



Visualise *your* thesis™

a programme for graduate researchers

Research Capacity
Development

POSTGRADUATE
SCHOOL

Date: 18 October 2024

Time: 09:00-12:00

Platform: Virtual

**Our Future
Reimagined**



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

Dear distinguished guests, esteemed colleagues, and exceptional participants,

On behalf of the Research Capacity Development Unit at the University of Johannesburg, it is my great pleasure to welcome you to the second National Visualise Your Thesis (VYT) competition. Inspired by the University of Melbourne's pioneering initiative, this event showcases the innovative research conducted by Master's students and Doctoral candidates across South Africa, challenging them to present their work in a dynamic and engaging manner. Today, we are proud to host the winners from participating universities, University of Johannesburg and North-West University, each representing the pinnacle of research communication at their respective institutions.

The VYT competition embodies commitment to fostering research excellence and cultivating communication skills vital for our future academics and researchers. It provides a platform for students to not only share their research with a wider audience but also to hone their ability to translate complex ideas into accessible and compelling narratives. Each of you participating here today has already demonstrated exceptional skills in communicating your research, and we commend you for your hard work and creativity in producing these innovative visual presentations.

We are particularly honored to have our keynote speaker share insights on winning the first national competition, which will undoubtedly inspire and enlighten us all. To our esteemed judges, we extend our sincere gratitude for your willingness to share your expertise and provide valuable feedback to our participants. Your insights and guidance will undoubtedly contribute to their growth as researchers and communicators. To our audience, thank you for joining us in celebrating the achievements of these remarkable students. Your presence and support play a crucial role in encouraging and inspiring the next generation of research leaders.

We acknowledge the invaluable contribution of North-West University as a participating institution, and of course, to the University of Melbourne for originating the VYT concept and inspiring us all. We are confident that this year's competition will be another resounding success, filled with insightful presentations, engaging discussions, and a celebration of the power of visual communication in research.

Sincerely,

Prof Penny Govender

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General Information

Online Audience

- **Facebook Live Streaming:** @UJPostgraduateSchool
- **Zoom Webinar Session:** Links sent directly to members following registration. Please [click here](#) to register.
- Please ensure you log in at least 15 minutes before the event start time.
- 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 6 for assigned presentations and times).

Social Media Posting

- **Please use the following hashtags:**
#RSANationalVYT
#UJPostgraduateSchool
- **Tag us on Facebook:** @UJPostgraduateSchool

Event feedback

- Please take the time to complete and submit the event feedback form before the event ends.
- Please see link and QR code below for the 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 events taking place may be photographed and video recorded for marketing, social media and media purposes. By attending this event, you grant the University of Johannesburg permission to use and publish any recorded material. The University of Johannesburg encourages academic debate and discussion that are conducted in a manner that upholds respectful interaction, safety of all involved, and freedom of association as enshrined in the law, the Constitution, and within the boundaries of the University policies. The views expressed during events are expressed in a personal capacity and do not necessarily reflect the views of the University of Johannesburg.

Participating Universities



Prizes

First Place	Second Place	Third Place	People's Choice Award
R 15 000	R 10 000	R 5 000	R 3000

- Additionally, all winners will receive trophies.
- 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 voting for the People's Choice Award will be made available at 10:45 and will close at 11:15. Voting will be done online using the link or QR code provided below. If using a phone, please ensure to scroll across the screen to view all rating options.



Link

[Click here](#)

QR code

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2024 National Visualise Your Thesis (VYT) Competition

Event Programme



09:00 – 09:10	<p style="text-align: center;">Opening and Welcome – Prof Penny Govender (Director: Research Capacity Development Unit, University of Johannesburg)</p>	<p><u>Participant number and name</u></p>
09:10-09:20	<p style="text-align: center;">Description of the VYT Competition and Introduction of Judges – Dr Shandré Pillay (Master of Ceremonies)</p>	<p>1. Izak Frederik Potgieter (UJ)</p>
09:20-09:30	<p style="text-align: center;">Keynote Address – Ms Carolyn Nadasen (University of Pretoria) First place winner - 2023 National VYT competition</p>	<p>2. Isac Mabunda (UJ)</p>
09:30-09:55	<p style="text-align: center;">VYT Presentations and Questions & Answer Session – Participants 1-3. Five minutes per participant.</p>	<p>3. Gugulethu Ndlovu (NWU)</p>
09:55-10:05	<p style="text-align: center;">Break</p>	<p>4. Timileyin Peter Abiodun (UJ)</p>
10:05-10:30	<p style="text-align: center;">VYT Presentations and Questions & Answer Session – Participants 4-6. Five minutes per participant.</p>	<p>5. Kamvelihle Bili (UJ)</p>
10:30-10:45	<p style="text-align: center;">Audience Competition Quiz</p>	<p>6. Louise Fullard (NWU)</p>
10:45-11:15	<p style="text-align: center;">Judge’s Plenary Break-Away Session and Audience People’s Choice Poll</p>	
11:15-11:45	<p style="text-align: center;">Winner Announcement – Keynote Speaker and Judges</p>	
11:45 – 12:00	<p style="text-align: center;">Vote of Thanks and Closure – Dr Lorenzo David (Coordinator: Research Capacity Development Unit, University of Johannesburg)</p>	

Meet Your Keynote Speaker



First place 2023 National VYT competition winner - Carolyn Nadasen is a researcher and research assistant with a strong focus on cancer research, particularly in understanding how different compounds and toxins affect cancer cells and blood. She completed her MSc in September 2024, where she investigated the in vitro effects of EGCG and MAZ-51 in melanoma. Currently, she is pursuing her PhD at the University of Pretoria, focusing on the ex vivo effects of *Bitis arietans* (puff adder) venom on the ultrastructural morphology and viscoelastic properties of blood in breast cancer patients. Carolyn has presented her research at multiple conferences, sharing her insights and findings with the scientific community. Her current work aims to explore how venom impacts key blood components, such as fibrin fibres, red blood cells, and platelets, providing new perspectives on both toxicology and oncology. Through her interdisciplinary approach, Carolyn strives to contribute meaningful advancements in understanding cancer progression and treatment. Outside of the lab, Carolyn enjoys building connections within her academic community and mentoring peers as she continues to grow both personally and professionally.

Meet Your Judges

Head Judge



Dr Heather Thuynsma holds a BA Honours from the University of the Witwatersrand, a MA from the University of Akron (USA), a PhD from University of Pretoria and attended the Women's Campaign School at the Yale Law School to complete her specialisation in fundraising and political campaign strategy. She is a Senior Lecturer in the Department of Political Sciences at the University of Pretoria and is the founding director of the university's Emerging Scholars Initiative. She has spent 30 years working in the South African and US non-profit sectors advising on strategic planning, fundraising and media relations. She has coordinated media and fundraising operations for political campaigns at various levels of government in the US State of Ohio, and has taught these skills and civic and human rights education in South Africa, the US, Democratic Republic of the Congo, Kenya, Cote D'Ivoire, Ghana, Lesotho, Malawi, Mali, Mozambique, Namibia, Uganda, Zambia, and Zimbabwe. Beyond her communication and media skills, Dr Thuynsma is an accomplished Political Science teacher and researcher. She has published articles on human rights education for the United Nations and on South Africa's political parties, political behaviour, electoral strategy and political analysis. She has been a contributing editor of several books, including these:

- Texture of Dissent: Defiant Public intellectuals in South Africa (2022, BestRed Press)
- Fabric of Dissent: Public Intellectuals in South Africa (2021, BestRed Press)
- Brittle Democracies: Comparing Democracies in Anglophone Africa (2021, ESI Press)
- Political Parties in South Africa: Do they Underpin or Undermine Democracy? (2017, AISA and Human Sciences Research Council of SA Press)
- Public Opinion and Interest Group Politics: South Africa's Missing Links? (2012, Africa Institute of South Africa (AISA) Press)

Judges



Prof Nonhlangabezo (Bezo) Mabuba has a PhD in Natural Sciences from Duisburg-Essen Universität, Germany in collaboration with ThyssenKrupp Steel AG, Hamborn, Germany since 2010. Currently, she is A Professor in the Faculty of Science, Department of Chemical Sciences, University of Johannesburg, South Africa. Her international visibility in science community has earned this researcher a C2 NRF rating, an H-index of 22 (google scholar) and H index 21 on Scopus. She is highly committed teacher, mentor, and a researcher who encourages critical thinking and research-based learning. She encourages transformation in teaching and learning as well as in research. Her research is set on the premise of developing newer, efficient, and sustainable wastewater quality monitoring (biosensors) and treatment methods (adsorption and piezo electrocatalysis) to complement the existing systems for sustainable community development. She trained postgraduate students at honours, master's and PhD level and has local, continental and international collaborations.



Mr Zander Janse van Rensburg is a lecturer in the North-West University's (NWU) Academic Literacies Department, where he contributes to the Institution's academic writing development strategy. In accordance with this strategy, he also established the NWU Writing Centre in 2014, where he still serves as manager. In 2019, the NWU Registrar appointed him as the university's subject specialist on plagiarism. His work, in this regard, focuses on forensic investigations into misconduct at all levels of academic practice. For these purposes, he has also led the development of specialised forensic software aimed at investigating various forms of academic misconduct. Further research interests include philosophical inquiry and, more specifically, hermeneutic phenomenology.

Participant Abstracts

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

Number	Name	University	Abstract Page Number
1	Izak Frederik Potgieter	University of Johannesburg	10
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3	Gugulethu Ndlovu	North-West University	12
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Name: Izak
Surname: Potgieter
University: University of Johannesburg
Faculty: Art, Architecture & Design
Department: Multimedia
Registered degree: PhD – Art & Design
Supervisor(s): Prof Anthony Ambala, Dr Pieter Hermanus Myburgh

Embodying Sophiatown : Mediating Multivocal Representations of Cultural Heritages in Virtual Reality

Izak Frederik Potgieter, Anthony Ambala, Pieter Hermanus Myburgh

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Keywords: Cultural Heritage, CH, Virtual Reality, VR, Extended Reality, XR, Intangible Cultural Heritage, CGT, Constructivist Grounded Theory

Virtual reality (VR) as a medium for representing cultural heritage (CH) seldomly uses ethnographic sources as data for the representation of CH in VR [1]. This has contributed to a geographic bias favouring the creation of CH in VR projects in the West, where CH sites tend to be protected and physically intact more often [2]. The preference for physical sources over non-physical data sources, such as ethnographic sources, also contribute to a bias towards the representation of tangible CH over intangible CH [3]. This results in CH in VR representations that focus on the visual appearance of objects and sites. This focus overlooks the practices, representations, expressions and knowledge inherent in the CH. This research uses constructivist grounded theory to analyse and extract valid data from ethnographic sources for the representation of CH in VR. Sophiatown in Johannesburg, South Africa is used as a case study to demonstrate the extraction and use of valid data from ethnographic sources, specifically interviews, for use in the representation of CH in VR. The physical CH site of Sophiatown has almost entirely been destroyed by the apartheid regime [4]. Therefore, any representation of it in VR cannot rely on physical sources alone and ethnographic sources become essential to its representation. In the prevailing paradigm, favouring the physical aspects of CH and objective sources, a site such as Sophiatown is essentially unrepresentable. By laying out a technique for the extraction of valid data from ethnographic sources, CH in VR representations may be constructed with more data potentially at their disposal. This may enable the representation of CH that have been difficult to represent from tangible sources alone, such CH is often found in the global south [2]. By practically demonstrating how valid data can be extracted from ethnographic sources, this research may also enable richer representations of CH in VR as ethnographic data and the intangible CH often inherent in ethnographic accounts may be considered and included into CH in VR representations using the framework laid out by this research. There is no CH that does not also have intangible aspects to it[5]. Ethnographic data can be a rich window into the intangible aspects of CH, their use in the representation of CH in VR may lead to richer and more multi-dimensional representations of CH.

References

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Name: Isac
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Supervisor(s): Dr. B. Ofor and Prof. L. Piater

Proteomic variations between African scorpion venoms and identification of therapeutic properties through *in vitro* cell line assays

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Keywords: Antivenom, Cancer, Proteomics techniques, Scorpion envenomation, Therapeutic agents.

Scorpion stings are the second most global cause of envenomation, especially in tropical and subtropical regions, after snakebites. Scorpion envenomation poses a significant public life-threatening problem, with some patients experiencing clinical symptoms and severe complications, including death caused by the components found in scorpion venom, such as neurotoxic proteins [1]. Besides the neurotoxic proteins, scorpion venom consists of bioactive molecules that can be used to develop new therapeutic drugs against cancer and other emerging diseases [2,3]. Antivenoms are the only treatment for envenomation, but they are costly, not easily accessible, and some are ineffective in severe envenomation due to these species' variations [4]. People from subtropical and tropical regions are most affected since they do not have proper healthcare facilities. Currently, there is a shortage of scorpion antivenom, and Southern and Northern Africa are known to be the home of dangerous scorpions that can cause life-threatening problems [4]. Due to the above reasons, this study aims to determine the proteomic profile variations of Southern and Northern African scorpion venoms using proteomic techniques such as one-dimensional (1-D) and two-dimensional (2-D) gel electrophoresis, enzymatic assays, reverse phase high-pressure liquid chromatography (RP-HPLC), and MALDI-TOF which will reveal the intra- and inter-species variance concerning sex, diet, age, geographical location [3,5,6]. Due to the scorpion venom not only being a threat to human health, this study will also focus on finding new therapeutic agents against cancer in scorpion venom. The data obtained will provide a better understanding of the manufacturing of scorpion antivenom serum and potential components that can be used for cancer treatment.

References

- [1] White, J. (2016). Overview of scorpion envenoming. *Critical Care Toxicology*. 1–15.
- [2] Ahmadi, S., Knerr, J.M., Argemi, L., Bordon, K.C.F., Pucca, M.B., Cerni, F.A., Arantes, E.C., Çalışkan, F. and Laustsen, A.H. (2020). Scorpion Venom: Detriments and Benefits. *Biomedicines*. 8(5):118.
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Registered degree: Doctor of Philosophy in Theology with Pastoral Studies
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Experiences of premarital counselling among African Christians in South Africa: A practical theological study

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Keywords: Premarital counselling, Practical theology, Pastoral counselling, African Christian marriage

South Africa is facing a marital crisis. South Africa's divorce rates are higher than the marriage rate. This is a matter of concern because marriage performs a critical function for both individuals and society at large. Divorce on the other hand, not only threatens the future of social institutions, but it also poses physical and psychological health risks on all members of the family system. As a method utilized to enhance relationships prior to marriage in order to prevent the risk of divorce, premarital counselling becomes important. Because preparing people for marriage is an integral part of pastoral care and counselling, marriage preparation begun in churches, and recent studies attest that the majority of premarital counselling is offered within religious institutions. However, little is known about clergy's counselling approaches and techniques in premarital counselling, particularly in South Africa. This study investigates the nature and content of premarital counselling in South Africa and assesses the impact it has as perceived by both the counselees and counsellors. The views by both counselees and counsellors provides a constructive and informative perspective whereupon both those giving guidance and those who embrace and apply that guidance share their perspective. Interviewing both clergy and couples allows the researcher to get a balanced perspective of the lived experience of premarital counselling among African Christians in South Africa. The findings of this study can be useful in enhancing the theory and practice of pastoral premarital counselling in South Africa and potentially increasing marriage stability in South Africa.

References

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- [4] Statistics South Africa. 2024. P0307 Marriages and Divorces 2022.

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Department: Electrical & Electronics Engineering
Registered degree: Master of Engineering
Supervisor(s): Prof Nnamdi Nwulu, Dr Peter Olukanmi

Design and Development of A Blockchain-Powered Carbon Trading System

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Keywords: Greenhouse gas, carbon emissions, emission trading system, blockchain technology

The increase in greenhouse gas emissions has induced intense climate change, significantly impacting human lives through increased mortality rates, flood-related death, and exacerbated effects like cognitive decline due to heightened nitrogen dioxide (NO₂) concentrations [1]. While effective in controlling emissions, the European Union Emission Trading System operates centrally, fostering vulnerabilities such as potential inaccuracies in emission record reporting and susceptibility to manipulation [2]. This project addresses these challenges by addressing the absence of an emission trading system across the African continent and the limitations of existing centralised systems [3]. The study aims to develop a blockchain-powered carbon trading system using Django (Python Rest Framework Library), Python, PostgreSQL, Hedera Blockchain, and Solana Pay. This innovative solution ensures transparency, immutability, and decentralisation in carbon trading. Automating the recording of carbon emissions mitigates human-induced errors associated with manual reporting prevalent in current systems. Compared to conventional methods, our system revolutionises the agreement process between application entities into smart contracts, eliminating third-party interference. Moreover, it offers an inherent advantage by automatically capturing carbon emission records, minimising inaccuracies and manipulation. The system's performance was evaluated and confirmed sufficient for the release of the first version. Implementing this blockchain-powered system can also represent a transformative step towards a more secure, transparent, and efficient carbon trading infrastructure, potentially paving the way for global adoption and impact.

Name: Kamvelihle
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Department: Communication and Media
Registered degree: Masters in Journalism (Research)
Supervisor(s): Antoinette Hoffman

The Role of AI in Assisting Climate Reporting by Media in Southern Africa

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Keywords: AI technology, Climate Reporting, Climate Change, Radio, Southern Africa.

This study aims to investigate the use of AI in Radio News Creation while reporting climate change in Southern Africa. With climate change seeming to hit Africa harder than many other parts of the world, it is crucial to address the unique challenges faced in the region (1). By using Lippmann's Agenda Setting Theory, the study will explore how AI can enhance the analysis of extensive climate data and detection of important climate change trends, ultimately shaping public perception, policy decisions, and actions (2). Through qualitative content analysis using MAXQDA software, the study will examine how journalists perceive the role of AI in climate reporting, the contribution of AI technology to public awareness, potential future developments, and key recommendations for stakeholders to enhance the use of AI in climate reporting (4). By shedding light on these aspects, the study aims to provide valuable insights into how AI can be leveraged to improve climate change reporting and drive action in Southern Africa (3).

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Name: Louise
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Faculty: Education
Department: International and Comparative Education
Registered degree: PhD
Supervisor(s): Prof CC Wolhuter and Prof D Vos

**Exploring Programme Delivery in South African Secondary Schools
Amidst the COVID-19 Pandemic**

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Keywords: Fifth Industrial Revolution, Further Education and Training, influence of COVID-19 on education, Information and Communication Technology, programme delivery, quality education, technology-enhanced education, education transformation

This study investigates the challenges, mitigation strategies and transformative approaches in educational programme delivery in South African education amidst the adverse influence of the pandemic in schools' Further Education and Training phase with a focus on the integration of technology-enhanced effective teaching and learning; using data obtained from interviews of a data-rich sample of the school management team and teachers of five schools. The noteworthy contribution of this study to knowledge in the context of Comparative and International Education pertains to transformative strategies for technology-enhanced programme delivery in education. This paper's final objective is to link the explored findings of challenges, trends and innovations in the South African education system to the different worlds' common education challenges. Furthermore, the findings emphasised the need for innovation and transformation toward a technology-enhanced education environment, especially in the Fifth Industrial Revolution milieu. In addition, this research presented noteworthy recommendations for educational stakeholders and future research.

Assessment Rubric

2024 National VYT Competition

Judging Rubric



Participants name: _____

Research Understanding	Criterion	Score
Video provides a clear and comprehensive understanding of the research question, leaving no ambiguity.	5	
Video provides a good understanding of the research question, with minor areas that could be clarified.	4	
Video provides a basic understanding of the research question, but some aspects remain unclear.	3	
Video touches on the research question but lacks depth and clarity.	2	
Video fails to convey a clear understanding of the research question.	1	

Communication and Language	Criterion	Score
Research is communicated in clear, concise language easily understood by a non-specialist audience, with appropriate terminology explained.	5	
Research is communicated in mostly clear language with minor jargon that could be simplified for a non-specialist audience.	4	
Research is communicated with some use of technical language that may not be accessible to a non-specialist audience.	3	
Research is communicated using overly technical language that is difficult for a non-specialist audience to understand.	2	
Research is communicated in a way that is incomprehensible to a non-specialist audience.	1	

Engagement and Creativity	Criterion	Score
Video is highly engaging, visually striking, and memorable, using creative elements effectively to capture and maintain the viewer's attention.	5	
Video is engaging and visually appealing, using creative elements to enhance the presentation.	4	
Video is visually adequate but lacks strong creative elements or engagement.	3	
Video is visually uninspired and lacks engagement.	2	
Video is visually unappealing and fails to engage the viewer.	1	

Technical Quality	Criterion	Score
Video is well-produced with high-quality visuals and audio, smooth transitions, and clear, legible text.	5	
Video is well-produced with good visual and audio quality, smooth transitions, and clear text.	4	
Video has adequate visual and audio quality but may have some minor technical issues.	3	
Video has some technical issues that detract from the overall quality.	2	
Video has significant technical issues that make it difficult to watch or understand.	1	

Topical Significance	Criterion	Score
Video leaves a lasting impression, inspiring the viewer to learn more about the research and its potential impact.	5	
Video effectively communicates the research and its significance, leaving a positive impression on the viewer.	4	
Video communicates the research but does not fully convey its significance or potential impact.	3	
Video has limited impact and fails to inspire the viewer to learn more.	2	
Video fails to leave a positive impression or inspire further interest in the research.	1	

Questions and Answers	Criterion	Score
Participant demonstrates a deep understanding of their research and can answer questions clearly and concisely in a way that is accessible to a non-specialist audience.	5	
Participant demonstrates a good understanding of their research and can answer most questions clearly and concisely.	4	
Participant demonstrates a basic understanding of their research but may struggle to answer some questions clearly or concisely.	3	
Participant has limited understanding of their research and struggles to answer questions clearly or concisely.	2	
Participant demonstrates a lack of understanding of their research and is unable to answer questions effectively.	1	

TOTAL SCORE (Out of 30)	
--------------------------------	--

COMMENTS

This very brief comment will be used to provide feedback to entrants. Please identify one positive and one area for improvement (the most obvious area).

Organizing Committee

Research Capacity Development Unit



Prof Penny Govender



Ms Megan Engelbrecht



Dr Shandr  Pillay



Mr Nkosiyethu Ntuli



Ms Koketso Pila



Mr Lawrence Asani



Dr Lorenzo David

Acknowledgements

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Department of Higher Education and Training

University Capacity Development Programme

<https://www.dhet.gov.za/SitePages/University-Student-and-Staff-Development.aspx>



Strategic Initiatives & Administration Division

<https://www.uj.ac.za/research/strategic-initiatives-and-administration/>

Thank you for making the 2024
National VYT Competition a
success.

We look forward to seeing you at
the next one!

<https://www.uj.ac.za/postgraduate-school/research-capacity-development/>

