



Research Capacity Development Unit
Postgraduate School
University of Johannesburg

Date: 23 August 2024

Time: 08:00-14:00

Venue: PGS Training Room, Akanya Building,
Auckland Park Kingsway campus



threeminutethesis.uq.edu.au



A word of welcome from the Director of the
Research Capacity Development Unit
Professor Penny Govender

Dear distinguished guests and valued attendees,

On behalf of the Research Capacity Development Unit at the Postgraduate School, University of Johannesburg, I extend a heartfelt welcome to all attendees, both physical and online, joining us for the University of Johannesburg's 2024 Institutional Three Minute Thesis Competition. This event is a testament to the power of concise communication and the brilliance of our young researchers.

In the fast-paced world we live in, the ability to articulate complex ideas clearly and effectively is paramount. Our Doctoral candidates have risen to this challenge, distilling their research into just three minutes. They will present their work in a way that is both engaging and accessible, demonstrating their ability to communicate their findings to a non-specialist audience.

We express our sincere appreciation to our distinguished panel of judges for generously donating their time and expertise to evaluate the exceptional work of our students. We also commend the dedicated efforts of the organizing committee for their meticulous planning and execution of this event. Special thanks are extended to the University of Queensland for their collaborative partnership.

I commend all participants for their courage and dedication. Your research is vital to addressing the challenges facing our world, and we are proud to support your endeavors.

Sincerely,

Prof Penny Govender

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Venue Information

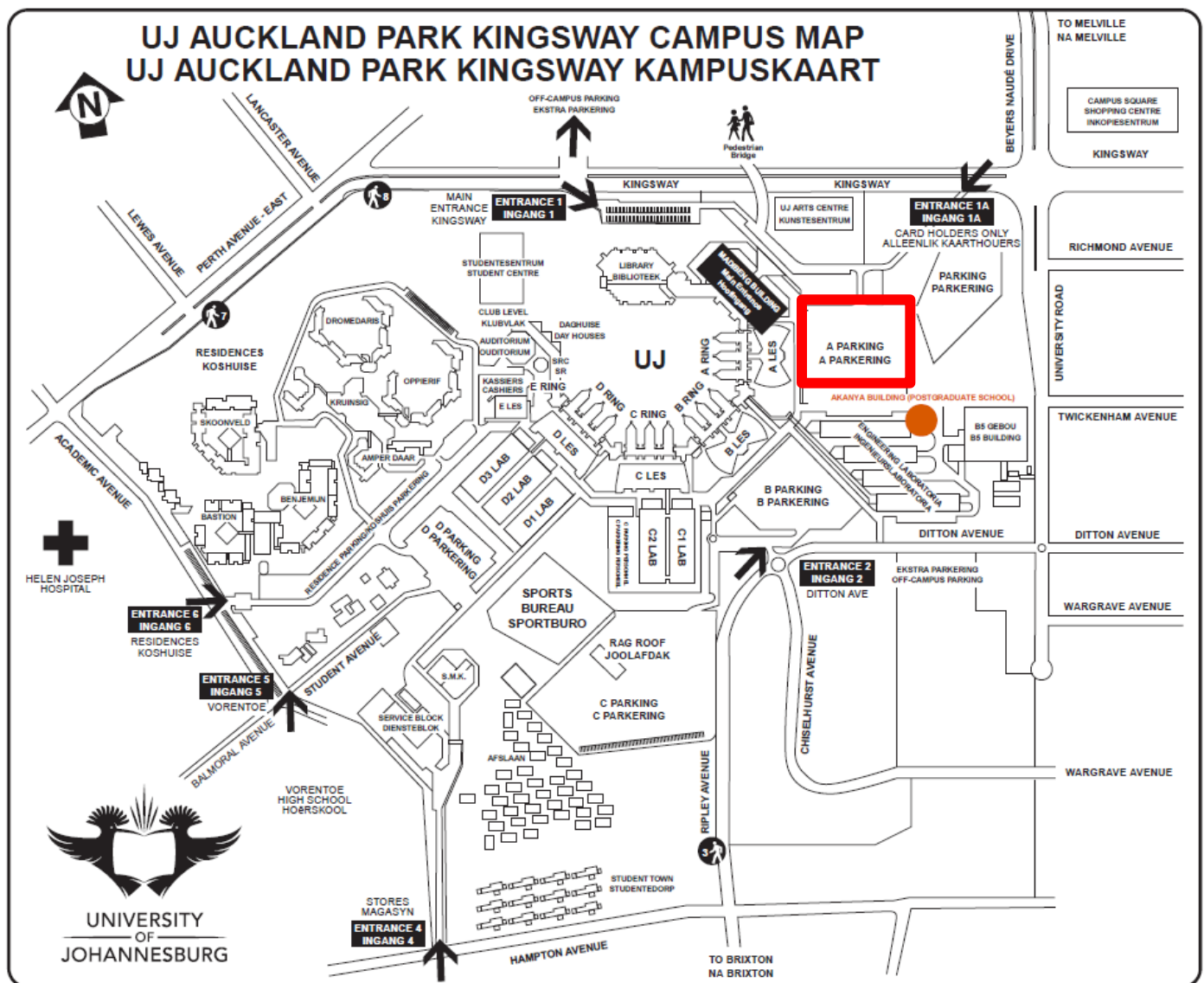
The 2024 Institutional 3MT competition will be held at the Postgraduate School Training Room, Akanya Building, Auckland Park Kingsway Campus, University of Johannesburg.

Parking for external guests: Provided directly outside the Postgraduate School, Akanya Building. Please produce your letter of invitation to the security guard and provide information on the event and venue you are attending.

Water, Tea and Coffee will be provided during the break (Please see programme on page 7).

Lunch: Buffet style – served at the venue between 12:00-14:00.

Please see entrances marked with black arrows, parking for external guests (A Parking – highlighted in red) and location of venue (marked by orange dot) on our campus map.



General Information

Attendee Registration

- Upon arrival – please sign in at the registration table.
- You will receive an event **goodie bag** which will contain:
 - **Name tag** – please wear this throughout the day, to be identified by event attendees and staff.
 - Event Programme
 - Feedback Survey
 - Assorted gifts

Online Audience

- **Facebook Live Streaming:** @UJPostgraduateSchool
- **Zoom Webinar Session:** links sent directly to members following registration.
- Once in Zoom webinar session, please ensure your mic is muted and your camera is switched off.
- For the schedule on presentation sessions (See programme on page 7 for assigned presentations and times).

Event feedback

- Please take the time to complete and submit the event feedback form before the event ends.
- For physical audience, a feedback form will be provided to you at registration and collected at the end of the event.
- For online audience, please see link and QR code below for digital feedback form. If using a phone, please ensure to scroll across the screen to view all rating options.



Link: [Click here](#)

QR code

Open the built-in camera app on your phone.
Point the camera at the QR code.
Tap the banner that appears on your phone.

Disclaimer

All entrants were requested to revise their abstract submissions as per the abstract template provided prior to compilation of the Book of Abstracts. It is also assumed all abstracts were checked and submitted with the approval of supervisors and co-supervisors. Abstracts published as is and not in the correct template means that the entrant did not comply with the instructions issued from the organizing committee and updated abstracts were unavailable at the time of publication of the Book of Abstracts. All attendees were previously notified and agreed to the terms and conditions of the event: By attending this event, you grant the University of Johannesburg permission to use and publish any recorded material taken during the event (photos, videos etc.).

Prizes

First Place	Second Place	Third Place	People's Choice Award
R 10 000	R 7 000	R 5 000	R 3000

- All winners will receive trophies and presentation cheques.
- Award and participation certificates, as well as cash prizes will be paid to recipients after the competition - date to be confirmed and communicated.

People's Choice Award Voting

The People's Choice Award Voting will be made available at 10:30 and will close at 11:00. Voting will be done online using the link or QR code provided below. Voting is available to both the event attendees and the online audience.

- If using a phone, please ensure to scroll across the screen to view all rating options.

Link

[Click here](#)

QR code

Open the built-in camera app on your phone.
Point the camera at the QR code.
Tap the banner that appears on your phone.





2024 Institutional Three Minute Thesis (3MT) Competition - UJ



Event Programme

08:00-08:30	Arrival	<u>Participant number and name</u>
08:30-08:40	Opening and Welcome – Dr Vanishree Pillay (Specialist: PBMR)	1. Simphiwe Nkosi
08:40-08:50	Description of the 3MT Competition and Introduction of Judges – Dr Shandr� Pillay (Master of Ceremonies)	2. Lesedi Matlala
08:50-09:00	Keynote Address – Ms Odifentse Lehasa First place winner -2023 Institutional 3MT competition (UJ) and Second place winner – 2023 National 3MT competition (RSA)	3. Mapaseka Khanye
09:00-09:25	3MT Presentations and Questions & Answer Session – Participants 1-4. Five minutes per participant.	4. Matimu Mabasa
09:25-09:30	Break	5. Caeleigh King
09:30-09:55	3MT Presentations and Questions & Answer Session – Participants 5-8. Five minutes per participant.	6. Ntsako Mkhonto
09:55-10:05	Audience Competition Quiz and Prize Award	7. Refilwe Chilo
10:05-10:30	3MT Presentations and Questions & Answer Session – Participants 9-12. Five minutes per participant.	8. Thomas Makwarela
10:30-11:00	Judge’s Plenary Break-Away Session and Audience People’s Choice Poll	9. Ndivhuwo Ramovha
11:00–11:10	Audience Competition Quiz and Prize Award	10. Mosa Khasu
11:10-11:30	Awards and Gift Giving Ceremony – Judges	11. Carike Verbooy
11:30-11:40	Vote of Thanks and Closure – Dr Shandr� Pillay (Master of Ceremonies)	12. Thembisile Mbatha
11:40-12:00	Group Photos and Networking	
12:00–14:00	Lunch	

Meet Your Keynote Speaker



Odifentse Lehasa [First place winner -2023 Institutional 3MT competition (UJ) and Second place winner – 2023 National 3MT competition (RSA)]. Odifentse Lehasa is a dynamic professional with a strong foundation in information systems, entrepreneurship, and data analytics. Holding Master's degrees from Rhodes University and Wits Business School, she is currently pursuing a Ph.D. at the University of Johannesburg. As an Information Systems Lecturer and Research Supervisor at Rhodes University, Odifentse mentors and guides students while also contributing to industry through her roles as a Data Analyst at Pick n Pay and a Business Analyst at Saratoga. Her entrepreneurial spirit led her to co-found Orange Bike Software and serve as a Director of the Siyazana Youth Development Fund. Odifentse is passionate about applying her expertise to address socio-economic challenges in Africa. Her Ph.D. research focuses on developing computational models for new drug treatments for high blood pressure, aligning with the Sustainable Development Goal 3. She was recognized for her work with a prestigious Young Female Scientist Fellowship in Japan in 2023. Odifentse's career trajectory showcases her ability to bridge the gap between academia and industry, making a significant impact on her community and beyond.

Meet Your Judges

Head Judge



Dr Phumuza Langa is currently employed as the Senior Manager: Commercial Analyst and is also in the interim fulfilling the Acting Director role at the University of Johannesburg (UJ) Technology Transfer Office. He has a PhD in Operations Management from UJ with the study focusing on dynamic capabilities developed by innovative enterprises from technology business incubation services. His initial career was in a biotechnology start-up company (Inqaba Biotec) as a laboratory technician in the DNA sequencing laboratory after completing his studies in life sciences related qualifications (Diploma in Biotechnology and Btech degree in Pharmaceutical Sciences). He then moved on to management studies (starting with a Bcom in Management and a Masters in Organisational Leadership). He has over a decade of experience within the field of innovation management where he has played various roles in intellectual property (IP) commercialisation in several publicly financed research and development (R&D) institutions in South Africa. These include being previously employed as the R&D Outcomes Manager at the Council for Scientific and Industrial Research (CSIR), responsible for IP commercialisation matters within the Materials Science Manufacturing unit followed by being a Commercialisation Manager at the University of Pretoria where he was responsible for a wide range of technology transfer aspects such as IP licensing, seed fund management and business plan development. His research interests are within the field of Strategic Management of Technological Innovations, with a particular focus on IP commercialisation, business incubation, spin-out companies and technology transfer at large.

Judges



Dr Irene Enslé Bronner is a Senior Lecturer with the NRF Research Chair in South African Art and Visual Culture, in the Faculty of Art, Design and Architecture (FADA), at the University of Johannesburg. Irene held a postdoctoral fellowship with the Research Chair (2016-2019), prior to which she received her Doctor Litterarum et Philosophiae in 2016 from the University of Johannesburg with Prof. Brenda Schmahmann as her primary supervisor. Her MA in Art History was awarded cum laude with distinction from Rhodes University in 2011. She participated in the CAA Getty International Program in 2020 and has been recognised with a Y1 researcher rating from the South African National Research Foundation (2021) as well as a University of Johannesburg Postdoctoral Research Fellows' Excellence Award (2019). She has published locally and internationally. Her research and SoTL interests centre on feminist new materialisms in the visual arts, with a focus on contemporary South Africa.



Dr Sfiso C. Mahlaba is a lecturer and unit co-ordinator for mathematics education under the Science and Technology Education department within the Faculty of Education in the University of Johannesburg. His research focus is on mathematical problem-solving as a general competence for mathematicians and a pedagogical approach in mathematics education. Currently he is focusing on how computational thinking can be used to enhance problem-solving and also as a pedagogical approach for the digital era. He has published several peer-reviewed journal and conference papers and book chapters under the banner of mathematics education within sub areas such as mathematical problem solving, self-directed learning and problem-solving discourse in mathematics education. He has also supervised more than 50 honours students and 4 masters students to completion, and currently supervising more. Dr Mahlaba has also source several funding from the National Research Fund (NRF) as well as several internal university funding from two universities.



Dr. Nonhlanhla "Nonny" Vilakazi, a Palaeontologist and Senior Lecturer at the University of Johannesburg's Department of Zoology, is studying fossil reptiles from the Bolt's Farm Karstic System, one of the Cradle of Humankind sites. These fossils can provide valuable insights on the ecosystem and its changes over time. Reptiles are susceptible to temperature changes and they can be used to reconstruct the Cradle's palaeoenvironment. The fossils are especially important in light of global warming, which is already having a negative impact on our current flora and wildlife. Her team is investigating how environmental changes influenced animals during the Plio-Pleistocene period (5 million years ago—approximately 12,000 years ago) and how these trends are influencing our contemporary climate situation in South Africa. Nonny also works with colleagues from South Africa, Namibia, Uganda, and Paris on Miocene material from the rest of Africa (23 million to 5.3 million years ago). Some of the published articles are on the first fossil snake fang; fossil lizard mandibles (all from the Cradle). Another article on the First Neobatrachian (Anura: frog) from Bolt's Farm, was recently published. Nonny's focus is community engagement, and she collaborates with a variety of disciplines, including government agencies, to bring science to the masses and teach young scholars that there are alternative career options to consider.



Dr Sers Shiv Reddy completed his LLD degree in 2024. He is a member of the Faculty of Law and has been teaching Commercial Law for the past 10 years. Sers Shiv is also an admitted attorney (non-practicing). His research interests fall under cyber law, artificial intelligence and the law and consumer law. Sers Shiv also sits on the Research Ethics Committee for the Faculty of Education.



Prof Heather Morris-Eyton is an Associate Professor in the Sport and Movement Studies Department, in the Faculty of Health Sciences at the University of Johannesburg. She has a doctorate in sport science and a master's degree in adult education. She was the first female Head of Department – a position held from 2020-2023. Her passion is high performance sport and coaching where most of her research is situated. Prof Heather is an anti-doping facilitator for the South African Institute for Drug Free Sport where her focus is providing athletes and coaches education regarding anti-doping policies and practices within the global and South African contexts. She is also the high-performance manager for Lifesaving South Africa, a voluntary position she has held for the past 10 years. As a National Lifesaving coach, she has guided many athletes to represent South Africa at World Championships and other international competitions.

Participant Abstracts

*Please click on page numbers to take you directly to the participant abstract of interest.

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9	Ndivhuwo Ramovha	Health Sciences	20
10	Mosa Khasu	Education	21
11	Carike Verbooy	Humanities	22
12	Thembisile Mbatha	Health Sciences	23

Name: Simphiwe Alpheus
Surname: Nkosi
Faculty: Health Science
Department: Department of Sport and Movement Studies
Supervisor(s): Prof Heather Morris-Eyton & Prof Andrew Green

Breaking Barriers: Inclusive High-Performance Strategies for all levels of Sport.

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Keywords: High-Performance Sport, Inclusivity, Resource Allocation, Governance, Holistic Development, Sport Organisations, Mentorship, Culture of Excellence

High-performance (HP) models in sports are crucial for developing successful sport development systems by providing strategic planning processes that help organizations formulate and execute performance strategies grounded in key success factors [1]. This study addresses the gap by evaluating best practices across sport organizations and developing an inclusive HP toolbox applicable across all levels of sport. This qualitative study utilized semi-structured interviews with eight participants, representing various levels of sport organizations including professional, university, club, and school settings. The interview data were transcribed and systematically coded using manual coding methods as described by Saldana [2]. Themes and sub-themes were identified through an inductive coding process, and a codebook was developed to maintain consistency and reliability in the analysis. Thematic analysis was employed to identify common patterns and themes emerging from the interview data [3]. The analysis identified ten main themes: comprehensive definition of high performance; resource allocation and equity; inclusivity strategies; support systems and governance; continuous monitoring and feedback; culture of excellence; barriers and solutions; cross-domain integration; holistic development; and role modeling and mentorship. Participants emphasized the importance of integrating mental, physical, tactical, and technical aspects in HP sport [4]. Equitable resource distribution and the development of inclusive programs were highlighted as critical for integrating non-elite groups [5]. Effective support systems, clear governance structures, and continuous performance monitoring were identified as key components of successful HP practices [6]. Additionally, promoting a culture of excellence and fostering holistic development were seen as essential for achieving optimal performance outcomes [7]. The findings highlight the necessity of a comprehensive and inclusive approach to high-performance sport. By addressing the limitations of elite-focused perspectives and emphasizing resource equity and inclusivity, sport organizations can enhance performance across all levels. The development of an inclusive HP toolbox informed by these findings holds the potential to foster a more holistic understanding of high-performance sport, benefiting both elite and non-elite athletes [8].

References

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Name: Lesedi Senamele
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Faculty: College of Business and Economics
Department: School of Public Policy, Management and Governance
Supervisor(s): Prof. D.E. Uwizeyimana

Social Media as an Effective Citizen-Based Monitoring Tool for Public Service Delivery in South Africa

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Keywords: Monitoring, citizen science, public services, government, social media.

This study investigates the potential use of social media for citizen-based monitoring (CBM) of public service delivery in South Africa. Employing a mixed-methods approach, the research explores how social media can enhance CBM practices and improve government performance. Citizens' use of social media to express concerns and complaints about service delivery is evident, showcasing the platforms' potential for monitoring. Interviews with stakeholders reveal positive impacts on citizen engagement and transparency in government performance. Popular platforms like Facebook and Twitter serve as channels for reporting service delivery issues. Factors influencing successful CBM implementation include financial resources, institutional support, awareness, and capacity. The study highlights a lack of specific authoritative documentation addressing social media usage in CBM [1]. Implications suggest recommendations to enhance CBM through social media, including dedicated online platforms for monitoring and addressing service quality, strengthening the legal framework, allocating resources, fostering institutional support, increasing awareness, overcoming barriers, and regularly assessing social media-based CBM tools. In conclusion, the findings show social media's potential to enhance CBM practices and improve public service delivery in South Africa. Citizens actively use social media to monitor and report service delivery concerns, enabling real-time feedback and data-driven decisions. The study contributes to knowledge of CBM and offers practical implications for policymakers, government officials, and organizations involved in public service delivery.

References

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Name: Mapaseka Ntintiseng
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Faculty: Education
Department: Education
Registered degree: PhD in Education
Supervisor(s): Professor Emnet Woldegiorgis

Illuminating the Perception of Load Shedding's Impact on Academic Performance among Students at the University of Johannesburg

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Keywords: Load shedding, power outages, electricity, perceptions, students

Since the covid-19 pandemic in 2019, institutions of higher education in South Africa resorted to introduce online teaching and learning as a method of ensuring that the academic calendar is not affected (2). Globally, online teaching and learning have been commended as the pinnacle of open distance learning. However, in South Africa, this approach has been disrupted by continuous power cuts (2). When electric utilities encounter generation insufficiencies, lack of adequate transmission and distribution capabilities or faults, they implement an integral approach termed load shedding so that they maintain power system stability (1). Load shedding disrupts access to educational technologies, classroom activities, and study plans. This study investigates the perceptions of students at the University of Johannesburg regarding the impact of load shedding on their academic performance and explores the resilience strategies they employ to mitigate its effects. The motivation for investigating the students' perceptions on load shedding is that in recent years, the electricity demand in South Africa has been growing mainly due to advancements in technology and industries' growth (1), as such from 2018 the country has been facing immense challenges concerning load shedding and power outages. Focusing on the Faculty of Education, the research employs a mixed-methods approach, combining surveys, interviews, and focus group discussions to gather comprehensive data. The findings will provide valuable insights for crafting effective interventions and policies to support students in sustaining their educational advancement despite recurrent interruptions.

References

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Name: Matimu
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Supervisor(s): Professor Mariekie Burger

Community Relationships and Urban Agriculture for Green Future: Case of Tim Nectar Farms and Tim Abaa.

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Keywords: Community relationships, urban agriculture, environmental degradation, famine and sustainability

This thesis investigates the role of community relationships and urban agriculture in sustainable development, focusing on the case study of Tim Nectar Farms and the Orange Farm community [1]. The research explores how mobilizing global communities through urban agriculture can address environmental challenges such as degradation and famine [2]. Using a case study design within an interpretivist framework, the study employs semi-structured interviews and participant observation to gather data [3]. Theoretical lenses of participatory culture, rhizome theory, and social capital theory guide the analysis [4] [5] [6]. The findings aim to design a community-based model for sustainable development that enhances resilience and fosters collaborative efforts. The thesis contributes to the understanding of urban agriculture's impact on community cohesion and environmental sustainability, providing recommendations for both local and global applications.

References

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Name: Caeleigh
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A systematic review comparing padel, tennis and squash injuries.

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Keywords: padel, tennis, squash, injury prevalence

Padel, described as a mixture between tennis and squash, involves repeated changes of direction, rapid acceleration, and deceleration over short distances requiring speed, agility and power [1]. The reported injury incidence per 1000 hours of play is similar - 8.4 injuries in padel, 8.2 injuries in tennis and 7.3 injuries in squash [2]. As padel is a new sport in South Africa the epidemiology and injury prevalence have yet to be investigated in the South African context. A systematic review of existing research was conducted to compare the epidemiology and prevalence of injuries between padel, tennis and squash athletes. A total of 13 articles were included after the screening process. Padel athletes were reported to have musculoskeletal injuries of the shoulder, elbow, lower back and knee. Injury risk factors included racket characteristics, volume of training and years of experience [3]. The main injuries reported in tennis players were to the ankle, wrist, lumbar spine, knee and shoulder. Most injuries were musculoskeletal with risk factors including match volume, overuse, court surface, and constant acceleration and deceleration [4,5]. Squash related injuries were musculoskeletal with injuries mostly to the ankle, thigh, knee and groin. Other reported injuries in squash were to the lumbar region and hand [2,6]. Musculoskeletal injuries were the most common reported type of injury in padel, tennis and squash athletes. Ankle and knee injuries were the most prevalent with slight differences in the location of other injuries between the sports. Lower back injuries were reported in all three sports. The common risk factor related to injury prevalence was overuse.

References

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Name: Ntsako Euricia
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Faculty: Engineering and the Built Environment
Department: Chemical Engineering Technology
Supervisor(s): Prof Tebogo Mashifana and Prof Thandiwe Sithole

Synthesis of waste-based acid geopolymer for application in building and construction

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Keywords: Acid-based geopolymer, phosphorus leachate, gold mine tailings, Characterization, TCLP

The production of Portland cement utilizes vast amounts of natural fossil fuels, has large energy requirements, and results in significant CO₂ emissions contributing to greenhouse gas emissions (Shi et al., 2022). This contributes to global warming and geopolymers have emerged as compelling eco-friendly alternatives to Portland cement due to their superior strength, reduced carbon emissions, and energy efficiency during production (Zhao et al., 2021; Yang et al., 2023). Acid-based geopolymers demonstrate remarkable characteristics (Pu et al., 2021). This study developed acid-based geopolymers (WBGMT) by comparing water and phosphorus leachate (PL) from sewage sludge as a solvent for phosphoric acid (H₃PO₄) using non-radioactive gold mine tailings as a raw material. Geopolymer was prepared at different liquid-to-solid ratios of 0.2 to 0.5 and different concentrations paste was then cured for 5 days at 80°C. The unconfined compressive strength (UCS) was used to measure the effect of the parameters. X-ray diffraction (XRD), Scanning electron microscopy (SEM), and Fourier transform infrared spectroscopy (FTIR) were used to characterize the developed waste-based acid geopolymer. The geopolymer exhibited UCS of 2,1 MPa and 10 MPa for water and PL solvent respectively at concentrations of 5M. The strength development was attributed to the denser compact structure and AlPO₄, Si-O-P-O-Al, Si-O-Al-O-Si, Al-O-P-O, and Si-O-P-O-Si network in the geopolymer matrix. The high UCS on WBGMT with PL was attributed to the phosphorus in the leachate. WBGMT presents the valorization of two waste materials minimizing environmental challenges related to their disposal. It also minimizes H₃PO₄ requirement as its source phosphate rock predictions indicate that reserves will peak by 2034 and become critically depleted by 2050 producing geopolymer with high UCS (Barca et al., 2019). The produced WBGMT geopolymer meets the American Society for Testing and Materials requirements C34-03 and C62-10 to be applied as load-bearing brick and building brick with negligible weathering.

References

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Name: Refilwe
Surname: Chilo
Faculty: Science
Department: Zoology
Supervisor(s): Dr Matthew Bird

The smaller impact of climate change on rivers and wetlands.

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Keywords: Climate change, water beetles, thermal tolerance

The rapidly changing climate is a global phenomenon that is expected to have severe impacts on our water resources in South Africa [1]. However, specifics regarding the nature and extent of these effects on aquatic ecosystems have not been adequately investigated [2]. This is mainly due to the lack of empirical studies testing biotic responses to the expected thermal changes resulting from climate change. Macroinvertebrates are one of the best-known indicators of environmental change in freshwater ecosystems [3], and within this group, water beetles show promise as indicators of thermal stress. There are a limited number of studies that focus on investigating the thermal tolerance of water beetles in Austral regions when compared with those available for the Northern Hemisphere. This study aims to compare the vulnerability of widespread Pan Ethiopian vs ancient Gondwanan fauna to climate change by assessing the relative thermal sensitivity of water beetle taxa inhabiting each faunal group. It also aims to compare this data with the available data from the Northern Hemisphere. The study utilizes both dynamic ('Critical Thermal Maximum/Minimum' – CTM) and static ('Incipient Lethal Temperature' – ILT) exposures to assess relative differences in thermal tolerance among the regions, habitats and taxa. It is broadly hypothesized that Pan Ethiopian water beetles will be more vulnerable to climate change than Gondwanan water beetles.

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The Influence of Digital Innovation (4ir) On the Growth Potential Of MSME: The Prediction Framework

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Keywords: Entrepreneurship, MSME, Strategies, Business Growth, Digitalisation and innovation

This thesis investigates the impact of the Fourth Industrial Revolution (4IR) on the growth potential of Micro, Small, and Medium Enterprises (MSMEs) in South Africa. As digital innovation reshapes industries globally, MSMEs face unique challenges and opportunities (Hendrawan et al., 2024). This study aims to develop a strategic growth framework for MSMEs, enabling them to harness the benefits of digital transformation and navigate the disruptions brought by 4IR technologies. The research concerns the central question: "What are the strategic growth approaches for MSMEs in the digitisation era?" To address this, the study explores secondary questions related to the challenges posed by digitisation, how MSMEs can tackle disruptions, the potential of digitisation as a growth driver, and the preparation needed for future technological disruptions. Using a semi-structured-method approach, data was collected from MSMEs and academic scholars in Roodepoort, Johannesburg. Interviews and qualitative analyses provided insights into the current state of digital adoption, the barriers MSMEs face, and the strategies employed to overcome these obstacles. The findings highlight the need for a tailored digital growth framework that considers the unique constraints of MSMEs, such as limited financial resources and technological know-how. This thesis proposes a comprehensive framework, which the researcher called the dynamic disruptive capability model. By incorporating core elements of this model in their operations, MSMEs can enhance their resilience and competitiveness in a rapidly evolving digital economy. The study contributes to the body of knowledge by providing actionable strategies for MSMEs to thrive in the 4IR era and offers policy recommendations to support their digital transformation journey.

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Understanding the Co-Occurrence of Heavy Metals and Nutrients in Urban Stormwater Runoff: Johannesburg Case Study.

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Keywords: Urban stormwater runoff; Heavy metals; Nutrients; Water quality management; Physicochemical parameters; Johannesburg city.

Urbanization is rapidly transforming landscapes worldwide, with projections indicating that 68% of the global population will reside in urban areas by 2050 [1]. This shift leads to increased impervious surfaces, which exacerbate stormwater runoff, posing significant challenges to environmental sustainability and public health. Stormwater runoff serves as a conduit for pollutants, including heavy metals and nutrients, which can severely impact aquatic ecosystems and water quality [2][3]. This study aims to analyze the physicochemical parameters of urban stormwater runoff and assess the presence and concentrations of heavy metals and nutrients across various land use types in Johannesburg City. Stormwater samples were collected from multiple locations, including industrial, commercial, residential, and agricultural areas, during both wet and dry seasons. The samples were analyzed for physicochemical parameters such as temperature, total suspended solids (TSS), and pH, alongside heavy metals and nutrient concentrations, using advanced analytical methods, such as inductively coupled plasma mass spectrometry (ICP-MS) and ion chromatography (IC). Results revealed significant variability in heavy metal concentrations, with notable levels of copper, iron, and zinc indicating localized pollution sources. Nutrient analysis showed high levels of total nitrogen and phosphorus, with strong correlations between ammonium and total nitrogen concentrations. These results highlight the complex relationship between heavy metals and nutrients in stormwater runoff, highlighting the need for comprehensive water quality management strategies.

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Towards a signature pedagogy for playwriting as a language teaching tool in the primary school

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Keywords: playwriting; vocabulary; Sesotho; isiZulu; early grades; reading; artificial intelligence; remote learning

This research explored how drama texts could serve as pedagogical tools to introduce children to Sesotho and isiZulu vocabulary of artificial intelligence (AI). The study employed Shulman's [1] theory of a 'signature pedagogy' for teaching playwriting as a teaching tool for foundation phase learners. This study aimed to explore how student teachers engaged in such playwriting to create drama texts about AI in Sesotho and isiZulu. The study took place at a university in urban South Africa. The population from which the sample was drawn consisted of members of an intact group of students (n = 90) from two cohorts (N = 445) of student teachers in their final year of the B Ed foundation phase and intermediate phase programmes. The study employed a case study research design with qualitative data, which were collected through semi-structured focus group interviews with the student teachers, and an analysis of their drama texts. An inductive thematic analysis approach was applied to the interview data [2]. A deductive approach was implemented to analyse the drama texts according to criteria for playwriting with a pedagogical purpose. The findings revealed that the playwriting task was a fruitful experience for the student teachers and that their artifacts were ready to be added to their teaching toolkit when they become professional teachers [3]. In addition, it contributes to the corpus of pedagogies for the teaching of vocabulary in African languages.

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Seeing, hearing, and speaking out on GBV: A courageous approach for South African Higher Education Institutions.

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Keywords: Gender-based Violence, Higher Education, Strategic communication, Multi-stakeholder engagement

South Africa is in crisis; its gender-based violence (GBV) rates are much higher than the global average [1]. As a microcosm of society, Higher Education Institutions (HEI) are not exempt from these statistics, with these institutions also facing an increasing number of GBV incidents [2]. Stakeholders such as students within HEI have expressed their disappointment with the current institutional responses to GBV, which necessitates an improved HEI response in the form of more effective policies and practices to address GBV on campuses [3]. Public HEI are in a much better position to comply with these requirements; however, private HEI lack the required capacity and staff to deal with GBV crises effectively [4]. In addition, most approaches to GBV neglect strategic communication as a pivotal player. Through in-depth interviews with institutional employees and student surveys, this research focuses on private HEI to investigate current GBV policies, gain insights into GBV stakeholder engagement practices, and develop a multi-stakeholder engagement approach through strategic communication to address GBV more effectively. The findings indicate that most private HEI do not have GBV policies or practices, and their reactions are dictated by their managerial ethos; therefore, institutional stakeholders are either uncertain, uncomfortable, or in denial of GBV. Where institutions have GBV initiatives, there is a lack of stakeholder engagement with students, as communication is limited to one-way information channels. Therefore, this research indicates a need for and develops a strategic collaborative approach that uses strategic communication and multi-stakeholder engagement to address GBV comprehensively through the 7Ps and multiple strategic communication tools dialogically, continuously, and inclusively.

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The role of mentorship in supporting and advancing female football coaches within the South African context: A systematic review

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Keywords: career advancement, mentorship, barriers, football.

This systematic review explored the role of mentorship in the professional development and career advancement of female football coaches within South Africa. With the rise of women's football globally, female coaches continue to face myriad barriers where coaching remains a male dominated occupation [1]. Power disparities affecting employment opportunities, misogynistic sports organisations, underrepresentation in leadership and coaching roles, gender barriers as well as a lack of support for professional development, hinder opportunities for female football coaches [1][2]. These barriers highlight the necessity of effective mentoring programmes that can mitigate these challenges by providing the necessary support, guidance, and empowerment to female coaches, assisting them to navigate the complexities of football coaching. The review systematically searched and analysed peer-reviewed articles and relevant literature from six databases. Studies included were those that specifically examined mentorship as a mechanism for supporting female coaches in football, focusing on outcomes such as skill development, career progression, and personal and professional growth. Qualitative, mixed methods and literature review studies were considered to provide a comprehensive understanding of the topic. The findings from the reviewed literature highlighted the positive impact of mentorship on female football coaches [3][4][5]. Mentorship emerges as a critical support system, offering emotional support, professional advice, and practical coaching tips [4]. Effective mentorship relationships often lead to significantly enhanced coaching skills, increased confidence and broader professional networks [2][4]. Mentees reported feeling more empowered to overcome the gender-specific challenges they encounter in the football coaching landscape [5]. Key themes included the importance of mentor-mentee compatibility, the need for sponsorship and formalised mentorship programmes and the benefits of mentoring relationships. Studies suggested that successful mentorship involves not just coaching guidance but also career advice, psychosocial support and advocacy within the professional community [2]. However, the review also identifies several barriers to effective mentorship. These include a shortage of available mentors, particularly female mentors who serve as role models and time constraints that limit the depth of mentoring relationships [2]. The literature also notes the importance of organisational support in fostering a culture that values and prioritises mentorship [1]. In summary, the systematic review confirms that mentorship is a fundamental tool in supporting and advancing female football coaches. By offering support and fostering professional development, mentorship can help female coaches navigate and succeed in the male-dominated field of football coaching. Future research should continue to explore mentorship programmes tailored for South African female football coaches and strategies to overcome existing barriers, ensuring that mentorship can effectively contribute to gender equity in football coaching.

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Assessment Rubric

3MT® Competition Judging Rubric

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SCORING CALIBRATION:

1 Does not meet expectations	2 Demonstrates competency but some significant weaknesses	3 Good, but some flaws	4 Excellent, almost flawless	5 Outstanding, no flaws
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Please include a score between 1 and 5 for each line item below (half marks allowed 0.5).

COMPREHENSION AND CONTENT	
Presentation provided clear motivation, background, and significance to the research question	
Presentation clearly described the research strategy/design and the results/findings of the research	
Presentation clearly described the conclusions, outcomes, and impact of the research	
Score out of 15	

Please include a score between 1 and 5 for each line item below (half marks allowed 0.5).

ENGAGEMENT AND COMMUNICATION	
The oration was delivered clearly, and the language was appropriate for a non-specialist audience	
The PowerPoint slide was well-defined and enhanced the presentation	
The presenter conveyed enthusiasm for their research, captured and maintained audience's attention	
Score out of 15	

OVERALL SCORE	/30
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COMMENTS

This very brief comment will be used to provide feedback to unsuccessful entrants. Please identify one positive and one area for improvement. e.g. **xxx was good but you need to work on xxx**

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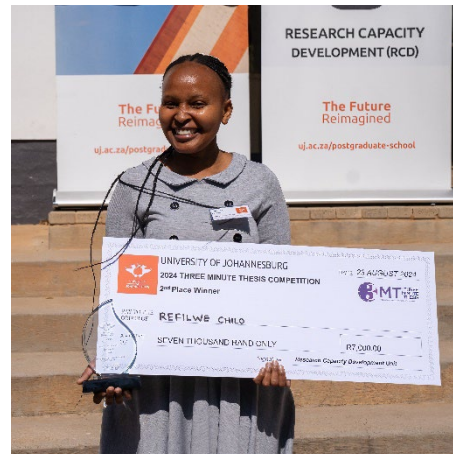
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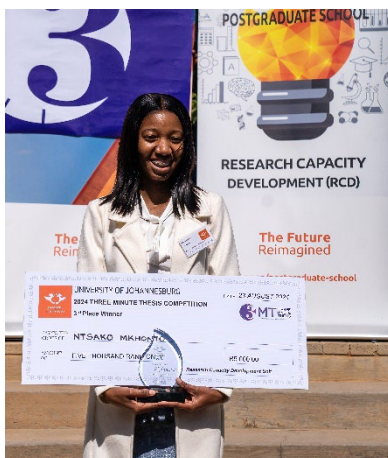
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