLaMare/aza-Michael Reaction of 3,6-dihydro-1,2-dioxines and application to the synthesis of the ceramide transport inhibitor (\pm)-HPA-12

S. Legendre, M. Jevric, J. Klepp, C. Sumby, B. Greatrex

Doctorate

School of Science and Technology

Oral Presentation

3,6-Dihydro-1,2-dioxines are a type of endoperoxide which are known to undergo a range of reactions and are useful for the incorporation of 1,4-dioxygen functionality into organic molecules. Most chemical processes involving 1,2-dioxines proceed through an initial Kornblum-DeLaMare rearrangement which gives highly reactive 4-hydroxyenone intermediates. These enones undergo dehydration to furans under moderately acidic conditions and also undergo facile rearrangement to 1,4-diketones with amine bases. When heated with primary amine bases, pyrroles result through a Paal-Knorr reaction that involves a domino Kornblum-DeLaMare rearrangement followed by rearrangement to a 1,4-diketone. We have discovered that at low temperature, the intermediate enones undergo a reversible aza-Michael addition giving 4-hydroxy-3-aminoketones which can be isolated in excellent yield. To avoid the retro-aza-Michael reaction, the addition products were reduced using tin (IV) chloride and/or sodium borohydride yielding 3-amino-1,4-diols. An aminodiol was converted to (\pm)-HPA-12, which is an inhibitor of the cytosolic ceramide transporting protein with the potential to affect intracellular ceramide and sphingomyelin concentrations.

Keywords: Domino reaction; KornblumDeLaMare rearrangement; HPA-12; endoperoxide

Research Methods: Quantitative

Microfinance, Blessing or Curse: The Case of the Ga Central District of the Greater Accra Region of Ghana

P. Nanedo, G. Donleavy, N. Nanedo, M. Goyenr

Doctorate

UNE Business School

Oral Presentation

Microfinance has been identified as a strategy for Micro, Small and Medium Enterprise development, employment generation and poverty alleviation in developing countries. While the positive effects of microfinance have been echoed in many developing countries including Ghana, there are also stories of its failure to effectively promote SMEs' growth and sustainability outcomes. This study explored the effectiveness of microfinance in promoting the growth and sustainability of SMEs in Ga Central District of the Greater Accra Region of Ghana. Using a qualitative multi-case study approach, 5 microfinance institution owner/managers and 35 small businesses were selected and interviewed. The study revealed that, while commercialisation of microfinance positively impacted the sustainability of microfinance institutions and helped SMEs' in terms of income generation and asset accumulation on one hand, on the other hand it eroded SMEs' working capital and profits, and retarded SMEs' growth and sustainability. The study established that high interest rates on debt acquired by the microfinance institutions for on-lending made the cost of loans to small businesses expensive and negatively affected their growth and sustainability.

Keywords: Microfinance, microfinance Institutions, MSMEs, Sustainability, Ghana

Research Methods: Qualitative

Naughty Rivers: Conforming or Deviating Ecosystem Responses to Anthropogenic Drivers

J. Deboer

Doctorate

School of Behavioral, Cognitive and Social Sciences

Oral Presentation

Large rivers are amongst the most-regulated and highly modified ecosystems, globally. More than 65% of the world's large rivers are fragmented by dams, experience hydrological regulation, and are controlled for navigation purposes. Large rivers are increasingly modified by multiple drivers that cumulatively influence these ecosystems. However, few studies explicitly explore the effects of, or responses to, multiple drivers. Furthermore, our understanding of how system-wide drivers overlap in space or time and interact with each other is lacking. The question remains: do highly modified large-river systems maintain the ability to respond to additional cumulative anthropogenic drivers in a significant and substantial way, and if so, how are these responses manifested? To expand our knowledge of the influence of anthropogenic drivers in large rivers, we need to investigate ecosystem response at broad spatial and temporal scales, whereas most studies focus on single drivers and small scales. This study utilizes a 60-year, river-wide dataset to determine if fish community diversity in the Illinois River (Illinois, USA) changed in response to two major, system-wide anthropogenic drivers: the Clean Water Act (1972) and the Asian carp invasion (2000). We analyzed diversity changes for the entire river system, among functional process zones, and also for functional feeding guilds.

Keywords: large rivers, fisheries, community diversity

Research Methods: Quantitative:

Energy Policy of Post-Fukushima: An Applied General Equilibrium Model Analysis of the Nuclear Supply Suspension

Y. Akioka

Doctorate

School of Behavioral, Cognitive and Social Sciences

Oral Presentation

The Fukushima nuclear accident revealed the vulnerability of Japan's energy supply structure. Japan depends on imports for 94% of its primary energy supply. Japan considered nuclear power an "efficient baseload power source". The nuclear plants used to supply 30% level of national electricity consumption before the disaster. After the nuclear accident, the Japanese government ordered to stop all existing nuclear plants for the safety assessment. The suspended nuclear power supply has been substituted mostly by the fossil fuel-based electricity. Japan experienced the trade deficit for five years since the accident because the import of fossil fuels has increased. We aimed to assess the economic impact of the nuclear power supply suspension quantitatively. We developed a computable general equilibrium model for this assessment. This model also can describe energy policy impact on/of renewable technologies (Photovoltaics, Wind, Hydro, Geothermal, and Bio-fuel) and Greenhouse Gas emission. Using this model, we estimate the nuclear supply shock reduces the gross domestic product by 0.58%; the power rate increases by 14.5%; the greenhouse gas emission increases by 14.2% (carbon dioxide equivalent). The thermal power plants increase the output by 39.6%. On the other hand, the renewable energy has nearly no increases to its supply level; the exception is the biofuel power plant — its supply level increases by 4.1%. We also found the suspension would adversely affect most of the non-energy sectors economically, especially power intensive industry but would benefit the transportation service industry.

Keywords: Energy policy, Post-Fukushima nuclear accident, Carbon leakage, Renewable energy, Computable general equilibrium, Electricity price impact

Research Methods: Quantitative

Genetic Parameters for Milking Duration in First Lactation Jersey Cows in Sri Lanka

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Doctorate

Animal Genetics and Breeding Unit

Oral Presentation

Milk yield is the primary trait of importance in a dairy cattle breeding objective. In terms of the milk parlor efficiency, selection for more uniform and intermediate optimum milking duration is important. Therefore, genetic parameters for milking duration under an intensive management system of first lactation Jersey cows in Sri Lanka were estimated. Morning and evening milk production records from 260 to 305 days in milk (595 cows, at least 30 records per cow) were used to estimate session mean milking duration (MD). Outliers that differed by more than four standard deviations from the mean were excluded. The minimum size of the contemporary group was ten. Variance components were estimated following Bayesian approach using a blocked Gibbs sampler and taking the means of conditional posterior distributions, by fitting animal and sire models with month and milk yield as the fixed effect and covariate. The total number of animals in the pedigree was 1015. Descriptive statistics indicated a mean MD of 277.9 ± 33.94 seconds for 5.45 ± 1.38 liters of milk (51.0 seconds for milking a liter of milk). Heritability estimates obtained using an animal model were 0.17 ± 0.05 and using a sire model 0.15 ± 0.03 for MD. Mixed models in R software produced a heritability estimate of 0.12 using a sire model that ignored pedigree. Phenotype variances obtained from Gibbs sampler and R were 782.1 and 841.5, respectively. Heritability estimates indicate that MD can be effectively included in the dairy breeding objective of Sri Lanka to breed cows with optimal milking duration.

Keywords: dairy cattle, genetic parameters, milk yield traits, milking duration

Research Methods: Quantitative

Biography:

A.M. Samaraweera is a PhD candidate at Animal Genetics and Breeding Unit, University of New England (UNE) and the recipient of a UNE International Postgraduate Research Awards (IPRA). She is a Senior Lecturer at the Department of Animal Science, Uva Wellassa University of Sri Lanka. With her PhD, Ms. Samaraweera aims to optimize dairy cattle breeding programmes in Sri Lanka to improve performance and heat tolerance. After successful completion of PhD, her aim is to continue research in quantitative genetics

Arsenic and Cadmium in Farm Soils of Kidney Disease Affected Areas in Dry Zone Sri Lanka: Characterization and Risk

S. Gunadasa, S. C. Wilson, M. Tighe

Doctorate

School of Environmental and Rural Science

Oral Presentation

Exposure to elevated cadmium (Cd) and arsenic (As) sourced from fertiliser and pesticide use is thought to be one of the causes of chronic kidney disease (CKD) in the Dry Zone of Sri Lanka. More than 20,000 related deaths have been reported. The aim of this study was to understand and compare concentrations and associations of soil Cd and As in CKD affected farming areas in Dry Zone, Sri Lanka. Surface soil samples (0–15 cm) were collected using systematic sampling from four different locations including three CKD hotspots Giradurukotte (G), Madawachchiya (M) and Padaviya (P) and a non-affected area Hambanthota (H) in the Dry Zone, Sri Lanka. Soils for each sampling locations were analysed for total Cd/As, other trace elements, pH, EC, and total N/C. The average total soil Cd and As in G (the area with greatest reported CKD) were 2.07 $\mu\text{g/g}$ (0.00-7.32 $\mu\text{g/g}$) and 0.84 $\mu\text{g/g}$ (0.00-2.35 $\mu\text{g/g}$), respectively. Total Cd at locations G and M was significantly greater ($p < 0.05$) than average concentrations at location H (control). In contrast, the average of total As concentration at H was significantly greater ($p < 0.05$) than that at G, M and P, the CKD affected areas. In this paper we examine relationships and associations between the Cd/As and different factors in the soils sampled to understand drivers of bioavailability and risk.

Keywords: As/Cd, Farmland soils, Dry Zone Sri Lanka, Chronic Kidney Disease

Research Methods: Quantitative

An Exploration of the Prediction of Polycyclic Aromatic Hydrocarbon (PAH) Bioavailability for Aged Field Soils

A. Esmaeili, Susan Wilson, Oliver Knox

Doctorate

School of Environmental and Rural Science

Oral Presentation

Polycyclic aromatic hydrocarbons (PAHs) are a group of organic compounds that exist at high concentrations on many industrial sites. The total concentration of these contaminants in soil, however, often overestimates their environmental risk because this does not take into account the environmental bioavailability. This can therefore result in costly and possibly unnecessary remediation. Time and cost-efficient chemical techniques used to predict bioavailability show great potential for targeting remediation effort to manage sites of greater risk. Over the past years, several analytical methods have been developed to assess PAH bioavailability in soils and sediments. Some methods attempt to mimic chemical uptake into various organisms, and measure the freely dissolved concentration of the contaminant in pore water, while others measure the rapidly desorbing fraction of the contaminant using a depletive based extracting procedure. The aim of this study was to evaluate bioavailability of PAHs in a range of naturally aged (field) contaminated soils using different chemical methods and bioassays, and to study the efficacy of the methods for predictive quantitation and the relationships for different receptor endpoints. The PAH bioavailability was determined in four field contaminated soils with different PAH concentrations using mild solvent extraction (butanol), cyclodextrin extraction, solid phase extraction using Tenax beads, persulfate oxidation, and two passive sampling methods; solid phase micro extraction (SPME) and polyoxymethylene solid phase extraction (POM-SPE). Results were compared to PAH bioaccumulation in two types of earthworm (epigeic and endogeic) and rye grass roots. In addition, a biodegradation experiment was used to determine whether the methods were suitable for prediction of bioremediation endpoints.

Keywords: PAH, bioavailability, contaminated soils, bioremediation, risk assessment

Research Methods: Quantitative

Use of Whole-Genome Sequence Data in Sheep

N. Duijvesteijn

Post-Doctorate

School of Environmental and Rural Science

Oral Presentation

This is the first study showing genome-wide association (GWAS) results from whole-genome sequence (WGS) data in sheep. The objective of this study was to fine map previously identified genomic regions of interest and detect new regions which affect meat quality traits in a multi-breed sheep population using WGS data. The traits measured were carcass fat depth, intramuscular fat, post-weaning eye muscle depth, post-weaning body weight and shear force. Corrected phenotypes were available on 13,363 to 26,769 Australian sheep depending on the trait. The GWAS for all five traits for using 50,000 variants, 700,000 variants and almost 28 million variants identified 18, 52, or 250 genomic regions which affected the traits tested. Together, these regions explained a substantial part of the additive genetic variance (between 10.6 - 14.3%). Previously identified genomic regions on chromosome 6 and 18 were confirmed. We were also able to identify genes involved in meat quality using functional annotation. We conclude that the WGS data provided more and clearer evidence of QTL regions, potentially resulting in more predictive variants and we plan to perform a more detailed functional analysis of genes underlying these regions.

Keywords: whole-genome sequence data, sheep, meat quality

Research Methods: Quantitative

South Australian Trilo-Bites: A New Look at the Early Evolution of Predation and Lateralisation in Fossil Arthropods

R. D. C. Bicknell, J. R. Paterson

Doctorate

School of Environmental and Rural Science

Oral Presentation

The Cambrian fossil record allows palaeontologists to study and understand one of the most fascinating biological events in Earth's history: the Cambrian 'Explosion' of animal life over 500 million years ago. A major facet of the 'Explosion' was the evolution of a variety of predatory feeding modes. The rapid development of predation was a major driver behind the escalated diversification of biomineralised shells and exoskeletons. Among the biomineralising groups, Cambrian trilobites were one of the most successful clades. The biomineralised exoskeletons not only protected trilobites from predators, they also preserved any failed attacks as healed injuries. Almost three decades ago, a compilation of recorded trilobite injuries was used to assert that Cambrian predators possibly attacked trilobites from the right side. This suggestion was used to infer that a lateralised attack strategy had evolved in the Cambrian. An extensive collection of injured and non-injured specimens of the trilobite *Redlichia takooensis* from the Emu Bay Shale on Kangaroo Island, South Australia is used to test this hypothesis. Results show that not all Cambrian trilobites experienced lateralised attacks, and a discussion on how the lateralisation attack hypothesis is biased will be presented.

Keywords: Trilobites, cambrian explosion, predation, durophage

Research Methods: Quantitative

Noticing the Twice Exceptional in the Early Years

A. O'Donnell-Ostini
Doctorate
School of Education
Oral Presentation

When Paolo Freire penned his *Pedagogy for The Oppressed* (1968), his emphasis on informed action and of the teaching moment raised the importance of the teacher to look beyond what is obvious. This delving under the surface resonates in the work of John Mason (2002) and that of a noticing premise. The nexus of these philosophical perspectives along with Gagne's *Differentiated Model of Giftedness and Talent* (2008) resonate the importance of early recognition of young children's ways of learning, inclusive of high potential. The engagement of educator participants through enquiry is appropriated in noticing within this mixed method study. Sample vignettes and prompts are used to recall authentic, annotated and systematic documentation through recorded instances of individual children and their interactions through everyday play possibilities. Noticing (Mason, 2002) as embedded within the research ensures an authentic recognition of the dynamic nature of thinking and learning for all young learners. This multifaceted research approach will serve to promote a more equitable and inclusive platform for early recognition of those with high cognitive ability and functional difficulties within the early childhood setting.

Keywords: Twice exceptional, gifted, preschoolers, noticing, educators

Research Methods: Mixed Methods

What Older Couples Like to Do in Bed

A. Rhan

Doctorate

School of Behavioural, Cognitive and Social Sciences

Oral Presentation

For many older couples, their shared bed is a metaphor for care, love, and togetherness. However, some residential aged care facilities routinely separate couples by locating them in separate beds or separate rooms. Deprived of loving touch, human beings can become withdrawn or display ‘challenging behaviours’. Couples are a disadvantaged group in residential aged care and research into their needs is scarce. It is anticipated that the next generational cohort, Baby Boomers, will be less tolerant of institutional interference in their intimate relationships. This paper reports on findings from an online survey into the needs of 168 partnered Australian Baby Boomers (born 1946-65) (part of a larger a mixed methods study) and their attitudes to sharing a bed with their partner, both currently and in anticipation of needing a residential aged care service. Data analysis involved (1) thematic analysis from an interpretive/constructivist perspective (using QSR NVivo software); (2) automated web-based content analysis (Leximancer); and (3) basic descriptive statistical analysis. The research found that the majority of respondents constructed their bed as an important setting for their relationship, a place that is comforting, where bonding takes place, and where both partners’ needs must be balanced. Consequently, the concept of ‘bed’ in aged care settings needs to be expanded beyond merely servicing physical needs to encompass couples’ emotional and relational needs. This paper outlines various ways for service providers to prepare for the next generation of consumers, including initiatives that would better support partnered residents.

Keywords: baby boomers, couples, shared beds, residential aged care

Research Methods: Mixed Methods

Health Vulnerabilities of the RMG (Readymade Garment) Workers of Bangladesh

H. Kabir
Doctorate
School of Health
Oral Presentation

In Bangladesh, readymade garment (RMG) sector is considered as a milestone for engaging unskilled, uneducated and rural women and men with paid work. A total number of 4482 factories are currently running in this country where about 4 million workers are employed. Although RMG workers' intensive and cheap labour have played an active role for establishing RMG as the most important export oriented and foreign exchange earning sector in Bangladesh, this sector yet could not provide a secure working environment for its workers. As a result, they become vulnerable to health risks, sexual harassments, frequent disasters, and on. Therefore, this mixed methods study would focus on the impact of RMG routine work on the health conditions of the workers. In addition, this project also includes how does a sudden disaster (i.e., collapse of 'Rana Plaza' in 2013) at RMG sector create physical and mental health vulnerabilities for them.

Keywords: Health vulnerability, ready-made garment, workers, Bangladesh

Research Methods: Mixed Methods

Comparison of Urban and Rural EMS in Saudi Arabia 2017: Description of Current Services, Patient Outcomes and Paramedic's Perceptions of Barriers and Facilitators to Care Delivery

A. Alanazy
Doctorate
School of Rural Medicine
Oral Presentation

The Emergency Medical Services (EMS) is an important system ensuring an effective, timely, and well-coordinated delivery of health and safety services to the people affected by sudden illness or injuries. From studies conducted in many developed and developing countries, it is evident that there exist discrepancies between rural and urban health patient outcomes. Saudi Arabia is not an exception and research gaps exist with regard to this concept. This research aims to collect data from rural and urban EMSs on the current operational factors, the type and extent of services, the predictors of patient outcomes, and the perceptions of paramedics concerning barriers and facilitators of the services delivered. The research methodology consists of 5 individual yet linked studies using explanatory mixed method approach: 1. A cross-sectional survey of patient reports comparing operational characteristics and short term patient outcomes of rural and urban EMSs in Saudi Arabia. 2. A cross-sectional survey of patient reports description of the quality of care in rural and urban EMSs in Saudi Arabia. 3. Conducting a survey of a random sample to find out the demographic and training characteristics description and scope of practice among front line EMS staff in rural and urban areas of Saudi Arabia. 4. Link patient records from the Red Crescent Service with hospital records at National Guard Hospital aiming to compare the differences between rural and metro/urban EMS services in relation to predictors of patient outcomes at discharge from hospital, following redirection for severe cases. 5. Conducting in-depth interview with a small sample of 10-20 paramedics in urban and rural area to understand their views on every aspect of EMS services. The ethical approval will be obtained from the Kingdom of Saudi Arabia, Ministry of Health, Saudi Red Crescent, National Guard Hospital and University of New England. This paper will discuss progress to date and feedback from the audience on this Thesis' methodology is sort and appreciated.

Keywords: EMS, Urban and Rural EMS and Operational characteristics

Research Methods: Mixed Methods

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Refleshing the Bones: A theatrical Re-imagination of the Book of Ezekiel

M. Lili
Master
School of Art
Oral Presentation

This research qualitatively examines a theatrical adaptation of the prophetic Biblical text of Ezekiel through a playwright's decisions and processes. The conceptual framework that informs the research situates phenomenological notions of complexity and "depth of being" within Christian metanarrative worldview assumptions. It builds from current literature on biblical theatre, adaptation, and participatory and experimental theatre through Byrne's (2017) Reflexive Studio Practice. A series of short drafts developed an appropriate spine for the play that stabilised when an Interactive Museum Space was annexed to the performance space to accommodate visual and tangible artworks that support and enrich the meaning of the events in the play. The spine was then embellished using theatrical tools of character, visual and verbal imagery and sensory engagement. The challenging and controversial metaphorical imagery of Ezekiel chapter 16 is embodied with a light touch. Theatrical commentary that makes reference to the context of this chapter within Ezekiel and the biblical metanarrative as a whole assists an audience in reconciling the horrors of Ezekiel 16 with the Christian testimony of a loving God who brings healing, salvation and restoration to his creation. *Refleshing the bones* reimagines *Ezekiel* through theatrical storytelling and continues the work of experimental theatre in bringing actors and audience into shared performance experience in shared performance spaces.

Keywords: Biblical theatre, metanarrative, experimental theatre

Research Methods: Qualitative

POSTER PRESENTATIONS

Developing a Marketing Strategy for Selling West Nusa Tenggara (NTB) Beef in Large Urban Markets in Indonesia

T. J. Wankar
Doctorate
UNE Business School
Poster Presentation

Indonesia has a population of 250 million people with a beef consumption that reached 2.8 kilograms per capita in 2016. An increase in consumption is expected based on population growth, income increases, changing lifestyle and urbanization. These conditions will create opportunities for marketing differentiated meat products, but to capture them it is necessary to understand consumers' preferences for beef when developing a strategy to satisfy the needs of different segments in the market. West Nusa Tenggara (NTB) is one of the provinces in Indonesia that has the large cattle population; hence, it has the potential to be a large contributor to the Indonesian beef market. However, farmers and processors do not have adequate information about consumer preference and willingness-to-pay for premium NTB beef in urban markets. This study aims to find the market scope for premium NTB beef in large urban markets in Indonesia. Hence, the objective of this study is to identify consumer preferences for key attributes and willingness to pay for differentiated NTB beef. The results of this study are expected to provide information for the farmers and processors regarding developing a marketing strategy for NTB beef.

Keywords: Marketing strategy, Consumer preferences, Willingness to pay, beef differentiation

Research Methods: Mixed Methods

Sensitivity of Australian Bass and Silver Perch to Antimony: Exposure-Dose-Response Characteristics

M. O. Obiakor, M. Tighe, L. Pereg, F. Krikowa, W. Maher,
A. M. Taylor, S. C. Wilson

Doctorate

School of Science and Technology

Poster Presentation

Despite the increasing consumer-led applications of antimony (Sb), cumulative impact and response characteristics for site-specific fish species are rarely examined. We conducted acute semi-static studies to examine the response of indigenous Australian Bass and Silver Perch to different measured concentrations of Sb(III) (10.5 – 30.5 mg L⁻¹) and Sb(V) (95.9 – 258.7 mg L⁻¹). In addition to standard toxicological endpoints, the bioavailability and the effects of Sb on body ion regulation (Ca, K, Mg and Na) were investigated. Median lethal concentrations (LC50s) of 13.55 and 18.03 mg L⁻¹ for Sb(III) were recorded for Australian Bass and Silver Perch, respectively, and 165.33 mg L⁻¹ for Sb(V) in Australian Bass. The LC50 could not be calculated for Silver Perch exposed to Sb(V) by the model interpolations due to low response (the maximum exposure concentrations produced 40% mortality). An extrapolative value of >258.7 mg L⁻¹ was estimated, however, as the indicative LC50. Antimony species-specific effects were seen with exposure to both Sb oxidation states. The Australian Bass showed similar mortality response to Sb(III) and Sb(V) as demonstrated by the linearity between their concentration-response curves (parallelism, $\chi^2 = 1.20$), while Silver Perch responded differently to these species (parallelism, $\chi^2 = 0.10$). However, Sb(III) was more toxic to both fish species as indicated by the significant relative median potency values derived from the respective LC50s [0.08 and 0.06 Sb(III) and 12.20 and 16.60 Sb(V) for Australian Bass and Silver Perch, respectively]. The LR50s (total lethal Sb) of 77.68 and 26.63 mg kg⁻¹ dw were estimated for Sb(III), and 628.14 and 421.60 mg kg⁻¹ dw for Sb(V) exposure to Australian Bass and Silver Perch, respectively. Total Sb fish body residues showed strong dose-dependent bioconcentration factors (BCFs) for both Sb(III) and Sb(V) which increased with exposure, indicating that BCF might be an intrinsic property of Sb acute toxicity. No effects on whole-body Ca, K, Mg or Na were observed with exposure. This is the first time Sb toxicity has been examined using Australian native fish species and our predicted effect concentrations are lower than reported values for related standard indicator species. Thus, the effect data underpin the current knowledge that Sb risk assessment should depend on the toxicological profile of individual Sb species.

Keywords: Sb(III); Sb(V); LC50; LR50; ion regulation; parallelism

Research Methods: Quantitative

Trichoderma Isolates for Biocontrol of Rhizoctonia Stem Canker on Potato

U. Alshimaysawe, D. Backhouse, P. Kristiansen

Doctorate

School of Environmental and Rural Science

Poster Presentation

Trichoderma isolates from potato soil were tested for their ability to control *Rhizoctonia solani* AG-3 on potato plants in glasshouse and as competitors of the pathogen. Two isolates (*T. harzianum*, T5 and *T. hamatum*, T8) highly suppressed pathogen growth and promoted plant growth. In pot trials, strain T8 produced significantly greater plant growth parameters with reduced disease incidence compared with the other treatments. In experiments with Desiree potato plants originating from tissue culture, T5 and T8 increased the shoot dry weight of infected plants by 2.1 and 2.4 times, respectively. In hydroponic experiment, adding spore suspensions of T8 into the nutrient solution with toothpick inoculation of the pathogen into the stem significantly inhibited disease and increased biomass production. Results to date suggest that these isolates of *Trichoderma* inhibit activity of the pathogen, show a growth promotion effect on the plant, and may also induce systemic resistance. Overall, the data indicate that *T. hamatum* strain T8 had superior characteristics; in reduction of pathogen and improving the plant growth and yield of potato.

Keywords: Biocontrol, Pathogen reduction, potato plants

Research Methods: Mixed Methods

Bioavailability of Arsenic and Antimony: Can we Reliably Predict Risk for These Metalloids in Soils?

S. Bagherifam, S. Wilson, M. Tighe

Doctorate

School of Environmental and Rural Science

Poster Presentation

Arsenic and antimony are toxic metalloids which belong to group 15 of the periodic table. In soils they mostly occur naturally at low concentrations. These contaminants, however, can be significantly elevated in both aquatic and terrestrial food chains as a result of dispersion from anthropogenic sources e.g. mining activities (Wilson et al, 2010, Bagherifam et al, 2014). The proportion of the contaminant in soil that is available for uptake by plants and other organisms is generally considered to present the greatest risk. This is termed the bioavailable fraction and is defined as the degree to which chemicals present in the soil matrix may be absorbed or metabolised by human or ecological receptors or are available for interaction with biological systems. In vivo measurement of bioavailability can be time consuming and expensive but the in vitro methods used to predict this fraction often show variable correlation with in vivo results and are significantly influenced by many factors including soil composition and clay mineralogy. There is considerable uncertainty about the efficacy of in vitro tools as a measure of the bioavailable fraction of arsenic and antimony and how the mixed contaminant system effects prediction. This hinders reliable risk assessment. The aims of this study are to: 1) understand the bioavailability of arsenic and antimony in soils to a range of receptors; 2) investigate the efficacy of in vitro tests for predicting bioavailability of metalloids in soils; 3) understand the influence of particle size, chemical composition, clay mineralogy, soil additives e.g phosphorous and organic matter on the relative metalloid bioavailability in soils

Keywords: Metalloid bioaccessibility, phytoavailability, in vitro test, relative bioavailability

Research Methods: Mixed Methods

Investigating the Learning Management Systems Researches at Jordanian Universities

A. AL Amoush

Doctorate

School of Science and Technology

Poster Presentation

Learning management system (LMS) is an important tool and well suited as a learning tools and activity in universities high education. However, each institute has a different LMS tool that allows the users (Management, Instructors and Students) to use it for daily activity. This paper discusses the main factors influencing the acceptance of using LMS at Jordanian universities in order to improve and highlight the factors in high education in Jordanian Universities. It also presents new LMS model for Jordanian context under name Jordanian learning management system model (JLMS) in order to generalise it for whole Jordanian universities through the Ministry of Higher Education & Scientific Research.

Keywords: LMS, JLMS, Jordanian Universities, Infrastructure, Culture

Research Methods: Mixed Methods

Youth, Violence and Community Security: Demystifying Peace, Social Relation and Security in Nepal

R. Shrestha

Doctorate

School of Science and Technology

Poster Presentation

Youth have always been a part of the political struggles in Nepal. We have witnessed how they have been mobilised, both violently and non-violently by the political leadership to stock political capital. The phenomena of youth mobilisation violently should have been decreased as the country is transitioning from armed conflict to a peace process. However post-conflict Nepal is continuously facing the challenges posed by youth as they are being mobilised to execute violent activities (both political and criminal). In many countries, social harmony and co-existence is threatened by social tensions or institutional biases that exclude people with different ethnic, religious or cultural backgrounds. In this context, this research aims to explore: a) how youth are tied up with political parties and political violence? b) How or whether socio-economic factors (unemployment), socio-cultural factors (caste, ethnicity and gender), youth migration (rural to urban drift and travel abroad) and political instability (threat/regionalism, identity politics) impact on youth participating in contentious politics and political violence? c) How does youth involvement in political violence affect (positively or negatively) on community security and social relations. Further, the research is setting out to understand the situation and design appropriate measures to assist with mitigation of the problems identified involving youth and their tendencies for political violence. Addressing structural inequality, promoting the culture of inclusion will help to strengthen the possibilities for peace, security and development in any post-conflict context. A mixed methodology will be used in designing the field research component of the study to gather primary data.

Keywords: Youth, Violence, Community security, Social relation

Research Methods: Mixed Methods

KEYNOTE SPEAKERS

INVITED PERFORMANCE

INVITED LECTURE

Keynote Address – Day 1

Careers for Higher Degree Research Graduates; Opportunities within a Rapidly Changing Future

Dr John Dixon

Dr Dixon works with the Australian Centre of International Agricultural Research (ACIAR) which supports research partnerships between Australia, Asia and Africa to improve food security, livelihoods and resource management. John has over 30 years developing country experience with agricultural research and development, including farming systems, economics and natural resource management in South, South-east and East Asia, Africa, Latin America and the Middle East, working for the CGIAR system and the FAO. He has served as Director, Impacts, Targeting and Assessment at CIMMYT, leading activities on impact assessment, value chains, impact knowledge sharing, systems agronomy and conservation agriculture; and also in various capacities with FAO in their global, regional and country programs. John is a graduate from the University of New England with a PhD (agricultural economics), Masters (natural resources), Masters (economics) and Bachelor in Rural Science – and was selected a distinguished alumnus in 2017. He is also Visiting Fellow at Australian National University and Adjunct Professor, University of Queensland.

The theme of systems thinking neatly resonate with this conference on “intersections of knowledge”. While reflecting on my “alternative” international career path, it seems worth drawing out some lessons for future career paths for the graduates in a future-oriented, foresight, context of drivers including globalisation, digitalisation, etc.

Keynote Address – Day 2

Not All Those Who Wander Are Lost: Finding Your Career Path as a Research Graduate

Dr. Jenine Beekhuyzen

We, as researchers, have a privilege to engage in meaningful scientific research as part of our everyday lives. It is easy to be distracted by the endless demands on our times for outputs such as research publications, however it's important to think about what life beyond PhD looks like. You will be inspired in this presentation to consider what your true passion is, and how academic life fits into that. Hear from the world-renowned speaker who has found a way to combine being a pioneer, an entrepreneur, an academic, an author, and everyday curious person.

Systematic literature reviews with a publication goal

The literature review is not just about analysing the current state of research and identifying the research 'gap'; it should also assist in identifying appropriate theoretical frameworks, research designs, methods and techniques. This workshop discusses literature reviews for the above purposes and a practical way to deal with the volume of literature that needs to be reviewed. This workshop gives practical advice to start managing your literature review from the beginning. Using a tool like NVivo, you are able to search, code, classify and query pdf articles, and even import your Endnote/Mendeley/Zotero libraries to aid in meta-analysis. Strategies are provided for documenting decisions along the way, which can be useful to establish arguments for the use of theoretical frameworks, research designs, methods and techniques. The workshop will provide strategies to help make your academic literature review more manageable and systematic.

Invited Performance – Day 1

A Fine Balance: Performing Research

Dan Aubin

Dan Aubin has been an international acrobat, physical theatre performer and director for 20 years. For the past seven years he has taught and researched at Charles Sturt University exploring what it means to be a 'moving academic' in the School of Communication and Creative Industries. The popularity of his performance lectures and the need for disruption in organisations to affect positive change has compelled him to launch a new project called: Daring Humans.

He now shares his passion and innovative pedagogies as a speaker and consultant for universities, companies and communities. His mission is simple: To dare himself, and those he works with, to think differently and to execute with a humanistic approach. Sometimes that means turning your established thinking 'upside-down'. For Dan, the handstand is more than an acrobatic feat, it is a symbol of innovative and courageous thinking.

This piece, *Performing Research*, embodies the stages of research while presenting an inquiry into the balance of risk in creativity. This work is available for touring and has been presented at the University of Queensland, Swinburne University, James Cook University, Charles Sturt University and for the Australia Council of Graduate Research. Most recently Dan was a guest presenter at the Asia-Pacific 3MT Finals.

Dan is currently developing a series of performance talks in this vein that explore topics such as: Engaging teaching & learning.

Invited Lecturer – Day 1

A Pluralist Systems Perspective for Researchers

**Emeritus Professor Ray Cooksey,
UNE Business School**

In my talk, I will discuss my pluralist systems perspective for researchers (displayed below with various dynamic linkages and pathways). This perspective treats research as a unique and nonlinear journey, a journey undertaken by one or more persons (researchers) that unfolds in a (hopefully) planned and meticulous manner, with due attention to relevant quality criteria in full recognition that everything pertinent to the research and control over all events that occur during the research journey can never be fully anticipated or planned; i.e., human circumstances are messy and complex and can impact the research journey in myriad ways; research is an exercise in successfully navigating this ‘messy’ landscape to achieve valued/desired outcomes. My perspective explicitly acknowledges the contexts, opportunities, constraints, complexities and messiness of research in practice while harnessing the potential synergies that could emerge from a broader and more eclectic toolkit of approaches and from conceiving research as a human activity embedded within wider human systems of experience. The perspective can be useful for researchers in the social and behavioural sciences and the natural sciences as well as humanities and arts. The pluralist aspect of the perspective refers to the idea that there is no one right way for rigorous and convincing research to be carried out and that there is benefit to enlarging and enriching one’s toolkit to encompass multiple world views, patterns of guiding assumptions (e.g., positivist, interpretivist, constructivist, critical realist, indigenous, feminist ...) and data gathering strategies in pursuit of a convincing research outcome (be it a thesis, portfolio, dissertation, journal article, research report, presentation, conference paper, expert advice and testimony and so on).

Researchers need to know where they are coming from as a person and as a researcher, where the participants in their research (whether human or non-human) are coming from (their fears and concerns, rights and their roles) as well as where others have undertaken research journeys in the same or related problem spaces (processes called positioning). Research needs to be continually contextualised (with respect to place in space, time, cultural, social, ecological, technological and organisational/ institutional milieus), both retrospectively as well as prospectively. Every research endeavour has stakeholders, whether implicitly or explicitly acknowledged.

These stakeholders can and often do exert influence on the researcher to ensure that their needs and expectations are met, and the researcher must actively consider how best to deal with such influences (e.g., stakeholders may control sources of money/funding, control site or data source access, facilities and other resources, expect certain types of

data to be gathered and, perhaps, shared with them ...). Researchers need to know, early on, who needs to be convinced by their research for that research to have some impact, usefulness or application and this may influence who relevant research participants might be as well as what data gathering strategies might be useful to employ. Researchers also need a coherent set of meta-criteria to use to judge research quality independently of underpinning guiding assumptions, while at the same time acknowledging the role that paradigm-specific quality criteria must play.

The research journey is nonlinear with bumps, fits, stops and starts, moving backwards and forwards between different stages as circumstances evolve/change. It requires thinking forward to anticipate possible constraints and/or opportunities that might emerge if the research unfolds as planned as well as thinking backwards to revisit/reconsider/reshape ideas and processes and make adaptations/changes in direction in response to important emergent constraints and/or opportunities. Research planning requires attention to detail as well as an ability to think ahead and anticipate potential constraints, capture emergent opportunities, harness relevant resources. Researchers need to see the 'forest' as well as the individual 'trees' in the research landscape and actively resist becoming so locked into their plan that opportunities or necessities for change and adaptation are missed, ignored or avoided. To achieve this, researchers need to call upon or develop skills specific to the requirements/demands of their research, including interpersonal skills for dealing with relevant stakeholders and participants, personal resilience and persistence in the face of failures, obstacles and frustrations.

Unexpected things can happen along the research journey and these may impact the research positively (as with an emergent opportunity to explore a new research site or interact with an unanticipated or previously unavailable data source) or negatively (as with an imposed constraint such as a gatekeeper denying or withdrawing permission to access a research site such as a school or organisation or where certain questions on a questionnaire or in an interview inadvertently create offense or a feeling of threat in certain participants). In such cases, the researcher needs to be sufficiently flexible and adaptable to either pursue the new opportunity or make adaptations/change direction in response to an unexpected constraint. In the end, the researcher's general goal is to make his/her research and the outcomes it yields (e.g., thesis, dissertation, portfolio, journal article, conference paper, presentation, report ...) as convincing as possible to relevant audiences (e.g., examiners, readers, editors & reviewers, other academics & professionals, supervisors, practitioners) and interested parties/stakeholders (e.g., grant funders, communities, organisations & their employees/customers, potential adopters of an innovation ...).

Think Systemically & Complexly: Prior to undertaking a research endeavour, researchers must think systemically & complexly about their capacities, needs, intentions & goals, guiding assumptions, opportunities & constraints and the needs/expectations of other stakeholders in the research; things may change dynamically over time and circumstances which may require the researcher to revisit, rethink, adapt, sacrifice or augment.

Plan to Make Research Convincing: To be effective and have impact, research must be convincing to relevant stakeholders and interested parties; this means that all aspects of the research must reflect close attention to research quality (reflected in assumption-specific criteria as well as more general meta-criteria).

Prepare for the Journey: Research is a journey that needs to be planned as far as possible; resources, skills and capacities need to be marshalled to support the endeavour and a detailed journal needs to be maintained that records key facets of the journey, including ideas, reflections, contextualisations, anticipations, decisions and adaptations.

Contextualise, Frame & Position Research: To be convincing, researchers must effectively and fully contextualise their research, frame their research in terms of overall intent and the questions to be addressed, and researchers as well as participants need to be appropriately positioned with respect to the endeavour.

Configure Research Activities: Researchers need to configure their data gathering activities so that they can be effectively undertaken to achieve the intended goals in full awareness of their guiding assumptions; configuring involves considerations of both time and space and invokes one or more synergistic combinations of type of data source, type of data (quantitative/qualitative) and specific data gathering strategy (i.e., one combination constituting a 'Method Unit').

Choose Data Sources: To facilitate and focus data gathering activities, researchers need to choose their data sources very carefully, in full awareness of their guiding assumptions and intended research goals.

Implement Data Gathering Strategies: Data gathering/data creation strategies need to be implemented with full attention to relevant research quality criteria; many strategies can work synergistically together to enrich the learning that can be achieved.

Build Meaning from Data: Gathered or created quantitative and/or qualitative data need to be analysed in a manner consistent with guiding assumptions to yield meaning for learning vis-à-vis the research goals and questions.

Create Convincing Outcomes for Impact: Different research outcomes can be produced to achieve different kinds/levels of impact; a research outcome essentially involves creating a multi-layered and integrated story about the research journey that is convincing, for one or more audiences, with respect to both the quality of work done and the value of what has been or what will be learned; outcomes may be prospective (e.g., a proposal) or retrospective.

The "Data Triangle"

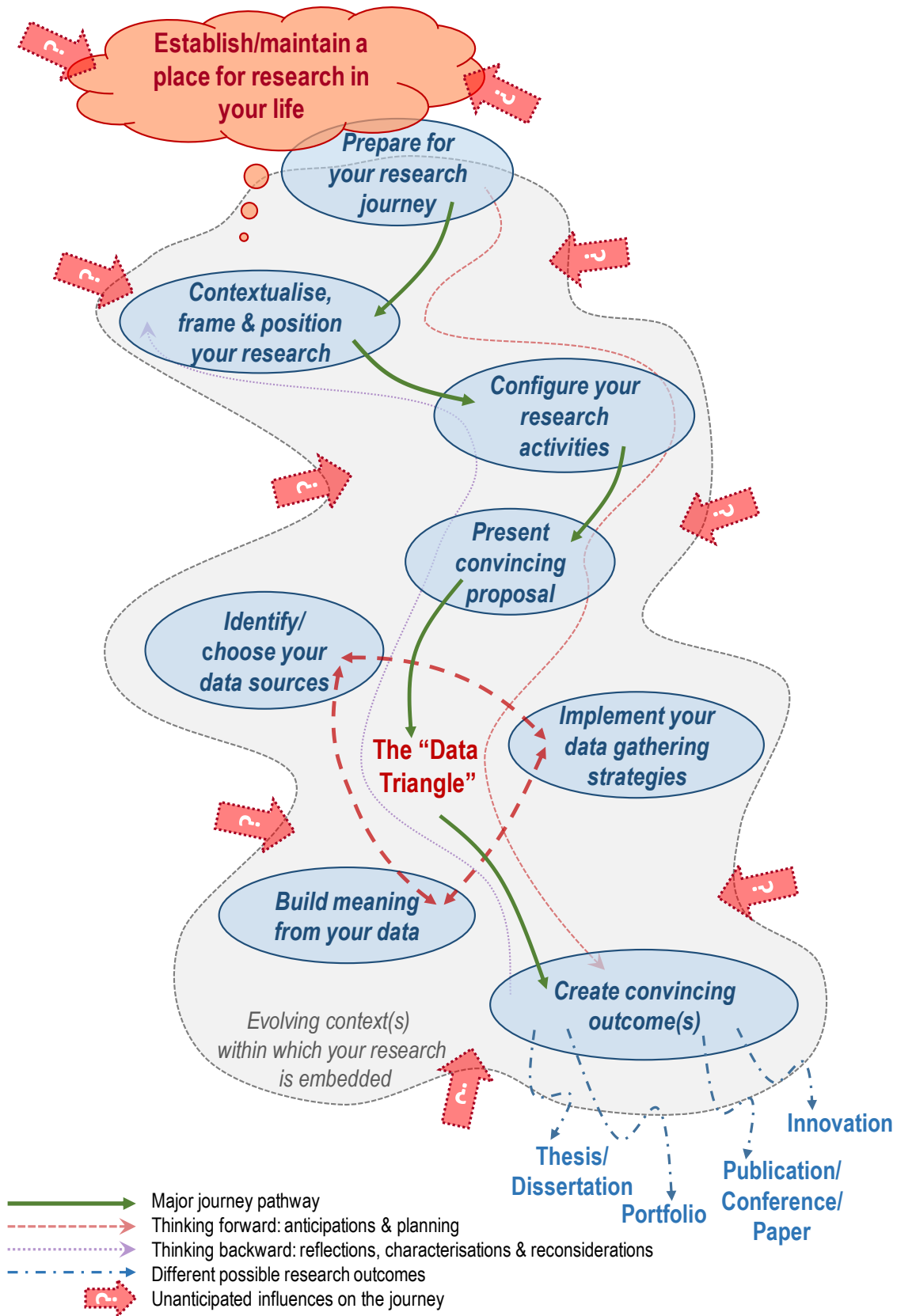


Figure 1

SPECIAL SESSIONS

The Student Experience - More than Exams and Thesis'

Koady Williams,

UNE Student Association (UNESA) President

Whilst most undertaking their postgraduate studies, whether it be by coursework or research, are here primarily for the completion of their exams and thesis', there is more to life as UNE student. The University of New England Student Association (UNESA) is the premier student representative body at UNE, with a dedicated focus on student advocacy and the student experience.

This talk, delivered by UNESA President, Koady Williams, will focus on the student experience that is available for all postgraduate students, online or on campus, and how they can get involved.

UNE Discovery

Dr Kirsti Abbott

UNE Discovery is an initiative of UNE to inspire learning, engagement, enjoyment and collaboration both within the University and between the University and the broader community. It enables people to explore the University's collections, learn from its research, access its artefacts and specimens, and will engage our local, regional and national communities in a new way. UNE Discovery is the impetus for an integrated, whole-of-University program of outreach, engagement and education activities for children as young as 2 years old through to mature learners.

One part of the program is the mobile Discovery Voyager. A skilled team takes curriculum-aligned, interactive activities in STEAM (Science, Technology, Engineering, Arts and Maths) to students from Kindergarten to Year 10 in schools across northern NSW. We are passionate scientists and educators that facilitate play-based learning and exploratory discovery activities in ecology, physics, chemistry, Latin/biology, precision agriculture, sports science, paleontology, and natural history. The program's philosophy values active learning and encourages creativity, collaboration, curiosity and the confidence to have a go.

In the 11 months of operation, our team has engaged with over 10,000 young minds at over 120 schools. Many of these schools are in low socio-economic areas, and the majority have not had access to programs of this kind previously. Feedback has indicated that students remain engaged and motivated after visits, and perceive going to university more favorably than before contact with our team. And we need you!

The Discovery Voyager program would like to provide volunteer opportunities to postgraduate students to enhance your skills in student engagement and education, while inspiring the future generations of curious leaders. Kirsti will outline how you can be involved in this exciting venture.

Fulbright Commission

Tara Hawley

The Fulbright Commission is one of the largest and most prestigious scholarship programs in the world. Whether your focus is biochemistry or archaeology, we're offering graduate program and PhD research opportunities for talented individuals to study in the United States. We're looking for exceptional people who are driven to make a difference in their field.

These awards are available for academic work in any field at any recognised U.S. university. 2018 will be our biggest year yet - with over 30 awards at the postgraduate level available. Visit www.fulbright.com.au for more information.

The Research Lifecycle, the Library, and you

Gabrielle Lamb

The Research Advisory and Engagement Services (RAES) team in the University Library actively assists Higher Degree Research students and academic researchers throughout the Research Lifecycle. This session highlights the services we can provide, focusing on three key aspects: Research Data Management, Strategic Publishing, and Online Researcher Profiles.

UNE's policies and procedures related to Research Data Management have been brought to the forefront of our community's attention particularly in the last twelve months. Knowing your obligations, during planning stages and beyond the life of your project, and where to find help has never been more important.

Being strategic about where to publish, publishing trends and being aware of your author rights will not only affect your thesis writing process but your ongoing career as a researcher. Many students now do their thesis by publication as opposed to the traditional thesis model so it is best to know all your options.

Related to good data management and targeted publishing practices is the importance of building your profiles beyond UNE. For example, establishing an ORCID profile will help you with these processes and also ensure your research is distinguishable from others. Connecting with your research community allows you to network, establish collaborations, and promote your research

Research Data Management

Thomas Reeson

I am part of the Research Advisory and Engagement team at University of New England's and have taken up the role of Research Data Librarian at the UNE Dixson Library. The Research Data Librarian provides a range of services to assist academic staff and postgraduate researchers to manage research resources.

This includes facilitating research data and dataset management, support services for managing and sharing information assets, and group or individual classes for research data management and planning. In my this talk today I will provide you an introduction to Research Data Management, including important terms defining research data, your roles and responsibilities for managing your research data, tips for creating, storing, and managing your data, and the processes and support services available to you for each stage of the research lifecycle.

The Art of Writing Papers

Emeritus Professor Brian Hardaker

Writing Professional Papers - Outline of a Presentation

Why write a paper?
What to write about
What contribution can you make?
What will be the message?
What if you have no ideas?
How to develop a concept plan
Which journal?
Why journal guidelines matter
How to write
Coping with writer's block
Writing and health
The art of writing
Clear English vs jargon
Learning about the language
Assessing readability
Polishing your paper
Who should be authors?
Coping with editors and reviewers
Cheating
The pains and rewards of writing

**Thank you
for attending the
Postgraduate Conference**

Thoughts and suggestions on this and the next conference -

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