



#ICTVET2024

PROGRAMME AND ABSTRACTS

INTERNATIONAL CONFERENCE ON
TECHNICAL AND VOCATIONAL EDUCATION AND TRAINING (ICTVET2024)

FOR

“Advancing TVET for Digitalized World, Youth Skilling, Employability and Sustainable Development (National, Regional, Continental, and International)”

25 – 27 September 2024

**PROTEA HOTEL, MARRIOT STELLENBOSCH CONFERENCE CENTRE
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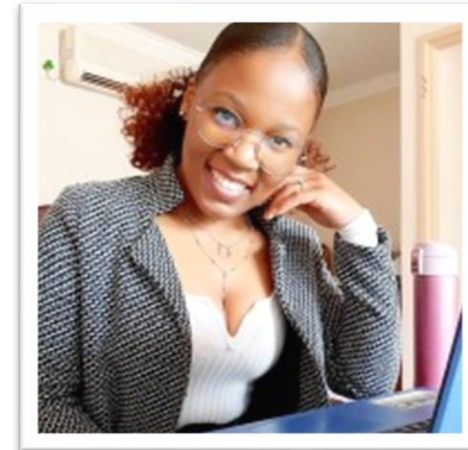


WELCOME TO THE 1ST HYBRID INTERNATIONAL CONFERENCE ON TECHNICAL AND VOCATIONAL EDUCATION AND TRAINING (ICTVET2024)

HOSTED BY THE UNIVERSITY OF SOUTH AFRICA (UNISA) IN PARTNERSHIP WITH THE SOUTH AFRICAN PUBLIC COLLEGES ORGANISATION (SAPCO)



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FOREWORD AND REMARKS FOR THE 1ST HYBRID INTERNATIONAL CONFERENCE ON TECHNICAL AND VOCATIONAL EDUCATION AND TRAINING (ICTVET2024)

On behalf of the University of South Africa (UNISA) and its esteemed partners, it gives me great pleasure to welcome all participants of the **1st International Conference on Technical and Vocational Education and Training (ICTVET2024)**.

We are elated and truly honoured to host this landmark hybrid event in close collaboration with the South African Public Colleges Organisation (SAPCO), with the invaluable support of the Education Training and Development Practices Sector Education and Training Authority (ETDP SETA), the Department of Higher Education and Training (DHET), and the UNESCO-UNEVOC International Centre for Technical and Vocational Education and Training (TVET).

We are grateful for their continued support and dedication to advancing the cause of TVET globally, and it is through such partnerships that we can achieve meaningful and lasting progress. The fact that this conference has drawn participation from national, regional, continental, and international stakeholders underscores the importance of exchanging ideas, and developing actionable strategies that will shape the future of TVET.

This year's theme, "**Advancing TVET for a Digitalised World, Youth Skilling, Employability, and Sustainable Development,**" is timely and deeply relevant because we are tasked to explore critical challenges and opportunities facing the TVET system. It is vital that we engage in constructive dialogue and share innovative ideas on how to ensure that the TVET systems remain not only relevant but also impactful in this evolving digital age.

The world is rapidly transforming under the influence of digitalisation, and our educational institutions must transform and adapt to these changes to equip young people with the skills needed for employability and sustainable development. With the aim to identify tangible solutions that will drive the transformation of TVET systems worldwide, the discussions and outcomes of this conference must contribute to shaping the future direction of TVET in ways that empower our youth, build resilient communities, and drive sustainable development.

We are all aware that TVET plays a crucial role in preparing individuals, particularly the youth, for the workforce and also contributes to the socio-economic growth of our communities.

Therefore, this gathering provides an opportunity to reflect on the critical role of youth skilling, upskilling and reskilling in addressing unemployment, economic inequality, and sustainable development. By engaging in various discussions and collaborating with one another, we can explore how TVET can bridge gaps in employability and foster entrepreneurial qualities and success factors, particularly in the context of a digitalised world.

I appreciate all the speakers, including the keynote speakers, Dr Olivier PIEUME, Head of the UNEVOC Network Secretariat – UNESCO International Centre for TVET; Ms Faith Nomso Kana – Chief Executive – SimSciex Technologies and Dr Janaka Jayalath – Deputy Director General – TVEC Ministry of Education Sri Lanka, partners, supporters, and the participants of this conference for their commitment and eagerness to drive change in the TVET systems. The discussions and outcomes from this gathering will undoubtedly have a lasting impact on the future of education and the global workforce.

Let us work together and use this opportunity to shape a future where the TVET systems capacitate individuals, communities, and nations in the service of humanity.

I wish you all a successful, impactful, and innovative conference.

Professor Puleng LenkaBula
Principal and Vice-Chancellor
University of South Africa

FOREWORD FOR THE 1ST HYBRID INTERNATIONAL CONFERENCE ON TECHNICAL AND VOCATIONAL EDUCATION AND TRAINING (ICTVET2024)

It is an honour and a great privilege for SAPCO to welcome the Ministry for Higher Education and Training, UNISA Vice Chancellor and the entire leadership, UNESCO-UNEVOC, the African Union Development Agency (AUDA), Association of Technical Universities and Polytechnics (ATUPA), TVEC Ministry of Education Sri Lanka, all conference participants, captains of industries, academia, SETAs, sponsors, TVET colleges staff and senior managers of colleges to this 1st historic conference co-hosted by SAPCO and the University of South Africa.

As we progress towards an increasingly digital world, it is essential to advance technical and vocational education and training (TVET) to equip young people with the necessary skills and knowledge to thrive in the job market. Simultaneously, we must ensure that TVET programs are designed to meet sustainable development needs and provide opportunities for employment and entrepreneurship. TVET colleges stand as a pivotal tool in addressing the global skills shortage, particularly in emerging technologies, and in supporting the transition towards a digital economy. They offer an effective pathway for young people to acquire the skills required for future employment and contribute to the achievement of the Sustainable Development Goals.

Despite the critical role they play in every country's economy, TVET colleges are often overlooked in national and regional policies. Moreover, there is a need to improve the quality and relevance of TVET programs to ensure that they are responsive to the changing needs of the labor market and to emerging technologies. This conference is a step towards addressing these challenges by presenting a range of perspectives on advancing TVET for a digitalized world, youth skilling, employability, and sustainable development. The conference will further explore best practices and innovative approaches to TVET, with a focus on the role of TVET colleges in supporting economic growth, reducing poverty, promoting social inclusion, and contributing to sustainable development. We hope that this conference will provide a valuable resource for policymakers, academia, practitioners, and researchers working in TVET and youth development. By sharing insights, best practices, and lessons learned, we can collectively advance TVET for the benefit of youth and sustainable development, both national, regional, continental and international.

SAPCO leadership wish you all a productive and impactful conference.

MDM Phutsisi (Prof.)
SAPCO President and Motheo TVET College Principal

FOREWORD FOR THE 1ST HYBRID INTERNATIONAL CONFERENCE ON TECHNICAL AND VOCATIONAL EDUCATION AND TRAINING (ICTVET2024)

Welcome to the 1st hybrid international conference on technical and vocational education and training (ICTVET2024), hosted by the University of South Africa (UNISA), in close partnership with the South African Public Colleges Organisation, (SAPCO), supported by the Education Training and Development Practices Sector Education and Training Authority (ETDP SETA), the Department of Higher Education and Training (DHET) and the UNESCO-UNEVOC International Centre for Technical and Vocational Education and Training (TVET). The conference held at Protea Hotel, Marriott Stellenbosch Conference Centre, Western Cape Province, South Africa is scheduled to run from 25 – 27 September 2024. The theme of the conference is: **Advancing TVET for Digitalized World, Youth Skilling, Employability and Sustainable Development (National, Regional, Continental, and International)**". This hybrid conference sought to collect input from the wider technical and vocational training (TVET) community on how TVET systems can be better organized to deliver the skills demanded in a rapidly changing and increasingly complex labour market. The conference seeks to promote the exchange of ideas, good practices, and knowledge sharing among participants from various African countries and beyond.

We are therefore delighted to have successfully facilitated connections among academicians, scholars, TVET practitioners, policymakers, international organisations, industry, businesspeople, entrepreneurs, and other stakeholders of the TVET to discuss and explore innovative approaches and good practices to enhance TVET systems for sustainable development. We received almost 120 submissions, predominantly from TVET Colleges, reviewed by a double-blind process which were prepared to take the form of Oral Presentations, Virtual Presentations and Panel Discussions. The conference accepted for presentation 110 submissions (92% acceptance rate). The abstracts of this book comprise the outcomes of research and development efforts undertaken by authors who have dedicated themselves to advancing research in the TVET sector. These abstracts showcase the different variety of contributors and presenters who will expand our understanding of the TVET sector by sharing their unique personal, academic, and research perspectives. Through their valuable insights and experiences, they will enrich our exploration and contribute to the growth of TVET in the contemporary world. We would therefore like to express our sincere thanks to all the authors and participants, the members of the academic scientific committee, and of course, to our organizing and administration team for making and putting this conference together. A particular and heartfelt thanks are due to Ms Precious Mbatha, who has run the ICTVET2024 Secretariat and has been responsible for many of the arrangements for the conference and worked tirelessly in various capacities to ensure its success. Generous financial support from the sponsors was sizeable and greatly appreciated and permitted us to put together the conference activities.

The papers accepted and presented in this conference will be forwarded for consideration to be published in the conference proceeding booklet with ISBN number: 978-0-7961-7635. The selected papers will be published in the Journal of Technical Education and Training (JTET) – Scopus indexed – Special Issue, Journal of Vocational, Adult and Continuing Education (JOVACET) – index with Sabinet and Research Gate and it is also included in the DHET list of accredited journals – Special Issue, Higher Education, Skills and Work-based Learning (Scopus indexed) and Education + Training (Scopus indexed – Special Issue). The conference also includes three Keynote presentations by Dr Olivier PIEUME, Head of the UNEVOC Network Secretariat – UNESCO International Centre for TVET; Ms Faith Nomso Kana – Chief Executive – SimSciex Technologies and Dr Janaka Jayalath – Deputy Director General – TVEC Ministry of Education Sri Lanka. We would like to express our gratitude to our guests.

Enjoy your time in Stellenbosch and the opportunity to engage with new and familiar colleagues and, take-home new ideas that you can implement in your TVET institutions.

Prof SP Mokoena
Conference Convenor/Chair
On behalf of the Organising Committee
University of South Africa

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1.1 ABOUT THE HOST: UNIVERSITY OF SOUTH AFRICA (UNISA)

Video Clip:

1.2 ABOUT CO-HOST: SOUTH AFRICAN PUBLIC COLLEGES ORGANISATION (SAPCO)

Video Clip:

1.3 CONFERENCE CONCEPT NOTE

Conference Theme:

***Advancing TVET for Digitalized World, Youth Skilling, Employability and Sustainable Development
(National, Regional, Continental, and International)***

Global disruptions such as climate change, digitalization, the Fourth Industrial Revolution (4IR), demographic change, and migration are changing the way we live, work, and learn. New technologies are emerging, remote forms of working and learning are becoming commonplace, and workers need new skills such as problem-solving, ICT, entrepreneurship, and STEM, while continuing to require traditional skills and knowledge. TVET systems must therefore rise to the challenge of supporting learners to prepare them for the workplace of the future. Improving the future-readiness of TVET systems is crucial for assuring their relevance and, ultimately, their survival. To prepare learners for future competencies and industry requirements, TVET teaching staff /trainers must possess these essential competencies and qualities themselves. Therefore, this hybrid conference sought to collect input from the wider technical and vocational and training (TVET) community on how TVET systems can be better organized to deliver the skills demanded in a rapidly changing and increasingly complex labour market. More broadly, the objectives of conferences are to: gather knowledge, experiences and practices on the steps that TVET systems should take at policy, institutional and practitioner levels to prepare teachers and trainers to deliver the skills needed in the 21st century and beyond, gather insights and evidence from TVET community about where TVET systems stand when it comes to ensuring inclusiveness, with special focus on particularly vulnerable groups; share practical ideas to empower youth and adults with relevant TVET skills for employment, decent jobs, and entrepreneurship; gain insights from private sector, and employer stakeholders about the changes in job profiles and skills that TVET should provide to support sustainable development. Many countries have made tremendous strides in several areas to shape the future of TVET systems.

Specific sub-themes for delegates might want to consider include, but are not, limited to the following:

- **TVET promise** – Youth skilling, pathways for employment, skills for business entrepreneurship; entrepreneurship education (EPE) and the use of information and communication technology (ICT).

- **Inclusive TVET** – re-orientating current TVET policies towards inclusivity and excellence, expanding the skills pathways for migrants and disadvantaged youth and people with disabilities.
- **TVET for digitalized world** – creation of policies that help TVET teachers and trainers to be equipped with relevant skills to facilitate teaching/training in a digitalized world; initiating ICT-related thematic programmes in areas related to Artificial Intelligence, Open Education Resources (OERs) and mobile learning.
- **TVET network** - strengthening and enlarging network of national, regional, and international TVET stakeholders, promoting network and peer learning among TVET institutions, fostering collaboration.
- **TVET for climate action** - understanding how TVET institutions are transitioning to renewable energy and mainstreaming climate change responses (advancing the Green TVET Agenda).
- **Energy Security and Transition** - Along with climate change, countries must address energy security and transitions. Diversifying energy sources, generating renewable energy, increasing energy efficiency, preventing energy waste, and educating the public about environmental issues are proposed as several strategies.
- **Private sector engagement** – understanding initiatives taken to aligning existing TVET programmes to industry demand.
- **TVET research and knowledge base** - advancing TVET through knowledge exchange, research studies and research (national, regional and intranational).
- **Articulation** - Advancing sustainable development through higher education requires proper planning, including the articulation and differentiation of the system. What are the supportive roles that other entities and stakeholders should play to advance articulation into and between qualifications in higher education.
- **Work-Integrated Learning (WIL):** Work integrated learning (WIL) experiences such as placements, apprenticeships or internships offer great opportunities for students. They develop their relevant skills and knowledge, while providing experience in a real working environment. These opportunities may contribute to the solution to employability of young people. Universities, colleges, and educational institutions are increasingly offering these opportunities to students. However, WIL can be time and resource heavy considering their administrative requirements. Then how best the modern technology can be utilized to address the challenges of WIL.
- **Quality Assurance** – mechanisms for quality assurance in TVET
- **Innovation, and sustainable leadership:** elements vital in TVET in the 21st century, the transformational age.
- **Sustainable curriculum in TVET:** sharing of ideas about the type of curriculum that can make TVET Colleges more relevant and thus contribute to the sustainable development of the country. Curriculum that equips learners with the knowledge, skills and understanding necessary to make decisions based upon their full environmental, social, cultural, and economic implications.

1.4 DETAILED CONFERENCE PROGRAMME

Tuesday, 24 September 2024

Arrival and Pre-Conference Registration	
Time	Activities
15:00 – 17:00	Pre-Conference Registration at Protea Hotel Conference Centre Foyer

Day One: Wednesday, 25 September 2024

Facilitators: Dr Alice Mkuzangwe
Dr T Terblanche

Rapporteurs: Ms Neo Kgaphola
Ms Lerato Mokoena
Ms Abigail Nkoe
Ms Bongji Perman
Ms Nomawethu Dumezweni

Chief Rapporteur: Prof S Khumalo
Co-Chief Rapporteur: Ms Ofentse Manamela
Communication and Media: Ms Refilwe Thobega
Conference Secretariat: Ms Precious Mbatha

PLENARY: MAG 4 & 5

8:00 – 9:00 Registration		
Time	Activities	Speakers
09:00 – 09:05	Play Host Video Clip:	
09:10 – 09:35	Purpose and Welcome Address	Principal & Vice Chancellor – UNISA: Prof Puleng LenkaBula Vice Principal: Institutional Development: Prof Solomon Magano
09:35 – 09:40	Play Co-host Video Clip:	
09:40 – 09:50	Address and Remarks	SAPCO President & Motheo TVET College Principal: Prof MDM Phutsisi

09:50 – 10:00	Remarks and Introduction of the Deputy Minister of Higher Education and Training	Director General DHET: Dr Nkosinathi Sishi
10:00 – 10:20	Official Opening of the Conference: Deputy Minister of Higher Education and Training	Mr Buti Manamela
10:20 – 10:30	Thank You Note	Deputy Director General: TVET Colleges: Mr. S.Z. Zungu
10:30 – 11:00	Moving Break/Stretching	Moving Break/Stretching
Facilitator: Prof Vaola Sambo		
11:00 – 11:05	Introduction of the Keynote Speaker	Mr Marcus Mokgohloa: Manager Special Projects W & R SETA
11:05 – 11:40	Keynote Presentation	Head of UNEVOC Network Secretariat: Dr Olivier PIEUME UNESCO International Centre for TVET
11:40 – 11:50	Questions	Questions
11:50 – 12:00	Thank You Note	Deputy Secretary General: SAPCO: Mr. T. Ngcobo
12:00 – 12:10	Moving Break/Stretching	Moving Break/Stretching

Facilitator: Prof Michael Van Wyk

8:00 – 9:00 Registration		
Time	Activities	Speakers
12:10 – 12:15	Introduction of the Keynote Speaker	SAPCO Chairperson Western Cape & West Coast TVET College Principal: Mr. L. Mbulawa
12:15 – 12:50	Keynote Presentation	Chief Executive SimSciex Technologies: Ms Nomso Kana
12:50 – 13:00	Questions	Questions
13:00 – 13:10	Thank You Note	SAPCO Chairperson Free State & Goldfields TVETV College Principal: Mr. F. Mahlangu
	Announcement of Breakaway Rooms	
13:10 – 14:10	Lunch	Networking Lunch

PARALLEL SESSIONS: MAG 1

STREAM: STEERING GLOBAL DISRUPTIONS			
Session Chairs: Dr Van der Berg & Dr Alison Ganye			Rapporteur: Ms Neo Kgaphola
Order	Paper ID	Author(s)	Abstract Title
14:30 -14:50	1001	Dr Alice Mkuzangwe	Fostering technology planning for Institutional Effectiveness in ODL
14:50 -15:10	1002	Prof Michael Van Wyk	AI and Machine Learning: What are the drivers for intensifies digital transformation in TVET colleges and Institutions of Higher Education?
15:10-15:30	4003	Dr Sammy Khoza	Using the 3-C model to expose and eliminate the work-integrated learning challenges of Diploma ACET students in a University of Technology
15:30-16:10	4007	Prof Moses Makgato	Digitalizing vocational education and training to respond to the Fourth Industrial Revolution job markets: a snapshot at the TVET colleges
16:10-16:30	2006	Prof Vaola Sambo	The role of leadership in innovation and technology adoption in the TVET sector post COVID-19.
16:30-16:50	5007	Mr. Mthokozisi Makhosonke Magagula	An inquiry into the implications of the fourth industrial revolution for technical and vocational education and training in South Africa
17:10-17:30	5023	Nomsa Majong	Exploring the challenges of the lack of integration of green accounting principles as a strategy for teaching cost and management accounting: A TVET College case.
17:50-18:10	5024	Mr. Zolile Zungu	The use of digital technologies at TVET colleges in KwaZulu-Natal: A comparative case study
18:10-18:30	5054	Dr Joseph Mesuwini & Prof S Mokoena	Greening TVET through Innovative Curriculum, Technology, and Innovation: A South African Perspective

PARALLEL SESSIONS: MAG 2

STREAM: INCLUSION IN EDUCATION (2024 MARKS 30 YEARS SINCE ADOPTION OF SALAMANCA STATEMENT)			
Session Chair: Ms Priscilla Mvimbe & Ms Kgomotso Dipela			Rapporteur: Ms Nomawethu Dumezweni
Order	Paper ID	Author(s)	Abstract Title
14:30 -14:50	2003	Reuben Dlamini Fatima Makda	For better or Worse: 'Inclusifying' the underrepresented majority in STEM and TVET Education
14:50 -15:10	2004	Dr Tawanda Chinengundu Dr Jerald Hondonga	Reorienting TVET towards inclusivity for migrants and marginalised groups in Botswana and South: A systematic review (Virtual)
15:10-15:30	2011	Eric Herman Steenkamp	The impact of assistive technology in the education and training of students with visual impairment in the Technical, Vocational and Education Training Colleges.
15:30-16:10	2013	Samina Afzal Aziz Ahmed	Estimating mincerian earning function for TVET skilled vulnerable groups of persons in Balochistan (Virtual)
16:10-16:30	2002	Ms Gift Ngobeni Prof Dikeledi Mahlo	Engineering curriculum access for students with physical disabilities in TVET colleges.
16:30-16:50	5029	Mr. Vusi Maseko	Strategic policy frameworks for digitalizing TVET: Enhancing equity and employability in the digital age
17:10-17:30	2014	Mr. L Matias, Prof D Mahlo Lesiba Molepo	Prevalence of substance abuse among TVET college students in the Free State province
17:30-17:50	5050	Sinnah Lenyai	Breaking down barriers: Migrant and disadvantaged youth in TVET colleges in South Africa
17:50-18:10	2005	Tjatji Letsoalo	Barriers to learning experienced by National Certificate Vocational students at Limpopo Technical and Vocational Education and Training College in South Africa
18:10-18:30	2015	Dr Precious Muzite Prof VG Gasa	Reconceptualising disability inclusion in the post-digital education: The case of South African Colleges

PARALLEL SESSIONS: MAG 3

STREAM: MULTI-STAKEHOLDER COLLABORATIONS TO ACHIEVE EDUCATIONAL GOALS			
Session Chairs: Ms Akhona Mayosi & Mr Muller Du Preez			Rapporteur: Ms Lerato Mokoena
Order	Paper ID	Author(s)	Abstract Title
14:30 -14:50	3001	Kubheka Zandile	The role of the National Certificate Vocational Hospitality Programme in Technical and Vocational Education and Training Colleges as a catalyst for achieving sustainable development Goal 8
14:50 -15:10	3003	Dr Dagogo William Legg-Jack	Developing a context-oriented model of multi-stakeholder partnership for relevant, effective, and efficient TVET provision: A community-based participatory action research approach
15:10-15:30	3006	Mr Bubele Nogcantsi Dr Lulama Mbatha	Whispers of potential: NSFAS and WIL Amidst unseen struggles
15:30-16:10	5046	Ms Dorothy Nthako	TVET and industry partnership for sustainable development
16:10-16:30	3002	Ms Thembisile Mokoena	Private sector engagement – aligning existing TVET programmes to industry demand.
16:30-16:50	3004	Dr. N Ndlovu	Stakeholders' perspective on TVET colleges-industry partnerships for employability of graduates: An exploratory study of TVET colleges in Mpumalanga province, South Africa
16:30-16:50	5043	Ms. Seanokeng Lydia Thakalekoala	How the TVET students are trained and prepared for job entry in the South African industries
17:10-17:30	5016	Nduvazi Obert Mabunda, Moses Makgato Jerald Hondonga	Enhancement of students' entrance to industry through integration of engineering subject content in a TVET college campus at Vhembe District, Limpopo Province
17:50-18:10	5020	Clemence Fuma	Sustainable Design and Manufacture of Valves for Water Supply in Irrigation, Mining and Industry in Zimbabwe
18:10-18:30	1005	S Marais	Development of renewable energy systems for rural communities for enhancement of Socio-Economic Indices

PARALLEL SESSIONS: OMEGA

STREAM: STRENGTHENING MECHANISMS			
Session Chairs: Dr Nhlanhla Ndlovu & Mr Khehla Mofokeng			Rapporteur: Ms Abigail Nkoe
Order	Paper ID	Author(s)	Abstract Title
14:30 -14:50	2009	Dr Charles Masoabi Dr Mathew Kimanzi	Intentions and Attitudes of 21st Century TVET Engineering and Construction Studies Students on Entrepreneurship
14:50 -15:10	5003	Dr Patricia Jacobs	Applied the COMET model didactically in electrical engineering to enhance the occupational competence of students at TVET colleges in South Africa
15:10-15:30	5030	Mr. Mark Lawrence	The role of Work Integrated Learning in overcoming the disjuncture between TVET training in construction programmes and the building trade
15:30-16:10	5033	Ms. Lynn Goodman	An investigation of the Dialogical Argumentation Instructional Blended Learning Model (DAIBLM) in the Vocational Engineering Mathematics classrooms at selected Technical and Vocational Education and Training colleges in South Africa.
16:30-16:50	1004	Mr. N Olin	Managing the implementation of Blended Learning (BL) at TVET Colleges in Free State Province
16:30-16:50	4014	Prof. Phutsisi	TVET Colleges' senior leadership experiences in integrating ICT practices in public TVET colleges for the Free State province
17:10-17:30	4004	Godo Anopa	Evaluating the effectiveness of TVET programs in addressing skill gaps and shortages in specific industries in Zimbabwe

PARALLEL SESSIONS: MAG 4 & 5

STREAM: TVET RESEARCH AND KNOWLEDGE BASE			
Session Chairs: Mr Chikumbutso Migochi & Ms Helen Van Woore			Rapporteur: Ms Bongzi Perman
Order	Paper ID	Author(s)	Abstract Title
14:30 -14:50	5009	Thembelani Ndaba	A phenomenological investigation into the self-efficacy of selected campus managers at TVET colleges in the Western Cape province towards academic goal achievement
14:50 -15:10	5015	Mr. Mojalefa Daniel Maluka	Exploring career sponsorship as a career development tool for South African TVET lecturers
15:10-15:30	5019	Dr Siphokazi Vimbelo	Humanising the TVET classroom: Preservice teacher perception
15:30-16:10	5022	Jennifer Esau	Reimagining life skills education in South African TVET colleges: Listening to student voices
16:10-16:30	5025	Mr. Malesela Tladi	Understanding factors influencing lecturers' job satisfaction at a TVET college in Mpumalanga
16:30-16:50	5031	Mrs. Nobandla Malawu	Exploring an entrepreneurial training model for TVET colleges in SA
16:30-16:50	4013	Ms. Nonhlanhla Nyembe	Professional development needs of TVET college lecturers towards remote learning: implications for leadership
17:10-17:30	5001	Dr Veronica Muthumuni	Exploring instructional leadership practices of campus managers in influencing students' academic achievements in TVET colleges in Gauteng and Mpumalanga, provinces of South Africa
17:50-18:10	5021	Ms. Mumsy Mathevhhula	Enhancing TVET lecturers' digital skills to improve teaching and learning
18:10-18:30	2012	Lucky Maluleke	Careership: Understanding the Career Choices of TVET College Students in South Africa

Day Two: Thursday, 26 September 2024

Facilitator: Prof Ashely Mutezo

Rapporteurs: Ms Zanele Majeke
 Ms Sandisiwe Cutu
 Ms Kgalalelo Ntumelang
 Ms Nomawethu Dumezweni
 Ms Lerato Mokoena

Co-Chief Rapporteur: Ms Ofentse Manamela
 Communication and Media: Ms Refilwe Thobega
 Conference Secretariat: Ms Precious Mbatha

PLENARY: MAG 4 & 5

8:00 – 9:00 Registration		
Time	Activities	Speakers
09:00 – 09:15	Recap: Chief Rapporteur	Prof S Khumalo
09:15 – 09:20	Introduction of the Keynote Speaker	SAPCO Chairperson: North- West Province & Vuselela TVET College Principal: Ms. P. Lehoko
09:20 – 9:55	Keynote Presentation	Deputy Director General: TVEC Ministry of Education Sri Lanka: Dr Janaka Jayalath
09:55 – 10:05	Questions	Questions
10:05 – 10:20	Address by Principal of Sedibeng TVET College: Private Sector Engagement	Dr G. Mothapo
10:15 – 10:20	Thank you note	Unisa
10:20 – 10:20	Moving Break/Stretching	Moving Break/Stretching

Moderator: Ms Siza Magubane

Panel Discussion on Fostering Collaborations among TVET Centres and Institutions in Africa (TVET Network)

10:30 – 10:40	Introduction (virtual)	Mr Ruairi Gough UNEVOC Network Secretariat
10:40 – 11:00	Opening remarks (virtual)	Mr Friedrich Huebler Head of UNESCO-UNEVOC
11:00 – 12:20	<u>Panel discussion: Panelists:</u> Mr Olivier PIEUME, Global perspective from the UNEVOC Network experiences Mr Suzgika Mvalo, Regional perspective from the Association of Technical Universities and Polytechnics (ATUPA) in Africa experiences. Prof MDM Phutsisi, National perspective from the South African Public Colleges Organization (SAPCO) experiences	
12:20 – 12:45	Wrap-up and recommendations (virtual)	Ms Priscilla Wanjiku Gatonye UNEVOC Network Regional Focal Point for Africa
12:45 – 13:00	Closing remarks & thank you note	Mr Frankie Mojapelo
13:00 – 14:00	Lunch and Networking	

PARALLEL SESSIONS VENUE: MAG 1

STREAM 5: TVET RESEARCH AND KNOWLEDGE BASE			
Session Chair: Dr Veronica Muthumuni			Rapporteur: Ms Zanele Majeke
Order	Paper ID	Author(s)	Abstract Title
14:10-14:30	5036	Mrs. Ngwakoana Matlala	Digital Accessibility for Technical and Vocational Education and Training Students: Experiences of underprivileged Students in Limpopo Province
14:30-14:50	4008	Prof Som Pal Baliyan	Challenges as predictors of undergraduates' attitude towards the use of learning management system (Virtual)
14:50-15:10	5008	Ms. Bertha Munzhedzi	Assessing the adoption and impact of online learning tools at Vhembe TVET college (Makwarela Campus) (Virtual)
15:10-15:30	5012	Dr Sammy Khoza	Probing the impeding factors toward digitization in the Technical and Vocational Education and Training fields: A case study
15:30-15:50	5062	Mark M. Sanjeevy	Drawing to learn as a teaching strategy for electrical drawings at a TVET college. (Virtual)

PARALLEL SESSIONS: MAG 2

STREAM 5: TVET RESEARCH AND KNOWLEDGE BASE			
Session Chair: Mr Matome Sebola			Rapporteur: Ms Sandisiwe Cutu
Order	Paper ID	Author(s)	Abstract Title
14:10 -14:30	5032	Mr Sibongile Mxutu	The Role of Digital Literacy in preparing TVET tourism students for the workplace.
14:30 -14:50	5041	Mr. Julius Motala Makibinyane Prof Som Pal Baliyan	Enhancing the Effectiveness of Technical and Vocational Education and Training Lecturers' Professional Development Programs in South Africa
14:50-15:10	5048	Ms Ethel Ngwato	Enhancing continuing professional development of lecturers in TVET colleges in the North West province, South Africa
15:10-15:30	5052	Mr. Mungong Abienwi Lord	Empowering Skills for the Future: A Synopsis of Research in Technical and Vocational Education and Training (TVET)
15:30-15:50	5055	Mr. SJ Mlotshwa Dr Joseph Mesuwini	Challenges faced by South African TVET colleges in managing curriculum delivery

PARALLEL SESSIONS: MEG 3

STREAM 5: TVET RESEARCH AND KNOWLEDGE BASE			
Session Chair: Mr Christopher Tladi			Rapporteur: Ms Kgalalelo Ntumelang
Order	Paper ID	Author(s)	Abstract Title
14:10 -14:30	5040	Ms. Priscilla Mvimbe	Perspectives on leadership styles employed by managers at a TVET college in the Free State province
14:30 -14:50	5028	Mr. Rethabile Moleli	Academic challenges encountered by engineering students in South African colleges: A Case study.
14:50-15:10	5037	Mrs. Legoadi Maja	Level two and Level three students' experiences with robotics curriculum at Capricorn TVET College
15:10-15:30	5058	Nonhlanhla Ntimane	Heads of department experiences of implementation of transformational Leadership and Management practices in selected TVET Colleges of the Mpumalanga Province
15:30-15:50	5005	Mr Shadrack Modiakgotla	An investigation into the readiness of Botswana Technical and Vocational Education (TVET) Institutions for the Fourth Industrial Revolution and its implications on the quality of education

PARALLEL SESSIONS: OMEGA

STREAM 5: TVET RESEARCH AND KNOWLEDGE BASE			
Session Chair: Ms Nomase Majong			Rapporteur: Ms Nomawethu Dumezweni
Order	Paper ID	Author(s)	Abstract Title
14:10-14:30	5042	Ms. Nompumelelo Lekhuleni Dr Radile	Exploring the preparedness of lecturers in teaching at TVET Colleges
14:30-14:50	5039	Dr. Nicholas Ndlovu Prof Micheal van Wyk	Unemployed engineering college graduates' views on the curriculum offered by the South African TVET Sector (Virtual)
14:50-15:10	5038	Ms. Yilosa Myataza	Exploring factors influencing students' absenteeism at a TVET college in Nelson Mandela Bay district
15:10-15:30	4001	Ntetha Zameka Prof M Taole	Factors that influence Technical and Vocational Education and Training Electrical Engineering (EE) Lecturers in implementing Learning Management System in teaching and learning environment.
15:30-15:50	5018	Ms. Josephine Yandwa Towani	A decolonial exploration of a Technical Vocational Education and Training Curriculum: Towards epistemic justice

PARALLEL SESSIONS: MEG 4 & 5

STREAM 5: TVET RESEARCH AND KNOWLEDGE BASE			
Session Chair: Mr Selwyn April			Rapporteur: Ms Bongji Perman
Order	Paper ID	Author(s)	Abstract Title
14:10-14:30	5053	Ms. Mokotsi Kasita	Equipping TVET learners with skills for sustainable decision making in South Africa: A comprehensive curriculum approach
14:30-14:50	5059	Ms. Kasongo Kalobo	Addressing student needs: A study of college assistance in Introductory Accounting N4 from student perspectives
14:50-15:10	5060	Prof Taole	Interpersonal dynamics: Understanding factors influencing the mentor-student teacher relationship in teaching practice.
15:10-15:30	5026	Mr Amon Maceke	Exploring the rate of Artificial Intelligence (AI) adoption and benefits for Small and Medium Enterprises (SMEs) in Mpumalanga Province, South Africa
15:30-15:50	5061	Mr MA Ngoveni & Dr PM Motseki	Enhancing financial mathematics mastery in TVET colleges: A design-based research approach leveraging error analysis

GALA DINNER (Time: 18:00)

Facilitator: Prof Dikeledi Mahlo

GALA DINNER AT CAVALLI WINE ESTATE (Time: 18:00)		
Time	Activities	Speakers
18:00	Gala Dinner at CAVALLI Wine Estate – transport to leave Protea Hotel at 17:30	
18:30 – 18:40	Welcome Address	SAPCO Deputy President & Elangeni TVET College Principal: Ms. T.J. Kula
18:40 – 19:00	Presentation of Award: Book of Abstracts (Students who obtained Masters’ Degree at Unisa - funded by ETDP SETA)	Vice Principal – Unisa: Prof S Magano (On behalf of the VC-Unisa – Prof LenkaBula) Dr Meiya Nthoesane (On behalf of VP for Research: Prof Meyiwa -Unisa)
19:00 – 19:10	Remarks – PhD Student	Ms Ethel Ngwato
19:10 – 19:30	Remarks /Message of Support	Sponsors
19:30 – 19:50	Remarks / Reply	CEO ETDP SETA: Ms Nombulelo Nxesi
19:50 – 20:00	Thank you note	Prof Tintswalo Manyike
20:00 – 23:00	Dinner	Entertainment Networking

Day Three: Friday, 27 September 2024

**Facilitators: Prof Matshediso Taole
Mr. L. Mamabolo**

Rapporteurs: Ms Kgalalelo Ntumelang
Ms Kgaphola Neo
Ms Abigail Nkoe
Ms Nomawethu Dumezweni
Ms Sandy Cutu
Ms Zanele Majeke
Ms Bongji Perman

Co-Chief Rapporteur: Ms Ofentse Manamela
Communication and Media: Ms Refilwe Thobega
Conference Secretariat: Ms Precious Mbatha

PLENARY: MAG 4 & 5

08:00 – 08:30 Registration		
Time	Activities	Speakers
08:30 – 08:45	Recap: Co-Chief Rapporteur	Ms Ofentse Manamela
Moderator: Dr Lucky Maluleke		
Panel discussion on Work-Integrated Learning: Critical perspectives on the current practice of WIL in TVET colleges, Universities, and educational institutions, and how best the modern technology can be utilized to enhance the current WIL practice		
08:45 – 09:00	Introduction and Opening Remarks	
09:00 – 10:40	Panel Discussion: Panelists: <ul style="list-style-type: none"> • Prof Christine Winberg: South African Research Chair (WIL), Cape Peninsula University of Technology • Dr James Keivy: CEO – JET Education Services, Member of UNESCO-UNEVOC Network Centre • Mr Mkululi Sibanda, Head of Mechanical Engineering, Polytechnic Bulawayo • Dr Janaka Jayalath: Deputy Director General: TVEC Ministry of Education Sri Lanka 	

	<ul style="list-style-type: none"> • Dr R Patel: ETDP SETA Special Projects 	
10:40 – 11:00	Wrap-up and recommendations on WIL	Prof F Malongane
11:00 – 11:20	Moving Break/Stretching	Moving Break/Stretching
Moderator: Mr Suzgika Mvalo		
Panel discussion: Partnership and collaboration between TVET colleges and SETAs/other stakeholders (10 min for each speaker)		
11:20 – 11:30	Introduction and opening remarks	Moderator: Mr Suzgika Mvalo
11:30 – 12:20	<u>Panelists:</u> Chairperson: Association of SETA CEO Forum & FP&M SETA CEO: Dr. F. Yende SETA Board Chairpersons & FASSET Board Chairperson: Mr. T. Ndlovu W & R SETA EW SETA GIZ	
12:20 – 12:30	Drawing up and future direction	Conference Chair: Prof SP Mokoena

CLOSING OF THE CONFERENCE		
12:30 – 12:45	Vote of Thanks	SAPCO President: Prof MDM Phutsisi
12:45 – 13:10	Closing of the Conference	Vice Principal – Unisa
13:10 -	Lunch	Lunch

The Strategic Role of TVET in Shaping Africa's Future Industries and Societies**Calice Olivier PIEUME, PhD**

Chief of the UNESCO-UNEVOC Technical Cooperation Unit
Head of the UNEVOC Network Secretariat
UNESCO International Center for TVET (UNESCO-UNEVOC)
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Introduction

Most research confirms that the future of industry and society will be shaped by several interconnected transitions. Three key trends stand out: (i) the greening of the economy, (ii) the digitalization of the economy, and (iii) the globalization of the economy. These trends are particularly relevant for African economies that aim to leverage technological advancements for social inclusion and poverty reduction. They are among the key drivers of what we now refer to as Industry 5.0 and Society 5.0. Industry 5.0 is characterized by the integration of advanced technologies not only to achieve economic growth and business objectives but also to address broader societal goals, which are crucial for sustainable development in Africa.

Under Society 4.0, individuals accessed cloud services (databases) via the Internet to search for, retrieve, and analyze data. In Society 5.0, vast amounts of information from sensors in the physical world will be collected in cyberspace. This big data is analysed by artificial intelligence (AI), with the results fed back to humans in various forms to enhance decision-making and actions in the physical world. In Africa, this transformation holds immense potential to address pressing challenges in sectors such as agriculture, health, and education.

It is well known that Technical and Vocational Education and Training (TVET) plays a crucial role in socio-economic development, particularly in Africa, where youth unemployment and skills gaps remain significant challenges. The objective of this speech is to underscore that the missions and roles of TVET are becoming increasingly essential in preparing for the future of industry and society, and therefore must be prioritized.

The first part of this speech will explore the key functions of TVET that should be positioned as priorities in preparation for the future. The second part will focus on the success factors that can help establish TVET as a key driver in shaping the future of industries and societies. This document serves as a summary of the speech, that will be provided during the International Conference on Technical and Vocational Education and Training (ICTVET 2024).

Challenges and Opportunities Facing TVET Colleges in South Africa as they Strive to Equip Students with the Skills Needed for the 4IR Workplace

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The Fourth Industrial Revolution (4IR) is transforming the global landscape, and the Technical and Vocational Education and Training (TVET) sector has a crucial role in preparing the workforce for this new era. This keynote address will explore the challenges and opportunities facing TVET colleges in South Africa as they strive to equip students with the skills needed for the 4IR workplace. The presentation will draw on research findings that highlight the need for curriculum transformation, industry collaboration, and investment in infrastructure and technology. It will also emphasize the importance of developing not only technical skills but also soft skills such as critical thinking, problem-solving, and communication. The address will conclude by offering recommendations for how TVET colleges can adapt and thrive in the digitalized world, ensuring that graduates are well-prepared for the jobs of the future and contribute to sustainable development.

Improving Youth Employment through Inclusivity, Digitalization, and Greening TVET while assuring Quality and Relevance with Public and Private Sector Collaboration

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As we enter 2024, the global youth employment landscape is evolving in response to critical trends like digitalization, sustainability, and the demand for more inclusive labor markets. The Technical and Vocational Education and Training (TVET) sector's response is decisive to answer how supply of skills can be reimagined to empower young people in a rapidly changing world. By prioritizing inclusivity, digitalization, and greening, we can ensure that TVET equips youth with relevant skills for a diverse and sustainable economy.

It is worthwhile to see how quality assurance in TVET systems can drive better outcomes, ensuring alignment between education and labor market needs. Further, it is needed to explore the role of private sector engagement in creating pathways for meaningful employment, emphasizing collaborative approaches that connect industry expertise with educational innovation. Additionally, the growing demand for green skills and jobs will be highlighted, positioning youth to provide better solutions for the climate change.

It is our responsibility to develop strategies to integrate inclusivity, digital skills, and environmental considerations into TVET frameworks while fostering stronger public-private partnerships. This approach will pave the way for a more resilient, equitable, and future-ready workforce. The practical examples of concepts into practices will be showcased using case studies from the Sri Lankan TVET context.

1.6 PAPER ABSTRACTS

1.6.1

STEERING GLOBAL DISRUPTIONS

FOSTERING TECHNOLOGY PLANNING FOR INSTITUTIONAL EFFECTIVENESS IN ODL

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Abstract

Effective institutional planning is an ongoing challenge in higher education requiring a continuous reflection in policy and planning as a function of improving institutional effectiveness. Higher education institutions need to continuously reflect on the operational and structural models that facilitate educational delivery reflecting on pertinent issues of access, retention, support, and success outcomes. Access to technology resources can be a great barrier to optimal learning conditions, thus further entrenching social injustices in how students engage curriculum and learning. Providing quality education that fosters technology as a strategic pillar can become a catalyst to providing quality teaching, learning and curriculum delivery, as well as the importance of integrated student support, advance planning, and good administrative systems in place. All these aspects are necessary conditions to an institution that is responsive and aspires to centre positive student experiences. As the digital economy advances, institutions are increasingly affected by how to adapt teaching and learning using technology such as designing e-learning programmes, designing digital campuses that connect devices and virtual reality using artificial intelligence, as well as other technological experiments. For most African institutions the challenge in the use of technology is exasperated by excess number of students, poor infrastructural development, and poor access to the internet on and off-campus. The urgency to address these difficulties is further compounded by the pressures introduced during the COVID-19 pandemic. Institutions had to move rapidly to provide resources and technology tools to students to enable them to proceed with learning activities, while lectures could proceed to teach and interact with the students remotely. The objective of the study was to evaluate current institutional technology performance in the implementation of the principles of openness and assess how the technology use support the online community and encouraging students to become independent learners. The study assessed the technology planning imperatives as a function of academic planning in an ODL institution and further explored the relationships within university learning spaces and student engagement. A sequential exploratory mixed method design was employed to investigate the multi-dimensionality of technology planning imperatives and openness within the context of an ODL institution. The emergent discoveries from the study highlight that there are deliberate and intentional approaches by the institution to transform the student experience for the better through the adoption of a new business model that centres technology in its facilities and interventions to promote wider student access primarily through digitization whilst recognising the digital divides amongst the student body. Contextual

considerations such as lack of access to gadgets, cost burden to students and adequate student information security were cited as limitations. Technology provision and support was highlighted as being disproportional in that students in the urban centres benefited more as the institution provides more investments to urban areas as opposed to its rural regional centres. Students expressed being marginalised by the inadequacy of technology platforms employed, the reliability and accessibility of the technology platforms. Technology planning and effective implementation are fundamental to advance open education for optimal teaching and learning.

Keywords: Technology, Openness, Planning, ODL, Access, Student support.

AI AND MACHINE LEARNING: WHAT ARE THE DRIVERS FOR INTENSIFIED DIGITAL TRANSFORMATION IN TVET COLLEGES AND INSTITUTIONS OF HIGHER EDUCATION?

Prof Michael Van Wyk

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Abstract

In recent years, artificial intelligence (AI) and Machine Learning (ML) have evolved from hype to intensify the digital transformation of higher education sector, in particular TVET colleges, businesses and governments, faster than any other emerging technology. Enormous strides have been made related to the disruptive effects of AI and machine learning in higher education and have grown exponentially. For example, recent developments in large language models like ChatGPT as a GenAI conversational tool have highlighted the need to investigate this phenomenon in different contexts. Benefits emerged from AI and ML, which intensify productivity, enhance learning, and support sustainable development goals as well as Africa Agenda 2063. A systematic review of the literature was done using a computerised AI tool, Rayyan, to generate AI and ML scholarly publications from 2022-2024. For the systematic review, a 5-step strategy was used, based on *framing the questions for the review, identifying relevant scholarly works, screening and assessing the quality of the scholarly works, summarising the relevant scholarly works, and interpreting the selected scholarly works* to be included in the final systematic review. A total of 205 scholarly works were used for the systematic review, but only 89 were appropriate for the purpose and context of the exploratory study. From an argumentative point of view, this presentation focuses on AI and ML, which intensify digital transformation in TVET Colleges and higher education institutions (HEIs). The higher education sector, in particular TVET College need to embrace all the changes to transform operations digitally. The following questions are formulated for this presentation: What is the purpose of TVET colleges and HEIs are utilising AI applications and leveraging AI as a primary management tool for strategic operations in TVET colleges to advance the academic project? How can AI and ML improve TVET colleges and HEIs? What are the drivers for intensified digital transformation of TVET college and higher education sector? What is AI used for in TVET colleges and HEIs? What will the policy implications to be for utilising AI and machine learning for TVET colleges and HEIs? The systematic review of scholarly works provided results based on digital transformation in TVET colleges and HEIs, which was conducted in the conceptual-argumentative paper. Several issues of AI and ML applications and utilizing AI and ML as a primary operational management tool for complex data emerged from the scoping review. Factors driving AI and Machine learning are advancements in technologies, cloud computing, data security, competitive edge, improving student support, insight into learner

analytics, automation of routine tasks, and exponential turn-around time responses. AI and machine learning advances personalised learning, universal access for all students and generated smart content, which invigorates HEIs. Furthermore, it emerged from scholarly works that to transform TVET colleges digitally, it needs to reflect on policy and frameworks to address ethical and academic integrity issues. Finally, several challenges were identified, such as data privacy, bias mitigation, and transparency.

Keywords: Artificial intelligence, machine learning, digital transformation, systematic review, argumentative

USING THE 3-C MODEL TO EXPOSE AND ELIMINATE THE WORK-INTEGRATED LEARNING CHALLENGES OF DIPLOMA ACET STUDENTS IN A UNIVERSITY OF TECHNOLOGY

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Abstract

The Technical and Vocational Education and Training (TVET) programmes aim to reskill and upskill the youth because of how they have been conceptualised. However, networking and collaboration in TVET programmes remain endemic. A lot of students who are registered in the Diploma in Adult and Community Education and Training (ACET) programmes, from one University of Technology grapple with placements for their work-integrated learning (WIL). This then holds them down to learn the technical know-how that their fields require. This mixed-method research study made use of 46 second-year Diploma ACET students to learn their trifles with industry placement as part of their WIL and the impact such challenges bear on their technical growth. The 3-C model was used as an underpinning framework where the students' challenges were scoped and addressed. The 3-Cs in this instance are the 'Causes', 'Challenges' and 'Consequences' that the students come across. Data were analysed statistically using graphs and charts for the questionnaires that were administered to the second-year Diploma ACET students while their focus group discussions were analysed thematically. The quantitative data findings showed that more than 65% of the students struggle with finding placements because many industries do not know anything about what the Diploma ACET programmes entail or need for practical teaching while 35% are often placed in the wrong fields than what they study for. This was added by 63% of them who were sent back by the industries that they asked for placements at because of not having their protective equipment with 27% of the students having been absorbed to do their WIL in awkward times because of the nature of the work that the industries provide. These challenges are caused by the lecturers' lack of knowledge and assistance in the subjects that they teach and the requirements in industries that their students are eligible to go to. Additionally, the interview data also revealed that students were not informed on how the Diploma ACET is conceptualised and the students were also not aware that their years of studies do have industry WIL in all years. The study recommends that proper screening of lecturers should be done by the universities to employ well-informed lecturers in the fields that they teach. This would assist students to be well-informed about career opportunities and industry selection. Universities need to cast their nets wide to link themselves with industries that would be of assistance to the Diploma courses and ensure that during the institutional advisory boards, stakeholders are also invited to advise and get to know the types of skills that student teachers require. The use of technology should also be another option where online practical courses are exposed to the Diploma students as start-up courses.

Keywords: Work integrated learning, stakeholder engagement, stakeholder expansion, Adult and Community Education and Training

DIGITALIZING VOCATIONAL EDUCATION AND TRAINING TO RESPOND TO THE FOURTH INDUSTRIAL REVOLUTION JOB MARKETS: A SNAPSHOT AT THE TVET COLLEGES

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Abstract

The Fourth Industrial Revolution (4IR) is transforming job markets, demanding a workforce equipped with advanced technical skills and adaptability. The 4IR is triggering the replacement of human labour with automation for efficient productivity and economic growth. The current Technical and Vocational Education and Training at TVET colleges do not produce adequate skilled youth that respond to the fast-growing technological environment. TVET Colleges should be equipped with workshops to produce skilled labour to address the triple challenges of poverty, unemployment and inequality. By international comparison, the overall unemployment rate is far higher in South Africa than in other emerging markets. South Africans aged between 15 to 24 years are not in employment education or training (NEETs”) (*Ibid.*). The worry is that the massive job losses that will come from this industrial revolution will be more painful than the previous industrial revolutions. The increase of 4IR artificial intelligent machines poses a huge challenge to current TVET.

Purpose of research

The purpose of the study was to determine the extent of producing occupationally skilled youth at TVET colleges in response to the 4IR industry. The research questions of the study were: (a) What are the vocational pedagogy and didactics methods used in classrooms and workshops? (b) What are relevant workshop materials and equipment for teaching and learning vocational subjects? (c) What partnership exists between TVET colleges and industries for Work Integrated Learning?

Methods

The methods of collecting data were interviews and observations. Interviews were done with TVET college lecturers at selected colleges. The observation was done in the class of interviewed lecturers. The participants of the study were seven lecturers, who were selected purposefully. These lecturers either taught National Technical Education (NATED) qualification or National Certificate Vocational (NCV). There were 2 lecturers for (NATED) N5 Industrial Electronics from College A, 2 for National Certificate Vocational (NCV), 1 lecturer for Information Processing from College B, and 3 lecturers facilitating N5 Electrotechnics from College. The lessons the subjects mentioned were observed at each of the three colleges.

Findings

The findings were organized as follows:

- (1) The vocational pedagogy** at the selected colleges does not include practical skills in the workshop. The focus is on theory from textbooks. Presently, the NATED programme does not include workshop practicals.
- (2) Equipped practical workshop:** Most of the equipment and materials at the workshop were outdated and irrelevant.

3) Work Integrated Learning and industry partnership: there are few workplaces where students can undertake work-integrated learning.

Conclusions

Vocationalising education for the 4IR industries requires a proactive approach from TVET colleges. This research aims to provide a valuable snapshot of the current practices at the colleges and propose strategies for improvement. By adapting their curriculum to the 4IR era, reviewing teaching methods to be activity-based in the equipped workshop, and strengthening industry partnerships, TVET colleges can empower students with the skills and knowledge needed to thrive in the jobs of tomorrow.

Keywords: TVET, 4IR, automation, economic growth, vocational subjects, WIL, NATED, NCV, pedagogy, industry, workplace

THE ROLE OF LEADERSHIP IN INNOVATION AND TECHNOLOGY ADOPTION IN THE TVET SECTOR POST COVID-19.

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Abstract

The COVID-19 pandemic is no doubt one of the greatest disruptions that occurred globally in the current century. The education sector including the higher education sector of which Technical Vocational Education Training (TVET) colleges fall was not spared from the disruptions. These disruptions called on the sector to rise to the occasion as it were, and explore alternative ways in which to continue providing tuition. Most TVET colleges were however not in a position to harness technology and innovation to continue with teaching and learning. With the COVID-19 pandemic behind us for now, this calls on the sector to not rest on its laurels but to earnestly invest in innovative technological solutions to ready itself for future similar disruptions. Innovative technology solutions in this regard, would also enable colleges to tap into a market that wants to study in the sector through online platforms. This paper therefore explores the type of leadership that is required in the TVET sector to lead the important and necessary changes that are to ensure that innovation and technological solutions are embraced by the sector to provide high quality teaching and learning. The paper adopts the qualitative method to explore the status quo vis-à-vis the adoption of innovative technology solutions for teaching and learning in the TVET sector, and the role of leadership in driving this. The preliminary findings are that most TVET colleges in South Africa have not adopted technological solutions in their teaching and learning. As contribution, the paper seeks to develop a framework that shows the nexus between leadership and the adoption of innovative solutions in the education sector in general and the TVET sector in particular. Such a framework would provide the prerequisites for agile leadership that is prone to adapting to adopting innovation for the betterment of the sector.

Keywords: leadership, innovation, technology, TVET

AN INQUIRY INTO THE IMPLICATIONS OF THE FOURTH INDUSTRIAL REVOLUTION FOR TECHNICAL AND VOCATIONAL EDUCATION AND TRAINING IN SOUTH AFRICA

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Abstract

Investigating the implications of Fourth industrial revolution (4IR) for the technical and vocational training (TVET) programme is essential for South African society and the workforce. The 4IR era demands a skilled workforce adept at using emerging technologies and skills. TVET graduates risk unemployment if their skills do not match current job market demands. Education and training must align with market needs to avoid detrimental skill mismatches. As a key skills provider, the TVET programme must prepare graduates for the 4IR landscape, making it essential to understand how TVET can meet 4IR demands in South Africa. The study's objectives were to examine the implications of 4IR on the TVET programme and to determine how the programme can better prepare South African graduates for the workforce. Integrating 4IR skills into TVET can equip the workforce for the global economy and promote sustainable development. By examining 4IR's impact, policymakers can address socioeconomic disparities, minimize the digital divide, and ensure inclusivity. Understanding these implications aids in upskilling, reskilling, reducing unemployment, and preparing for changes in job requirements. It also helps identify growth sectors, job displacement, and new job development strategies. Using the Human Capital Theory (HCT) framework, the research explored how to align the TVET programme with the demands of 4IR. A constructivist paradigm guided the research was employed. Purposive sampling was used to select eight participants. Semi-structured interviews were conducted to elicit detailed and meaningful responses. The interviews were recorded, transcribed, coded, themed, and analyzed using thematic analysis with the assistance of ATLAS.ti software. The study's findings showed that participants identified four critical areas for improvement: updating syllabi and curricula, working with TVET colleges and industry, accepting 4IR technologies as instructional tools, and giving TVET programme lecturers opportunities for lifelong learning. Essential skills identified for various industries in the 4IR era include creativity, computer skills, and problem-solving abilities. It was concluded that the TVET programme in South Africa needs curriculum reforms, continuous lecturer training, and strong industry collaboration. Emphasising technical, vocational, and soft skills is essential. Establishing a policy framework for 4IR skills training and enhancing the capacity of TVET colleges through upskilling and partnerships are necessary. Adapting teaching methods and aligning the TVET curriculum with 4IR demands will better prepare graduates for the 4IR labour market. The findings contribute to the theoretical knowledge of positioning the TVET programme within the context of 4IR.

Keywords: Fourth industrial revolution, TVET, Skills Workplace Industry

EXPLORING THE CHALLENGES OF THE LACK OF INTEGRATION OF GREEN ACCOUNTING PRINCIPLES AS A STRATEGY FOR TEACHING COST AND MANAGEMENT ACCOUNTING: A TVET COLLEGE CASE.

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Abstract

Environmental factors are persistently at the top of the national and international agenda because of their direct and indirect impact on the world's economy. While many countries are embracing green accounting, the educational institutions in South Africa need to incorporate this notion into their teaching and learning of cost and management accounting. TVET colleges are expected to have a significant economic impact by producing graduates who have a thorough grasp of accounting principles and can assess how a company's activities affect the environment and society. Current accounting education limits its scope to recording financial transactions, thereby restricting company reports to solely monetary economic activities. The exclusion of green accounting from the cost accounting curriculum has led to various challenges, including the production of misleading and inaccurate accounting data. This study proposes improving the understanding and integration of environmental factors in the teaching of cost and management accounting in TVET colleges. Critical pedagogy will theoretically frame the study to create a meaningful, just, and conducive learning environment to change and improve the teaching and learning of cost and management accounting. The study will use a qualitative research approach and Participatory Action Research as a research design to allow participants to act and create a transformed teaching and learning environment that provides effective feedback. Data will be collected from four TVET colleges in the Free State. Critical Discourse Analysis will be used to get an in-depth understanding of meaning from the participants' perspective on the teaching of cost and management in TVET colleges. The findings reveal that some courses fall under the independent sustainability category, while others prioritize technical accounting to meet the demands of professional accounting organizations. As such, the TVET College curriculum has not yet included environmental practices within the accounting system; therefore, there's a need to support lecturers in integrating green accounting into the teaching of cost and management accounting.

Keywords: Cost and Management accounting, TVET, Green Accounting, Teaching.

THE USE OF DIGITAL TECHNOLOGIES AT TVET COLLEGES IN KWAZULU-NATAL: A COMPARATIVE CASE STUDY

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Abstract

Digital technologies have become prominent in shaping educational processes and transforming teaching practices in the TVET sector. The impact of digital technologies on TVET provision can be seen in the transformation of institutional approaches to teaching and learning across the TVET sector. Beyond their institutional concerns, South Africa's TVET colleges operate in an era of growth in the demand for increased TVET enrolments, the changing nature of skills required by the labour market, and the impact of digital technologies on teaching practices. The impact of digital technologies on TVET provision can be seen in the increased adoption of

technologies such as VLEs, electronic smart boards, digital student management systems, and MOOCs. These technologies enable TVET colleges to extend access to learning opportunities, allow flexibility in teaching and learning, and allow students to access curriculum content and learning resources from any location at their convenience. The study explored ICT adoption across TVET colleges located in KZN and investigated how these institutions integrate these technologies into their teaching approaches. The research, rooted in the interpretivist paradigm, adopted a case study design to investigate the ICT adoption and utilisation patterns and their impact on teaching practices in TVET colleges throughout KZN. The study aimed to identify the ICT adoption patterns across TVET colleges in KZN, investigate the institutional factors informing ICT adoption processes, and explore the strategies utilised by TVET colleges to integrate these technologies into teaching and learning activities. The sample was drawn from three TVET colleges located across KZN; these colleges were selected as part of an institutional case study based on their geographic and socioeconomic profiles. Data were collected via interviews, focus groups, and document analysis. The study used the Diffusion of Innovation theory as its theoretical framework. The study primarily focused on the ICTs that TVET colleges use for teaching and learning while considering them alongside other physical infrastructure and institutional cultures. At the macro level, the findings indicate that factors like geography and the socioeconomic profile of surrounding communities significantly influence ICT adoption across the province's TVET colleges. The findings also highlight colleges' strategies to mitigate limitations in their ICT inventory, such as enhancing network wireless capabilities and outsourcing network administration. At the institutional level, the findings show how institutional culture, institutional processes, and organisational structures affect ICT adoption strategies. At the micro level, the findings reveal how individual lecturers utilise various digital platforms to integrate ICTs into their teaching practices. The results highlight the significant role that institutional design plays in a TVET college's ICT adoption and implementation strategies.

Keywords: ICTs; digital technologies; TVET colleges; Diffusion of Innovation; ICT adoption

GREENING TVET THROUGH INNOVATIVE CURRICULUM, TECHNOLOGY, AND INNOVATION: A SOUTH AFRICAN PERSPECTIVE

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Abstract

Technical and Vocational Education and Training (TVET) equips students with the necessary skills and knowledge to contribute to sustainable development. In the face of increasing environmental challenges, it becomes imperative to integrate green principles and practices into TVET College programmes. This paper explores the potential of implementing greening initiatives of TVET colleges through innovative curriculum, applying cutting-edge technology, and innovative thinking. It highlights the importance of incorporating environmental sustainability into TVET and discusses various strategies to achieve this objective. Additionally, the paper explored the role of technology and innovation in enhancing green TVET, emphasising the need for continuous adaptation and improvement. Employing a qualitative approach, through document analysis with a narrative-based inquiry design, the paper critically examined the current TVET College landscape in the context of green technology. Curriculum, policy documents on greening and technological and educational materials were used in development of training manual conducting practical assessments in the workshops. Researcher narratives and experience were employed to identify gaps and challenges in TVET colleges programmes. The narrative-based design

provides an understanding of key industry stakeholders' lived experiences and perspectives, highlighting the dynamics influencing the current state of TVET Colleges in South Africa. The findings suggest that a more sustainable and resilient workforce for the future can be created by incorporating green principles into TVET, leveraging technology, and fostering innovation. The study recommends relevant curricula which respond to green technology principles and practices. It further recommends TVET lecturer development in line with the latest industry technology.

Keywords: Curriculum, green technology, industry, innovation, TVET

1.6.2 INCLUSION IN EDUCATION (2024 MARKS 30 YEARS SINCE ADOPTION OF SALAMANCA STATEMENT)

FOR BETTER OR WORSE: 'INCLUSIFYING' THE UNDERREPRESENTED MAJORITY IN STEM AND TVET EDUCATION

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Abstract

The Rainbow Nation's inability to achieve social and epistemic access to Science, Technology, Engineering, and Mathematics (STEM) and Technical and Vocational Education (TVE) has long been attributed to the historical and systematic exclusion of previously disadvantaged groups. There is unequal access, participation, and pipeline leaks in STEM and TVE education. These pipeline leaks have been attributed to individual and institutional barriers, such as the language of instruction and monolingualism approach in a multilingual classroom context. Paradoxically, the increase in previously disadvantaged groups entering higher education institutions (HEIs) and majoring in STEM and TVE subjects has not been matched by the throughput. Through Critical Discourse Analysis (CDA) lens, this study explores and problematises the classroom practice dissonance that further complexifies the teaching and learning of STEM and TVE subjects in a multilingual context. Drawing on an interdisciplinary literature review, we further explore the pedagogical practices in culturally diverse classrooms with a view toward a more socially just, inclusive, and contextually relevant pedagogical approach. Moreover, this research aims to study the pedagogical affordances of translanguaging on cognitive development and further examine the contrasting trends in skills development and sustainable employability. Our argument is that students' divergent linguistic repertoires should be viewed as a cognitive resource, hence the integration of translanguaging given the multiplicity of the classroom context in South Africa. Secondly, we argue against the persistent deficit narrative that says no scientific concepts could be formulated in an African language. Finally, we argue for multimodal educational practices and translanguaging to give confidence to the underrepresented majority in STEM and TVE education that these subjects are within their reach.

Keywords: STEM Education; Technical and Vocational Education; Linguistic Repertoires; Multimodal Educational Practices; Pedagogical Translanguaging

REORIENTING TVET TOWARDS INCLUSIVITY FOR MIGRANTS AND MARGINALISED GROUPS IN BOTSWANA AND SOUTH: A SYSTEMATIC REVIEW (VIRTUAL)

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Abstract

The Sustainable Development Goals (SDG) 4 and 10 call for inclusive TVET education to address all types of marginalisation, exclusion, and inequality that impede access to and participation in the acquisition of knowledge and skills. Botswana and South Africa are two of the most migratory nations in Southern Africa; yet, the skills of these migrants are frequently viewed as non-functionally relevant to the local labour market, necessitating retooling or reskilling. Due to the absence of equal access to TVET training for youth from marginalised groups and the curricula's limited ability to accommodate learners with disabilities, TVET institutions are frequently seen as exclusive. This paper systematically reviewed journal publications, government reports, international TVET policies and guidelines in general, and those for Botswana and South Africa in particular. The focus was on guidelines and practices aimed at promoting access pathways to skills training for migrants, disadvantaged youths and people with disabilities. This was done to have an overview of the status quo and identify gaps, and challenges and then suggest recommendations to reorient the existing policies towards inclusive country TVET systems to overcome different forms of discrimination and stereotyping. Despite the presence of inclusive education policies in the two countries, the TVET sector continues to inadequately address the needs of a diverse society. TVET facilities in the two nations remain systemically segregated, thereby excluding migrants and marginalised groups. Reviewed literature indicates that effective inclusive practices depend more on the inclusivity of policies and guidelines and, institutional implementation of inclusive processes than on the abilities of students. The findings reveal gaps in both policy and practice, highlighting that many TVET teachers lack training in inclusive education pedagogies. Furthermore, there are inadequate funding mechanisms to modernise existing infrastructure and acquire specialised equipment to deliver and support inclusive pedagogies and assessments. Leaders within TVET institutions must recognise the exclusionary barriers faced by individuals and develop solutions to overcome these obstacles. We recommend empirical research to better understand the experiences of migrant students in TVET programmes and to identify effective strategies for promoting inclusive TVET. Reorienting TVET policies to be more inclusive will allow migrants, youths from disadvantaged backgrounds and the disabled opportunities to acquire skills to enhance their employability, and social integration in the societies and labour market for socio-economic development.

Keywords: TVET education, inclusive education, migrants, special needs, disadvantaged youths, disability

THE IMPACT OF ASSISTIVE TECHNOLOGY IN THE EDUCATION AND TRAINING OF STUDENTS WITH VISUAL IMPAIRMENT IN THE TECHNICAL, VOCATIONAL AND EDUCATION TRAINING COLLEGES

Eric Herman Steenkamp

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Abstract

According to the Strategic Policy Framework on Disability for the Post-School Education and Training System (SPFDPSETS), research estimates the disability rate of South Africans to be between 5% and 12% while few services and opportunities for people with disability are provided (Department of Higher Education and Training [DHET], 2018). The SPFDPSETS supports the direction outlined in White Paper no. 6 (EWP6) (Department of Education [DoE], 2001) which views the establishment of inclusive post-school education and training (PSET) system as the cornerstone of an integrated and caring society of the twenty-first century. Inclusive education was established to integrate students with disabilities into the normal structures of the educational system (DoE, 2001). This implies that Higher Education and Training Institutions must train student lecturers to teach students with disability. EWP6 continues to emphasise the provision of educational opportunities for students who experience challenges in learning and development, which lead to their dropping out of college because the education and training system cannot cater to their needs. Thlamedi (2018) suggests that the first step in setting high standards of teaching and learning in a process that must be inclusive in the use of Assistive Technology (AT) is the development of instructional strategies that lead to increase skills levels. One of the National Development Plan (NDP's) aims, as cited by Buys (2018), is to empower at least two percent (2%) of people with disabilities with right sets of skills and relevant qualifications for employability. An essential factor required to achieve these objectives is technically proficient, effective AT that will allow lecturers and support staff to evaluate whether the teaching they are offering is impactful. Based on the challenges outlined in the problem statement, this study will enable various stakeholders to reflect on and review current AT. It will also enable SVI to achieve more and recognise other possible ways to create opportunities and new experiences. Educating students with visual impairment (VIS) has raised serious challenges for lecturers because the instruments needed are far greater than the traditional reading, writing and arithmetic curricula. The research aims to investigate/explore (qualitative) the impact (measuring of the technology means you may track overtime the impact, this is more quantitatively?) views of students with visual impairments (VIS), lecturers and support staff (why not focus on one variable -e.g VIS students?) of assistive technology in the application of education and training of students with visual impairment. The former Minister of the Department of Higher Education, Science and Technology, Dr. B Nzimande (not necessary), highlighted the shortcomings of Technical and Vocational Education and Training and Community Education and Training colleges as their inability to attend to the needs of students with disabilities due to lack of capacity and funding. Many of these institutions do not have fully functioning Disability

Rights Units or Student Support Services in place. Institutions with such units have quite a high percentage of inadequately qualified staff. A qualitative inquiry approach that followed an active research approach was undertaken in selected (how many?) TVET colleges in to investigate policy, assistive device availability, and assistive technology challenges (are you not conducting interviews and thematically certain themes emerged - you already determined your findings of policy, assistive devices, technology challenges) in-depth interviews and observational fieldwork (so what will then be emerged as themes if you already focus on those highlighted. See your findings already determined?) were used to collect data from four male lecturers, two female lecturers, two males and one female student support officer, and sixteen students with visual impairment (SVI) students. Findings indicate the lack of assistive technology (AT) devices and the lack of a clear policy on the selection of such AT devices. Lecturers and student support staff lack adequate training on the use and application of assistive technology. This study will further afford lecturers and student support officers the opportunity to choose the best possible AT and advise SVI on which technology will best suit their needs.

Keywords: Assistive technology

ESTIMATING MINCERIAN EARNING FUNCTION FOR TVET SKILLED VULNERABLE GROUPS OF PERSONS IN BALOCHISTAN (VIRTUAL)

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Abstract

Purpose: Technical and vocational education and training (TVET) is considered to accrue labor market outcomes particularly earnings for skilled persons. This study aims to estimating Mincerian Earning Function (MEF) for four vulnerable groups of people that are Afghan refugees, imprisoned, disabled, and ultra poor.

Methodology: The research design of a mixed methods related to “system and scale” which is used to justify the method for getting primary data from a sample size of 256 skilled vulnerable groups. The respondents are via two stages of stratified sampling technique in the labor markets. The survey consists of 99 Afghan refugees, 29 imprisoned, 27 disabled, and 101 ultra respondents. A closed structured questionnaire-based data is analyzed and computerised Pearson correlation, with ordinary least square (OLS) and instrumental variable two-stages least square (IV2SLS) technique for MEF to relate TVET skills acquisition with earnings of vulnerable groups of persons.

Results: The results of quantitative approach, an instrumental variable two-stages of least square (IV2SLS) technique of estimating MEF are shown statistically significant. This indicate that earnings of the four vulnerable groups of persons influenced by TVET skills, general education, labor market experience, vulnerability status, employment categories, and other social, household, and economic variables.

Policy implications: The study implies multi-sectoral and vulnerability-specific policy options for TVET skills development, human capital formation, and other socio-economic factors to likely influence earnings of skilled vulnerable groups of persons in labor markets.

Contributions of the study: The study contributes to new data generation, novel research design of “system and scale”, empirics to MEF for skilled vulnerable groups of persons, and policy relevant insights for sustainable development of marginalized segments of society.

Keywords: TVET, Mincerian Earning Function, Vulnerability, Refugees, Imprisoned, Disabled, Ultra-poor, System and Scale, Mixed Research Method, OLS, IV2SLS, Earnings, Sustainable Development

BREAKING DOWN BARRIERS: MIGRANT AND DISADVANTAGED YOUTH IN TVET COLLEGES IN SOUTH AFRICA

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Abstract

To enhance economic progress and social fairness in South Africa, it is important to facilitate the inclusion of migrant and underprivileged youth in Technical and Vocational Education and Training (TVET) institutes. The International Organization for Migration (IOM) estimates that 4 million migrants reside in South Africa, many of whom are young and encounter considerable obstacles in their pursuit of work and education. This study attempts to identify the particular obstacles that prevent underprivileged and migratory youth from enrolling in, staying in, and benefitting from TVET programs. The study will examine what they went through in TVET colleges and offer suggestions for improving the inclusiveness of the learning environment. A mixed method approach will be adopted focusing on interviewing and conducting a survey with students, lecturers and administrators. The significance of the study lies in its potential to uncover a complicated web of interrelated variables impeding these pupils' ability to advance academically. These could include prejudice, linguistic difficulties, socioeconomic limitations and a dearth of sufficient support resources. Additionally, the study is anticipated to identify successful initiatives and regulations that has helped underprivileged immigrant pupils, example, focused scholarships, mentorship programs and inclusive curriculum. These findings have important ramifications for non-governmental organizations, educational institutions and policymakers. The potential recommendations will help with the planning and execution of focused interventions that will improve TVET program success rates and accessibility by migrant and disadvantaged youth, thereby lowering South Africa's youth and migrant unemployment and promoting social cohesion in South Africa.

Key Words: migrants, inclusivity, interventions, impeding, underprivileged, difficulties, drawbacks, accessibility

STRATEGIC POLICY FRAMEWORKS FOR DIGITALIZING TVET: ENHANCING EQUITY AND EMPLOYABILITY IN THE DIGITAL AGE

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Abstract

Problem

South Africa, recognized as the most unequal society globally, faces significant challenges in advancing the digital transformation of Technical and Vocational Education and Training (TVET). The rapid global disruptions from climate change, digitalization, the Fourth Industrial Revolution (4IR), demographic shifts, and migration necessitate robust TVET systems capable of delivering relevant skills for the digital economy. The expected doubling of Africa's young population to over 830 million by 2050 underscores the urgency of these challenges, presenting both opportunities and obstacles for economic growth and educational transformation.

Purpose/Research Questions

This paper proposes the strategic integration of technologies such as Artificial Intelligence (AI) and mobile learning into TVET to enhance educational outcomes and tackle equity challenges in alignment with Africa's Agenda 2063. The research questions focus on identifying policy gaps and effective strategies for digitalizing TVET to improve equity and employability.

Hypotheses/Arguments

The primary argument is that adaptive policy frameworks are essential for the digital transformation of TVET, which is crucial for addressing educational disparities and preparing the workforce for the digital economy. It is hypothesized that integrating AI and mobile learning into TVET will significantly enhance educational equity and outcomes.

Methods

Utilizing a mixed methods research design, this study combines quantitative survey data from TVET educators with qualitative insights from a diverse array of stakeholders, including policymakers and industry experts. This approach draws upon international initiatives by UNESCO and the African Union's strategic agendas to foster scalable and equitable solutions for TVET transformation.

Findings

The analysis reveals substantial policy gaps in the adoption of digital tools in TVET, which are crucial for addressing educational disparities. Insights from UNESCO and the African Union highlight areas for enhancing digital education and bridging the digital divide to meet the skill demands of a modern workforce.

Conclusions

The study advocates for a policy framework that emphasizes flexibility, inclusivity, and sustainability, supporting Agenda 2063's goals. It aims to propel African nations toward realizing their potential as a global powerhouse by transforming educational systems to accommodate future technological demands.

Implications

The findings from this study will significantly influence discussions at ICTVET2024, aiming to realign TVET policies with continental objectives and international educational standards. Such realignment is crucial for developing resilient educational systems capable of adapting to the rapid pace of digital change, ensuring that Africa's burgeoning young population can thrive in the emerging global economy.

Keywords: Technical and Vocational Education and Training (TVET), Digital Transformation, Artificial Intelligence (AI), Mobile Learning, Educational Disparities, Agenda 2063, Mixed Methods Research, Policy Frameworks, UNESCO, African Union, ICTVET2024, Sustainable Development.

PREVALENCE OF SUBSTANCE ABUSE AMONG TVET COLLEGE STUDENTS IN THE FREE STATE PROVINCE

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Abstract

The South African government has since 2006 embarked on a recapitalisation programme for Further Education and Training (FET) Colleges, currently referred to as Technical and Vocational Education and Training (TVET) Colleges. This was done to improve infrastructure, introduce a new curriculum responsive to the demands of the labour market and provide financial access to needy students. Student enrolments increased exponentially, and this brought with it a lot of challenges for this sector of higher education. Among such challenges was the problem of drug and substance abuse by TVET College students. Many studies about substance abuse have been conducted. However, the focus on this area in TVET Colleges in the province of the Free State seems insufficient. The study's main aim will be to explore the prevalence of substance abuse among TVET College students, focusing on Motheo TVET College in the Free State province. Reasons for substance abuse will be ascertained, together with strategies to circumvent the abuse of substances. In addition, the study will also identify the perceived consequence of substance abuse after establishing the types of substances abused by students. Using the snowball sampling technique, interviews consisting of 20 participants, will be used to gather data and explore the prevalence of substance abuse among TVET College students. The collected data will be analysed using thematic analysis. Findings could be used to assist policymakers and higher education institutions, among others, to take appropriate actions to address the problem of drug and substance abuse and ultimately strive to create favourable and conducive environments for students.

Keywords: Prevalence, substance, substance abuse, TVET College, TVET College students.

ENGINEERING CURRICULUM ACCESS FOR STUDENTS WITH PHYSICAL DISABILITIES IN TVET COLLEGES

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Abstract

Purpose- using a qualitative case study method, this study sought to investigate the engineering curriculum access for students with physical disabilities at TVET colleges. The objective of the study was to find out how students with disabilities access the engineering curriculum in TVET colleges, to explore the experiences of students with physical disabilities in accessing the engineering curriculum at TVET colleges and to investigate the strategies that can be used to enhance the access of the curriculum for students with disabilities at TVET colleges.

Design/Methodology/approach – a qualitative approach that includes in-depth interviews was applied. A total of Seven participants in the NCV Engineering department were interviewed. Content analysis was employed in order to reduce and simplify data collected as well as producing results that can be measured.

Findings -The finding revealed that the engineering curriculum was not in any way accessible for students with physical disabilities. The curriculum for NCV involves many practical experiments, which are not suitable for students with any form of disabilities. the study further revealed that the most significant obstacle to learning for students with physical disabilities in the college is the way in which the curriculum is delivered. The curriculum is delivered mostly face-to-face due to lack of proper resources, which creates challenges for students with physical disabilities because taking notes requires them to keep up with the pace of the lecturers. The most important way of addressing barriers arising from the curriculum is to make sure that the process of teaching and learning is more flexible. Lecturers must be trained specifically to be able to deal with diverse students in the classrooms. It was recommended that the college needs to work together with the Department of Higher Education and Training to source funds to improve their infrastructure and resources in order to better accommodate students with physical disabilities. The social model of disability theory was used in this investigation. In South Africa, the rights of those with disabilities were highlighted in the Integrated National Disability Strategy White Paper (Department of Education 1997). In line with international thinking, South African inclusive Education activists argue for an education system that should accommodate the learning needs of diverse students, including those with disabilities, in mainstream classrooms. The report of the National Commission on Special Needs in Education and Training argues that in an inclusive education and training system, the curriculum needs to be accessible and responsive to the needs of all learners.

Limitation of the study - The size of the sample could affect whether the results could be generalised. The study was focused only on one TVET college in the Free state, which resulted in the results not generalized for the province.

Keywords: engineering. Curriculum, access, physical disabilities, experiences, students, strategies. Technology, lecturers, TVET

BARRIERS TO LEARNING EXPERIENCED BY NATIONAL CERTIFICATE VOCATIONAL STUDENTS AT LIMPOPO TECHNICAL AND VOCATIONAL EDUCATION AND TRAINING COLLEGE IN SOUTH AFRICA

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Abstract

The academic performance of NCV students at Limpopo TVET college students is hampered by barriers to learning. This paper seeks to investigate the kind of barriers experienced by NCV students at Limpopo TVET College. Barriers to learning are commonly experienced at primary and secondary schools. Similarly, several studies on barriers to learning have been conducted at ordinary schools. However, there is limited research on barriers to learning experienced by NCV students at TVET colleges and how students can be supported to overcome them. This paper contributes knowledge to narrow this gap. A qualitative approach was adopted to find the kind of barriers to learning from the perspective of NCV students and the lecturers. The study was based on an interpretive paradigm using a single case study design. Purposive sampling of 19 NCV level 2 to 4 students and 9 lecturers was used. Interviews were used to collect data. Thematic analysis was used to analyse the data. The model of human development by Bronfenbrenner (1994) framed the study. Findings indicate that lecturers are not coming to class during lessons. Furthermore, this study revealed that students lack motivation. Students are unprepared and lack information about NCV programs offered at TVET colleges. Students are uncomfortable and shy to approach lecturers for assistance. Recommendations are made on several strategies to support the students to overcome barriers to learning to succeed in their studies. The study concludes that collaborative support from stakeholders is needed for NCV students to overcome the challenges experienced during the learning process. This study implies that harnessing stakeholder collaboration for student support in the TVET Sector enhances students' academic success and improves the throughput rate to curb unemployment and decrease poverty. Further research should be conducted on the TVET Colleges on the challenges experienced by the students and how they can be supported to unleash their potential in skills.

Keywords: National Certificate Vocational; Technical Vocational Education Training; Barriers; College Management, Department of Higher Education; Barriers.

RECONCEPTUALISING DISABILITY INCLUSION IN THE POST-DIGITAL EDUCATION: THE CASE OF SOUTH AFRICAN COLLEGES

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Abstract

This chapter study or presentation explores the possibilities of reimagining key pedagogies of disability inclusion in post-digital education at Technical Vocational Education and Training Colleges (TVET) in Johannesburg, South Africa. It seeks to explore the theme of post-digital decoloniality through a critique of methods and theories in education research that involve students with disabilities

studying at TVET colleges in [Gauteng,] South Africa. The ultimate objective of the chapter is to explore the post-digital discourse of 'reality' and the capabilities of old and new Assistive Technologies in enabling students with disabilities at TVET colleges. A convenient sample of 40 students with physical and learning disabilities [were selected] at four TVET colleges in the Gauteng province of South Africa. In this paper, major arguments are put forth that the post-digital [education] has many conflicting dimensions to the disabled body. It can be emancipatory on one side by providing access to all those disadvantaged by distance, discrimination, and disability on the one hand, and on the other be potentially debilitating due to its materialistic and capitalist nature which feeds on able-bodiedness.

Keywords: Post-digital; Technical Vocational Educational Training Colleges (TVET), able-bodiedness.

1.6.3

MULTI-STAKEHOLDER COLLABORATION TO ACHIEVE EDUCATION GOALS

THE ROLE OF THE NATIONAL CERTIFICATE VOCATIONAL HOSPITALITY PROGRAMME IN TECHNICAL AND VOCATIONAL EDUCATION AND TRAINING COLLEGES AS A CATALYST FOR ACHIEVING SUSTAINABLE DEVELOPMENT GOAL 8

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Abstract

Given the sharp rise in the youth unemployment rate, Technical and Vocational Education and Training (TVET) colleges need to be essential drivers in providing the youth with skills needed for economic development and meaningful employment. Therefore, TVET colleges need to play their part by offering programmes that will aid the youth to be employable or self-employable, by equipping them with both technical and employability skills. The hospitality industry plays a significant role in offering diverse opportunities for employment, entrepreneurship, and economic advancement. Therefore, the National Certificate Vocational (NCV) Hospitality Programme stands out among TVET's contributions to sustainable development, especially when it comes to achieving Sustainable Development Goal (SDG) 8: Decent Work and Economic Growth. This study explored how TVET colleges' NCV Hospitality Programme contributes to accelerating the achievement of SDG 8. Furthermore, the study explored the critical function of the NCV Hospitality Programme in TVET colleges as a pathway to attaining SDG 8 by promoting sustainable economic growth through productive employment and self-employment. Additionally, the study looked at challenges and opportunities associated with the NCV Hospitality Programme and its potential to drive positive socioeconomic change. The theories underpinning the study were experiential learning theory (ELT) and human capital theory (HCT). The study adopted a qualitative design, comprising three purposively selected hospitality lecturers from three TVET colleges in KwaZulu-Natal. The study used semi-structured interviews to gather data to answer the research questions. The data was analysed using the thematic analysis technique. The study revealed that the NCV Hospitality Programme has a limited number of practical lessons, resulting in students not gaining significant practical and entrepreneurial skills to curb unemployment and promote self-employment. The study also revealed that the NCV Hospitality curriculum is outdated. Finally, the study revealed that the NCV Hospitality Programme does not have an entrepreneurial component to equip students with entrepreneurial

skills. The study recommended that the NCV Hospitality curriculum be updated and that teaching of practical and entrepreneurial skills be prioritised.

Keywords: TVET, NCV Hospitality Programme, practical skills, entrepreneurial skills

DEVELOPING A CONTEXT-ORIENTED MODEL OF MULTI-STAKEHOLDER PARTNERSHIP FOR RELEVANT, EFFECTIVE, AND EFFICIENT TVET PROVISION: A COMMUNITY-BASED PARTICIPATORY ACTION RESEARCH APPROACH

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Abstract

The Sustainable Development Goals (SDGs) 4 for Education 2030, Target 4.4, lists Technical and Vocational Education and Training (TVET) as one component of education saddled with the responsibility of increasing the number of youth and adults who are equipped with relevant skills, including technical and vocational competencies, for employment, decent jobs, and entrepreneurship. However, TVET provision in Nigerian technical colleges has been marred with various challenges namely, poor funding, shortage of qualified trainers, inadequate infrastructure, such as a lack of workshop facilities and overcrowded classrooms, absence of industry stakeholder collaboration, misaligned curriculum, and poor monitoring and evaluation. Therefore, leveraging on SDG 17, which stresses a revitalised and enhanced global partnership between governments, civil society, the private sector, the United Nations system, and other actors in meeting the 2030 Agenda, two questions are addressed in this study, namely: What categories of stakeholders are required to strengthen the partnership for REE TVET provision in Nigerian technical colleges? How do we develop a context-oriented model of multistakeholder partnership for relevant, effective, and efficient TVET provision at technical colleges? A qualitative case study design involving a community-based participatory action research (CBPAR) intervention approach was employed integrating the necessary stakeholders. Data was generated in two phases, namely, pre- and post-intervention, using minutes of meetings, personal interviews, and focus group discussions, from one eleven participants namely, the college principal, one teacher (Head of Department), six Vocation one students from Motor Vehicle and Maintenance Trade, one automobile industry employer and two government representatives. The data was analysed thematically using two frameworks, the Triple Helix Model (THM) and the Quadruple Helix Innovation Model (QHIM). For research question one, a new type of collaboration that portrays the characteristic features of the QHIM was established—in other words, a new partnership arrangement that incorporates technical colleges, industry, government, and other stakeholders from civil society/non-governmental organisations (NGOs), the World Bank (International Financial Community), the community, Parents Teachers' Associations (PTA), philanthropic individuals, and volunteers. Research question two revealed diverse interactions among various stakeholders. Hence, the development of the new model of REE partnerships was achieved using Bronfenbrenner's ecological lens as it enabled the illumination of different interactions and impact levels among the various stakeholders. As opposed to other studies where government is the propelling force within the TVET system, this study concludes that industry is key to the production of skilled graduates. The findings of this study hold major implications for policy, practice, and research in TVET education, primarily in Nigeria and in countries with similar aspects of training. Current policies highlight government partnerships with stakeholders to create a skilled workforce. However, the study indicates a shift towards industry as the main

stakeholder for workforce development. In practice, industry involvement will enhance graduate skills and reduce unemployment by aligning training with market needs. Industries can contribute through workplace training, funding, teacher development, and curriculum input. For research, this study broadens the discussion on stakeholder partnerships TVET, using a social ecological perspective to explore interactions and impacts among stakeholders for quality TVET provision.

Keywords: CBPAR, Multi-stakeholder, Partnership, Technical College, TVET

WHISPERS OF POTENTIAL: NSFAS AND WIL AMIDST UNSEEN STRUGGLES

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Abstract

The Department of Higher Education and Training (DHET), through the National Student Financial Aid Scheme (NSFAS), has supported many TVET students with bursaries since 2007 (Bhorat et al., 2018). The NSFAS has benefitted many students from marginalised and poor backgrounds, particularly those in TVET colleges. A growing body of literature suggests that NSFAS funding has positively impacted student access, progression, and success in PSET (Bosiu, 2024). Theoretically, this whispers potential! However, the compulsory Work-Integrated Learning (WIL) component of TVET programmes is currently not funded by NSFAS, and there are limited funds from other stakeholders. This limited funding has implications for the employability of the TVET students. In this article, we delve into the delicate dance between the NSFAS and the realm of WIL in technical and vocational education and training (TVET) colleges. The main research question is: what are the primary challenges TVET students face in accessing and managing financial support for WIL, and how do these challenges impact their educational outcomes? Through the exploration, we unravel the nuanced challenges veiled beneath the surface, where aspirations clash with unseen barriers. This study investigates the impact of funding policies focusing on the employability of TVET students. The study used a mixed-methods approach, including questionnaire surveys and interviews with 20 participants from a TVET college in KwaZulu-Natal (KZN). According to Leko et al. (2023), mixed-methods research (MMR) holds promise for investigating several empirical questions within education, taking advantage of the strengths of quantitative and qualitative traditions. The study applied the non-traditional student attrition theory to explore how financial challenges affect student retention, throughput and employability rate. The study is still in the data collection and analysis stage. The preliminary results indicate that excluding funding for WIL from NSFAS and other stakeholder funding prevents many students from getting their qualifications, thus undermining the primary goal of TVET colleges of changing students' lives through the acquisition of qualifications that would enable them to enter the labour market, and in turn, improve the economy of the country as articulated in Education White Paper 3 (Bosiu, 2024). Despite the promise of empowerment, whispers of discontent linger, hinting at a disconnect between expectation and reality. The study seeks to recommend strategies for the Department of Higher Education and Training (DHET) and other relevant stakeholders to extend financial support to include the WIL component, which is essential for expanding the skills pathways for migrants and disadvantaged youth, which may lead to employability and sustainable development.

Keywords: National Student Financial Aid Scheme, Technical and Vocational Education and Training (TVET), Work-Integrated Learning, Education access, Student attrition, Skills Pathways, Employability

TVET AND INDUSTRY PARTNERSHIP FOR SUSTAINABLE DEVELOPMENT

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Abstract

Technical and Vocational Education and Training (TVET) is seen as a key solution to address South Africa's socio-economic inequality by accelerating skills development. South Africa is still faced with a challenge of youth unemployment, attributed to a lack of industry-relevant skills among TVET graduates. The youth unemployment rate is one of the country's contributing factor to its socio-economic challenges. The study aims to examine the nature of partnership between TVET and industry, to establish the effects of industry involvement in curriculum development, to figure out the implications of industry involvement in lecturer professional development, to determine the challenges faced by TVET colleges when collaborating with industry, to determine the challenges faced by industry when collaborating with TVET and to explore strategies in improving the partnership between the two. This paper reports on a study that adopted a qualitative research approach using a case study design. Data were collected using semi-structured interviews with Academic Support Officers (ASOs) and focus group interviews with apprentices and interns respectively. Purposive sampling was used to select participants based on their knowledge and experience in TVET-industry partnerships. By aligning TVET with industry needs, these partnerships foster job creation and poverty reduction. The findings from the study revealed that the current state of the TVET-industry partnership hinders the development of a skilled workforce that meets the needs of industry. Additionally, there is a lack of effective cooperation between TVET and industry as TVET programmes do not align with the skills and knowledge required by industry. Therefore, there is a skills gap among TVET graduates, because resource constraints and industry not sufficiently engaged in shaping TVET programmes. **Recommendations from this study will help in guiding policy, for improving institutional practices, optimizing resource allocation**, enhancing skills development and may serve as a blueprint for transforming research findings into practical actions that benefit both TVET institutions and industries.

Keywords: TVET, industry partnership, sustainable development, lecturer professional development, Skills mismatch, Work Integrated Learning, curriculum alignment, youth unemployment

PRIVATE SECTOR ENGAGEMENT – ALIGNING EXISTING TVET PROGRAMMES TO INDUSTRY DEMAND.

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Abstract

The aim of this paper was to explore the challenges encountered by College Management Teams to improve the workplace experiences of college lecturers. Given that lecturers at colleges in South Africa are expected to perform according to global standards, which include adapting to the Fourth Industrial Revolution (4IR), it became imperative to identify the reasons for college lecturers' being perceived as deliverers of lack luster academic services. According to the Policy on Professional Qualification for Lecturers in Technical and Vocational Education and Training in South Africa (2013), lecturers are required to be familiar with both practical work-related

aspects as well as the theoretical facets of the curriculum. Furthermore, the White Paper for Post-School Education and Training (PSET) talks to the need for creating collaborations between TVET colleges and industries in order to secure industry-based training opportunities for TVET lecturers that could lead to the creation of employment opportunities for TVET graduates. However, concerns persist regarding lecturers' lacking industry experience which affects their performance in the TVET sector, thus exposing the research gap regarding the challenges College Management Teams face in enhancing lecturers' workplace experiences. Research reveals that most lecturers employed at TVET colleges have minimal industry experience, although the requirement was that they need to be au fait with both the theoretical and industry-related aspects of their subjects they facilitate in order to deliver dynamic lectures. This study was underpinned by the human capital theory which was instrumental in understanding and analysing TVET college lecturers' experiences regarding their institutional practices. A comparative review of TVET colleges in South Africa, Nigeria, and the United States of America was conducted to understand the numerous practices and challenges of College Management Teams in attempting to enhance college lecturers' institutional performance. This qualitative study was conducted at one TVET college in the Eastern Free State of South Africa. Purposeful sampling was used to select suitable participants. Data collection through semi-structured interviews involved eliciting information from a sample comprising of TVET management members: the Deputy Principal Academic, Curriculum Manager, Human Resources Manager, and six Campus Managers. The findings revealed significant challenges encountered by College Management Teams, underscoring the need for dedicated efforts towards continuous professional development programmes for college lecturers. Challenges emanating from the findings included, amongst others, a need to initiate and sustain partnerships with industry, motivating lecturers to attend workshops to gain workplace experience, availing funds to pay substitute lecturers, dealing effectively with matters concerning curricula, and the judicious management of resources to meet industries' real-life standards. This study recommends that policymakers, industry, and other TVET college stakeholders employ prudent, participative, astute, and consultative strategies to ensure that TVET lecturers acquire the requisite skills needed to successfully deliver the contents of syllabi. It is anticipated that the outcomes of this study will persuade TVET college lecturers, managers, and policymakers to prioritise ongoing professional development programmes to enhance lecturers' performance in their daily work to uplift the performance of their students.

Keywords: college lecturers, college management teams, White Paper for Post School Education and Training (PSET), Technical and Vocational Education and Training, technological innovation, industry experience.

STAKEHOLDERS' PERSPECTIVE ON TVET COLLEGES-INDUSTRY PARTNERSHIPS FOR EMPLOYABILITY OF GRADUATES: AN EXPLORATORY STUDY OF TVET COLLEGES IN MPUMALANGA PROVINCE, SOUTH AFRICA

Dr. N Ndlovu

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Abstract

Preliminary research showed a growing number of unemployed youth, including TVET college graduates. Unemployment can be caused by a lack of employment or a lack of necessary skills that prepare graduates for work making them unemployable. TVET colleges are responsible for imparting work-related skills to their students. The involvement of stakeholders like the industry would go a long way in ensuring that the relevant skills are imparted. The purpose of this study was, therefore, to explore stakeholders'

perspectives on TVET college and industry partnerships for the employability of TVET college graduates. I used a qualitative research design to gather in-depth insights from stakeholders as to how current partnerships could be improved. Data were collected using in-depth interviews, focus groups and document analysis. Participants included TVET college students and graduates, an official from DHET, two Deputy Principals: Academic and two Student Support Services officials responsible for student placement into the workplace. I used interpretivism as a research paradigm. This allowed me to interpret many subjective data collected from the participants. Data collected revealed a concerted effort from DHET and TVET colleges to engage partners to improve the employability of TVET college graduates. However, the data also revealed several challenges concerning partnerships. The challenges included a lack of planning, leadership, organisation and supervision or control of these partnerships. The other challenge was the lack of industry placement for NCV students and a few partnerships forged for NATED students. In addition to properly managing student placement in industry, I also recommended that instead of the five-to-ten-day workplace-based experience (WBE) for NCV, colleges must consider a completely new programme where students are placed for a whole year in industry, and they are assessed and given marks. I also recommended that these students do a practical project during this placement period so that they gain an even more profound understanding of their vocational programmes. I also recommended that this programme be a compulsory part of the student's studies. I also recommended a regular review of syllabi to ensure currency and relevance. The study is useful in that it exposes challenges currently being experienced in TVET colleges and industry partnerships and proposes practical ways of improving these. I believe that better-managed partnerships would result in graduates who are employable and future employers who are confident of the capabilities of these graduates. Involving industry in the training of graduates is of paramount importance.

Keywords: stakeholders; TVET colleges; industry; employability; placement; national certificate vocational (NCV); NATED; DHET; WBE

HOW THE TVET STUDENTS ARE TRAINED AND PREPARED FOR JOB ENTRY IN THE SOUTH AFRICAN INDUSTRIES

Ms. Seanokeng Lydia Thakalekoala
Motheo TVET College, South Africa

Abstract

The study investigated how TVET students in South Africa are trained and supported for industry roles. South Africa continues to face challenges in developing a skills-oriented education system, with TVET programmes often criticised for not aligning with industry needs, leading to a large number of unskilled graduates (McConnell, 2009). The study was motivated by the experiences of a TVET lecturer who observed that many students struggle to secure employment in South African industries. Research highlights the importance of ensuring that TVET education is high quality and delivers relevant skills. Collaboration between industry and TVET institutions is essential to develop a curriculum that meets industry demands. The study sought to address key questions, including industry expectations of TVET graduates, challenges faced by students in training and entering the job market, and recommendations for improving TVET programmes to better prepare students for employment. A review of the literature, particularly focusing on TVET

campuses in the Free State, identified significant gaps in the alignment between TVET training and industry needs. Historical context revealed that the demand for technical education in South Africa grew with the development of industries like mining and railways in the late 1800s (Gamble, 2003; Smuts, 1937). Nine Students and six lecturers from Motheo TVET's management departments in the Free State made up the interview respondents to the study, including one expert from the Department of Labour. The study was qualitative, using Motheo TVET as a case study. Key findings of the research include a disconnect between TVETs and the industries that hire their graduates. While career guidance services exist on campuses, there is minimal collaboration with the industry. The need for curriculum reform was highlighted, with an emphasis on integrating industry needs into TVET syllabuses. The study concluded that there is insufficient ongoing consultation between industry and TVETs, despite the goal of TVET colleges to meet South Africa's human resource needs for development. Recommendations include embedding employability measures into institutional practices and expanding work-based learning opportunities for students.

Keywords: TVET, Employability, Curriculum Development, Industry Collaboration, Higher Education Articulation, Vocational Training Work-Integrated Learning (WIL), Skills Development

ENHANCEMENT OF STUDENTS' ENTRANCE TO INDUSTRY THROUGH INTEGRATION OF ENGINEERING SUBJECT CONTENT IN A TVET COLLEGE CAMPUS AT VHEMBE DISTRICT, LIMPOPO PROVINCE

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Vhembe TVET College, Tshwane University of Technology & New Era College, Gaborone, BOTSWANA

Abstract

Graduates from TVET colleges are expected to possess a plethora of skills that could be useful as prerequisite for the employment industry. Qualified lecturers in the Report 191 engineering studies must have a niche of skills and relevant experience to execute such profound duties to impart such skills to students. This study aimed at influencing TVET colleges to strive for the enhancement of students' entrance to industry through the integration of engineering subject content. Scaffolding Theory was adopted to drive the study because it advocates for teaching and learning experience wherein experienced personnel in the vocational class and/or industry assists less fortunate students to operate at higher level. The context of the study was described, and data collection conducted through observations and semi-structured interviews using ten participants (n=10) sampled from the campus of a TVET college at Vhembe District, Limpopo Province, South Africa. As soon as data collection was completed, data transcription followed by initial coding which was instrumental in the development of themes where thematic data analysis shaped the categories. Findings of this current study confirmed the existence of failure on the side of lecturers to link their subject content into the industry. Furthermore, lecturers were found to be arrogant and consistently giving themselves a little break to either smoke, chit-chat or even drinking soft drinks during active periods of the timetable. Suggestions have been made with regard to linking subject content into industry including construction of workshops where students could do more practical in anticipation to integrate to industry.

Keywords: Enhancement of students' entrance to industry, Integration, Engineering Subject Content, Lecturers

SUSTAINABLE DESIGN AND MANUFACTURE OF VALVES FOR WATER SUPPLY IN IRRIGATION, MINING AND INDUSTRY IN ZIMBABWE

Clemence Fuma

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Abstract

The Ministry of Higher and Tertiary Education's thrust is on research, innovation and producing tangible solutions towards vision 2030. The ministry has responded by adopting Education 5.0. Philosophy which encourages research, innovation and industrialization. All this resonates well with the Ministry and government thrust as announced in the blueprint National. Developing Strategy 1 Document imploring educationists from institutions of higher learning such as Harare Polytechnic to spearhead the economic turnaround strategy in Zimbabwe. The institutions are mandated through this document to make the nation an Upper Middle-Income Economy by 2030 as the nation moves towards an education led economy. This paper seeks to present a TVET curriculum based on research, design and manufacture of components that can be used to solve industrial needs. A study was done for the manufacture of valves for use in the water supply for irrigation, mining and industry in Zimbabwe in response to Education 5.0. The Mixed Method research design was implored whereby numerical data was gathered and analyzed using statistical methods. The data collection methods included online surveys, IVR surveys, offline surveys. Textual data was gathered to explore the underlying meanings, trends, patterns, and experiences of participants. The mixed methods design research approach employed by designers revealed that suppliers like Quodec, Jmann and Valve Tech, import valves from China, South Africa, Italy and Germany. This causes the cost and maintenance of valves to be high and unaffordable due to import duty, lack of spares and shipping costs. Designers were tasked to design and manufacture cheaper valves using locally available materials. The product would enhance import substitution and availability of spare parts. Autodesk Inventor 2023 was used to generate 2D working drawings and a solid model for conceptualization and simulation. Manufacturing processes employed were sand-casting, milling, grinding and injection molding. The result of Hydrostatic testing done was 0.35cm³ / minute and when the valve was tested for functionality it worked to the satisfaction of the stakeholders. The cost of the valve was reduced from USD\$800 to USD\$500 per unit. It was exhibited at ZITF and drew interests from industrialists and individuals. Education 5.0 curriculum in TVET education helps students to transform learning, training and innovation to produce goods and services that would industrialize the country, create employment and solve socio-economic challenges the country has been going through. For the foreseeable future, more research must be done on the valve so as to improve its functionality and change it from manually operation to automatic.

Keywords: valve, machine, design, waste

DEVELOPMENT OF RENEWABLE ENERGY SYSTEMS FOR RURAL COMMUNITIES FOR ENHANCEMENT OF SOCIO-ECONOMIC INDICES

Mr S Marais

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Abstract

Rural communities continue to grapple with inadequate access to reliable and sustainable energy and it is slowing down their socio-economic advancement. The existing energy infrastructure, primarily dependent on the national grid, has proven to be inadequate in addressing the electricity needs of these remote and needy areas due to the high costs of installation and maintenance. This study aims to develop a portable, cost-effective renewable system that can supply energy to the people in rural communities that do not have electricity. The system will provide electricity for the basic needs of the people in the communities. This paper will analyse the impact of renewable energy deployment on key socio-economic indices, including education and overall quality of life. The researcher will use a mixed methods approach, combining both qualitative and quantitative research methods. This approach will provide a comprehensive analysis of the technical and economic impacts of renewable energy systems on rural communities. Quantitative data will be collected through questionnaires and Qualitative data will be collected through focus groups. This research will help people in the rural community to have access to sustainable renewable energy source and basic electricity needs. The findings of this study have demonstrated that the utilization of renewable energy can significantly improve the lives of individuals residing in rural areas. It has elevated the standard of living for these communities and provided students with adequate lighting for studying in the evenings, thus aiding in their preparation for the future. The conclusion of this research indicates that incorporating renewable energy is an effective strategy for advancing one's academic future and promoting socio-economic development in rural communities. These results suggest that local governments should prioritize the integration of renewable energy into their rural community development strategies. This approach has the potential to alleviate poverty and foster economic growth.

Keywords: Renewable energy systems, Rural communities, socio-economic indices

INTENTIONS AND ATTITUDES OF 21ST CENTURY TVET ENGINEERING AND CONSTRUCTION STUDIES STUDENTS ON ENTREPRENEURSHIP*Dr Charles Masoabi & Dr Mathew Kimanzi**Central University of Technology Free State, South Africa***Abstract**

Entrepreneurship education has been included in South African higher education curriculum for about two decades and has only been part of Business and Management Sciences or Commercial Studies. However, the researchers are of the opinion that the importance and effectiveness of entrepreneurship education deserves to be explored in other fields of study. To maximise the impact of entrepreneurship on the south African, African region and global economy by expanding worldview of applied sciences graduates and professionals. This study seeks to measure the intent and attitude of TVET Engineering and Construction students on entrepreneurial ventures after completing their studies. The theory of planned behaviour is used to guide the study. Quantitative survey is used to collect data that would be used to measure the intent and attitudes of the Engineering and Construction students. The researchers are in the process of analysing data for the purpose of this study. The researchers anticipate results that may advocate for the incorporation of entrepreneurship education in TVET Engineering and Construction studies to enhance the intentions and attitudes of students towards entrepreneurial activities, using their acquired knowledge and skills.

Keywords: Entrepreneurship Education, entrepreneurial intentions and attitudes, TVET Engineering and Construction studies

THE ASSESSMENT AND DEVELOPMENT OF OCCUPATIONAL COMPETENCE IN SOUTH AFRICAN TVET COLLEGE ELECTRICAL ENGINEERING DOMAIN - INNOVATIVE DIDACTIC STRATEGIES INTENDED FOR FUTURE WORK: A COMET STUDY.*Patricia Jacobs, James Sibanda & Adhir Hurjunlal**University of Western Cape***Abstract**

Occupational competence development is an imperative for all TVET programmes. COMET (Competence Measurement in Electrical Technology), a three-dimensional didactic model showed potential in earlier studies to both measure and develop occupational competence in TVET, but to date, there has been no study to explore the didactic application of the model. This research paper aims to illustrate the relevance of the COMET didactic model in assessing and developing occupational competence in TVET. Holistic problem-solving competence upheld by COMET's three didactic dimensions, eight assessment criteria and Work Process Knowledge (WPK) is a key element in this study. Socio-economic and political challenges at a regional, national and global level demand a well-defined occupational competence assessment tool to advance quality assurance in TVET. Central to the debate around high youth unemployment is the issue of student occupational competence and workplace readiness to access the opportunities created by

government policies and strategies. A longitudinal study was undertaken in the TVET Electrical Engineering domain to investigate and respond to the research question: How could the COMET model be applied didactically in the quest to enhance the occupational competence of students at TVET colleges in South Africa? A mixed-methods sequential explanatory research design was adopted in which quantitative and qualitative data were collected from a purposive sample representative of five TVET colleges across four South African provinces. Open-ended test tasks informed by authentic industry activities were designed to assess and develop students' holistic problem-solving capabilities and their occupational competence. A large Cohen effect size value ($d = 0.8$) is reported between the professional occupational competence profiles of participating TVET students in the Baseline and Main Tests, which offer compelling evidence of the COMET diagnostic model's didactic enhancement of TVET Electrical Engineering students' occupational competence development in this investigation. Additionally, two COMET open-ended learning tasks and a test task were conducted to measure the occupational competence of TVET students and lecturers. Lecturer data on competence scores, experiences of doing the task, and teaching and learning strategies were collected. Analysis of the data employed SPSS version 26 and R Studio 4.0. The research findings demonstrated how lecturers implicitly and explicitly transferred their skills and knowledge to students. These findings highlight the COMET model's didactic potential to assess and develop occupational competence in TVET Electrical Engineering and underscore the model as a valuable didactic tool that South African TVET colleges can implement to bridge the existing divide between competence development at TVET institutions and industry-related occupational competence required. The findings of this research provide strategic guidance for assisting TVET students to achieve the innovative, holistic problem-solving competence that would be valuable to modern societies and work.

Keywords: Occupational Competence; Holistic Problem Solving; COMET Diagnostic Model, TVET Electrical Engineering; TVET Didactics, Transfer of teaching and learning; Future work

THE ROLE OF WORK INTEGRATED LEARNING IN OVERCOMING THE DISJUNCTURE BETWEEN TVET TRAINING IN CONSTRUCTION PROGRAMMES AND THE BUILDING TRADE

Mr. Mark Lawrence

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Abstract

TVET Colleges are often regarded as the original custodians of workplace-based learning, due to their historical role in apprenticeship training'. However, South Africa, like many developing countries experience a disjuncture between industry demands on graduate competencies and the knowledge and skills developed by education and training institutions. Employers require graduates who are able to seamlessly fit into posts and be competent to carry out required work. Education and training institutions, in contrast, prepare students for a work environment, which requires employer-specific orientation training after graduation. The disjuncture, a competency gap, between competencies that graduates possess, and competencies required by employers is strongly felt in the highly competitive South African construction industry and technical graduates produced by Technical and Vocational Education and Training (TVET) Colleges. The discussion will be based on the application of a model developed from Engeström's work on Activity Theory and Quinone's work on disjuncture in analysing the competency gap between construction industry employer demands and TVET colleges

in South Africa's Western Cape Province. The study sought to establish the role of WIL in overcoming the disjuncture between TVET training in construction programmes and the building trade. The study applied a qualitative approach and aligned with a critical paradigm. The findings of the study could be used as a conduit for the elimination of the current disjuncture between TVET colleges and partners within the building trade, which could be viewed as an important element in the TVET learning community as it provides key opportunities to explore the world of knowledge at the nexus of theory and practice. It would further contribute to graduate maturation and work-preparedness in the South African context, as it could improve employability. In addition, the findings of the study could be used to improve policies related to the inclusion of WIL in TVET construction programmes. The study will be conducted within the six TVET colleges in the Western Cape and the construction industry. All the sites met the requirement for the research in that it offers building trade courses, accredited by the Department of Higher Education and Training (DHET), but not all the colleges had the same number of registered students in the civil and construction programme, and therefore the results could not be generalised, and this placed a limitation to the study.

Keywords: Disjuncture, Apprenticeship, Competency, Employability, Civil and Construction.

AN INVESTIGATION OF THE DIALOGICAL ARGUMENTATION INSTRUCTIONAL BLENDED LEARNING MODEL (DAIBLM) IN THE VOCATIONAL ENGINEERING MATHEMATICS CLASSROOMS AT SELECTED TECHNICAL AND VOCATIONAL EDUCATION AND TRAINING COLLEGES IN SOUTH AFRICA

Ms. Lynn Goodman & Prof Bhekumusa Khuzwayo

Abstract

This paper is part of a Ph.D. study that investigated the impact of a new teaching and learning model that combines traditional face-to-face and blended learning approaches to enhance student engagement and academic performance. The study focussed on a group of first-year engineering students enrolled at a Technical and Vocational Education and Training college in the Western Cape, South Africa. The face-to-face component involves a dialogical argumentation instruction approach while the blended learning component incorporates the use of computer-mediated instruction via TikTok. The Dialogical Argumentation Instructional Blended Learning Model (DAIBLM) replicated the combination of the Dialogical Argumentation Instruction Model (DAIM) from the master's study of the researcher and the blended learning approach via the usage of computers. The motivation for doing this study was because of the low performances in passes, retention, and throughput rate which continue into the TVET band. According to Newman-Ford, Lloyd & Thomas (2015), the annual graduation rate in engineering has decreased steadily whilst there has been a gradual rise in engineering jobs. This study is directed by three questions: **1)** What conceptions do the selected students hold on functions before DAIBLM and is it related to their everyday life experiences? **2)** Is there a significant difference in the performances about the understanding of functions of the experimental group (E-group) after being exposed to DAIBLM? **3)** How does the E-group perceive the DAIBLM? The theoretical framework used in this study was social constructivism theory as espoused by Vygotsky (1978) and Connectivism as a learning theory (Siemens, 2005). The analytical tools that the study used were Toulmin's (1958) *Argumentation Pattern* (TAP) and Ogunniyi's (2007) Contiguity Argumentation (CAT). The study was limited to three engineering campuses from one college and province out of the 50 TVET colleges in South Africa and therefore could not necessarily be representative of all the TVET colleges in the study area. The

study adopted a case study approach where data was analyzed both quantitative and qualitatively. In this paper, I shall discuss the blended learning model called the DAIBLM and reveal the contributions made by DAIBLM based on the findings in this study. It is hoped that the findings of the investigation will contribute to raising awareness of DAIBLM, perhaps raise standards regarding mathematics teaching and learning at the college level as well as improve results and throughput rate simultaneously.

Keywords: Dialogical Argumentation Instruction Model (DAIM), Mathematics Education, Toulmin Argumentation Pattern (TAP), Vocational Education, Dialogic Pedagogy, Blended Learning

SUSTAINABLE DEVELOPMENT OF FACILITATION AND LEARNING STRATEGIES IN NCV LEVEL 4 MATHEMATICS

Jessica Ndlovu & Matshidiso Masilo

SWGCVET College & University of South Africa, South Africa

Abstract

This research investigated the perspectives of Technical and Vocational Education and Training (TVET) college lecturers regarding the application of problem-based learning (PBL) as an instructional approach to improve students' sustainable mathematics competency. Achievement in mathematics at TVET colleges could be related to the poor performance of National Certificate and Vocational Level 4 mathematics students in South African Colleges. Students' low achievement in mathematics has long been a source of concern for all stakeholders, college principals and lecturers. This can be attributed largely to poor teaching techniques, a lack of teaching and learning materials and inadequate pedagogical skills of lecturers. This research draws from the social constructivist theory that focuses on the zone of proximal development to support the social interaction of knowledgeable others to advance development. The phenomenological qualitative research approach was applied in exploring the impact of PBL on various skills such as critical thinking and problem-solving, that assist the students to solve 21st-century real-world problems. Six level 4 Mathematics lecturers from NCV programs and 96 NCV engineering students were purposively sampled and participated in interviews and were observed as they interacted in lessons. This study findings revealed that problem-based, student-centred learning approach yields critical thinking, authentic and autonomous learning in mathematical problem-solving. In addition, PBL approach enhances meaningful learning and students' good performance in mathematics. This research aligns with the empirical foundation for PBL implementation as a teaching methodology in higher education, particularly in engineering programs. Additionally, PBL supports curriculum structures and learning that prioritize active and interactive instruction, maximizing the benefits of a hands-on approach. The skills and knowledge acquired through PBL close the knowledge gap between what is taught in the classroom and what is experienced in the workplace.

Keywords: critical thinking, problem-based learning, Sustainable development, teaching strategies, technical and vocational education.

MANAGING THE IMPLEMENTATION OF BLENDED LEARNING (BL) AT TVET COLLEGES IN FREE STATE PROVINCE

Mr Anthony Olin

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Abstract

Blended learning (BL) is an educational strategy and practice using of and combining digital platforms, tools and pedagogical approaches within traditional face to face contact. Furthermore, BL is a technology-mediated instructional design, mixed of instruction, educational resources and learning opportunities to participate in a online context. This research study presents a comprehensive framework for effectively managing Blended Learning (BL) within all Technical and Vocational Education and Training (TVET) Colleges in the Free State Province. With the increasing integration of digital technologies into traditional teaching methods at TVET Colleges, there is a crucial need for a structured approach to implementing and managing Blended Learning (BL) strategies. The study examines the experiences of TVET managers, such as lecturers, heads of departments, deputy principals of academic services, and principals, in implementing blended learning at the four TVET Colleges in the Free State Province. The researcher aims to tackle the challenges and advantages of hybrid learning, the role of TVET Managers in implementing blended learning, and strategies to optimise the integration of online and face-to-face learning environments. The qualitative approach is grounded in an interpretive paradigm, utilizing a multi-case study design, with data collected through semi-structured interviews with TVET Managers to gain insights into the support provided to students and lecturers to enhance the effective implementation of hybrid learning. The sample size of the study involved twenty-four TVET Managers and encompassed strategic planning, resource allocation, faculty training, and student support tailored to the specific context of TVET Colleges. By aligning educational goals with technological capabilities, the framework aims to improve learning outcomes, enhance operational efficiency, and provide a more engaging and flexible learning experience. This research study is intended to offer a scalable blended learning framework for implementation at TVET Colleges as a model suitable for similar educational settings, contributing to the broader goal of advancing vocational education through innovative learning solutions.

Key Words: Blended Learning (BL), Technical Vocational Education Training (TVET) Colleges, Free State Province, Educational Framework, Management, Leadership, Learning Management System (LMS), Digital Integration, TVET Managers, Digital Integration

TVET COLLEGES' SENIOR LEADERSHIP EXPERIENCES IN INTEGRATING ICT PRACTICES IN PUBLIC TVET COLLEGES FOR THE FREE STATE PROVINCE

Prof MDM Phutsisi

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Abstract

This study explores the experiences of senior leadership in integrating Information and Communication Technology (ICT) practices at public TVET colleges within the Free State Province. The digitization of education and rapid evolution of the global economy have created an urgent need for a highly skilled workforce. Additionally, industrial revolutions and the rise of knowledge economies have further heightened the demand for knowledgeable and digitally equipped professionals (Hassan, Hassan, Naseer, Khan & Jeon.

2021:01). The integration of ICT in TVET colleges has become increasingly important in preparing students for the demands of the modern workforce and enhancing teaching and learning practices. However, the successful implementation of ICT in TVET colleges requires effective leadership and strategic decision-making at the senior level. This qualitative study is founded on the phenomenological approach and incorporates the transformational leadership theory as a guiding theoretical framework. The interpretative paradigm forms the lens for the researcher to explore senior leadership experiences in integrating ICT practices at case study TVET colleges. Qualitative data collection methods such as semi-structured face-to-face interviews, focus groups, and participant observation are employed to capture the perspectives, challenges, and strategies employed by senior leaders in public TVET colleges in the Free State Province, selected through convenience purposive sampling, as they navigate the integration of ICT practices. Interviews were transcribed verbatim and transcribed thematically through NVivo software. The findings of this research will provide insights into the experiences of senior leadership in driving ICT initiatives, overcoming barriers, and fostering a culture of innovation and technology adoption within the TVET college environment. Through an in-depth analysis of senior leadership experiences in integrating ICT practices, this study contributes to the existing literature on ICT integration in educational institutions and provide recommendations for enhancing leadership and promoting effective ICT integration in public TVET colleges. Ultimately, this research supports the advancement of ICT-enabled teaching and learning practices in TVET colleges, thereby better preparing students for success in the digital age.

Key words: Public TVET colleges, Senior leadership, Information Communication Technology (ICT), Integration.

EVALUATING THE EFFECTIVENESS OF TVET PROGRAMS IN ADDRESSING SKILL GAPS AND SHORTAGES IN SPECIFIC INDUSTRIES IN ZIMBABWE

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Abstract

The Technical and Vocational Education and Training (TVET) programs in Zimbabwe play a crucial role in addressing skills gaps and shortages within the country. These programs are designed to equip individuals with practical skills that are directly relevant to the needs of specific industries. The effectiveness of Technical and Vocational Education and Training (TVET) programs in selected Zimbabwean industries were studied. The main objective was to assess the current state of skill gaps and shortages in key industries in Zimbabwe. In this study ethnographic approach was used (by employing observations, in-depth interviews and structured questions), to determine and observe students' behaviors at work, thirty-six observations were done and twenty informants were interviewed. The key informants were selected from industry experts, academia and students. Participants were recruited through purposive sampling. Observations were used to described a typical student's day. In-depth interviews were transcribed and analyzed into codes then themes. Structured questions results were tabled. The findings demonstrated significant discrepancies between the TVET system's curriculum and the capabilities that the real labor market in Zimbabwe requires. Emphasis should be placed on industry collaboration with TVET programs and partnerships, in order to match TVET programs with the industries goals in mind. In conclusion, the

employability of TVET graduates has been greatly impacted by outdated training curriculum, poor leadership, low language literacy, and poor information flow between TVETs and industry

Keywords: TVET, employer engagement, ethnographic, employability, workforce development

1.6.5

TVET RESEARCH AND KNOWLEDGE BASE

CHALLENGES AS PREDICTORS OF UNDERGRADUATES' ATTITUDE TOWARDS THE USE OF LEARNING MANAGEMENT SYSTEM (Virtual)

Prof Som Pal Baliyan

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Abstract

Evolution of Information and Communication Technology (ICT) has shifted teaching and learning from its traditional way whereby education can now be delivered through the application of modern technological platforms such as Learning Management System. Learning Management System (LMS) has been adopted globally as the best alternative system for teaching and learning for several reasons such as reaching out large number of distant learners at their convenient places. Though the Learning Management System removes the barriers of distance for teaching and learning, it has several challenges in its application which have influence on the learners' attitude towards its use. A descriptive and correlational research design was adopted to investigate the challenges and attitude of undergraduates towards the use of Learning Management System. Quantitative data was collected from the randomly sampled 105 undergraduates (n=105) at the Botswana University of Agriculture and Natural Resources. Data was collected through a survey using a valid and reliable questionnaire comprised of three sections: demographic information of respondents, attitude of undergraduates towards the use of LMS and, challenges faced by undergraduates in the use of LMS. Attitude towards LMS and challenges in the use of LMS were measured through 25 items on a 6-Point Likert scale ranging from 1=strongly disagree and 6=strongly agree.

Data were analyzed employing inferential statistical tools using SPSS Software. One sample t- test determined that undergraduates have positive attitudes towards the use of LMS although they face several challenges in its use. Independent t-test determined no difference in attitude and challenges between the male and female undergraduates. Out of the 25 challenges in the use of LMS, 17 were determined to be significant and, the top 10 challenges were: lack learning through practical, lack of effectiveness among lecturers for using LMS, several challenges in the use of LMS, lack of personal interaction with instructor, unreliable internet connectivity, poor network to allow access to LMS, assessments time-out before completion, lack of proper training on the use of LMS, lack of motivation from the lecturers, and distractions during teaching and learning process. Regression analysis determined only three challenges as

predictors of undergraduates' attitude towards the use of LMS: difficulty in assessments through LMS, insufficient contents taught through LMS, and lack of learning through practical. Conducting training on assessment through LMS, inclusion of sufficient and appropriate contents taught and devising effective strategies for learning through practical can improve the attitude of undergraduates towards the use of LMS. Dimensionality of the undergraduates' challenges in the use of LMS can be further explored by conducting a qualitative study.

Keywords: Attitude, Challenges, ICT, Learning Management System, Online teaching and learning, Undergraduates

ASSESSING THE ADOPTION AND IMPACT OF ONLINE LEARNING TOOLS AT VHEMBE TVET COLLEGE (MAKWARELA CAMPUS)

Ms. Bertha Munzhedzi

Vhembe TVET College, South Africa

Abstract

Problem statement

In a world that is fast going digital, it is now essential for Technical and Vocational Education and Training (TVET) programs to incorporate online learning resources. It is unknown, nevertheless, how widely these technologies have been used or how they have affected the employment and learning outcomes of Makwarela TVET College students. Understanding these dynamics is essential for aligning educational strategies with industry demands and enhancing youth skilling for sustainable development.

Purpose/Research Questions:

This study aims to evaluate the adoption and impact of online learning tools at Vhembe TVET College (Makwarela campus). The primary research questions are: (1) To what extent have online learning tools been adopted by students and faculty? (2) How do these tools influence student engagement, skill acquisition, and employability? (3) What are the challenges and benefits associated with the use of online learning tools in this context?

Arguments/Hypotheses:

The study hypothesizes Vhembe TVET College's use of online learning resources improves student engagement and skill development, which in turn increases employability. It also makes the case that although employing these technologies has many advantages, there are drawbacks that must be resolved in order to maximise their efficiency.

Methods

A mixed-methods approach will be employed. Quantitative data will be gathered through surveys will be distributed to students, lecturers, facilitators, and other staff members to measure the extent of online tool usage and its impact on learning outcomes.

Qualitative data will be collected via focus group discussions and interviews to explore experiences, perceptions, and challenges associated with online learning tools. Additionally, academic performance and employability metrics will be analysed to assess the long-term impact of these tools.

Findings:

Preliminary findings suggest a low adoption rate of online learning tools among students and the TVET College. The use of these tools is not yet associated with improved student engagement and a noticeable enhancement in both technical and soft skills. However, challenges such as limited digital infrastructure and varying levels of digital literacy among students and the entire Makwarela Campus have been identified.

Conclusions:

The study concludes that online learning tools play a significant role in advancing TVET education in a digitalized world. They contribute to better student engagement and skill acquisition, which are critical for employability in the modern labor market. Addressing the identified challenges can further enhance the effectiveness of these tools.

Implications:

The implications of this research are vital for policymakers, educators, and TVET institutions. To maximize the benefits of online learning tools, there is a need for investment in digital infrastructure and continuous professional development for faculty. Additionally, integrating these tools into the curriculum can better prepare students for the demands of a digitalized workforce, contributing to sustainable development at local, regional, and international levels.

Keywords: Online Learning Tools, Technical and Vocational Education and Training (TVET), Adoption

PROBING THE IMPEDING FACTORS TOWARD DIGITIZATION IN THE TECHNICAL AND VOCATIONAL EDUCATION AND TRAINING FIELDS: A CASE STUDY

Dr Sammy Khoza

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Abstract

The Technical and Vocational Education and Training (TVET) college sector has shown that it possesses all that it takes to produce both soft and hard skills. This is so because of the policies that inform its fields where students get to spend time in workshops making prototypes, coding, and robotics. However, there are impeding factors that the lecturers in the TVET college sector still face, that impede them to digitise their teaching through artificial intelligence (AI) tools. The issues of AI seem to be new to many lecturers who are in these fields as such, there is a risk that students would be left behind since technology is evolving and advancing rapidly. The introduction of AI as part of digital tools is a need currently because that is what informs education and AI tools are what many students,

who are predominantly Generation Z, enjoy. This qualitative case study made use of 14 TVET college lecturers from three colleges in Gauteng to conduct. The three colleges are of the same type and they both enjoy the refurbished workshops that have digital tools and equipment that could easily assist in adopting and continuing with the processes of AI. The lecturers were selected purposively with the rationale that they offer technical and vocational subjects that are easily adaptable to AI tools. These AI tools include coding, robotics, 3D printing, etc. Through the Human Capital Theory (HCT) lens, the study sought to comprehend how to match the demands of AI tools within the TVET sector in Gauteng province. The HCT was adopted to understand the implications of 4IR, particularly the AI tools on the TVET college lecturer's teaching in Gauteng province. HCT is a theory initially confined to the enhancement of expertise, skills, knowledge, and abilities of the people employed in an organisation. Data was collected through face-to-face interviews and workshop observation with the technical and vocational lecturers, and both data were analysed thematically. The findings exposed that much as the TVET colleges in Gauteng are equipped with AI tools, lecturers are still comfortable with their old ways of teaching where AI tools are used as aiding resources and not engraving learning and advancing the students' knowledge. This is the result of a lack of AI tools workshops that hardly happen in the college sector which continue to be overshadowed by technical workshops. The workshop observations only showed that it is in Automotive repair and maintenance workshops where lecturers are coerced to use AI tools in the form of 21st-century power tools, but the explanation of the processes remains shallow. The recommendations are thus, AI tools' training needs to be prioritised and perhaps students need to be pulled on board to such pieces of training to assist in the teaching.

Keywords: Artificial intelligence, digitisation, innovation, soft skills, technical and vocational skills

THE ROLE OF DIGITAL LITERACY IN PREPARING TVET TOURISM STUDENTS FOR THE WORKPLACE

Mr Sibongile Mxutu

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Abstract

South Africa, like many countries globally, grapples with the challenge of youth unemployment. According to STATS SA, the current (2024) unemployment rate among young individuals (aged 15-34) is 45,5%. This is alarmingly high and has persisted over the past four decades, with the country struggling with widespread unemployment, despite increased policy emphasis on higher-order skills and their central role in the global knowledge-based economy. In relation to these statistics, there is a renewed emphasis on the potential of Technical Vocational Education and Training (TVET) to provide youth with the skills they need to seize available job opportunities to address poverty and social stability. It is with this in mind that the research proposed, situated within the TVET system, focuses on tourism graduates in South Africa. These graduate's digital preparedness as they move into their careers in the tourism business is of concern and the research proposed will focus on understanding the role that digital literacy plays in preparing tourism students for the workplace. The study makes use of a qualitative phenomenological design within an interpretivist research paradigm. In-depth, semi-structured interviews with tourism graduates from a TVET college will explore the experiences of the students within the workplace in relation to their preparedness digitally in the tourism industry. Themes and common patterns will be derived from their responses at the conclusion of the study, which will be used to inform the tourism TVET curriculum in relation to student preparedness for the digital workplace.

Keywords: The Role of Digital Literacy in preparing TVET students for the workplace.

ENHANCING THE EFFECTIVENESS OF TECHNICAL AND VOCATIONAL EDUCATION AND TRAINING LECTURERS' PROFESSIONAL DEVELOPMENT PROGRAMS IN SOUTH AFRICA

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Abstract

The Department of Higher Education and Training (DHET) in South Africa introduced a Policy on Professional Development (PD) for Lecturers in Technical and Vocational Education and Training (TVET) colleges as a foundational training framework (DHET, 2013). Accordingly, lecturers are expected to acquire functional, pedagogical, and content knowledge, among other proficiencies, through robust PD efforts by DHET. Despite this initiative, there are significant gaps in TVET lecturers' PD and action is needed to narrow down these gaps (Motala & Pampallis, 2020; Bijl & Oosthuizen, 2019). Despite the recognized importance of PD, TVET lecturers do not participate regularly or receive training (Manyau, 2015; Njenga, 2018; Bijl and Oosthuizen, 2019). Therefore, there is a need for TVET managers to reassess and enhance the processes for lecturers' PD (Motala & Pampallis, 2020). This need became glaringly apparent during the COVID-19 lockdowns, when lecturers struggled to effectively continue teaching due to lacking necessary knowledge and skills (Mokhato, 2020). Therefore, this study assessed the current practices, challenges, and strategies for TVET lecturer's PD to enhance the quality of vocational education in South Africa. This study adopted a mixed method approach whereby quantitative data was collected using a valid and reliable questionnaire through Google Forms from a stratified randomly sampled 100 TVET lecturers and senior lecturers (n=110) in South Africa. Qualitative data was gathered from purposively selected Lecturers, senior lecturers and Head of Departments through face-to-face and focus group interviews. Quantitative data was analysed using statistical tools of frequency and percentages. Findings indicated that while 50% of lecturers did engage in technology-related training, a sizable (38%) did not participate in any PD activities at all. Despite significant barriers to participation, there was a unanimous agreement (100%) among lecturers on the importance of PD. While all lecturers acknowledged the significance of ongoing PD, a substantial (84%) expressed a desire to engage in PD activities but were unable participate for some challenges. This inability primarily stems from inadequate support from employers (50% respondents), and lack of suitable training opportunities (43% respondents). Half of the lecturers highlighted that managerial consultation regarding skills development is lacking, underscoring disconnect between the faculty and administration. Thematic analysis of qualitative data revealed that inadequate PD among lecturers adversely affects students' performance as lecturers lack essential skills needed to effectively impart knowledge and skills. Overarching the findings there is a strong sentiment that the management of PD efforts needs substantial improvement to meet the needs and aspirations of lecturers appropriately. Further, a structured PD policy framework for TVET lecturers need to be prepared and implemented. Establishing a staff development committee to oversee and facilitate the professional developments of TVET lecturers in South Africa is recommended.

Keywords: Professional Development, TVET, Higher Education, Academic Staff, Quality of vocational education, South Africa

ENHANCING CONTINUING PROFESSIONAL DEVELOPMENT OF LECTURERS IN TVET COLLEGES IN THE NORTH WEST PROVINCE, SOUTH AFRICA

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Abstract

The study highlights the critical role of Continuing Professional Development (CPD) for TVET lecturers. Due to rapid technological advancements and evolving industry needs, lecturers must continuously update their knowledge and skills to maintain high-quality education. The study investigates the challenges faced by TVET lecturers in accessing CPD and explores their perspectives on professional development. The research employed a qualitative methodology, specifically using semi-structured interviews in all focus group discussions. The interpretive design was used to understand the lecturers' perspectives on professional development through the interviews and observations. By analyzing data, the research identifies key areas for improvement, such as bridging the gap between theory and practice, developing curriculum for emerging technologies, and enhancing assessment and instructional technology skills. The findings emphasize the need for targeted CPD programs to improve lecturer competence, student outcomes, and overall TVET quality. By investing in CPD, institutions can create a skilled and adaptable teaching force capable of meeting the demands of the modern job market.

Keywords: Assessment, Continuing Professional Development (CPD), Lecturers, Technical and Vocational Education and Training (TVET) and Technological Advancements

EMPOWERING SKILLS FOR THE FUTURE: A SYNOPSIS OF RESEARCH IN TECHNICAL AND VOCATIONAL EDUCATION AND TRAINING (TVET)

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Abstract

Problem – Technical and Vocational Education and Training (TVET) is crucial for developing a skilled workforce but often fails to align with the rapidly evolving industry requirements. This study examines the disconnect between TVET programmes and labour market needs, focusing on how outdated curricula, insufficient industry engagement, and lack of funding hinder the development of a workforce ready for employment. The research identifies these gaps and proposes strategic interventions to revitalize TVET, ensuring its relevance to economic growth and the skill demands of the 21st century.

Purpose - The study assesses the role of Technical and Vocational Education and Training in improving job readiness among youth in developing economies.

Hypotheses - This paper posits that integrating real-world applications into TVET programmes significantly boosts student involvement and employment opportunities. It explores the influence of practical experience in TVET curricula, highlighting the importance of experiential learning in preparing students for the current job market.

Methodology - Employing a mixed-methods approach, this study combines quantitative surveys with qualitative interviews to evaluate TVET's effectiveness.

Findings - This paper presents a thorough analysis of Technical and Vocational Education and Training (TVET), underscoring its vital role in bridging the skills gap in the labour market. It examines the effectiveness of TVET systems in meeting the demands of a constantly evolving workforce and explores innovative approaches to enhance educational outcomes. The findings underscore the importance of aligning TVET with industry needs, improving financial literacy, and fostering resilience in vocational environments to cultivate a competent and adaptable workforce. This study contributes to the dialogue on enhancing the appeal of TVET and reducing dropout rates, thereby addressing skill shortages, and supporting economic growth.

Conclusion - The research demonstrates that TVET significantly boosts employability by aligning skills with market demands, fostering economic progress, and stimulating innovation in the workforce. This effectively reduces the gap between educational achievements and the shifting employment landscape.

Implications - The study underscores the critical role of Technical and Vocational Education and Training in propelling socio-economic advancement. It highlights the significance of TVET in equipping individuals with vital skills for the dynamic job market, thereby enhancing employment opportunities and contributing to sustained economic development.

Keywords – TVET restructuring, Internal effectiveness, Skills development, Workforce readiness, Vocational competences, technical expertise, job market alignment, practical training, educational outcomes.

CHALLENGES FACED BY SOUTH AFRICAN TVET COLLEGES IN MANAGING CURRICULUM DELIVERY

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Abstract

This qualitative study investigated the stakeholder views of challenges faced by South African Technical and Vocational Education and Training (TVET) colleges in managing curriculum delivery. This research is foregrounded in the Critical Emancipatory Research (CER) theoretical foundation. CER sought to uncover and challenge power dynamics and systemic inequalities, aiming to promote transformative and empowering educational practices. Data were gathered through focus group interviews with a diverse array of stakeholders, including deputy principals – academics, campus managers, heads of departments (HoDs), lecturers, council members, and officials from the Department of Higher Education and Training (DHET). What was the sample size? Why such a large sample of participants? This is massive data sets were generated, analysed and interpreted! These interviews provided in-depth insights into the issues that TVET colleges encounter in their efforts to deliver the curriculum. The findings revealed a range of interconnected challenges, including inadequate funding, resource limitations, and insufficient professional development opportunities for lecturers. Bureaucratic obstacles, policy misalignments, and socio-economic factors further complicate the management of curriculum delivery.

The study highlighted the necessity for improved infrastructure, better access to technology, and stronger alignment between curriculum content and industry needs. Framing these challenges in the CER perspective emphasises the importance of inclusive and participatory approaches that empower lecturers and administrators. It advocates for managing curriculum delivery policy reforms and collaborative efforts to address structural barriers and promote equitable educational practices. The research contributes to the broader discourse on enhancing TVET education in South Africa and offers practical recommendations for policymakers, educational leaders, and lecturers.

Keywords: Challenges, Curriculum Delivery, Educational Management, Educational Reform, Stakeholder Perspectives, Policy Implementation, TVET Colleges

PERSPECTIVES ON LEADERSHIP STYLES EMPLOYED BY MANAGERS AT A TVET COLLEGE IN THE FREE STATE PROVINCE

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Abstract

Heads of departments (HoDs) in TVET colleges perform a variety of tasks which include curriculum changes, conducting lecturer evaluation, employing new lecturers and staff, maintaining proper records about staff and students, organising departmental meetings and social gatherings, etc. Their responsibilities are also further compounded by some of the delegated duties from senior management of the college. In this regard, an HoD leadership style becomes an important factor that contributes to effective leadership of the department. Therefore, this study explored roles and leadership styles exhibited by HoDs, as leaders in their own space in the TVET colleges. This qualitative study involved eight lecturers and four HoDs. The participants were purposively selected from two campuses in one TVET college in the Free State province. Research questions focused on how HoDs perceive their leadership styles, how do HoDs perceive their leadership their leadership styles, how do lecturers perceive the leadership styles of HoDs, and what kinds of strategies are recommended to advance effective leadership styles of HoDs in TVET colleges. The findings indicated that HoDs at this particular TVET college need proper induction and intensive training on four management functions, namely; Planning, Leading, Organising and Controlling. Although the majority of HoDs seemed to be using democratic leadership styles, lecturers reporting to them were not entirely satisfied as they felt that they are not included in the decisions that affect them in class. Recommendations to remedy or improve the situation were provided including issues to consider for further research.

Keywords: Leadership, Leadership styles, Leadership theories, Effective management and Management roles, TVET colleges

ACADEMIC CHALLENGES ENCOUNTERED BY ENGINEERING STUDENTS IN SOUTH AFRICAN COLLEGES: A CASE STUDY.

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Abstract

This study presents a comprehensive examination of the academic challenges confronting engineering students at Motheo Tvet College, utilizing a case study approach. The study aimed to identify and analyse the multifaceted examination challenges that hinder students' academic progress and success within the unique context of Motheo TVET College in South Africa. Using a qualitative research method, data was collected from a diverse sample of engineering students. The study adopted total population sampling, incorporating all students in Nated 4 to Nated 6 level within the engineering department. Thus, the research included students who were enrolled in mechanical engineering, civil engineering, and electrical engineering programmes. The study used a monographic research approach, which involved the use of interviews only as a data gathering tool. Interview research technique. Interviews were conducted with college students on the engineering Hillside campus. The quantitative data was analysed using thematic analysis. The study revealed that students faced challenges of excessive workload and responsibilities, challenging assessments, and examinations, the curriculum which is challenging to comprehend, intricate scientific terms, and lack of technological incorporation in the curriculum. not does the case study identify these challenges also explores potential solutions and recommendations with which. Solutions involve the adoption and implementation of technological improvements within the curriculum. The study emphasizes the need for a holistic and collaborative technological approach involving educational institutions, policymakers, and the engineering community to foster an environment conducive to student success. The insights provided in this paper contribute to a deeper understanding of the unique challenges faced by engineering students in the South African context, offering valuable implications for educational policy and practice.

Keywords: Engineering education, Academic challenges, Motheo TVET college, Student experiences, South Africa

LEVEL TWO AND LEVEL THREE STUDENTS' EXPERIENCES WITH ROBOTICS CURRICULUM AT CAPRICORN TVET COLLEGE

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Abstract

The robotics curriculum in teaching and learning involves practical activities that allow students to gain practical experience and improve their understanding of theoretical concepts such as programming and robotics software. The role of robotic curriculum in TVET colleges is to assist the students to gain practical experience, knowledge, and skills to prepare them for future careers. Students should be equipped with knowledge and skills to solve real-world applications through practical experience and theoretical assessments during class lessons. However, it is challenging for students to gain practical experiences with robotics curriculum during teaching and learning due to lack of robotics equipment, limited training of lecturers and shortage of robotics labs. The purpose of this study is to explore the students' experiences with the robotics curriculum. Phenomenological design will be used for this qualitative study, and for theoretical

framework, the study will use constructivism learning theory. The study will use the purpose sampling method to select participants. Face-to-face and focus group will be conducted with level two and three; in addition, two robotics lecturers will be purposely sampled to participate in the study. Thematic analysis will be used to analyse the data. The study sought to gain valuable information on students' experiences with the robotics curriculum. The study will make recommendations to enhance teaching and learning in robotics by equipping students with the relevant knowledge and skills to better gain practical experience and to assess students' understanding of how robotics concepts apply to solving real-world situations.

Keywords: Robotics, Practical Experience, Motivation, Training, and Equipment

HEADS OF DEPARTMENT EXPERIENCES OF IMPLEMENTATION OF TRANSFORMATIONAL LEADERSHIP AND MANAGEMENT PRACTICES IN SELECTED TVET COLLEGES OF THE MPUMALANGA PROVINCE

Nonhlanhla Ntimane

Ehlanzeni TVET College, South Africa

Abstract

Transformational leadership is defined by Townsend (2019) as a leadership style that embroils motivating subordinates to do what is expected, and to always improve and grow, develop and increase the level of self-assurance, and to place the interests of the subordinates or institution beforehand. Typically, transformational leaders display attractiveness, intellectually encourages their subordinates, and provide individual respect to subordinates. According to Sarah, Bariham and Quansah (2023), transformational leadership comprises of four I's which are idealized influence, inspirational motivation, intellectual stimulation and individualized consideration. Idealized influence or inspirational influence are correlated to the formulation and articulation of dreams and interesting goals where intellectual stimulation consists of search for different perspectives when solving problems, suggestive of new techniques of examining how to complete projects and encourage new ideas that were not questioned before. The term "transformational leadership" indicates leaders' ability to change or transform their subordinates (Wang, Hou & Li, 2022).

Management Practices

According to Nindie (2022), management has to do with implementing plans and working with people to get things done. Dong, Farahmand, Mostafavi, Berke and Vedlitz (2020) defined management as a function of implementing an agreed-upon policy; it goes on to state that it is a set of college activities aimed at the efficient and effective use of college resources to achieve organisational goals. In this study, management refers to the administration of higher institutions, it involves planning strategizing, implementing and supervising to make sure that teaching and learning and other activities of the institution are effective (Ampofo, Onyango & Ogola, 2019). This paper sought to investigate the Leadership and Management experiences of Heads of Department in TVET colleges in the

Mpumalanga Province. The study was facilitated by the transformational leadership theory integrated in an interpretive qualitative approach. The semi-structured interviews were utilized as the core data collection instrument and was also triangulated with document analysis and observation to verify reliability and validity of data. Purpose sampling was employed to draw 3 Campus Managers, 8 HOD's and 12 Lecturers to a total of 23 participants for the study. The study employed the transformational leadership, participative leadership and the situational leadership theories. A thematic analysis process was initiated to identify themes from the collected data. Findings revealed that since they were identified as the support system for subordinates in working towards their objectives, by acting as a role model, motivating lecturers to be involved in analysis, showing concern to them as subordinates, and encouraging collaboration. The researcher recommended that the HODs supply lecturers with resources, ensure there is effective communication between HODs and their subordinates and arrange training programs for developing lecturers lacking skills for teaching and learning.

Key words: management, education management, leadership, transformational leadership, supervision.

AN INVESTIGATION INTO THE READINESS OF BOTSWANA TECHNICAL AND VOCATIONAL EDUCATION (TVET) INSTITUTIONS FOR THE FOURTH INDUSTRIAL REVOLUTION AND ITS IMPLICATIONS ON THE QUALITY OF EDUCATION (VIRTUAL)

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Abstract

Technical Vocational Education Training (TVET) institutions need to ready themselves for the Fourth Industrial Revolution (4IR) to provide future graduates with new and relevant competencies in business and industry. Therefore, TVET institutions need to provide students with the right skills to be ready for the rapid technological innovations as the industry now requires technical skills and knowledge on artificial intelligence platforms. The purpose of this, therefore, was to explore the readiness of Botswana TVET institutions for the 4IR and its implications on the quality of education. The descriptive survey design and the quantitative research methodology were adopted whereby the questionnaire was used to collect data on the readiness of the TVET institutions for the 4IR and its implications on the quality of education. The study targeted 1200 students from selected TVET institutions in Botswana under the Ministry of Tertiary Education and Research (MOTE). The simple random sampling strategy was utilised to select the study participants. A sample size of 286 was drawn from three TVET institutions. Descriptive statistics were used for the demographic data of the respondents while inferential statistics which included regression, correlation, and factor analysis were used to present the main findings of the study. The study revealed that TVET institutions in Botswana had not adequately prepared the technological infrastructure and had not invested sufficiently in the software application systems and had not aligned the education system with the technological infrastructure to meet the demands of the 4IR. The lack of preparedness for the 4IR has negatively affected the quality of education in TVET institutions in Botswana. Recommendations suggested are that the government and TVET institutions should invest in technological infrastructure, develop policies that will guide the effective infusion of technology into TVET, train staff in the requisite skills, and establish public-private partnerships to ease the burden on government as the sole financier of TVET education.

Keywords: Readiness, Botswana Technical and Vocational Education (TVET), Fourth Industrial Revolution, Quality of Education

UNEMPLOYED ENGINEERING COLLEGE GRADUATES' VIEWS ON THE CURRICULUM OFFERED BY THE SOUTH AFRICAN TVET SECTOR (VIRTUAL)

Dr. Nicholas Ndlovu & Prof Micheal van Wyk

Abstract

An increasingly sought outcome of a twenty-first-century engineering curriculum is its capacity to respond and adapt to the industry's needs and interests. Technical and Vocational Education and Training (TVET) colleges in South Africa have recently enrolled many engineering students. But, does the engineering curriculum in these colleges prepare graduates adequately for the twenty-first-century engineering industry? Yet, the curriculum of National Certificate Vocational NC(V) engineering programmes offered by public TVET colleges in South Africa remains underexplored. Therefore, in light of this gap, we explore in this study if the NC (V) engineering curriculum offered in the South African public TVET sector prepares graduates adequately for the engineering sector. To collect data, 210 unemployed NC (V) engineering graduates were invited from three public TVET colleges in Gauteng, South Africa and participated in a questionnaire. Our findings suggest an urgent need for the review of the NC (V) engineering curriculum as it appears not to adequately equip its graduates for the engineering industry. Another significant study findings is that the NC(V) engineering graduates from TVET colleges lack adequate and relevant engineering industry soft skills including, job searching and interview management skills. It is thus recommended that a TVET curriculum be rooted in technological advancement and industrial contexts. These insights could enable vocational institutions and policymakers to improve their curricula and graduates' employment prospects while also propelling global economic growth and development. We relied on a small sample (n=210), hence the findings of this study may not be generalised. Further research, which may include other NC(V) programmes may be explored, perhaps different results may be generated.

Keywords: Engineering curriculum, Engineering graduates, National Certificate (Vocational) programme, Technical and Vocational Education and Training colleges. unemployed engineering graduates.

EXPLORING FACTORS INFLUENCING STUDENTS' ABSENTEEISM AT A TVET COLLEGE IN NELSON MANDELA BAY DISTRICT

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Abstract

The technical and vocational education and training sector (TVET) has shown a rapid growth since 1998 in South Africa. This sector aimed to provide education and training to empower the youth of South Africa. Policies were established and implemented to manage student attendance; however, absenteeism appeared to be on the rise. This study aimed to determine the causes of student absenteeism and recommend strategies to address factors influencing absenteeism of students at a TVET College in Nelson Mandela

Bay District. To address the aim of this study, a qualitative research approach was used, and a case study method was used. Data were collected by focus group interviews, semi-structured interviews, and document analysis. The findings of this study revealed that absenteeism in students was caused by factors related to students, factors related to college and socioeconomic factors. This study revealed that the National Student Financial Aid Scheme (NSFAS) was the major contributing factor in absenteeism of students due to late payments. Regarding the negative impacts of absenteeism of students, the study findings further revealed that lecturers face difficulties in completing the syllabi in time. The result revealed that the student attendance policy was ineffective in managing student attendance. This study recommended that the TVET college exercise discipline for students and establish a disciplinary committee. This will ensure that students adhere to the attendance policy and improve student attendance.

Keywords: student attendance, student absenteeism, unauthorised absenteeism, authorised absenteeism, academic performance, policy, and strategies.

EQUIPPING TVET LEARNERS WITH SKILLS FOR SUSTAINABLE DECISION MAKING IN SOUTH AFRICA: A COMPREHENSIVE CURRICULUM APPROACH

Ms. Mokotsi Kasita

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Abstract

The transition towards sustainable development in South Africa necessitates a comprehensive educational approach that equips learners with the skills needed for informed and responsible decision-making. Technical and Vocational Education and Training (TVET) institutions play an important role in this transition by providing practical and relevant education to the South African societal needs. However, current TVET curriculums often lack an integrated approach to sustainability, limiting capabilities of TVET students to effectively address the environmental, cultural, social and economic challenges. The proposed research seeks to bridge this gap by exploring how TVET curriculums can be redesigned to foster a holistic understanding of sustainability among learners, thereby to equipping such learners with the necessary sustainability competencies. This proposed study will use a mixed-methods approach. The quantitative aspect of the study will adopt a simple random sampling. The ultimate sample size will depend on the Central Limit Theorem. Quantitative data will be selected through adapted versions of existing questionnaires and data will be analysed through correlation and structural equation modelling. Qualitative data will be collected through the in-depth interview technique, with the interview guide developed by the researcher being used to collect data. The collected data will be analysed thematically. Internal and methodological triangulation will be enhanced through comparison of findings from quantitative and qualitative aspects of the study. The findings of the proposed research have significant implications for the TVET sector in South Africa and beyond. The study envisages to contribute to the development of a more relevant and responsive education system that addresses the pressing need for sustainable development. The research findings will provide a valuable reference for key stakeholders such as curriculum designers, policymakers, lecturers, educators, and industry who seek to advance sustainability education within TVET college systems. Once successful, the methodology and findings can be adapted and applied in different contexts, promoting a broader adoption of

sustainability-oriented education practices in South Africa. Academically, the research will contribute to the existing body of knowledge on sustainability education and will offer actionable insights for enhancing the effectiveness and relevance of TVET curriculums in the country. Thus, the study will underscore the important role of education in driving sustainable development and will highlight the need for continuous innovation and collaboration in curriculum design and implementation.

Key words: Sustainable, Curriculum, holistic, policymakers, TVET, innovation, collaboration.

ADDRESSING STUDENT NEEDS: A STUDY OF COLLEGE ASSISTANCE IN INTRODUCTORY ACCOUNTING N4 FROM STUDENT PERSPECTIVES

Ms. Kasongo Kalobo

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Abstract

Effective support mechanisms are crucial for successful academic performance at TVET colleges. TVET Colleges provided study assistance to students who may be struggling with their courses. This research explores students' perspectives of study assistance in Introductory Accounting N4 at Motheo TVET College, Free State Province. An interpretivist paradigm underpins the qualitative approach, selected a case study research design which was employed, with data collected through semi-structured interviews to gather insights about study assistance provided directly from students enrolled in Introductory Accounting. A sample of seven Introductory Accounting student repeaters participated in the study. The interviews were transcribed verbatim and analysed thematically. The findings highlight the complex role that college assistance plays in enhancing academic performance in the subject. Various forms of support, such as tutoring, academic advising, workshops, and online resources, are examined for their perceived effectiveness in aiding students' comprehension and mastery of accounting concepts. Moreover, the study explores how these support mechanisms address students' specific needs, including coursework challenges, study techniques, and time management. Through a comprehensive analysis of student perspectives, this research sheds light on the nuanced ways in which college assistance programs can be optimized to better align with student requirements. It contributes to a deeper understanding of the symbiotic relationship between academic support and student success, offering insights that can inform educational institutions' strategies for fostering positive learning experiences and academic achievement in the realm of Introductory Accounting N4.

Keywords: Academic Support, Student Perspectives, Introductory Accounting N4, Qualitative Research

INTERPERSONAL DYNAMICS: UNDERSTANDING FACTORS INFLUENCING THE MENTOR-STUDENT TEACHER RELATIONSHIP IN TEACHING PRACTICE.

Prof M Taole

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Abstract

Mentoring is a complex and multifaceted phenomenon that requires both mentors and mentees to juggle competing expectations and conflicting directions of the mentoring process. Mentoring is a social capital that enhances student teacher's professional and social development. This qualitative study used the social exchange framework to explore the reciprocal exchange in mentorship relationships that could generate tangible and intangible rewards for mentors and student teachers. Data was collected through open-ended questionnaires and analysed thematically. The study underscored the significant role of emotional support, professional growth, power dynamics, and communication in shaping mentors' and teachers' relationships. Based on the findings, it is evident that mentors and student teachers tend to participate in activities that benefit them in one way or another other and avoid those that are not beneficial. Therefore, reciprocal relationships can ensure that mentoring is successful and student teachers are guided and supported in their journaling as aspiring teachers. The quality of the relationship between the mentor and student teachers is crucial for a successful transition to becoming a teacher. The findings of this study can help develop the mentoring model that will ensure that both mentors and mentees benefit from the experience of teaching practice.

Keywords: Mentor, student teachers, communication, power, rewards, professional growth

EXPLORING THE RATE OF ARTIFICIAL INTELLIGENCE (AI) ADOPTION AND BENEFITS FOR SMALL AND MEDIUM ENTERPRISES (SMES) IN MPUMALANGA PROVINCE, SOUTH AFRICA.

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Abstract

Assessing the perceptions of SMEs owners about the adoption of Artificial Intelligence (AI) is crucial for the South African economy as SMEs contribute to the employment sector in the country. The 4IR era has set a challenging environment for businesses to operate and compete within. Small and medium enterprises play a notable role in the GDP of the South African economy. However, to remain competent SMEs need to adapt to the technological changes that underpin-the operating activities of small businesses in the 20th century. Therefore, this study aims to assess the perceptions of SMEs owners about Artificial Intelligence (AI) adoption to enhance their performance and maximise growth. SMEs also serves as a source of employment in the South African economy. Even though SMEs are considered to contribute positively to the South African economy, their adoption of AI is very low. Using the Technological, Organisational, Environmental (TOE) and Diffusion of Innovation (DOI) frameworks this research intends to explore how - SMEs can align their Enterprise Resource Planning (ERP) and AI to leverage the benefits of technology in their business operations. The positivist research methodology guided by epistemological research philosophy will be used in the study. The study will adopt- probability

sampling to select 350 SMEs as participants of the study from the population of 925 444 SMEs registered in Mpumalanga province. A Likert scale research questionnaire will be used to collect data from the respondents. Descriptive and inferential statistics will be used to analyse the quantitative data through Structural Equation Modelling (SEM) software. The study will be conducted in an ethical manner to protect the confidentiality of participants. The study will adhere to the legal regulations set forth in the university and national and local government regarding ethical considerations. The findings of the study cannot be estimated at this stage because the study is in progress and estimation of the findings may pre-empt the actual findings by the time the study is finalised or concluded.

Keywords: Small and Medium Enterprises (SMEs), Artificial Intelligence (AI), Technological, Organizational, Environment (TOE), Diffusion of Innovation (DOI) Enterprise Resource Planning (ERP)

ENHANCING FINANCIAL MATHEMATICS MASTERY IN TVET COLLEGES: A DESIGN-BASED RESEARCH APPROACH LEVERAGING ERROR ANALYSIS (VIRTUAL)

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Abstract

This study explores the challenges and opportunities in advancing Level 2 students' understanding of financial mathematics within the National Curriculum (Vocational) (NC(V)) at Technical and Vocational Education and Training (TVET) colleges. Financial mathematics, a cornerstone of the NC(V) curriculum, equips students with critical skills for making informed financial decisions in both personal and professional contexts. However, students across NC(V) Levels 2 through 4 often struggle with key concepts such as simple and compound interest, tax tables, and depreciation methods. These challenges, compounded by the abstract nature of these concepts, persist despite their clear practical relevance. To address these persistent issues, this study investigates the research question: How can the integration of error analysis within a Design-Based Research (DBR) framework improve Level 2 students' understanding of financial mathematics at TVET colleges? The study hypothesizes that combining error analysis with iterative, contextually relevant interventions will significantly enhance students' comprehension and application of complex financial concepts. Employing a dynamic DBR methodology, the research was conducted over two years and involved iterative cycles of design, implementation, analysis, and refinement. In the second quarter of 2021, an initial instructional prototype was introduced, followed by a refined version in the third quarter of 2022. Despite challenges such as a student strike in 2022, the study maintained a consistent focus on improving educational practices through adaptive and evidence-based strategies. The interventions were implemented in purposefully selected classes comprising 17 Level 2 students each year. Data were collected through preparatory examinations, with a particular emphasis on error analysis to identify and understand specific misconceptions in students' grasp of financial mathematics. The 2021 analysis revealed significant misunderstandings related to concepts like variance, stokvels, mashonisa, fixed deposits, and budgeting. These misconceptions were largely attributed to traditional teaching methods that failed to connect abstract financial principles to the students'

everyday experiences. In response, the 2022 intervention was redesigned to incorporate real-world applications and personalized feedback, effectively bridging the gap between theoretical concepts and practical relevance. Teaching materials and activities were contextualized to reflect students' social and economic environments, making the learning process more engaging and relatable. The findings demonstrate a substantial improvement in students' understanding of financial mathematics following the integrated intervention. By 2022, the number of students accurately defining "variance" increased from two to seven, with similar improvements observed in their comprehension of "stokvels" and "mashonisa." These results validate the effectiveness of combining error analysis with a DBR framework, highlighting how targeted, iterative, and contextually grounded instructional strategies can significantly enhance learning outcomes. The study concludes that integrating error analysis within a DBR framework offers a robust and adaptable approach to overcoming learning challenges in financial mathematics at TVET colleges. This method facilitates continuous improvement of teaching practices by systematically addressing students' misconceptions and adapting instructional strategies to their needs and contexts. The implications extend to educators and curriculum developers, suggesting that embracing innovative, learner-centred approaches can lead to more effective and meaningful education in vocational settings. Furthermore, this research contributes to the broader discourse on educational innovation and reform, aligning with contemporary efforts to improve financial literacy and competence among vocational students through evidence-based and contextually sensitive pedagogies.

Keywords: Financial Mathematics; Error Analysis; Design-Based Research (DBR) TVET Colleges; Educational Intervention; Student Misconceptions

A PHENOMENOLOGICAL INVESTIGATION INTO THE SELF-EFFICACY OF SELECTED CAMPUS MANAGERS AT TVET COLLEGES IN THE WESTERN CAPE PROVINCE TOWARDS ACADEMIC GOAL ACHIEVEMENT

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Abstract

Since 1994, the TVET system in South Africa has experienced multiple periods of transition and development as it sought to reposition itself to meet the needs of a democratic society. However, reform of the college subsystem has been hampered by the lack of a coherent management structure, despite efforts to comply with the law. Environmental complexity revealed fundamental issues with the leadership and management of college campuses. These challenges include unclear management structures, insufficient leadership skills or training, and difficulty adapting to complex and changing contexts. These issues may have an impact on the quality of education and training provided by TVET colleges, as well as broader implications for the advancement of skilled labour and economic growth. This highlights the need to address the gap in TVET management. Consequently, this study sought to develop an understanding of the self-efficacy of selected campus managers in TVET colleges and its influence on their approach to management and decision-making, specifically in relation to improving academic outcomes. The main research question is: *How does the self-efficacy of selected campus managers at TVET colleges in the Western Cape relate to their achievement of academic goals?* Theoretically this study drew on the scholarly works of Edmund Husserl's descriptive phenomenology, Martin Heidegger's interpretive phenomenology, and William Glasser's choice theory. The study adopted a qualitative research approach. More specifically the study employed a phenomenological

research design. Six research participants were purposively selected. To elicit rich descriptions of each campus manager's subjective experience, this study conducted in-depth semi-structured phenomenological interviews augmented with field notes. The self-efficacy of campus managers was explored in the study, with a focus on factors such as personal characteristics, past experiences, social context, and vicarious experiences. Husserl's 'lifeworld' theory, Heidegger's *Dasein*, and William Glasser's choice theory formed the superstructure for the data-explication framework. The findings highlighted how each of the managers' childhood experiences, schooling, university studies, and professional backgrounds have a direct bearing on their self-efficacy, implying that their perceptions as campus managers were influenced by their upbringing, education, and prior teaching and/or lecturing experiences in schools or TVET institutions.

Keywords: Phenomenology, self-efficacy, campus managers, academic goal achievement

EXPLORING CAREER SPONSORSHIP AS A CAREER DEVELOPMENT TOOL FOR SOUTH AFRICAN TVET LECTURERS

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Abstract

Purpose

This study investigates the potential of career sponsorship as an effective career development tool for Technical and Vocational Education and Training (TVET) lecturers in South Africa. Career sponsorship, defined as a relationship wherein a senior individual actively advocates for the advancement of a junior colleague, offers a strategic approach to professional growth that goes beyond traditional mentoring by providing tangible career opportunities and organisational influence. This study utilises the Social Capital Theory of Career Success as a framework to understand the potential role of career sponsorship in the lives of TVET lecturers.

Research Methodology

The research employs a qualitative methodology, involving semi-structured interviews with five Heads of Departments (HoDs) and eighteen lecturers from various South African TVET institutions. The aim is to capture diverse perspectives on the feasibility, benefits, and challenges of implementing career sponsorship within this context and to utilise this data to develop a sponsorship framework which can be used to guide sponsorship efforts in the sector.

Results

Results are expected to show that while there is a recognition of the potential benefits of career sponsorship—such as enhanced career progression, increased job satisfaction, and improved retention rates—there would be also significant challenges. These would include institutional resistance to change, lack of understanding of the sponsorship model, and potential biases in sponsor selection.

Significance of the study

By analysing the views of both HODs and lecturers, this study aims to provide an understanding of the current landscape of career development within South African TVET colleges and the readiness of these institutions to adopt career sponsorship. The insights

derived from this research will contribute to the development of targeted strategies to foster a supportive environment for career sponsorship, thereby enhancing the professional growth and satisfaction of TVET lecturers.

Keywords: Advocacy, Career Development, Career Success, Diversity and Inclusion, Mentorship, People Analytics, Sponsorship, TVET Analytics

REIMAGINING LIFE SKILLS EDUCATION IN SOUTH AFRICAN TVET COLLEGES: LISTENING TO STUDENT VOICES

Jennifer Esau

Abstract

The value of Life Skills education, under various names and in different forms, has been globally recognised as a potential instrument for change and development at the individual and societal levels (DeJaeghere, 2022). The process of learning, re-learning and unlearning experiences, skills, values, and knowledge happens throughout a person's life, but life skills education can provide life-long guidance for this process. This study drew on UNICEF's (2019) four essential pillars for Life Skills education, namely: learning to be, learning to do, learning to know, and learning to live. The study was theoretically framed by Sen (1993) and Nussbaum's (2017) Capability Approach, which guided how Life Skills education might enable students to live the kind of lives that they consider valuable and fulfilling. The focus of the study was Life Skills education in the context of TVET. The specific research question guiding the study is: What can we learn about Life Skills (and Computer Literacy) education from the experiences of students? Using a phenomenological approach that included semi-structured individual and focus group interviews with students, as well as visual methodologies, the research explored the experiences of first-year students across TVET programmes. The student data were analysed, drawing on both a conceptual framework developed from the research literature and a theoretical framework based on the educational contributions of Sen and Nussbaum. The study revealed a gap between the current Life Skills curriculum and student needs. While students valued the Life Skills subject for academic success and employment, the curriculum did not adequately address the challenges that students faced both inside and outside of the college environment. The student issues related to poverty escape, parenthood, family, and community responsibilities, overcoming addiction, surviving violence and gender stereotypes. The research study argues for a more holistic approach to Life Skills education in TVET that integrates social justice principles and better prepares students for the many challenges of working and living in the 21st century. The particular knowledge contribution that the study makes is drawing on the experiences of students, as well as strong conceptual and theoretical frameworks, for reimagining Life Skills education within TVET and higher education contexts.

Keywords: education, curriculum, first-year students, learning experiences, Life Skills education, reimagine, social justice, TVET college

UNDERSTANDING FACTORS INFLUENCING LECTURERS' JOB SATISFACTION AT A TVET COLLEGE IN MPUMALANGA

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Abstract

Employee engagement and rewards are critical topics for both lecturers and management, as they affect job satisfaction and morale. TVET colleges will be able to attain these goals if the involved workforce is able to gain job satisfaction through job performance and other related aspects. Although many studies have been conducted to investigate factors impacting employee work satisfaction in various public and private sectors, few studies have been conducted in TVET colleges. The purpose of this study was to look into factors that influence lecturers' job satisfaction at a TVET college in Mpumalanga. This study was guided by the Herzberg's two-factor theory and Maslow's hierarchy of needs. As a result, a qualitative research methodology was planned and procedures were used by the researcher to assemble the study to collect data, and interpret data relevant to the research questions by using semi-structured interviews and document analysis. The sample included eighteen (18) respondents from a selected TVET college in Mpumalanga province. The findings of this study provide critical information to college leadership and management in order to identify approaches to improve lecturers' job satisfaction. When it comes to improving lecturers' job satisfaction, it is important for college executives as well as lecturers to pay close attention to factors that have been discovered, to create an integrated strategic project and process that refers to those factors.

Keywords: TVET College; Lecturers; Job satisfaction; Influencing Factors; Improvement Strategy

EXPLORING AN ENTREPRENEURIAL TRAINING MODEL FOR TVET COLLEGES IN SA

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Abstract

The proposed study seeks to critically interrogate both the entrepreneurial model currently being used in South Africa, and models that have shown some success in other comparative contexts, in an attempt to derive new knowledge about TVET entrepreneurship interventions towards a model suitable for the South African context. By answering the main research question: What kind of entrepreneurship training model is needed in TVET colleges to enable college graduates to become entrepreneurs as envisaged in South African policy? The national TVET curriculum in South Africa seeks to provide for the skills and knowledge requirements of the workplace. Yet formal employment opportunities available in the country seem not sufficient to eradicate youth unemployment, as the youth unemployment rate remains at a high of 62.10%. This study adopts a qualitative approach, informed by an interpretive paradigm and using a case study design, to conduct in-depth research at selected TVET colleges. To answer the research questions, the proposed study will need to employ at least two research methods, i.e., a documentary analysis (policies, curricula, implementation strategies and comparable models) and a qualitative approach comprising semi-structured interviews and focus groups to obtain role-players' input on their experiences, understandings, and views on entrepreneurship training practices. The proposed qualitative study

will be conducted through the lens of Daniel Isenberg's Entrepreneurship Ecosystem Model, which will be used as a conceptual framework to both guide the research and frame the interpretation of results. The results of the study could assist policymakers and academics in finding ways in which the TVET entrepreneurship curriculum and its teaching could empower and inspire TVET graduates to start businesses upon exit. Such ventures could contribute to the reduction of poverty in an environment where unemployment is rife, and people are seeking alternatives to formal employment.

Keywords: Entrepreneurship Education, Entrepreneurial Competencies, Entrepreneurial Ecosystem Model, Technical and Vocational Education and Training.

EXPLORING INSTRUCTIONAL LEADERSHIP PRACTICES OF CAMPUS MANAGERS IN INFLUENCING STUDENTS' ACADEMIC ACHIEVEMENTS IN TVET COLLEGES IN GAUTENG AND MPUMALANGA, PROVINCES OF SOUTH AFRICA

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Abstract

The *South African Constitution* (RSA, 1996), Section 29, states that "everyone has a right to basic education, including adult basic education, and to further education, which the State, through reasonable measures, must make progressively available and accessible". It was on this basis that TVET colleges were established to accommodate young school leavers and adults with skills, knowledge, and good attitude in preparing them for the world of work. Studies on leadership at TVET colleges and poor performance revealed that poor performance was some of the main findings in TVET colleges. This study aimed to explore instructional leadership practices of campus managers in influencing students' academic achievement at TVET colleges in the Gauteng and Mpumalanga Provinces. A qualitative research approach with a multiple case-study design method was used in this study. Data were collected through in-depth interviews and document analysis. Purposive sampling was used to select participating TVET colleges and at each TVET college, ten participants participated. The sample size included campus managers, two HoDs (one NCV and one NATED), two lecturers (one NCV and one NATED) and five students (two NCV, two NATED and one SRC). Data analysis for this study was done through coding and organised through thematic analysis process into categories and themes which were emerged and interpreted. The findings of the study (only report the findings) revealed that there are weaknesses concerning the instructional leadership practices of campus managers in executing instructional leadership roles to ensure that the teaching and learning process is effective. Campus managers (only HODs are reported so where are the lecturers and students' findings?) are not aware of the roles they should play as instructional leaders in monitoring the entire process of teaching and learning. They believe that HoDs can play those roles and provide reports to campus managers concerning the teaching and learning process. Campus managers further highlighted that their work overload and insufficient time were some of the factors that made them not execute their instructional practices as they are expected to. This led them to delegate their instructional tasks to HoDs, and them focusing more on administrative duties. Based on the findings, recommendations were made to assist campus managers. Recommendations was formulated to advise the DHET or TVET colleges'

head offices to give campus managers (HODs?) intensive continuous professional development (CPD) training on instructional leadership. These CPD training sessions included workshops, accredited courses, or seminars would assist in making campus managers know their roles as instructional leaders and this would enable them to support, monitor and develop lecturers for the improvement of students' academic achievement. Where are the recommendations for campus managers, two lecturers and 2 students? If these two sampled participants are not part of this, excluded them from the study but remained then with campus managers.

Keywords: Campus manager, instructional leadership, lecturers, leaders, leadership, students, students' academic achievement, TVET colleges

ENHANCING TVET LECTURERS' DIGITAL SKILLS TO IMPROVE TEACHING AND LEARNING

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Abstract

The use of ICT tools in the vocational education process for both teaching and learning signals a change in the traditional paradigm of education towards more technology-based learning. Significant changes in the abilities needed for life and work have resulted from digitalization. In order to stay current with the digital revolution and improve their ability to use contemporary technology, lecturers must overcome several barriers. The purpose of this case study was to explore the perspectives of lecturers on the challenges they face while utilizing various ICT digital technologies within their teaching and learning. Twelve participants from five campuses were purposely selected in the Business Studies Department. Semi-structured interviews and document analysis were used to collect data. Data were analysed thematically, with information grouped into themes and sub-themes that developed from all participants' responses. The study's findings revealed that lack of teacher confidence, lack of teacher competence, lack of personal ICT tools access, and technical problem causes lecturers not to apply and build upon digital skills in their teaching. According to findings lecturers describe their views on the barriers and challenges to digital skills competencies in teaching and learning. They also share their experience and suggestion to improve on the use of different ICT digital tools in the classroom. It was evident that teachers must overcome barriers and challenges in the use digital tools. They must receive proper training on the use of digital tool in their classroom.

Keywords: ICT digital skills, TVET lecturer, teaching and learning, barriers

DIGITAL ACCESSIBILITY FOR TECHNICAL AND VOCATIONAL EDUCATION AND TRAINING STUDENTS: EXPERIENCES OF UNDERPRIVILEGED STUDENTS IN LIMPOPO PROVINCE

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Abstract

The paper reports on the findings on the digital accessibility for underprivileged technical and vocational education and training students in Limpopo Province. In the digital age, access to technology and the Internet is essential for educational success. However, not all students have equal access to digital resources, which can exacerbate educational disparities. This study investigates the digital accessibility challenges faced by underprivileged technical and vocational education and training (TVET) students in Limpopo Province, South Africa. As the reliance on digital platforms for educational content and communication increases, addressing these challenges becomes crucial. Research explores the experiences of underprivileged TVET students on the accessibility of digital resources for learning and teaching, and its impact on their education. A mixed-method approach was used, incorporating quantitative surveys and qualitative interviews to collect data from students, educators, and policy makers. Key areas of focus included the availability and quality of digital infrastructure, the impact of digital m accessibility on educational outcomes, and the broader social and economic benefits of improved digital accessibility. Preliminary findings indicate a significant digital divide, and many students lack access to the necessary digital resources and support. Improving digital accessibility is expected to lead to better educational outcomes, greater equity and inclusion, and enhanced socio-economic development within the community. There is an urgent need to address digital accessibility for underprivileged students to ensure that they have equal opportunities as their peers. Targeted policies and investments are essential to bridge the digital gap, ensuring that all TVET students can succeed in a digital learning environment. The implications of this research are significant for educators, policy makers and stakeholders dedicated to advancing TVET and empowering underprivileged students through digital inclusion.

Keywords: Technical and Vocational Education and Training, Digital Accessibility, Digital Accessibility Theory, Mixed Method Approach, Underprivileged Students

EXPLORING THE PREPAREDNESS OF LECTURERS IN TEACHING AT TVET COLLEGES

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Abstract

This study aims to explore the teaching methods and preparedness of lecturers in Technical and Vocational Education and Training (TVET) colleges in South Africa. The significance of the study stems from the impact of work-based exposure on teaching and learning for both lecturers and students in the TVET sector. The study seeks to understand the views of lecturers regarding their qualifications and experience, as well as how they integrate their industry experience with the syllabus. The research followed a qualitative approach, utilising a case study design to collect data. An interpretive paradigm was used to determine the influence of practical exposure on vocational learning, considering the diverse data collected from participants and the policies governing the TVET sector. This helped the researcher gain a comprehensive understanding of the relationship between industry experience and vocational education. The sample for the study was selected purposively, and the chosen college was justified based on its relevance to the research purpose. The sample size of the study was composed of 6 lecturers and 6 students. The findings of the study indicate that, while some lecturers possess teaching qualifications, they lack the necessary industry experience that is beneficial for vocational education. There is also a noticeable gap between TVET lecturers regarding the industry experience. Additionally, the training received by students from the

college appears to be minimal and inadequate. It has been shown through this research that there is a definite need for the DHET to have policy that speaks directly to the outline of the exact minimum requirement for lecturers at TVET colleges, workplace exposure together with strengthened partnership and linkages are a definite answer to the mostly identified challenges and gaps in the vocational education.

Keywords: work-based exposure, NCV, lecturer preparedness

PROFESSIONAL DEVELOPMENT NEEDS OF TVET COLLEGE LECTURERS TOWARDS REMOTE LEARNING: IMPLICATIONS FOR LEADERSHIP.

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Abstract

Rapid technological development has affected the educational sector, prompting it to evolve and embrace technology as part of everyday teaching and learning. The coronavirus outbreak has exacerbated the need for educational institutions to transform from being 100% face-to-face learning institutions to ones that integrate ICT mechanisms as part of teaching and learning. As a result of the COVID-19 lockdown in 2020, universities were forced to suspend all contact learning activities and transition to online learning. However, Technical and Vocational Education and Training (TVET) colleges had to come to a complete halt because they lacked response mechanisms in the form of infrastructure and experienced and knowledgeable lecturers. In this study, the training and resource needs of TVET college lecturers are investigated. Moreover, lecturer training guidelines for remote learning are proposed for TVET college leaders. Employing a generic qualitative research approach, within the interpretivist worldview, data gathering was undertaken through qualitative surveys and semi-structured interviews. Seventy-three TVET college lecturers participated in the survey and three TVET college Heads of Department (HODs) were interviewed from a TVET college in Ekurhuleni, Gauteng. The findings were presented using a generic qualitative research design and reporting methods. The findings of the study revealed that TVET college leaders need to furnish lecturers with resources and training in the utilisation of remote learning prior to implementation. The appropriate resources and training needed were recommended. The study also found that owing to the differing nature of the vocational subjects offered at TVET colleges, the training and resource needs of lecturers differed and therefore recommended that TVET leaders cater for the individual and subject-related needs of the lecturers. The study also recommended a distributive leadership approach to assist with the resource and training needs of lecturers, through the formation of and reliance on campus and college committees comprising internal and external stakeholders. Furthermore, training guidelines were recommended to ensure that the training of lecturers is adequate, appropriate, accredited and meets global educational standards to make sure that lecturers become 21st-century transformative intellectuals.

Keywords: TVET Colleges, Online Learning, Artificial Intelligence, Remote Learning, Policy Guidelines, Digital Transformation, Integrated Learning

CAREERSHIP: UNDERSTANDING THE CAREER CHOICES OF TVET COLLEGE STUDENTS IN SOUTH AFRICA

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Abstract

The persistent educational inequalities in South Africa pose significant challenges to equitable social development. Even though South Africa has been independent and democratic for thirty years and has massified access to post-school education and training, the legacy of unequal opportunities continues to affect the majority of Black students, thereby limiting their access to quality education and subsequent career opportunities. Despite the growing body of research in technical and vocational education and training in general, there is a dearth of research on career choices and development of students in public colleges, where most disadvantaged, marginalised and poor students attend. The dearth of research in this area limits the potential to address the problem of career mobility of impoverished, marginalised and poor students. In light of this problem, this paper reports on research conducted in the Nelson Mandela Bay Metropolitan Municipality, Eastern Cape, to investigate the factors influencing students' career choices in public technical and vocational education and training colleges. This qualitative study used individual and focus group interviews to generate data with 33 students in one selected public technical and vocational education and training college. All 33 students participated in focus group interviews. Of these 33 students, sixteen (16) were selected for individual interviews. The findings of the study were analysed through the Careership Theory, a sociological approach to career decision-making. These findings reveal that unequal education access restricts Black students' accumulation of cultural and social capital, and the limited exposure to quality education and career guidance narrows their horizons for action, thereby limiting their perceived and actual career possibilities. The Careership Theory offers a framework for understanding how social, economic and cultural factors influence career choices. Career choices are not merely the result of rational choices but are shaped by one's social, economic and cultural background. In light of these findings, this paper argues for a more inclusive approach in technical and vocational education and training policy and practice to level the playing field by providing equitable access to high-quality education and training from a young age. It further argues for a focus on developing supportive environments that recognise and address the unique challenges marginalised students face, ensuring that all have the opportunity to realise their potential.

Keywords: Careership; Career Choices; TVET College Students; South Africa; Youth; Capital

FACTORS THAT INFLUENCE THE TECHNICAL AND VOCATIONAL EDUCATION AND TRAINING ELECTRICAL ENGINEERING LECTURERS IN IMPLEMENTING LEARNING MANAGEMENT SYSTEM IN TEACHING AND LEARNING ENVIRONMENT

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Abstract

A Learning Management System (LMS) is widely recognized as a platform for teaching and learning which provides academic staff with continuous accessibility to perform their duties, centralized student information, and interactive platforms for student communication. In spite of affordances of LMS, a large body of literature reports that TVET lecturers are experiencing challenges in implementing LMS since COVID19. Insufficient training on how to use the LMS and perceived ICT phobia inhibit the implementation of the LMS in TVET colleges. This paper examines the factors that influence TVET Electrical Engineering lecturers in implementing LMS in teaching and learning. LMS allows institutions to effectively manage the learning process by providing a platform for delivering, tracking and managing course content, assignments, and communication. This study is guided by Technological Pedagogical and Content Knowledge (TPACK). This qualitative case study is built under interpretivist paradigm and will be conducted in three TVET colleges situated in Mpumalanga. Data will be collected through semi-structured interviews, observations, and fields-notes with fifteen participants (three HODs, nine Electrical Engineering (EE) lecturers, three LMS supervisors) that will be interviewed. Observations will be conducted on three lecturers which are part of the participants participating in this study, while teaching using LMS in their class. The data will be analysed through thematic analysis. Since this is work in progress, it is anticipated that the findings of this study will lead to recommendation that will contribute to the development and implementation of LMS strategies that can be utilized by EE lecturers in teaching and learning in the TVET sector.

Keywords: Learning Management System, Technological Pedagogical Content Knowledge, influence, implementation, Technical and Vocational Education and Training, Covid19

HUMANISING THE TVET CLASSROOM: RESERVICE TEACHER PERCEPTION

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Abstract

Humanising the classroom involves an environment that is conducive to students where there is effective teaching and learning. A conducive environment benefits students in both the cognitive and effective aspects and the teaching is characterised by relationship qualities and teacher attitudinal qualities. The teacher plays a prominent role in humanising the classroom and even beyond the school environment. It is also about creating the space in which students establish and maintain connections with the teacher, other students, and the content. However, studies have shown that teaching in TVET colleges is more of a dehumanising one as it is teacher – centred, where students are passive. The studies went further and argued that TVET lecturers are poorly prepared and are inadequately trained for a transformed South African Higher Education system. They tend to focus on covering the content of the prescribed syllabus without them rendering adequate attention to the needs, learning styles, learning pace, and learning outcomes. Therefore, it is crucial to take these factors into account when preparing TVET pre-service teachers. This qualitative study examines how pre-service TVET teachers perceive a humanising pedagogy in their teaching. Data were collected from 21 pre-service teachers of Advanced Diploma in Technical

and Vocational Teaching (ADTVT) who went to different TVET colleges for their teaching practice through interviews. Pre-service teachers were expected to prepare and present a lesson using a humanising pedagogy. This paper discusses the perceptions of pre-service teachers about the implementation of HP. Thematic analysis was used to analyse the data. The results revealed that pre-service teachers experienced challenges in exploring a humanising pedagogy, including being uncertain if their students would understand the approach used, as they were unfamiliar with HP. In addition, adhere to a student-focused method while upholding a democratic environment in the classroom. Despite the difficulties, the findings indicate numerous favourable aspects of utilising HP, with the method promoting student accountability for their own learning. The use of HP encouraged preservice teachers to value students' backgrounds and knowledge, while getting to know them, as their teaching focused on the students and was tailored to their needs. Since this study included pre-service teachers from all fields, it is recommended that more research be done on humanising pedagogy across various TVET specialisations.

Keywords: Pre-service TVET teachers, humanising, TVET classroom, TVET teaching

DRAWING TO LEARN AS A TEACHING STRATEGY FOR ELECTRICAL DRAWINGS AT A TVET COLLEGE (VIRTUAL)

Mark M. Sanjeevy

Abstract

This article focuses on the essential role of designing, reading, and interpreting schematics for electricians, noting a gap in TVET College curricula that fail to provide a framework for teaching schematic drawing as a science process skill. The study explores the use of "drawing to learn" as an instructional strategy to improve students' understanding and interpretation of electrical schematics at a TVET College. Instead of focusing on learning to draw, the research emphasizes using drawing as a means to enhance learning through a patterned approach. The research is guided by the question: How does implementing a drawing-to-learn strategy using patterns improve teaching and learning in NCV Electrical Level 2? The study is grounded in two theoretical frameworks: Shulman's concept of pedagogical content knowledge (PCK) and Lave and Wenger's theory of situated learning. An inductive research design was employed, using focus group discussions, a rating scale questionnaire, and structured observations to collect data from eighteen participants selected for convenience. The findings indicate that when students are provided with appropriate conceptual tools, their understanding of electrical schematics improves. The use of a cognitive teaching strategy that incorporates pattern learning was found to help students grasp complex numbering concepts through the process of drawing to learn. Additionally, the approach increased visual awareness and made perceptual tasks easier for students. The study also evaluated self-efficacy in relation to both student comprehension and teacher instructional strategies. The results suggest that organizing knowledge in a logical and functional way facilitates its transfer to students. The drawing-to-learn strategy helped simplify complex processes and clarified electrical misconceptions by addressing misunderstandings. The study recommends that innovative teaching strategies like drawing to learn with pattern learning should be incorporated into the curriculum to strengthen students' cognitive skills. Practical

activities should be carefully designed and contextualized to support knowledge construction. Furthermore, educators should assess visual literacy as part of the curriculum and organize content in a systematic way that provides a clear, logical path for students to follow.

Keywords: Drawing to learn; teaching strategy, electrical drawings, patterns, TVET college.

A DECOLONIAL EXPLORATION OF A TECHNICAL, VOCATIONAL, EDUCATION AND TRAINING CURRICULUM: TOWARDS EPISTEMIC JUSTICE

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Abstract

This paper shares the findings of a study that explored the National Certificate Vocational (NCV) curriculum in Technical and Vocational Education and Training (TVET) colleges using a decolonial lens. While scholarly work has been undertaken and is currently being undertaken in the TVET college space, there seems to be limited work relating to decolonisation of TVET colleges and curricula. This suggests insufficient theory and research in this area related to educational justice. Within a post-school landscape, the outcry for decolonising curricula at universities is equally an outcry for decolonising TVET curricula and colleges. Therefore, a decolonial exploration of the epistemic relations between knowledge in the NCV curriculum, access to that knowledge, and the students for whom such knowledge is intended, will make a valuable contribution to the scholarship on vocational education in South Africa. The study had six (6) objectives: to understand how the agendas that have shaped the TVET college are enacted in the NCV curriculum; to explore the epistemologies of TVET colleges and how these have shaped the NCV curriculum; to critique the reification of knowledge gained by the NCV student; to create awareness and explore possible change of any curricula and pedagogic practices that students may find alienating in the process of enacting the NCV; to develop a dialogue and raise awareness of how lecturers and students experience the NCV curriculum vis-a-vis a decolonial context and to create a space where the beginning of a decolonised TVET curriculum could be envisioned. The theoretical framework included curriculum theory which provided the overarching framework for exploring the educational philosophical foundations, content, and pedagogical aspects of the NCV curriculum. Decolonial theory

provided a macro historical and critical perspective lens to consider colonialism and apartheid in exploring the curriculum. Using thematic analysis, this study produced interesting findings related to Transformation, Knowledge, and Curriculum in the TVET sector. Although the findings cannot be generalised, there is evidence of a stubborn influence of postcolonial discourse in the TVET college and its NCV curriculum. The findings suggest the need to focus on more decolonial work in the TVET college sector and the NCV curriculum, to foster a curriculum which promotes social justice and emancipation. Therefore, this paper sets out the knowledge gaps in this area of scholarship, shares the design of a study planned to contribute to filling these gaps, and reports on some preliminary findings of such a study at two TVET colleges in South Africa. My paper links to the **International Conference on Technical and Vocational Education & Training as my** study is set in the TVET space and could thus provide some insights on how ideologies of colonialism have and continue to shape TVET curricula, teaching and learning experiences, and what could be done to allow ideologies of transformation, redress, and justice to reconfigure the TVET space.

Keywords: curriculum, postcolonial discourse, vocational education, educational justice