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MESSAGE FROM THE DIRECTOR-GENERAL

It is my pleasure to present the thirteenth edition of the annual Department of Higher Education and Training (DHET) *Research Bulletin on Post-School Education and Training (PSET)*. This Bulletin is our platform for sharing recent research insights across the PSET sector, including Universities, Technical and Vocational Education and Training (TVET) Colleges, Community Education and Training (CET) Colleges, Sector Education and Training Authorities (SETAs), and Qualifications and Quality Assurance Bodies. Through this publication, we aim to strengthen the connection between research producers and users within the sector to better inform policy and practice. Since its inception in 2013 the Bulletin has served as a vital resource, and previous editions can be found on our website at www.dhet.gov.za.

This year contributions have once again exceeded our expectations reflecting growing commitment to advancing knowledge within the PSET system. Our stakeholders' ongoing research has illuminated critical gaps and opportunities in the system toward enhancing public services. The current edition of the Research Bulletin offers a wealth of insights into ongoing and completed research projects, showcasing emerging trends, research outcomes, and recommendations that can guide future initiatives and resource allocation. From statistical factsheets to snapshots of research events, this publication provides a comprehensive view of the sector's current landscape, along with directions for future exploration. We encourage readers to reach out to the authors for deeper insights.

We extend our heartfelt gratitude to all contributors for their dedication to sharing their research. Your efforts play a crucial role in advancing our collective understanding of the PSET landscape, alerting us to new developments, and pointing toward areas for future inquiry. Thank you for your commitment to the PSET sector's growth and to knowledge-sharing through this platform.



Dr. Mkosinathi Sishi

Director-General: Department of Higher Education and Training

EDITORIAL STATEMENT

The *Research Bulletin on Post-School Education and Training* (PSET) published annually by the Department of Higher Education and Training (DHET) serves as a resource for the research community, stakeholders, and participants in lifelong learning. The Bulletin brings together abstracts, summaries, and excerpts from completed, current and planned research across the PSET landscape, covering Universities, Technical and Vocational Education and Training (TVET) Colleges, Community Education and Training (CET) Colleges, Sector Education and Training Authorities (SETAs), and Quality Assurance Bodies. This publication also includes book reviews; event summaries; insights on research practices and relevant statistics on PSET, many of which have web links to full research articles and reports.

We prioritise quality and evidence-based research in this Bulletin. While it is not a platform for opinion-based content, we welcome well-reasoned and substantiated views from all contributors, who remain responsible for their contributions. We aim to ensure that the content is accessible and encourage contributors to use plain language and avoid the use of jargon. The DHET's Editorial Committee rigorously reviews each submission to assess its relevance and impact on PSET, ensuring that final selections align with the sector's research needs.

Feedback, research contributions and suggestions for improvement are always welcome. Please send your input to dhetresearch@dhet.gov.za

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RESEARCH ARTICLES AND REPORTS



A. YOUTH EMPLOYMENT AND ECONOMIC DEVELOPMENT

1. Industrial Policy Approach to Reducing Youth Unemployment in South Africa: Time to Change the Optics (*Hoosen Rasool*)

The paper analyses the “youth unemployment” crisis in South Africa through the lens of industrial policy. The concern is why the country is failing to address youth unemployment and what other measures are required over and above what is being done.

The country’s expenditure on education as a percentage of Gross Domestic Product (GDP) is 6.6%, which is higher than Brazil, Russia, India, and China and the Organisation for Economic Co-operation and Development (OECD) member states. There is a plethora of schemes to induce youth employment, including skills levy rebate system, public employment services, financial incentives and tax breaks for training, youth wage subsidies, and many youth development and job creation initiatives, notably the Presidential Youth Employment Intervention, of state and non-state actors to transition youth into employment and self-employment. Collectively, these schemes have failed to reduce youth unemployment. Why is this so?

Decision-makers cast youth unemployment as a supply-side deficit problem – in other words – youth lack skills; therefore, they find it difficult to find employment. It is a misdiagnosis. The problem is not youth but an economy that lacks growth momentum and provides too few opportunities for employment. Thus, the youth employment problem cannot be solved without addressing the country’s economic challenges. Indeed, focusing on youth-targeted interventions distracts policymakers from developing a policy agenda for structural transformation.

The paper recommends adopting an industrial policy approach to reduce youth unemployment. It draws on the work of economist Mariana Mazzucato, who outlines how industrial policy can be leveraged to shape markets and not just fix market failures by employing conditionalities towards meeting the mission-directed goals of the state in the quest to serve the public good.

Similarly, the paper proposes instituting conditionalities in public procurement to reduce youth unemployment. Conditionalities will change the behaviour of firms and ensure they support youth employment efforts. The South African government is the largest purchaser of goods and services in the country. Many large and small firms are sustained by public procurement directly or indirectly. Therefore, setting youth employment conditionalities will change their behaviours and reduce youth unemployment.

The paper further recommends that for conditionalities to work, it must be enshrined in a regulatory framework requiring all public entities to set youth employment criteria and targets as part of bid requirements. Firms that do not accede to these requirements must be deemed ineligible for public awards.

The full document can be accessed on the following link:

za.linkedin.com/pub/prof-hoosenrasool/51/a77/530/

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2. The Benefits and Challenges of the Gig Economy: Perspective of Gig Workers and Small Medium and Micro Enterprises in South Africa (*Surendra Thakur and Stanley Chibuzor Onwubu*)

The Insurance Sector Education and Training Authority (INSETA) commissioned a research study to the Durban University of Technology (DUT) to explore the evolving landscape of the gig economy, particularly in the context of South Africa, which faces significant unemployment and inequality challenges. The study employs a qualitative approach, utilising focus group discussions to gather insights from gig workers and Small, Medium and Micro Enterprises (SMMEs) about their experiences within this economic framework.

The gig economy is characterised by short-term, flexible jobs often facilitated through digital platforms. It has emerged as a potential solution to high unemployment rates, especially among the youth in South Africa. The report highlights that gig work can provide individuals with opportunities to earn income, gain skills, and access a broader job market. For SMMEs, engaging with gig workers can lead to cost savings, increased flexibility, and the ability to scale operations without the long-term commitment associated with traditional employment.

However, the report also identifies several challenges associated with the gig economy. Workers often face job insecurity, lack of benefits, and inconsistent income, which can lead to financial instability. The absence of formal employment contracts means that gig workers may not have access to essential protections such as health insurance, retirement plans, or paid leave. Additionally, the competitive nature of gig platforms can create pressure on workers to underbid each other, further driving down wages.

The study emphasises the need for regulatory frameworks that can protect gig workers while still fostering innovation and flexibility in the labour market. Recommendations include establishing minimum wage standards, providing access to benefits, and creating a supportive environment for SMMEs to thrive alongside gig workers.

In conclusion, while the gig economy presents significant opportunities for both workers and businesses in South Africa, it also poses considerable challenges that need to be addressed. The report calls for a balanced approach that recognises the value of gig work while ensuring

that workers are protected and supported in their roles. By doing so, South Africa can harness the potential of the gig economy to contribute to economic growth and reduce unemployment.

The full document can be accessed at the following link:

<https://inseta.org.za/wp-content/uploads/2024/03/SMEs-and-the-Gig-Economy-Research-Phase-2-Report.pdf>

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3. Fostering Small, Medium, and Micro Enterprise Skills Transformation in the Food and Beverages Manufacturing Sector (*Popopo Mohlala, Lebo Thwala, Nkgaugelo Kgasago and Nokuthula I. Sibia*)

Small, Medium, and Micro Enterprises (SMMEs) are the backbone of many economies worldwide, constituting a significant portion of businesses, employment, and economic output. In South Africa, SMMEs form the majority of enterprises in the Food and Beverages Manufacturing Sector, contributing substantially to employment and economic growth. However, SMMEs often face challenges that hinder their growth and survival, with high business failure rates being a common issue. These challenges limit the potential of SMMEs to reach their full capacity and contribute even more to economic development.

This study was designed to identify factors that impact training and development practices in SMME businesses operating in the Food and Beverages Manufacturing Sector together with skills and training needs. A mixed method approach was employed in the form of a questionnaire-based survey and telephone interviews.

The empirical information resulting from analysing the data obtained from the SMMEs revealed that high costs associated with training, an inflexible Sector Education and Training Authority (SETA) system, lack of public financing, and lack of time, are the most critical challenges to training in SMMEs. Moreover, it was also established that generic, digital, technical/advanced, management, financial management, social and green skills are highly needed for the growth in SMMEs. The results further showed that business planning which includes management and leadership training is the most important training followed by research and product development, accounting and finance, Information and Communication Technology (ICT), entrepreneurship, and legal courses. The study adds to the current body of knowledge on SMME and skills development. It also provides empirical evidence for the SETA regarding the factors that affect the participation of SMMEs in skills development initiatives.

The full document can be accessed on the following link:

https://foodbev.co.za/wp-content/uploads/2024/05/SMME-Transformation-Research-Project-Final-Report_2023_24-FY.pdf

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4. The Impact of Drone Technology on Small Medium and Micro Enterprises in the Insurance Sector (*Surendra Thakur and Stanley Chibuzor Onwubu*)

The Insurance Sector Education and Training Authority (INSETA) commissioned the drone technology research study to the Durban University of Technology (DUT) to explore the transformative potential of drone technology within the insurance sector, particularly focusing on Small, Medium, and Micro Enterprises (SMMEs). This study employs a qualitative approach, utilising case studies and expert interviews to gather insights into the operational, financial, and regulatory impacts of drone technology on SMMEs.

Drone technology, characterised by its ability to provide rapid and accurate data collection, has emerged as a significant innovation in the insurance sector. The report highlights that drones can enhance operational efficiency, reduce costs, and improve risk management. For SMMEs, integrating drone technology can lead to quicker turnaround times, lower operational costs, and more precise risk evaluations, which are crucial for maintaining competitiveness in a dynamic market.

However, the report also identifies several challenges associated with the adoption of drone technology. These include regulatory hurdles, ethical considerations, and the need for compliance with aviation regulations. Ensuring privacy and data security is paramount, as drones collect extensive amounts of sensitive information. The absence of clear regulatory frameworks can pose significant barriers to the widespread adoption of drone technology by SMMEs.

The study emphasises the need for robust regulatory frameworks that can facilitate the safe and ethical use of drones while fostering innovation in the insurance sector. Recommendations include establishing clear guidelines for drone operations, ensuring compliance with privacy and data security standards, and providing support for SMMEs to integrate drone technology into their operations.

In conclusion, while drone technology presents significant opportunities for SMMEs in the insurance sector, it also poses considerable challenges that need to be addressed. The report calls for a balanced approach that recognises the value of drone technology while ensuring that regulatory and ethical standards are upheld. By doing so, the insurance sector can

harness the potential of drones to improve efficiency, reduce costs, and enhance risk management, ultimately contributing to the growth and competitiveness of SMMEs.

The full document can be obtained from Mr Zakariyya Desai, Research Specialist at INSETA, on: zakariyyad@inseta.org.za.

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B. TECHNICAL AND VOCATIONAL EDUCATION AND TRAINING

5. An Analysis of Key Processes and Systems being used by Sector Education and Training Authorities and the National Skills Fund to Manage and Fund Learnerships, Apprenticeships and Internships (*Lebogang Setsepu, Trudi Smit, Amy Revello, Ashlee McLachlan and Johann Engelbrecht*)

In 2022, Urban-Econ Development Economists (Urban-Econ), in collaboration with Urban-Econ: NIKELA (Nikela), was appointed by the National Skills Fund (NSF) and the Department of Higher Education and Training (DHET) to conduct a study of key processes and systems used by Sector Education and Training Authorities (SETAs) and the NSF to fund and manage Learnerships, Apprenticeships, and Internships (LAI).

The study aimed to describe and analyse the LAI implementation processes across 12 selected SETAs and the NSF and provide recommendations for improvement. A mixed-methods research design was employed, utilising both qualitative and quantitative data collection techniques like interviews, focus groups, surveys and document analysis to ensure validity through triangulation. Twelve (12) SETAs were selected based on a quantitative selection matrix considering criteria such as average enrolments, completions, completion rates and spending across LAI programmes from 2018-2019; 2019-2020; 2022-2023. Primary data was collected through interviews with 10 SETAs, the NSF, Quality Council for Trades and Occupations (QCTO), National Skills Authority (NSA), DHET and National Artisan Moderating Body (NAMB). Focus groups involved training providers, host employers, industry stakeholders and the NSF.

The literature review comprehensively examined the management and funding of LAI by SETAs and the NSF in South Africa. It provides a detailed analysis across five sections: defining Workplace-Based Learning (WBL); exploring international processes and best practices; reviewing the South African policy landscape; analysing LAI within the South African context; and proposing a reference framework to guide the data collection phases. Each section contributed to a holistic understanding by contextualising WBL globally and within South Africa, discussing key policies and frameworks, outlining operational processes and challenges.

The findings were reported under five thematic areas: key challenges, process mapping, comparative analysis of systems and processes, appropriateness and effectiveness of processes and good practice.

The findings show that major challenges identified in effectively implementing LAI programmes include financial issues such as delays in paying learner stipends, difficulties with work placement opportunities, and problems with certification timelines and administrative burdens. Key challenges arise from lack of harmonisation across skills development providers, lack of quality assurance practices, insufficient administrative support, and lack of alignment between providers across skills sectors. Major obstacles identified include lack of coordination between providers, lack of quality assurance practices, and problems with administrative delays and burdens, leading to issues with learner stipend payment delays and difficulties with learner certification.

The development of a process map within Microsoft Excel provided a detailed overview of the processes in managing and funding LAI used by the 12 selected SETAs and the NSF. The processes outlined key aspects involved in the implementation across various stages such as Discretionary Grant (DG) funding, learner recruitment, contracting, learning implementation, stipend payments, and certification. The appropriateness and effectiveness of processes entailed looking at DG funding, verification and allocation of DG funding, identification, recruitment and verification of learners, signing of contracts and enrolment, learning structure, stipends, and certification and National Learner Records Database (NLRD). Key findings indicate that an extensive legislation system, structured recruitment processes and employer involvement ensures relevance of LAI programmes, despite challenges such as application costs and inconsistent verification processes.

The study recommended good practices for implementing LAI emphasise an integrated approach, leveraging technology, fostering collaboration, ensuring quality assurance, and promoting sustainable solutions aligned with industry demands and future skills requirements. Key elements include providing comprehensive career guidance, updating regulations and strategic planning regularly, streamlining DG funding processes and fostering partnerships and collaborating with stakeholders. In addition, utilising technology for monitoring and reporting, offering flexible delivery modes, training mentors, conducting evaluations, and facilitating post-programme career support.

The full document can be accessed on the following link:

<https://www.dhet.gov.za/learnerships-apprenticeships-and-internships>

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6. Research Study to Explore Employers' Perceptions of the Technical and Vocational Education and Training System on Skills Development in the Mining and Minerals Sector (Jessica van der Westhuizen, Joshua Naidu, Joseph Komane, Nelly Mashaba, Masaila Machaka and Themba Tshabalala)

In line with the directive to bolster skills development in the Mining and Minerals Sub-sectors (MMS), the Mining Qualifications Authority (MQA) has partnered with 30 Technical and Vocational Education and Training (TVET) and nine Community Education and Training (CET) colleges nationwide. These collaborations provide financial support to TVET colleges for Work Integrated Learning (WIL) placements and TVET lecturer development programmes.

Despite the support provided to TVET colleges by the MQA, there still appears to be a general wariness towards TVET institutions within the broader skills development landscape. It was, therefore, important for the MQA to investigate how employers perceive the effectiveness of the TVET system in providing the necessary competencies to the MMS. This Project aimed to understand employer perceptions of the TVET system on skills development in the MMS.

The Project adopted a mixed methods approach which was focused on gathering, analysing, and integrating both quantitative and qualitative data. Furthermore, both desk-based and field research was conducted to inform the research findings. Overall, a total of 193 consultations were conducted with employers of various sizes, across various provinces and sub-sectors. Consultations conducted included 158 surveys, 23 interviews, and three (3) virtual focus groups, with a total of 12 participants.

Employer perceptions of various facets of the TVET system were explored. The findings are described, below.

- **TVET Governance:** 78% of employers indicated that the TVET governance structure ensures effective management, coordination, and oversight, whilst 73% agreed that the Department of Higher Education and Training (DHET) provides sufficient guidance to TVET colleges. In terms of sector participation in college councils, only 30% of employers indicated that representatives from their organisations form part of a TVET college council. This indicates a potential area for improvement in terms of ensuring collaboration between TVET colleges and industry to promote alignment between industry skills needs and TVET offerings.

- **TVET Curriculum:** 75% of employers indicated that they are satisfied with the quality of qualifications available through the TVET system, with a further 80% indicating that the TVET curriculum is effective in ensuring the development of a skilled MMS workforce. One of the key areas for improvement noted was related to employers having the opportunity to provide input on the curriculum, with only 53% of employers agreeing that they were provided with these opportunities and 51% agreeing that TVET colleges consider input from employers. Only 58% of employers agreed that TVET colleges offer programmes related to the 4IR and/or the latest developments in the sector, with employers indicating that TVETs appear not to respond to emerging market needs and that new courses should be introduced in areas.
- **Programme Delivery:** 86% of employers indicated that the teaching and training delivery methods effectively engage learners and enhance learner's learning experience, whilst 77% agreed that the assessment processes accurately measure the practical skills and knowledge acquired by learners. It was noted that 61% of employers indicated that they can provide input on TVET programme delivery. Employers indicated that there may be room to improve in terms of enhancing collaboration between employers and industry and involving employers in programme delivery through the sponsorship of equipment or through partnerships.
- **TVET and Lecturer Capacity:** 57% of employers agreed that lecturers receive sufficient training on the latest MMS developments, allowing said lecturers to provide relevant training. Employers also noted that enhanced lecturer training is required to ensure lecturers are adequately skilled and able to provide training on MMS related courses. It was further noted that there appears to be limited engagement between TVET lecturers and industry, with employers indicating that lecturers have not been exposed to the industry. This results in a lack of industry knowledge, which limits the lecturer's ability to effectively train learners on the required skills. Only 39% of employers indicated that lecturers engage with their organisation to develop and expand their industry knowledge.
- **Learner Support:** 85% of employers were of the view that the career guidance and counselling services offered at TVET colleges help learners make informed decisions about their future within the MMS. Furthermore, 80% of employers indicated that the support mechanisms that are in place within TVET colleges to assist learners in securing learnerships, apprenticeships and employment opportunities are effective and a further 80% were of the view that the psychological support services offered to learners at TVET colleges are adequate.

- Quality of TVET College Graduates: 60% of MMS employers agreed that learners exiting the TVET system are adequately prepared for the working environment, with employers indicating that the graduates appear to have a limited understanding of the work environment and do not demonstrate an understanding of industry standards. Similarly, 66% of employers indicated that the TVET system equips graduates with the competencies required by their organisation, with employers noting that graduates appear to lack an understanding of the MMS. In terms of technical and soft skills, 73% and 74% of employers agreed that the soft and technical skills, respectively, that TVET graduates possess meet their expectations. Insights from qualitative data suggest that there may still be room for improvement in terms of equipping TVET graduates with specific types of 'social' or soft skills, such as leadership and mentorship skills.
- Partnerships with TVET Colleges: 30% of organisations had partnerships with TVET colleges, indicating an area for improvement. Stakeholders noted that the MQA should look to facilitate partnerships between TVET colleges and industry to ensure employers are aware of the offerings within TVET colleges and to facilitate linkages in terms of placing learners for work placements. In terms of employer perceptions of existing partnerships, 92% of employers agreed that TVET and MMS stakeholder partnerships contribute to the development of a skilled and competent workforce.

The full document can be accessed on the following link:

https://mqa.org.za/wp-content/uploads/2024/11/MQA_Exploring-Employers-Percepts-of-The-TVETS-System-on-Skills-Development-in-the-MMS--Final-Report.pdf

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7. Factors Affecting Student Performance at Technical and Vocational Education and Training Colleges (*Francis Muronda and Lesley Powell*)

This study aims to identify and rank the key factors that affect student performance at Technical and Vocational Education and Training (TVET) colleges towards improving TVET colleges to be the institutions of student success that they are meant to be. It was undertaken in the context of low academic achievement at TVET colleges in South Africa, where a National Treasury-commissioned report revealed that only 2% of students entering TVET colleges successfully completed their programmes within the minimum three-year period. On the other hand, the National Development Plan (NDP) targets an 80–90% pass rate for Post-School Education and Training (PSET) institutions, including TVET colleges. Against this backdrop, this study explores the institutional and individual factors that affect student performance at TVET colleges.

The study applied a mixed-methods design. A Principal Component Analysis (PCA) of a national TVET college student survey ($n = 1,042$ students) was undertaken. The PCA findings were deepened by qualitative interviews with 27 TVET college principals and managers, 36 lecturing staff, and 77 TVET college students. Grounded in a realist capability approach, which brings critical realism to human capability, this study highlights the role of institutional and individual student endowments, which aid agential efforts towards academic achievement.

This study portrays the academic performance of TVET college students as a four-dimensional construct rather than a one-dimensional one. The literature review, qualitative analysis of TVET stakeholder interviews, and PCA of the TVET student survey corroborated the identification of the four dimensions, namely internal and external institutional as well as internal and external student factors. Key factors identified in this study include student support services, student motivation, English as the language of tuition, Mathematics as a requirement and component in TVET programmes, the National Student Financial Aid Scheme (NSFAS), income poverty, and personal interest in the programme. This study shows that a large proportion of students (69%) live in poverty, and that most come from households dependent on social grants. The importance of TVET in South Africa, and the role that it can play in socio-economic development cannot be overestimated. The researchers recommend expanding the remit of TVET colleges to include engaging and working more closely with local communities.

The full document can be accessed on the following link:

<https://www.dhet.gov.za/factor-affecting-student-performance-at-tvet-colleges>

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8. Exploring Online Teaching and Learning Challenges for the Technical and Vocational Education and Training Lecturer (*Joseph Mesuwini and Sello. P. Mokoena*)

The paper explored the challenges lecturers face in teaching through online platforms. Online learning has become increasingly prevalent in Technical and Vocational Education and Training (TVET) institutions, offering opportunities and challenges for TVET lecturers. The transition from traditional face-to-face teaching to online environments requires lecturers to adapt to the new teaching methods, design engaging content, and navigate digital platforms.

The qualitative research attempts to answer the question: What challenges are lecturers facing during online teaching and learning?

The Technological Pedagogical Content Knowledge Framework for Teacher Knowledge by Koehler and Mishra (2009) guided the study. Data were analysed thematically from the identified patterns and themes. The findings revealed technical difficulties like connectivity and software glitches, which disrupted the teaching and learning process. Lecturers grappled with receiving practical online support. The limited interaction and collaboration among students in virtual settings posed additional challenges in maintaining engagement and addressing individual learning needs (Mesuwini & Mokoena, 2024). Furthermore, access and equity issues hindered students' ability to participate fully due to inadequate technology, internet access, and power outages. To overcome these challenges, the study recommended lecturers Continuous Professional Development (CPD) in online learning methods and technologies.

The study showed that the following challenges were still prevalent:

- Internet access for all students and lecturers.
- Challenges with syncing enrolled students to the Learner Management System (LMS).
- The reluctance of lecturers to use the LMS due to challenges like login credentials.
- Unavailability of data and restriction of college internet.
- The synergy between the management information system and the LMS host company.
- Resistance from lecturer engagement in online teaching.

Addressing the challenges contributes to the successful implementation of online learning in the TVET sector by ensuring quality education and enhancing students' skills and competencies.

The study recommends the following:

- TVET lecturers require ongoing professional development and support to enhance their online learning competencies.
- Colleges should engage zero-rated LMS platforms to solve internet data challenges.
- TVET lecturers should receive adequate resources that support online learning.
- TVET management should engage curriculum implementers before purchasing an LMS to encourage positive engagement.

The paper concludes by proposing a new policy and paradigm shift in TVET.

The full document can be accessed on the following link:

<https://files.eric.ed.gov/fulltext/EJ1430163.pdf>

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9. The Department of Higher Education and Training Technical and Vocational Education and Training Research Programme (*Seamus Needham*)

The Institute for Post-School Studies (IPSS) is an academic research institute within the University of the Western Cape's (UWC's) Faculty of Education and operates across three broad domains of Adult and Community Education and Training (ACET), Technical and Vocational Education and Training (TVET) and Higher Studies (HES). IPSS was awarded a five-year research contract by the Department of Higher Education and Training (DHET) and the National Skills Fund (NSF) from 2019 to 2024, named the TVET Research Programme. IPSS, in collaboration with 11 research partners implemented 37 research projects on the TVET college sector. This summary article focuses on high level learnings and reflections from the TVET Research Programme together with recommendations on further research areas for the TVET college sector.

Research projects undertaken for the TVET Research Programme were identified by the DHET Planning Branch in close collaboration with the DHET TVET Branch management staff. These research projects were grouped into seven main themes outlined below:

- An Overview of the TVET College Sector
- Responsiveness of TVET Colleges to the World of Work
- Access to and Demand for TVET Colleges
- Evaluation of TVET Colleges
- Teaching and Learning in TVET
- TVET College Lecturer Development
- Private TVET Colleges
- Contingency Projects: 10 % of the total project funds were reserved for contingency projects identified by DHET as additional research projects on the TVET college sector.

The following key research projects under the Contingency Projects were defined as:

- Mid-term evaluation of the TVET Colleges Centres of Specialisation (CoS);
- The establishment of a Post-School Education and Training (PSET) Research Repository for all research projects in the PSET sector;
- A Theory of Change for the TVET Research Programme, a midterm evaluation and a final evaluation;
- A research project on the Grading of TVET College Principals Salary Levels; and

- A research project on Entrepreneurship within the TVET sector.

The research outputs of the TVET Research Programme constitutes the largest coordinated research on the TVET college sector conducted to date, which provided the DHET with key research insights into the public and private TVET College sector.

High level learnings and reflections on the TVET Research Programme are noted, below.

DHET undertook the centralisation of the TVET college sector under the DHET since 2015, which has been a protracted process for TVET college staff members. This centralisation process has been researched as one of the research outputs of the TVET Research Programme. The centralisation of the TVET college sector however has resulted in DHET being able to coordinate extensive, wide-ranging research over the past decade that provides key insights into its coordination role of the TVET college sector.

The DHET has also enabled the TVET college sector to become one of the most extensively researched PSET sector in South Africa. Regular TVET college graduate destination surveys over this period has also provided key insights into the career and learning trajectories of TVET college students as well as the efficiency of the TVET college sector. While the most recent graduate destination survey conducted within the TVET Research Programme provided disappointing employability results, it needs to be noted that jobs are created by the economy and not by education and training sectors.

DHET has published all 37 research reports produced within the TVET Research Programme, which are accessible on the PSET Research Repository, as well as other labour market research commissioned by DHET. This shows a high level of accountability and transparency within DHET's research approach.

Despite these efforts, there are still key research areas that remain to be addressed. Both the White Paper on PSET (WPPSET) (2013) and the National Plan for PSET (NPPSET) (2021-2030) stress the need for TVET Colleges to be differentiated according to local, regional and national economic needs, which has yet to be implemented. Questions of devolution of authority to TVET colleges and the emergence of TVET CoS remain an under-researched area. More research is also required on TVET colleges undertaking occupational qualifications

quality assured by the Quality Council on Trades and Occupations (QCTO) and ways in which these qualifications can address employability as well as interface with other PSET institutions, namely Community colleges and universities.

A key aim of the TVET Research Programme was to provide increased capacity-building for the DHET in order to undertake further large-scale projects, which was partly met. DHET's knowledge base of the TVET college sector has increased significantly through credible, peer-reviewed research, which allows DHET to formulate policies and implementation plans for this sector on an evidence-based approach.

All research reports from the TVET Research Programme can be accessed on the following link: <https://www.dhet.gov.za/SitePages/TVET-Research-Programme.aspx>

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10. Common Practices Emerging in Ongoing and Complete Occupational Learning Programmes (*Naomi S. Alphonsus*)

The research was commissioned by the Quality Council of Trades and Occupations (QCTO) to investigate the implementation of occupational qualifications at skills development providers. The introduction of occupational qualifications was followed by feedback from several skills development providers who had difficulties implementing these programmes. Understanding how certain skills development providers had implemented or are implementing occupational learning programmes provides insights for other providers. Thus, the aim of the research was to investigate common practices at skills development providers to better understand their implementation of occupational learning programmes, and specifically how they were using regulatory documents (qualification, curriculum, and assessment) in delivering learning programmes. The purpose of the investigation was to advise the QCTO on improvements to the occupational qualifications and their associated regulatory documents.

The research project used a qualitative methodology. Data collected was from interviews with diverse participants from skills development providers implementing occupational learning programmes. The thematic analysis surfaced common characteristics in these learning programmes, which were then associated with concepts in vocational education and training literature. This process revealed insights on themes emerging in the implementation of occupational learning programmes. The evidence focused on how skills development providers engage with and use regulatory documents (qualification, curriculum, and assessment) in implementing occupational learning programmes. The evidence highlights the different ways in which skills development providers add on to the requirements found in the regulatory documents to deliver occupational learning programmes.

The outcome of the research presented six recommendations based on the common practices identified in the evidence. The recommendations included: reconsidering time allocations for various components of the qualifications, reviewing the entry requirements found in the occupational qualification documents, the provision of guidance on the preparation needed for students entering work experience in order to meet the requirements for these modules, using experienced educators who are also occupational practitioners to advise on sequencing curriculum content as well other implementation challenges, and, finally providing support to

skills development providers on how the regulatory documents are used to develop the enacted curriculum.

The full report is available in the QCTO Research Bulletin 2023-24, available at <https://www.qcto.org.za/publications%2c-policies%2c-guidelines---forms.html> under Published Presentations.

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C. TECHNOLOGY AND INNOVATION IN EDUCATION

11. Towards Building Cybersecurity Culture in Technical and Vocational Education and Training Colleges: Impact Assessment of Behavioural Change Strategies (*Surendra Thakur and Zoran Mitrovic*)

The report presents an in-depth analysis of the current state of cybersecurity culture within Technical and Vocational Education and Training (TVET) colleges. Conducted by the Durban University of Technology (DUT) Research Team in April 2023, the study aims to identify gaps and propose strategies to enhance cybersecurity awareness and practices among students, teachers, and managers in these institutions.

The research highlights that the existing cybersecurity communication and compliance components are significantly lacking. Many respondents reported a lack of awareness regarding cybersecurity policies, indicating a pressing need for improvement in these areas. The study emphasises the importance of establishing a robust cybersecurity culture, which involves setting up a dedicated work group, conducting risk assessments, and defining clear goals and success criteria.

Data was collected through qualitative questionnaires and focus group discussions involving teachers and managers from two TVET colleges. The focus groups confirmed the findings from the surveys, noting that while the affective behaviour regarding the use of modern Information and Communication Technology (ICT) was satisfactory, there was considerable room for improvement in cognitive and behavioural aspects of cybersecurity culture. The report suggests that enhancing the attitude component among stakeholders is crucial for fostering a more secure digital environment.

The proposed interventions include curriculum development and awareness campaigns, which will require significant time and resources to implement effectively. The study also outlines a methodological approach that combines action research with case study analysis, ensuring a comprehensive understanding of the current cybersecurity landscape in the colleges.

Overall, the report underscores the necessity of a strategic approach to building a cybersecurity culture in TVET colleges, which is vital for preparing students to navigate the complexities of the digital world. By addressing the identified gaps and implementing the recommended strategies, TVET colleges can play a pivotal role in cultivating a generation of cybersecurity-aware individuals, ultimately contributing to national cybersecurity efforts. The findings serve as a call to action for educational institutions to prioritise cybersecurity training and awareness, ensuring that all stakeholders are equipped to handle the challenges posed by an increasingly digital society.

The full document can be accessed on the following link:

https://inseta.org.za/wp-content/uploads/2024/03/Towards-building-cybersecurity-culture-in-TVET-colleges_Impact-assessment-of-behavioural-change-strategies.pdf

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12. Navigating the Challenges of Artificial Intelligence Integration in Global South Higher Education: A Technocritical Approach (*Miné de Klerk and Nyx McLean*)

The rapid integration of Generative Artificial Intelligence (GenAI) into higher education presents both opportunities and challenges, especially in Global South contexts. The integration of AI in higher education has been met with optimism about its ability to support diverse learning needs. However, existing power imbalances between the Global North and South mean that GenAI tools, often developed in the North, may not adequately reflect the lived experiences of our students. This can result in forms of digital colonisation, where AI tools perpetuate Western-centric narratives and exclude contextually relevant content. This paper underscores the need for more critical engagement with AI, particularly in underrepresented contexts.

A key theoretical contribution of this paper is its advocacy for a technocritical approach, which builds on critical theory and technorealism. It challenges the reductive nature of techno-optimism and techno-pessimism, which often overlook the complexity of power relations in technology adoption. Technocriticality intentionally interrogates the socio-political dimensions of technology. GenAI tools are not neutral, but socially constructed and shaped by specific societal biases. By adopting this perspective, the paper reveals AI's evolving design and usage as a "terrain of struggle," where technologies developed primarily in the Global North influence the education of students in the Global South, often without accounting for local contexts. This approach calls for a participatory and collaborative approach to the development and adoption of emerging AI tools, especially in the Global South.

Using Eduvos, a South African private Higher Education Institution (HEI), as a case study, this research examines the institution's response to these challenges. In 2024, Eduvos established an AI Committee to provide guidelines on the responsible and critical use of GenAI. The committee facilitated virtual discussions to address lecturers' and students' concerns around GenAI's use in teaching and learning. It also guided the 'AI-responsive' design of take-home assessments for 87 modules. A technocritical framework structured these conversations, guidelines, and reflections, prompting questions about how human-machine collaborative learning can both erode and enhance dialogic learning.

This study contributes both theoretically and empirically to the growing discourse on AI in higher education. Theoretically, it advocates for a technocritical stance foregrounding the ethical complexities and pedagogical implications of GenAI in Global South contexts. Empirically, it presents practical examples of how institutions can design assessments and curricula that incorporate GenAI in ways that support, rather than hinder, critical engagement and dialogic learning.

The full blog post can be accessed on the following link:

<https://www.eduvos.com/eduvosblog/research-thought-leadership-at-eduvos/>

The full document can be accessed on the following link:

<https://www.eduvos.com/researchpaper.pdf>

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13. Exploring the Potential of Artificial Intelligence for the South African Qualifications Authority: A Desk Research Study (*Tshepho Mokwele*)

Artificial Intelligence (AI) and, recently, Generative AI, are rapidly disrupting and transforming education, training, and the world of work, among other things. Its implications for education and training providers, the National Qualifications Framework (NQF), and regulatory bodies such as the South African Qualifications Authority (SAQA) and Quality Councils (Council on Higher Education (CHE), Quality Council for Trades and Occupations (QCTO), and Umalusi) cannot be ignored. SAQA oversees the implementation and further development of the South African NQF and coordinates its three Sub-Frameworks for higher education; occupations and trades; and general and further education and training. It is mandated by the NQF Act (No. 67 of 2008, as amended) to, among other things, register qualifications and part-qualifications on the NQF, recognise professional bodies and register their professional designations, evaluate foreign qualifications, verify national qualifications, and maintain the National Learners' Records Database (NLRD).

SAQA is currently undergoing digital transformation to progressively automate some of its services. In support of, and towards that end, this desk research explores the potential of AI, highlighting its benefits and opportunities as well as risks and challenges. This research explores readiness for AI from various levels: global, continental/regional, and national, all of which have implications at the institutional level.

From a global perspective, the emphasis has been on ethical, fair, socially just, and human rights-centered AI (Government AI Readiness Index 2023, UNESCO's 2021 Recommendation on the Ethics of AI). From a continental and regional perspective, UNESCO published studies on AI Needs Assessment Survey in Africa (2022) and Landscape study of AI Policies and Use in Southern Africa (2021), which highlighted the transformative potential of AI but underscored challenges such as lack of (comprehensive) regulatory policies, human and financial capital, infrastructure, and the need for more research, education, and training on AI. These issues were echoed in the recently (July 2024) adopted African Union (AU) Continental AI Strategy, which seeks to use AI as a strategic asset to advance and achieve Agenda 2063 aspirations and Sustainable Development Goals (SDGs). The strategy proposes an Africa-centric, development-focused approach to AI, which promotes ethical, responsible, and equitable practices based on unified national approaches.

Domestically, South Africa has embarked on initiatives that highlight a commitment to leveraging AI potential: the Presidential Commission on the Fourth Industrial Revolution (PC4IR), the National Digital and Future Skills Strategy (2020), the Digital Skills Forum (2024), and the inclusion of Coding and Robotics subjects in school (Grades R – 9) curricula. The success of these initiatives, this research indicates, relies on overall readiness for AI.

At an institutional level, SAQA can also leverage AI through collaboration, conceptualised in terms of Anne Edward's (2010, 2011) theory of 'Relational Agency', with multi-stakeholders to enhance its core functions such as authentication services (verification of national, and evaluation of foreign, qualifications), registration of qualifications and part-qualifications on the NQF, and recognition of professional bodies and registration of their designations, and maintenance of the NLRD.

Having considered global, continental/regional, and national level factors, this exploratory research shows that while AI offers a range of benefits and opportunities, it also presents major risks and challenges that require continuous cooperation and collaboration among stakeholders.

While this research analyses the technical aspects of AI and its implications, further research on policy aspects such as assessment, academic integrity, and plagiarism, is essential.

This research will be published in the forthcoming (2024) edition of the peer-reviewed Focus Conference Proceedings.

The publication can be accessed at <https://www.atlantis-press.com/proceedings/tfc-24> or alternatively by email via the author.

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14. Research Study to Investigate the Nature and Extent of the Fourth Industrial Revolution Innovation and Related Impact on Profiling in the Mining and Mineral Sector (*Devin O'Donovan, Iman Sarlie, Joseph Komane, Nelly Mashaba, Masaila Machaka and Themba Tshabalala*)

The Fourth Industrial Revolution (4IR) refers to the convergence and complementarity of emerging technologies in changing the way people live and work. It represents an era of innovation which is enhancing human-machine relations and opening opportunities for growth (Schwab, 2016). The purpose of this research study was to investigate the extent of adoption of 4IR-related technologies and innovations amongst organisations within the Mining and Minerals Sub-Sector (MMS) and to understand the related impact on occupational profiling and skills requirements.

The approach adopted involved both qualitative and quantitative methods and included interviews, surveys and focus groups. Input from both desk-based and fieldwork was used to obtain the findings for the Study.

Overall, the findings revealed a relatively minimalistic embrace of 4IR from organisations within the sector. Of the organisations that had adopted 4IR-related technologies, key technologies already adopted include advanced computer use, cybersecurity, three-Dimensional (3D) modelling and mapping, real-time information management systems, and Internet of Things (IoT). In terms of future adoption, real-time information systems, advanced computer use, and IoT were noted as immediate priorities, while the medium-term focus includes advanced computer use, Artificial Intelligence (AI), 3D modelling, and automation and robotics. While some organisations have either already adopted, or plan to adopt 4IR-related technologies, it was noted that others face challenges limiting adoption - in particular a lack of relevant skills, financial constraints and a resistance to change. Therefore, the main forms of support required by organisations to adopt 4IR technologies include additional funding and grants, availability of reskilling upskilling and skilling/ training opportunities and an increased knowledge of innovations.

To assist the Mining Qualifications Authority (MQA) in responding to the skills development needs of the sector, arising due to the 4IR, the following recommendations are proposed:

- Create specific qualifications and unit standards, such as short and skills programmes, focusing on emerging skills and occupations. Notable examples include the Occupational Certificate: Data Science Practitioner, developed and accredited by Media, Information and Communication Technologies Sector Education and Training Authority (MICT SETA) and the South African Qualifications Authority (SAQA), respectively.
- Incorporate digital skills/literacy into training by introducing mandatory basic and advanced computer courses as integral components of mining-related qualifications, supported by the MQA through accessible resources. Consider grants to training providers for essential educational tools, including textbooks and software, ensuring the attainability of these courses for individuals pursuing mining-related qualifications.
- Revise the current technical curriculum (i.e. all mining related learning programmes with a practical and/or theoretical component) accredited by the MQA, to incorporate elements for students to enhance and increase the development of soft skills through group projects, presentations, and teamwork exercises. Emphasise the development of communication, leadership, teamwork, innovative thinking, and problem-solving skills.
- Consistently monitor training programmes and skills initiatives to ensure ongoing effectiveness and alignment with industry standards. Establish measurable indicators before programme implementation for systematic Monitoring and Evaluation (M&E) against these benchmarks.
- Disseminate email circulars to all MQA registered organisations, detailing training opportunities for identified scarce skills and high-demand skills, like management skills, as revealed in this study and organisations' Workplace Skills Plan (WSP) submissions.
- Continue prioritising funding for Foundational Learning Competence Programmes and Adult Education and Training (AET) Programmes, emphasising the development of fundamental literacy and numeracy skills and consider prioritising the enrolment of individuals belonging to specific occupational groups onto these programmes.
- Develop and conduct regular information-sharing campaigns for training providers through workshops, seminars, and webinars, along with newsletters to inform training providers of 4IR-related changes occurring within the sector.
- Organise bi-annual roadshows at training centres within the sector to educate learners, current employees, and employers about emerging technologies in the mining sector, the associated skills and occupations, and training opportunities stemming from the 4IR.

- Establish collaborative forums or working groups that bring together Original Equipment Manufacturer (OEMs), MMS organisations and training providers.
- Adopt and implement the Framework for Future Skills Needs Identification.

The full document can be accessed on the following link:

https://mqa.org.za/wp-content/uploads/2024/11/MQA_investigating-the-Nature-and-Extent-of-4IR-Innovation-and-Related-Impact-On-Occupational-Profiling-in-the-MMS_Final-Report.pdf

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D. OCCUPATIONAL SKILLS AND DEMAND

15. South Africa's National List of Occupations in High Demand (*Fouche Venter and Emma Smith*)

Knowing which occupations are in high demand is important for South Africa's Post-School Education and Training (PSET) sector. Since 2014, the Department of Higher Education and Training (DHET) has biennially published a national list of Occupations in High Demand (OIHD).

To fulfil its purpose, the list consists of occupations that show comparatively strong employment, wage, and vacancy (job advertisement) growth and for which employers are likely to recruit in the medium term.

This technical report on national OIHD sheds light on the country's economic and labour market conditions. South Africa faces significant challenges relating to unemployment and economic growth. In addition to historical unemployment challenges, the impact of the Corona Virus Disease (COVID)-19 pandemic is evident in the decline in employment growth and the challenges faced during the post-pandemic recovery. Due to projected poor growth on a national level, it is therefore crucial that skills planning closely aligns with occupational demand. The study reveals 350 OIHD within the country, highlighting critical sectors with occupational demand. The occupations listed are diverse and require high-level professional, managerial, and technical skills, but also low - to medium-level administrative and clerical support. For policymakers, these findings emphasise the necessity of tailored strategies to address the country's economic conditions. Policy interventions should focus on upskilling programmes, aligning education and training with the identified high-demand occupations, and fostering collaboration between educational institutions and industries. Additionally, measures to support sectors experiencing decline, such as trade and manufacturing, could mitigate the impact on employment. In conclusion, this report provides a foundation for evidence-based policy decisions that can enhance workforce development, support economic recovery, and address the evolving needs of South Africa's labour market.

The full document can be accessed on the following link:

<https://lmi-research.org.za/publication/south-africas-national-list-of-oihd-technical-research-report-2024/>

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16. Mpumalanga's List of Occupations in High Demand (*Fouche Venter, Emma Smith and Vuyisiwe Mahafu*)

Knowing which occupations are in high demand is important for the South African Post-School Education and Training (PSET) sector. Since 2014, the Department of Higher Education and Training (DHET) has biennially published a national list of Occupations in High Demand (OIHD).

Since the DHET began this project, the country's provinces have had to infer their demand based on the occupations on the national list. However, because provincial economies and labour markets can deviate substantially from the national average, variations in the demand for specific occupations can be expected. As such, this report presents the findings of a pilot study of Provincial Occupations in High Demand (P-OIHD) in Mpumalanga.

This pilot study on P-OIHD in Mpumalanga sheds light on the region's economic and labour market conditions. The impact of the Corona Virus Disease (COVID)-19 pandemic is evident in the decline in employment growth and the challenges faced during the post-pandemic recovery. Due to projected poor growth on a national level and Mpumalanga's lagging recovery, it is therefore crucial that the skills planning closely aligns with occupational demand. The study reveals 167 OIHD within the province, highlighting critical sectors with occupational demand. The occupations listed are diverse and require high-level professional, managerial, and technical skills, but also low - to medium-level administrative and clerical support. For policymakers, these findings emphasise the necessity of tailored strategies to address the unique economic conditions of Mpumalanga. Policy interventions should focus on upskilling programmes, aligning education and training with the identified high-demand occupations, and fostering collaboration between educational institutions and industries. Additionally, measures to support sectors experiencing decline, such as the construction industry, could mitigate the impact on employment.

In conclusion, this report provides a foundation for evidence-based policy decisions that can enhance workforce development, support economic recovery, and address the evolving needs of Mpumalanga's labour market.

The full document can be accessed on the following link:

<https://lmi-research.org.za/publication/mpumalanga-list-of-oihd-technical-research-report-2024/>

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17. Western Cape List of Occupations in High Demand (*Fouche Venter and Emma Smith*)

Knowing which occupations are in high demand is important for South Africa's Post-School Education and Training (PSET) sector. Since 2014, the Department of Higher Education and Training (DHET) has biennially published a national list of Occupations in High Demand (OIHD).

Since the DHET began this project, the country's provinces have had to infer their demand based on the occupations on the national list. However, because provincial economies and labour markets can deviate substantially from the national average, variations in the demand for specific occupations can be expected. As such, this report presents the findings of a pilot study of Provincial Occupations in High Demand (P-OIHD) in the Western Cape.

This pilot study on P-OIHD in the Western Cape sheds light on the region's economic and labour market conditions. The Western Cape has been a key driver of South Africa's economic growth, particularly in the service, finance, and trade industries. However, the impact of the Corona Virus Disease (COVID-19) pandemic is evident in the decline in employment growth and the challenges faced during the post-pandemic recovery. Due to projected poor growth on a national level, it is therefore crucial that the skills planning closely aligns with occupational demand. The study reveals 250 OIHD within the province, highlighting critical sectors with occupational demand. The occupations listed are diverse and require high-level professional, managerial, and technical skills, but also low - to medium-level administrative and clerical support. For policymakers, these findings emphasise the necessity of tailored strategies to address the unique economic conditions of the Western Cape. Policy interventions should focus on upskilling programmes, aligning education and training with the identified high-demand occupations, and fostering collaboration between educational institutions and industries. Additionally, measures to support sectors experiencing decline, such as the construction industry, could mitigate the impact on employment.

In conclusion, this report provides a foundation for evidence-based policy decisions that can enhance workforce development, support economic recovery, and address the evolving needs of the Western Cape's labour market.

The full document can be accessed on the following link:

<https://lmi-research.org.za/publication/western-cape-list-of-oihd-technical-research-report-2024/>

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18. Identification of Skills Needed for the Hydrogen Economy (*Tshwanelo Rakaibe, Donah Simiyu, Boitumelo Tlokolo, Abram Marema, Vuyo Mbam and Aradhna Pandarum*)

Globally, the hydrogen economy is growing rapidly. Green hydrogen is specifically crucial to developing a sustainable energy future by supporting the reduction of greenhouse gas emissions, as it can enable the decarbonisation of hard-to-abate sectors such as heavy-duty transport (trucks and shipping or bunkering fuel), cement, steel, mining, refineries, chemicals, agriculture, and plastics. South Africa has realised the potential of green hydrogen and is on a drive to determine how to use it to both aid its own path to net zero emissions and to capitalise on the opportunities created by the green hydrogen economy to alleviate the triple challenges of poverty, unemployment, and inequality. Furthermore, as global green hydrogen demand increases, South Africa seeks to use its abundant renewable energy resources to produce green hydrogen and its derivatives for international export. The objective of the project is to determine the skills that will be required for the green hydrogen value chain in South Africa.

The qualitative methodology adopted consists of synthesising secondary and primary data through a literature review and stakeholder consultations. The report qualitatively outlines the current skills demand-supply dynamics in the South African labour market with respect to the hydrogen economy. A detailed analysis of the skills required for the green hydrogen economy was undertaken. This is accompanied by an analysis of the capabilities that need to be developed or augmented in the qualifications offered at South African universities and at the Technical Vocational Education and Training (TVET) college ecosystem.

The project has identified 138 occupations required within the value chain, categorised as follows:

- Engineers (professionals according to the Organising Framework for Occupations (OFO));
- Technicians and tradespeople (technicians and associated professionals, skilled craftsmen, and related tradesmen according to the OFO);
- Specialists (professionals as per the OFO);
- Managerial occupations (managers as per the OFO); and
- Elementary-level occupations.

Out of the 138 occupations identified, 77 are not reflected in the OFO. Many of these occupations currently exist in our labour market, but the individuals in some of these occupations will require additional skills or new qualifications to align with the requirements of the green hydrogen economy.

The various Sector Education and Training Authorities (SETAs), which primarily include the Chemical Industry Sector Education and Training Authority (CHIETA), the Manufacturing, Engineering and Related Services Sector Education and Training Authority (MerSETA), and the Energy and Water Sector Education Training Authority (EWSETA), support the Quality Council for Trades and Occupations (QCTO) to accredit skills development providers. These providers, specifically, offer 27 occupational qualifications that can be augmented to incorporate green hydrogen capabilities into the curriculum for 25 of the 39 identified technicians and tradespersons in green hydrogen economy occupations.

TVET colleges offer seven programmes as part of the National Certificate (Vocational) (NC(V)) qualification, and three engineering programmes as part of the National Accredited Technical Education Diploma (NATED) qualification. These 10 qualifications provide the necessary foundational knowledge and skills required to support the hydrogen economy in South Africa, with there being no need to introduce new programmes.

For institutions of higher learning, the research has identified that 74 degree and diploma programmes are required for the green hydrogen economy, 50 of which are already offered in South African institutions but would, along with the TVET college programmes, require a level of augmentation to include hydrogen capabilities in the curriculum. This means that 24 degree and diploma programmes needed for the hydrogen economy are not currently offered by the Higher Education Institutions (HEIs) in South Africa.

In addition to reviewing HEI and TVET programmes, the project also highlights the need for capacitating teachers and lecturers so that they will be able to train South Africa's green hydrogen workforce for the many occupations identified in the project. The report discusses some interventions that could be used to 'train the trainers'.

The project also includes an assessment of opportunities for Workplace-Based Learning (WBL) available in South Africa and internationally for green hydrogen-related work. This assessment highlights that in contrast to developed countries such as Germany and due to the sector's nascency in South Africa, there are limited opportunities available for green hydrogen-specific WBL in the country.

The full document can be accessed on the following link:

<https://lmi-research.org.za/publication/identification-of-skills-needed-for-the-hydrogen-economy/>

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19. An Overview of the Role of Green Hydrogen in the Chemical Industry Value Chain in South Africa (Lwazi Ngubevana)

This report investigates and gives a high-level overview of the role of green hydrogen in the South African chemicals value-chain. It examines the current state of the chemicals industry, the potential for green hydrogen, and the challenges that must be addressed to ensure its successful integration. The report highlights the significant benefits that green hydrogen can offer, including reduced greenhouse gas emissions, increased energy security, and the creation of new economic opportunities. However, it also emphasises that a comprehensive strategy is required to overcome the technical, economic, and regulatory challenges that must be addressed to enable the widespread use of green hydrogen in the chemicals value-chain.

As a critical reactant in the chemical industry, the demand for hydrogen has more than tripled since 1975 and will continue to rise (International Energy Agency (IEA), 2019a; Rambhujun *et al.*, 2020). According to the IEA, global annual hydrogen production was around 74 metric tons (Mt) in 2018, with up to 96% used in the chemical industry, 42% used solely for ammonia production, and 52% used in various refineries (IEA, 2019a).

However, because most of the global industrial hydrogen is derived from fossil fuels, it is important that we begin investigating sustainable production methods for producing, storing and transporting hydrogen for it to succeed as a clean chemical feedstock and an energy carrier. Due to relatively slow technological advances, there is a lack of mass-scale manufacturing of hydrogen technologies, and thus a currently higher cost of green hydrogen relative to fossil fuels. There is also generally a lack of environmental government policies promoting the use of clean hydrogen, only a small fraction of hydrogen is currently produced from renewable sources (Rambhujun *et al.*, 2020).

Although the chemicals industry faces a significant challenge to achieve net zero, it is a crucial sector in creating creative solutions to allow the transition to a sustainable green economy. Energy efficiency, bio-based feedstock, and closing material loops can only achieve a portion of the net-zero goal. This implies a need for additional solutions like hydrogen, carbon capture, and electrification in the chemical industry.

As previously highlighted, one of the biggest challenges is the high cost of production compared to traditional hydrogen. However, this is expected to change rapidly, as ongoing research and development, as well as improvements in technology and economies of scale, are likely to drive down production costs in the coming years.

Another challenge is the lack of infrastructure to support the production, storage, and transportation of green hydrogen. This includes the need for renewable energy sources to power the electrolysis process, as well as hydrogen refuelling stations for transportation applications. However, global governments and private companies are investing significant resources to develop the necessary infrastructure, which is likely to drive growth in the green hydrogen market.

When one looks at the South African environment, one of the main drivers of green hydrogen production is the country's abundant renewable energy resources, particularly solar and wind power. This presents significant opportunities for green hydrogen production, as excess renewable energy can be used to power electrolysis to produce hydrogen. The country also has a large chemicals and refining industry, which is a major consumer of hydrogen. Currently, most of the hydrogen used in these industries is produced from fossil fuels, but there is increasing interest in transitioning to green hydrogen to reduce carbon emissions. Major chemicals and energy companies in South Africa, and the country's government have announced a number of projects, strategies and plans, to make South Africa a major player in the hydrogen economy, whose potential will translate into the chemicals industry.

Another key area of potential for green hydrogen production in South Africa is the mining industry. The country is a major producer of platinum group metals, which are used in fuel cells to generate electricity from hydrogen. As demand for fuel cell vehicles and stationary fuel cells grows, the demand for hydrogen as a fuel is expected to increase, providing an opportunity for South Africa to become a major exporter of green hydrogen to the global market.

South Africa definitely has significant potential for green hydrogen production, driven by its abundant renewable energy resources, large chemical and mining industries, and growing demand for low-carbon energy solutions. The government's commitment to renewable energy development and the launch of the Hydrogen Valley and other initiatives, provide a supportive policy environment for the industry.

However, similar to the global picture, the picture for South Africa reveals that there are challenges that need to be addressed, including the lack of infrastructure, skills shortages and the need to ensure that the development of the green hydrogen industry is socially and environmentally responsible. With the right policies and investments, the green hydrogen industry in South Africa has the potential to be a significant contributor to the country's energy transition and economic growth.

In conclusion, green hydrogen has the potential to transform the South African chemicals industry by reducing carbon emissions, increasing competitiveness, and creating many job opportunities. However, significant investment in skills, training, research and development, significant stakeholder engagement and a supportive regulatory framework are required to fully realise its potential. The initiatives being undertaken by some of the country's leading chemical companies and government support, are encouraging signs of progress towards a green hydrogen economy in South Africa. A comprehensive strategy is required to overcome the technical, economic, and regulatory challenges that must be addressed to enable the widespread use of green hydrogen in the chemicals value-chain.

The full document can be requested from Mr Gift Mothopeng at the Chemical Industries Education and Training Authority (CHIETA) on: gthutse@Chieta.org.za.

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20. Research Study to Investigate the Nature of Demand and Skills Supply Required with the Changing Technology in the Mining and Mineral Sector (*Devin O'Donovan, Iman Sarlie, Joseph Komane, Nelly Mashaba, Masaila Machaka and Themba Tshabalala*)

The emergence of sophisticated technologies in the Mining and Mineral Sector (MMS) has impacted the sector's operations, both in South Africa and globally. The modernisation and mechanisation of deep-level mining is a development that is expected to expose fewer employees to risk during deep-level operations while increasing productivity, safety and potentially reducing costs for the sector (Montiea, 2015). While the sector has made significant efforts in upskilling, several challenges and gaps in the research remain. It is within this context that this Project aimed to investigate the current level of skills demand and supply, considering the changing technology, to identify the specific interventions that may be required to address specific skills shortages within the MMS. The Project adopted a mixed methods approach which was focused on gathering, analysing, and integrating both quantitative and qualitative data. In addition to adopting a mixed methods approach, both desk-based and consultative (i.e., fieldwork) data collection methods were employed to inform research findings.

The study identified several occupations within the MMS that are currently hard to fill across most MMS sub-sectors. In terms of current skills gaps, key skills gaps identified include management, leadership, digital literacy, technical, advanced Information Technology (IT) and software skills. Qualitative insights also revealed skills gaps in basic digital, numeracy and literacy skills amongst MMS employees. Regarding skills for which demand is anticipated to increase, it was found that soft skills such as decision making, change management, innovative thinking, problem-solving, and leadership, as well as technical skills such as computer literacy, data analytics, digital literacy, and project management skills are expected in the short-term.

In terms of changing technology, it was found that while some organisations have embraced Fourth Industrial Revolution (4IR)-related technologies, a significant portion of organisations within the sector, particularly smaller organisations, have not fully adopted said technologies. It was found, as part of the study, that a considerable portion of organisations within the MMS need to upskill or reskill employees to accommodate advanced technologies.

In addition to the current level of adoption of more advanced technologies, the research also explored the capacity of training providers in terms of their ability to provide training on said technologies. The research indicated that a significant number of training providers offer interventions aligned with the conventional MMS context, with training providers indicating that they are not able to provide training on more advanced technologies due to funding constraints and a lack of qualified assessors. It was also found that external training providers face challenges in implementing e-learning initiatives due to deficiencies in digital literacy skills among MMS employees. The research further indicated that the existing learning materials available in the MMS market are outdated and need to be updated to align with the current MMS context and changing technologies and that there is a need for standardised learning material to ensure consistency in the competency of individuals who participate in skills development interventions.

Based on the findings, the following recommendations are proposed:

- Increase MMS sector attractiveness at school level by implementing targeted career awareness campaigns in schools and universities.
- Develop talent attraction strategies to address the limited supply of suitably qualified candidates within specific geographies.
- Develop, in collaboration with employers, clear career development pathways for MMS employees to enhance the professional growth and retention of skilled talent.
- Continue focusing on developing basic numeracy and literacy skills by providing funding for Foundational Learning Competence Programmes (FLC) and Adult Education and Training (AET) Programmes. Additionally, consider prioritising funding of AET and FLC programmes for specific occupational groups.
- Continue providing funding for Artisan Recognition of Prior Learning (ARPL) programmes to ensure that MMS employees are able to attain their trade qualifications.
- Increase the development of soft skills within the MMS by reviewing/redesigning existing technical curriculum to include opportunities for students to practice and develop soft skills.
- Consider quality assuring learning outcomes instead of activities by setting standardised tests for short programmes as an alternative to going through the complete accreditation process for all short programmes, to enhance the speed of accreditation.

- Increase awareness amongst training providers regarding the latest 4IR related developments by conducting information sharing campaigns.
- Conduct a review of resources required by training providers to provide 4IR-related training and assess the feasibility of providing additional funding specifically for said training.
- Develop a cross-sector collaboration strategy with other SETAs with overlapping interests, and after development, consider entering into Memoranda of Understanding (MoUs) agreements with identified Sector Education and Training Authorities (SETAs).
- Conduct regular monitoring of training programmes and skills initiatives to assess their effectiveness in meeting the projected skills and occupational demands.
- Establish collaborative forums between organisations and Original Equipment Manufacturer (OEMs) to ensure seamless integration and optimal utilisation of resources supplied by these organisations to mining operations and to establish a direct link between the skills required by the workforce and the technological requirements of the equipment.
- Incorporate digital skills into training programmes to meet evolving job market demands.
- Adopt and implement the Framework for Future Skills Needs Identification in order to keep abreast of changes occurring within the MMS skills landscape.

The full document can be accessed on the following link:

https://mqa.org.za/wp-content/uploads/2024/11/MQA_Investigating-the-Nature-of-Demand-and-Skills-Supply-Required-with-Changing-Technology-in-the-MMS_Final-Report.pdf

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E. COMMUNITY AND HEALTH SECTOR EDUCATION

21. Conceptual Framework of the Adult Education and Training Programme- Implications for the Health and Welfare Sector Education and Training Authority (Mahali Makhetha, Menzi Mthethwa and Bulelwa Plaatjie)

The education policies imposed by the apartheid regime facilitated segregation, discrimination, and limited access to education, particularly for the black race, which left the majority behind. Adult Education and Training (AET) originated as a campaign against illiteracy in South Africa. Post-apartheid South Africa adopted AET as its policy to ensure access to both those in and not in the formal economy. Thus, AET exists to serve both the formal (linked to further learning pathway) and non-formal programmes which do not lead to qualifications but respond to local and community needs.

While the AET is funded by the Health and Welfare Sector Education and Training Authority (HWSETA) as a programme, there was little understanding from the Monitoring and Evaluation (M&E) unit about the AET programme and its intended outcomes. As a result, this study was formulated to contextualise the AET programme within the HWSETA. The objectives and research questions of the study were as follows.

- To assess the conceptualisation of the AET programme within the HWSETA
 - How was the AET programme conceptualised in South Africa?
- To explore the HWSETA's model of implementation based on the conceptualisation of AET
 - Is the HWSETA's model of implementation aligned with the conceptualisation of AET?

The study adopted a mixed method approach using literature review, quantitative analysis of HWSETA AET secondary databases (2018/19 to 2020/21; 3779 beneficiaries), and qualitative analysis of primary data collected through key informants (one focus group of six officials from the Department of Higher Education and Training (DHET), and one-on-one interview with an official from HWSETA).

While the AET programme is intended to offer both formal and informal programmes, HWSETA's implementation of AET is confined to non-formal programmes courses offered by private training providers due to employer organisation's disengagement with the programme citing that it is burdensome. The study concluded that HWSETA AET programme is aligned with the National Skills Development Plan (NSDP) outcome indicator for progressing into other education institutions but not to employability and creating work or starting a business. Thus, the HWSETA AET programme is not aligned with the NSDP outcome indicator on developing sustainable livelihoods.

A theory of change with explicit and measurable outcomes for non-formal programmes is recommended by the study. For the unemployed, a pipeline approach of the AET level four should be prioritised to link to the Workplace-Based Learning (WBL) programmes with more employability prospects. AET levels below level four create an entrapment of unemployment within the Not in Education, Employment, or Training (NEETs) category.

The full document can be accessed on the following link:

<https://www.hwseta.org.za/research/>

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22. Determinants of Unauthorised Absenteeism at a Public Academic Hospital: The Narratives of Public Hospital Managers (*Mphoreng Magdeline Mmako and Tshepo Lucky Ngwato*)

High unauthorised absenteeism rates have adverse impact for the public hospitals. In cognisance the determinants of unauthorised absenteeism, thus, persists a pivotal apprehension for the public hospitals. The study employed an inclusive cross-sectional, qualitative design. The semi-structured interviews were administered to collect data from middle managers and supervisors in a public academic hospital. A thematic analysis approach was observed to analyse the collected data. The qualitative thematic data analysis revealed excessive workload, financial constraints, family issues and responsibilities, low staff morale, and alcohol and drug abuse as determinants of unauthorised absenteeism. The study proposes managers' perception of the essence of unauthorised absenteeism. The outcomes also have compelling inferences for top management and human resource practitioners. They may utilise these details to analyse how unauthorised absenteeism is managed. Furthermore, the information could be used to evolve positive working conditions purposely to increase staff levels and implementing financial wellness programmes. Management could use the results through the implementation of a Performance Development System to motivate employees to fulfil at their ideal level and develop Human Resource policies and procedures for absenteeism for alcohol and substance abuse reduction. The results will add value to the discipline of absenteeism in conjunction with the advancing economy and culminate the pragmatic considerations for middle managers and supervisors and Human Resource practitioners.

The full document can be accessed on the following link:

<https://iissrr.com/journal/article/view/1753/1337>

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F. TRACK AND TRACER STUDIES AT THE WORKPLACE

23. Track and Tracer Study of Recognition of Prior Learning Candidates (*Naledi Moholo, Johanna Ledwaba and Bulelwa Plaatjie*)

This track and trace study focused on the workers who successfully completed the Recognition of Prior Learning (RPL) for the Further Education Training Certificate (FETC) in the Community Development Worker qualification during the 2022/23 financial year. The candidates were employed by the Department of Social Development (DSD) under various non-governmental organisations with more than two years of work experience.

The aim of the study was to assess outcomes of the RPL programme. The study focused to addressing the following objectives:

- To determine attainment of full qualification post recognition process.
- To determine career pathways undertaken after obtaining full qualification
- To determine change in salary/wage after obtaining full qualification.
- To determine the use of the qualification.

The findings of this report are based on data collected through telephonic interviews with RPL candidates who completed the programme. A total of 254 candidates who completed RPL programmes in 2022/23 were contacted and 150 responses were collected, resulting in a 59% response rate.

Key findings of the study are noted below.

- Determining the attainment of full qualification post recognition process: A large majority (85%) of the respondents stated that they have received their qualification certificates after completing the programme. Further, 56% of respondents received top-up training amongst them 75% received qualification certificates, which demonstrates the effect of top-up training.
- Mapped pathway after successful completion of recognition process: Majority of the respondents (94%) remained with the same employer while only 6% changed jobs or furthered their studies. Only 10% reported that the qualification led to changes in their job profiles while 17% got a promotion.

- Determining change in salary/wage after obtaining full qualification: Over three quarters of the respondents (75%, n=108) reported no change in their income while 21% reported a moderate change and 5% reported a significant change.
- Determining the utilisation of the qualification: Only 29% (n=43) of respondents have used their qualification since completion. Furthermore 50% (n=21) used it to prove their skill when applying for a new job and five used it to gain admission into a study programme. The remaining respondents felt that the qualification was not useful at all (18,6%; n=8).

The RPL programme has created access in the Community Development Worker qualification and contributed towards the formalisation of jobs already held. However, fewer candidates received promotion. The Health and Welfare Sector Education and Training Authority (HWSETA) must facilitate timeous delivery of certificates by the employer to the candidates as 15% indicated that they did not receive their qualification certificates at the time of data.

The full document can be accessed on the following link:

<https://www.hwseta.org.za/research/>

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24. Track and Tracer study of Skills Programme for Workers (*Naledi Moholo, Johanna Ledwaba and Bulelwa Plaatjie*)

The study focused on workers that have completed both credit-bearing and non-credit bearing skills programmes in 2022/23. The goal of the study was to assess usability of the skills gained and the benefits created by the programme.

The study addressed the following objectives:

- To determine workers' perceptions of the training through skills programmes.
- To determine the benefits gained by workers from the skills training through skills programmes.
- To determine the usability of the skills training obtained by workers through skills programmes.

This study adopted a quantitative research approach. The primary method used for collecting data was an online survey via three platforms (Email, WhatsApp, Short Message Service (SMS)) and as a mitigation method the Computer Assisted Telephone Interviewing (CATI) tool was utilised.

The total target population comprised of 400 employees from the social and health sectors. From this population, 311 employees were accessible based on the contactable information. Overall, a total of 95 workers completed the survey, yielding a response rate of 31%.

Key findings of the study are outlined, below.

- Determining workers' perceptions of the training through skills programmes: A third of the respondents (33%) reported participating in training to fill an identified skill gap, while 12% indicated the need to gain competence in a particular skill. Fewer respondents (7%) reported that they participated in training to improve performance of tasks. Over half of respondents, reported that the content of the training was relevant to their current jobs, but only 6% were unsure. Majority (86%) regarded the training programmes they attended positively (good and excellent), with only 4% of the participants perceiving the training as poor or fair.

- Determining the benefits gained by workers from the skills training through skills programmes: Only 46% of the respondents rated the programmes as a source for career advancement. However, 31% of the participants were not certain about this or neutral in this regard. These results confirm the reality that the skills programmes are designed to address skills gaps in existing careers and not to define or provide a career advancement. Further, 45% of respondents rated the training positively in terms of improving their productivity.
- Determining the usability of the skills training obtained by workers through skills programmes: Only 41% of participants report using the skills acquired during training at work, suggesting that such training does not effectively fill the skill gaps. There still appears to be a mismatch between occupied jobs and skills needed for improved productivity and quality of work, despite 33% of participants enrolling in training to fill a skill gap. If the training does not address this, then the gap remains.

Overall, respondents reported using the skills acquired and improving productivity to some extent. As such, the Health and Welfare Sector Education and Training Authority (HWSETA) through the employers must ensure programme relevance and applicability for the beneficiaries.

The full document can be accessed on the following link:

<https://www.hwseta.org.za/research/>

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25. Track and Tracer Study of Employed Persons (*Naledi Moholo, Johanna Ledwaba and Bulelwa Plaatjie*)

The Health and Welfare Sector Education and Training Authority (HWSETA's) strategic intent (i.e., the 2020-2025) is to contribute to the improvement of level of skills for 50% of the Health and Welfare sector workforce through various learning programmes that address the critical skills required by the sector. This study aims to identify and map employment career pathways undertaken by workers after successfully completing HWSETA funded learning programmes by achieving the following objectives:

- Determining whether the obtained qualification has provided career progression.
- To determine whether the qualification has improved worker competency.
- To determine the change in salary/wage after obtaining the qualification.
- To determine the utilisation of the qualification after completion.

Primary data was collected through telephonic interviews and an online survey with workers who completed artisanship, learnership and bursary programmes. The total database consisted of 310 workers who completed the learning programmes 2022/23, however, only 92 participated in the study.

Key findings of the study are outlined, below.

- Career progression after obtaining qualification: At the time of enrolment into the HWSETA programmes, 79% of the trained workers were employees of government departments, 16% of public entities and 4% private enterprises. After completing the programme, 89% of the workers continued with the jobs they already held, 9% changed jobs, and 2% decided to study further. Of the 81 workers who remained with the same employer after completing their qualifications, 60% progressed to higher positions while 25% experienced horizontal growth and 11% had no change.
- Improved worker competency after obtaining qualification: Overall, most respondents felt that their qualification had a positive effect on their competency, with a notable majority (92%) agreeing that it has significantly enhanced their skills and abilities.
- Change in salary/wage after obtaining the qualification: 84% of the respondents reported that their qualification did not result in a salary increase. In contrast, 13% of respondents did see a boost in their salary due to the qualification.

- Utilisation of skills after completion: Most certificate holders (44%) have utilised their qualification to demonstrate their skills in new job applications, underscoring its importance in career progression. Additionally, 49% have used it to enhance their performance at work, reflecting its practical value.

The programme has contributed towards improved competency in their occupations. Continuous improvement and adaptation based on evaluation findings will support the programme's ongoing success and its impact on beneficiaries' career development.

The full document can be accessed on the following link:

<https://www.hwseta.org.za/research/>

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26. Technical and Vocational Education and Training and University Work Integrated Learning Programme – Track and Tracer Study (*Lesego Monnapula, Johanna Ledwaba and Bulelwa Plaatjie*)

This study aims to assess the outcomes of work integrated learning of students at Technical and Vocational Education and Training (TVET) colleges and universities funded by the Health and Welfare Sector Education and Training Authority (HWSETA).

The aim of the study is achieved through the following objectives:

- To determine the attainment of full qualification after completion of the Work Integrated Learning (WIL) programme.
- To determine learners' experiences towards the WIL programme.
- To determine learner employability after completion of the qualification for which work integrated programme was funded.

Data was collected telephonically using survey to-go software and an online survey. A sample of 548 learners were reached, however only 179 (95 from TVET Colleges and 84 from university) participated in the survey, which resulted in an overall response rate of 33%.

Key findings of the study are outlined, below.

- Determining the attainment of full qualification after completion of the WIL programme: Of the learners that have completed the WIL placement, 54% (n=95) of TVET college learners have obtained their qualifications while 46% (n=84) of university students have obtained their qualifications.
- Learners' experiences towards the WIL programme: Learners predominantly conducted their WIL at a real workplace/employer 88.8% (n=159) with 6% placed at their institution of learning. Over half of the respondents (53.6%, n=90) of respondents were assisted by the institution in finding work placements, while 46,4% respondents self-applied to the employer. The duration of placement varied —most of the respondents (39,1%; n=70) placements lasted 18 months, followed by 24 months (26%; n=47) and under six months (17%; n=31). Furthermore, 150 (84%) respondents reported that they were assigned a mentor or supervisor during their placements. Additionally, the mentor knowledge of their field was positively rated, with 56% (n=84) of respondents rating it as excellent and 28%

(n=42) as very good. Mentor/supervisor communication was also positively rated, with 45% (n=67) of respondents giving an excellent rating and 29% (n=44) rating communication as very good.

- Learner employability after completion of WIL programme: A total of 80 (45%) respondents found employment or self-employed. Employment was more prevalent among the university students (n=55) when compared to TVET college learners (n=25). Of these, 55 were from the university while 25 was from TVET colleges. Over two-thirds of the respondents (66%) secured a full-time position.

Overall, the HWSETA-funded WL programme has benefited learners who participated, as evidenced by the attainment of qualification and readiness to enter the world of work. Further, the programme has contributed to the graduates' transition into workplace. The HWSETA must continue to foster the employer-learner learning experience as almost three-quarters of graduates reported that they self-applied for placements without the assistance of the learning institution.

The full document can be accessed on the following link:

<https://www.hwseta.org.za/research/>

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27. Conceptualising the Role and Use of Subject Matter Experts by the Quality Council of Trades and Occupation's Quality Partners (*Colette Tennison*)

The need for research into the use of Subject Matter Experts (SMEs) by the Quality Council for Trades and Occupations' (QCTO) Quality Partners (QPs) arose from changes to the approach that the QCTO follows for developing Occupational Qualifications, as well as the increased use of SMEs in conducting accreditation and quality assurance site visits. The introduction of SMEs as the central resource for developing qualifications and conducting quality assurance activities requires an understanding of what constitutes an SME, together with how the role of SMEs is envisaged by the QPs who use them.

The aim of this research was to answer the question "How are QPs using SMEs in their work on Occupational Qualifications?" The starting point for this research project was the development of a concept document, followed by the qualitative part of this research which was based on a survey sent out to the QPs and comprised of a series of mainly open-ended questions. A further level of analysis was conducted on the examples of SME criteria or competency profiles that some QPs submitted. This analysis drew on the three categories developed in the concept document for this research. The profiles submitted were analysed to determine the applicability of these criteria and then to determine how these three criteria were surfaced in the data.

Qualification development has been the main area where SMEs have been used, although they have also played other roles. Going forward, QPs have indicated that they intend to use SMEs for other roles as well. SMEs have a role to play in quality assurance due to their understanding of the requirements of the occupation as a result of their years of industry experience.

Based on the data, the findings showed that the QPs' process of transitioning to the use of SMEs for qualification development, particularly, has been a challenging one and that there are several key challenges that will need to be addressed during the transition process related to qualification development, standardisation about what constitutes an SME, difficulties in appointing SMEs, and the participation and capacitation of SMEs. Despite the challenges, however, QPs are beginning to put the necessary structures such as databases and competency profiles in place to support their use of SMEs in a variety of roles in their

organisations. It was also indicated that the understanding of what constitutes an SME is also necessary for the skills development providers who are required by the QCTO to make use of SMEs for facilitation, assessment, and internal moderation. This point was emphasised by the QPs and they recommended that public institutions focus on recruiting SMEs if they want to offer Occupational Qualifications.

The full report is available in the QCTO Research Bulletin 2023-24, available at <https://www.qcto.org.za/publications%2c-policies%2c-guidelines---forms.html> under Published Presentations.

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28. Assessment of the Effectiveness of Partnerships Between Mining Qualifications Authority and Community Education and Training Colleges (*Trudi Smit, Amy Revello, Ashlee McLachlan, Marc Anthony Krog, Joseph Komane, Nelly Mashaba, Masaila Machaka and Themba Tshabalala*)

The study evaluated the effectiveness of partnerships between the Mining Qualifications Authority (MQA) and Community Education and Training Colleges (CETCs) in South Africa's Mining and Mineral Sector (MMS). The cooperation theory was employed, distinguishing between project and relationship as two different aspects that can operate in a given partnership. A mixed-methods approach utilising qualitative and quantitative techniques was adopted, with methodological and data triangulation to ensure validity.

Key findings were organised around five objectives: pertinence, adaptability, efficiency, sustainability, and impact. Findings related to pertinence, or the relevance of partnerships, highlighted CETCs' role in providing alternative education and meeting community needs, though more occupational MMS-related programmes are needed. Adaptability findings revealed potential for CETCs to develop 4IR-aligned skills but highlighted misalignment as MQA has not yet funded relevant technology to CETCs. Efficiency findings showed MQA's increasing funding commitment but need for dedicated CETC facilities and financial capacity. Sustainability findings revealed the need for long-term comprehensive agreements and the best practice of establishing Memoranda of Understanding (MOU) with CETCs. Impact findings showed positive effects on individuals and communities, but limited skills development aligned with MMS needs.

Recommendations concluded the study and included establishing an MQA-CETC Forum and Skills Working Group, building CETC capacity, reviewing MoUs, establishing CETC Learning Centres, developing an alumnus tracking and employer feedback system, and undertaking further research on Sector Education and Training Authority (SETA)-CETC partnerships, Monitoring and Evaluation (M&E) frameworks, beneficiary tracking studies, summative assessments, and needs assessments of Community Learning Centres (CLCs) and Satellite Learning Centres (SLCs) specifically, and CETCs broadly.

The full document can be accessed on the following link:

https://mqa.org.za/wp-content/uploads/2024/11/MQA_Assessment-of-the-Effectiveness-of-Partnerships-between-the-MQA-and-CET-Colleges_Final-Report.pdf

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G. EQUITY AND INCLUSION

29. The Factors Impeding Attainment of Equity Targets with Respect to People with Disabilities in the Mining and Minerals Sector (*Patson Gasura, Joseph Komane, Nelly Mashaba, Masaila Machaka and Themba Tshabalala*)

The research study aimed at investigating the factors impeding attainment of equity targets with respect to people with disabilities in the Mining and Minerals Sector (MMS). The prevailing situation in the MMS is that it is struggling to meet employment equity targets due to various reasons amongst which are organisational driven, social and personal factors. There is a need for People with Disabilities (PWDs) to participate in the mainstream economy, not only to meet targets but creating an inclusive society and justice.

Statistics unveil a stark reality where a considerable number of individuals with disabilities in South Africa are excluded from the economic prospects and employment opportunities offered by the MMS. In this regard, the approach followed was that of a qualitative study, focusing on the sub-sectors in the mining sector and data was collected through in-depth interviews, focus group discussions and documents review. The interviews included PWDs within MMS, Human Resource Experts, Training organisations, Mineral Council, Labour Unions and the Department of Mineral Resources. For both Focus Group discussions and In-depth Interviews, engagements with participants were conducted virtually via Microsoft Teams. This was meant to obtain a holistic view of MMS from all angles of the spectrum. To analyse the data, thematic analysis was applied.

Findings of the study included creation of a conducive environment, through alignment of plans, budget and the vision of an inclusive MMS, an inclusive organisational culture, focused training, and provision of accommodation catering to the needs of PWDs in the workplace.

The study concluded that, there is a need for an organisational culture change in MMS and driving that is the responsibility of leadership. Secondly, with MMS being intentional about attracting and retaining PWDs, budgets and infrastructure planning must precede recruitment processes. Amongst others, future research studies can investigate effectiveness of the recommendations in the study, that is collaboration for an inclusive MMS and the impact of organisational culture change in the attraction and retention of PWDs in the MMS.

The full document can be accessed on the following link:

https://mqa.org.za/wp-content/uploads/2024/11/MQA_-_Factors-Impeeding-the-Attainment-of-Equity-Targets-with-Respects-to-People-with-Disabilities-in-the-MMS.pdf

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H. EARLY CHILDHOOD EDUCATION

30. Enhancing the Well-Being of Early Childhood Education Practitioners Working in Resource-Constrained Contexts (*Lesley Wood and Stef Esterhuizen*)

Background: The recent migration of Early Childhood Care and Education (ECCE) function brought with it many changes that affect the workplace well-being of practitioners and centre managers, yet little research has reported on the voices and experiences of those working on the ground.

Aim: To find out the current state of well-being of practitioners working in resource-constrained contexts to help us theorise how might they take action to improve it.

Setting: ECCE centres in rural and township areas in six different provinces.

Methods: The first author conducted 10 semi-structured focus group interviews with 80 practitioners recruited by collaborating researchers at various universities. All ethical protocols were adhered to. The focus groups were audio-taped, transcribed and thematically analysed independently by the two authors before reaching consensus.

Results: Two themes were identified: (1) participants experienced negative emotions arising from both internal and systemic aspects that were affecting their well-being. (2) Several factors promoted the well-being of practitioners despite their difficult circumstances.

Conclusion: Based on the findings, it appears that close collaboration among practitioners within centres and, with other external stakeholders, was an important factor for enhanced well-being. Drawing from action learning theory, we suggest how practitioners can collaborate to sustain their well-being while addressing the challenges they face.

Contribution: This collaborative action learning approach can be applied not only by ECCE centres, but to any organisation wishing to improve the well-being and practice of their members.

The full document can be accessed on the following link:

<https://www.etdpseta.org.za/etd/sites/default/files/2024-07/Enhancing%20the%20well-being%20of%20early%20childhood%20education.pdf>

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31. Professionalising Early Childhood Care and Education in South Africa is Not Child's Play! Determining Skills Gaps and Implications for Future Sector Development (Lesley Wood and Marinda Neethling)

In line with international trends in Early Childhood Care and Education (ECCE) recognising the importance of early learning, the Department of Basic Education (DBE) in South Africa has pledged to professionalise the sector, increase access and improve quality. From a systemic point of view, professionalisation of the sector will require collaboration on multiple levels between various stakeholders working in different systems to bring about simultaneous improvement in conditions of employment, resource provision, and infrastructure development. To aid the government in supporting skills development in this sector, particularly for those servicing the most indigent populations, we employed a multi-method design to determine critical skills gaps and how they could best be addressed. Data were gathered through online questionnaires, a desktop review and focus group and individual interviews. Thematic analysis revealed the need for managerial training, practical learning opportunities for practitioners, the necessity for more home-based ECCE services.

The full document can be accessed on the following link:

<https://www.etdpseta.org.za/etd/sites/default/files/2023-09/Professionalising%20ECCE%20in%20South%20Africa%20is%20not%20child%20s%20p%20lay%20Determining%20skills%20gaps%20and%20implications%20for%20future%20sector%20development.pdf>

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I. TEACHING PRACTICE

32. Teaching Practice as a Vehicle for Sustainable Knowledge Society in the Training of Teachers by Public Universities in South Africa (*Mabu Raphotle and Thokozani Mlambo*)

In South Africa, teachers are considered fully qualified and conferred with a Degree qualification after having undergone a process referred to as teaching practice. This requires that student teachers go beyond the theoretical understandings of the teaching pedagogy to that of incorporating experiential education in a workplace environment. Teaching practice facilitated through Work Integrated Learning (WIL) is one such practice whereby, students are given opportunities to develop practical and situational knowledge that exposes them to diversified methods of navigating aspects of teaching and learning.

In this way, teaching practice is structured to facilitate the immersion of students into practical and experiential learning and doing which translates into social and economic values. This is achieved through cultivating professionalism and pedagogical competencies that form part of a reiterative process of transformative learning and sustainability. Accordingly, this perspective forms the basis on which a sustainable knowledge society is conceptualised as teaching practice has the potential to enhance the application of a sustainable knowledge society. Currently, teaching practice in South Africa has not been leveraged upon to an effective and consistent degree to foster a sustainable knowledge society that can be clearly articulated and observed. As such, this study investigates the extent in which teaching practice in South African Public Universities and its implementation in host schools where student teachers undergo WIL is able to demonstrate elements of strengthening and promoting a sustainable knowledge society.

A qualitative research design was utilised through the distribution of questionnaires to Bachelor of Education (B.Ed.) students from 24 public universities in South Africa. This translates to a total population size of 48 targeted students comprising two students from each university specialising in Mathematics, English, Sciences and Accounting. Furthermore, Mentors from host schools as well as WIL Coordinators from the universities were interviewed to analyse their perceptions of WIL and its relationship to fostering a sustainable knowledge society.

The full document can be accessed on the following link:

<https://www.etdpseta.org.za/etd/sites/default/files/2024-08/Teaching%20Practice%20as%20a%20Vehicle%20for%20Sustainable%20Knowledge%20Society%20in%20the%20Training%20of%20Teachers%20by%20Public%20Universities%20in%20SA.pdf>

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33. Exploring the Potential Utilisation of Job Advert Data in Identifying the Teachers We Need for the Education We Want (*Lucky Mkhonza, Nomawethu Dumezweni and Lindiwe Nzuza*)

This article presents the research findings of the 2023/24 study on the “Potential of the Utilisation of Job Advert Data in Identifying the Teachers We Need for the Education We Want”. These findings were derived through a desktop analysis of data collected utilising web scraping software. The article analysed active job adverts for teachers specialising in Science, Technology, Engineering, Arts, Mathematics (STEAM), and language-related subjects, as these subjects have been identified as priorities by the South African government. The findings of the study indicated that job advert data have the potential to identify the health and nature of the labour market for teachers. The article recommends that the potential of the job advert data needs to be leveraged by education researchers to allow for the wide extraction of skills from job descriptions. This will facilitate an understanding of how demand for certain skills is changing over time.

The full document can be accessed on the following link:

<https://www.etdpseta.org.za/etd/sites/default/files/2024-08/Exploring%20the%20Potential%20Utilisation%20of%20Job%20Advert%20Data%20in%20Identifying%20the%20Teachers%20We%20Need%20for%20the%20Education%20We%20Want.pdf>

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34. Examining the Effect of Resource Constraints on Teaching and Learning of Grade 12 Mathematics in Gauteng Community Learning Centres (*Carlit Casey Tibane, Olivia Neo Mafa-Theledi, Tshediso Phaniel Masebe and Peter Mathye*)

The study focused on the effects of resource constraints on the teaching and learning of Grade 12 Mathematics in Gauteng Community Learning Centres (CLCs) in South Africa. It highlighted the historical and socio-economic context of apartheid and its enduring effects on educational inequalities. The lack of resources in CLCs, including substandard facilities, scarcity of teaching materials, and under-resourced teachers, was identified as a persistent issue. Grade 12 Mathematics is a vital subject for higher education and career paths, and proposed solutions include using deliverology and implementation science to mitigate these challenges. The methodology involved a multiple-case study design, with semi-structured interviews conducted with Grade 12 Mathematics teachers in CLCs in the Gauteng North region. Thematic analysis was used to analyze the qualitative data gathered from the interviews. The findings highlighted a severe lack of resources in CLCs, reliance on out-dated and borrowed materials, and a heavy burden on teachers to supply resources. Challenges included limited access to basic materials, financial and logistical strains on teachers, and a negative impact on teaching quality. Furthermore, the implications of these findings suggest that addressing resource constraints through these frameworks could significantly enhance the quality of Mathematics education in CLCs. The study recommends a strategic approach using deliverology and implementation science, focusing on structured goal setting, capacity building, stakeholder engagement, continuous improvement, policy advocacy, and technology integration to improve Grade 12 Mathematics delivery. These recommendations are aimed at mitigating the adverse effects of resource constraints and improving the teaching and learning of Grade 12 Mathematics in CLCs.

The full document can be accessed on the following link:

<https://www.ijlter.org/index.php/ijlter/article/view/11299>

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CURRENT AND PLANNED RESEARCH



1. A National Graduate Destination Study of South African Universities' Honours and Master's Graduates (*Rakal Govender*)

The Department of Higher Education and Training (DHET) will be commissioning a Service Provider to undertake a national Graduate Destination Study (GDS) (tracer study) of South African universities' Honours (National Qualifications Framework (NQF) level 8) and Master's (NQF level 9) graduates. Tracer studies are seen as important planning tools in higher education.

A single national GDS for Honours (NQF Level 8) and Master's (NQF Level 9) graduates across the entire South African public university system of 26 universities has never been done.

The purpose of the study is to design, develop and implement a national baseline study on the destinations of a representative sample of South African university early postgraduate (Honours (NQF Level 8) and Master's (NQF Level 9)) graduates.

The specific objectives of the study are therefore envisaged as follows:

- Identifying key education and labour market pathways.
- Understanding the demographic, socio-economic, spatial or institutional characteristics that are associated with a successful transition to the labour market.
- Examining which degrees and study programmes are well-matched to the needs of the South African labour market.
- Determining which graduates find employment and how university education helps to address inequalities in access to opportunities in the South African labour market.
- Determining which sectors of the economy employ university graduates. Are there notable differences within the graduate workforce by gender, race, schooling background, degree type, field of study and type of university attended?
- Determining how long it takes graduates to find (relevant) work. How do different graduates search for work? Which types of job search are most successful for university graduates?
- Determining the types of employment graduates find i.e. permanent, fixed-term, or self-employment etc.

- Determining which graduates tend to find employment closely related to the field of study pursued and/or to the university degree that they obtained.
- Determining to what extent has employment been in established institutions or enterprises as opposed to new initiatives or informal activities.
- Determining how have graduates who were supported by the National Student Financial Aid Scheme (NSFAS) and the National Skills Fund (NSF), in particular, experienced the transition from higher education to the labour market.
- Determining whether field of study and the type of Higher Education Institution (HEI) attended are closely associated with graduate employment outcomes.
- Examining the progress of graduates from Honours (NQF Level 8) to Master's (NQF Level 9) degree studies and where possible to Doctor of Philosophy (PhD) level.

The study will contribute to a deeper understanding of the relationship between university education, on the one hand, and the labour market needs on the other, contributing to the greater alignment between the supply and demand sides of the labour market.

The findings of this study will be published on the DHET website in 2026.

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2. Towards a Framework for the Assessment and Quality Assurance of Non-traditional Learning Experiences (*Sesi Nombulelo Nxesi, Nomawethu Dumezweni and Lucky Mkhonza*)

Non-traditional learning experiences have increasingly gained momentum and prevalence in the education system due to their perceived flexibility, broader outreach, responsiveness, and inclusivity. However, the speed at which these alternative learning experiences have been institutionalised parallels the growing concerns and antagonisms questioning their quality. Accordingly, the negative perceptions surrounding non-traditional learning experiences challenge policymakers, education specialists, and researchers to ensure quality through modified quality assurance and assessment frameworks. Literature guides that non-traditional learning experiences must establish effective quality assurance and regulatory systems to counter criticism of their values and methods and remove bad apples from the basket.

The perceived risks of weak assessment and apathetic quality assurance arrangements can be twofold. First, the sluggish and rigid response to developing effective frameworks for assessing and quality-assuring non-traditional learning experiences is counterproductive, stifling innovation and adaptation to new demands. Second, the lack of quality assurance hinders quality improvement, compromising the quality of the education system.

Given these conditions, the questions around assessment and quality assurance of non-traditional learning experiences remain primarily unaddressed and cast doubt on the integrity of the quality claimed by these alternative learning experiences. This limitation has made it difficult for role-players to advocate for the uptake and assimilation of these non-traditional learning experiences into the broader education system. Given the above, the study utilised a qualitative approach to investigate what assessing and quality-assuring non-traditional learning experiences will entail through the examination of literature and developing survey questionnaires for participation from the following quality assurance bodies:

- Council on Higher Education (CHE);
- South African Qualifications Authority (SAQA);
- Council for Quality Assurance in General and Further Education and Training (UMALUSI);
- Quality Council for Trades and Occupations (QCTO); and
- Sector Education and Training Authorities (SETAs).

The study results indicated the key design considerations for when the institutions develop their respective frameworks for quality assuring and assessing non-traditional learning experiences. The respondents highlighted the importance of prioritising factors such as academic integrity, student information integrity, equity of access, and quality student experiences when designing quality assurance and assessment frameworks for non-traditional learning experiences. The study's results are anticipated to contribute to the body of knowledge of non-traditional learning experiences in South Africa

The full report will be available in February 2025

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REVIEWS



1. Post-School Education and Training Monitor (*Mamphokhu Khuluvhe, Edzani Netshifhefhe and Welcome Gwantshu*)

This report provides an overview of macro-indicator trends in the South African Post-School Education and Training (PSET) system. It assesses the progress made from 2014 to 2021 in relation to key goals of the PSET system. These goals are reflected in the National Plan for PSET (NPPSET) (Department of Higher Education and Training (DHET), 2023), White Paper on PSET (WPPSET) (DHET, 2013) and the National Development Plan (NDP) (National Planning Commission, 2012).

The indicators used in the report are based on the following goals: expanding access to PSET, improving the quality of PSET provisioning, improving the success of the PSET system, improving efficiency of the PSET system to ensure optimal allocation of resources, and enhancing the responsiveness of the PSET system. Many of the indicators selected for this report are also used internationally to monitor global education goals. These indicators are modelled after practices adopted by various international institutions, such as United Nations Educational, Scientific and Cultural Organization (UNESCO) and the Organisation for Economic Co-operation and Development (OECD). UNESCO's Global Monitoring Report and the OECD's Education at a Glance are examples of highly rated reports on education indicators that address the needs of a range of users, from government workers to researchers who require data for further analysis. The general public also use these reports to monitor how their countries are progressing in educational outcomes in relation to other countries.

By compiling the selected indicators in one place, this report can provide a macro perspective on the trajectory of the PSET system; it is therefore in a position to alert policymakers to prevailing problems and hint at the causes of these problems. Where possible, it provides suggestions for improving the design and implementation of educational policies. In addition, this indicator report allows educational progress to be tracked and benchmarked against that of international comparator countries. It also serves as a source document for reporting on progress made on national and international commitments, such as the NDP, the African Union's (AU) Continental Education Strategy and the United Nations (UN) Sustainable Development Goals (SDGs).

This report focuses on the five key subsectors of the PSET system, namely public and private universities, Technical and Vocational Education and Training (TVET) colleges, Community Education and Training (CET) colleges, private colleges and Sector Education and Training Authorities (SETAs).

The report shows that, in terms of access to PSET institutions, the number of students enrolled at universities has increased consistently from 2014–2021, while the number of students enrolled at TVET colleges has been on a downward trajectory since 2016. This means that while the NDP target for the PSET system to increase enrolments at universities to 1.6 million by 2030 will likely be realised, the same does not apply to TVET colleges. If enrolments at TVET colleges increase at the same pace as that of the past eight years, the WPPSET target of 2.5 million enrolments at TVET colleges by 2030 might not be realised. Similarly, the CET enrolment numbers have also remained very low, with enrolments standing at just over 143 000 in 2021. As such, it is highly unlikely that the NDP target of 1 million students enrolled at CET colleges by 2030 will be realised.

The overall Gross Enrolment Ratio (GER) for public universities reflects a significant improvement in the period under review. Based on enrolment growth trends over the past eight years, it is likely that the target of 25% set in the WPPSET for university participation rates will be met by 2030. The GER for TVET colleges, on the other hand, has remained very low. The report further demonstrates that access to PSET favours female students over male students.

The Gender Parity Index (GPI) for tertiary enrolment has remained among the highest in the world. The high levels of female participation in the PSET system are commendable and reflect substantial progress towards gender equality, but it is important to note that gender issues like Gender-Based Violence (GBV) persist in these institutions.

The findings of the report suggest a possible decline in the quality of PSET provisioning. Although the Full-Time Equivalent (FTE) student:staff ratio improved from 2014–2021, the increase in FTE students outpaced the expansion of public universities' academic staff complements. Moreover, the share of academic staff in universities who have a Doctor of Philosophy (PhD) is far below the NDP target of 75% by 2030.

Both the female and male graduation rates in public universities generally improved in the period under review. There have also been some improvements in the certification rates in the college sector (both TVET and private) and CET colleges in some programmes, while others showed a decline in 2021 compared with the previous years.

The report demonstrates that the university sector is becoming more efficient in terms of its improved throughput rates and declining dropout rates. Despite the noticeable improvement in throughput rates, there are still far too many students who take too long to complete their university degrees, thereby burdening the system in terms of funding and available space for potential students. The throughput rates for National Certificate (Vocational) (NC(V)) at TVET colleges were low and differ significantly across genders. The NC(V) level throughput rate for females is almost twice that of males in all the years under review. Low throughput rates often result in smaller classes at succeeding levels of NC(V) programmes; this increases the costs per student, as generally the same amount of lecturing is required even when classes become very small.

The report indicates that the extent of mismatches between education and the labour market is high in South Africa. This problem can be attributed in part to the PSET system not adequately preparing students for the demands of the labour market. It is, however, encouraging to note that a large number of students at public universities are enrolled in Science, Engineering and Technology (SET) programmes that are aligned to Occupations in High Demand (OIHD). More needs to be done in terms of learners completing artisanal programmes, to ensure that they complete programmes that are required for OIHD.

The full document can be accessed on the following link:

<https://lmi-research.org.za/publication/post-school-education-and-training-monitor-2024/>

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2. Higher Education Monitor No. 16 – Understanding Epistemic Access and Success of Students from Historically Disadvantaged Backgrounds in South African Universities (*Amani Saidi*)

This issue of the Higher Education Monitor series on Understanding Epistemic Access and Success of Students from Historically Disadvantaged Backgrounds in South African Universities, is the sixteenth issue of the series.

Expanding access to higher education for students from historically disadvantaged backgrounds has been a key goal of transformation in South Africa's education system. However, mere admission does not guarantee success. Students face several barriers, beginning with the articulation gap between high school and university education, which makes transitioning difficult. Additionally, the languages of instruction in higher education are often not the students' home languages, limiting their learning capabilities. The Eurocentric curriculum and unfamiliar campus cultures further alienate students, creating more obstacles to effective learning. Moreover, many of these students come from under-resourced households, and financial aid through the National Student Financial Aid Scheme (NSFAS) is often insufficient to cover their basic needs, such as food and accommodation. This scarcity compromises their learning processes. The concept of epistemic access revolves around overcoming these barriers and creating a conducive environment for learning, ensuring student success.

This Higher Education Monitor explored the lived experiences of students from disadvantaged backgrounds at six universities in South Africa, representing different types of institutions. These universities include the University of Johannesburg (UJ), University of the Witwatersrand (Wits), University of Pretoria (UP), University of the Western Cape (UWC), University of Limpopo (UL), and the Central University of Technology (CUT).

The study, which involved interviews and focus group discussions with final-year students and staff, found that students across different institutions face similar challenges. It is often the determination, resilience, and initiative of individual students that enable them to overcome barriers and achieve success. Some students are further supported by their families and communities. Institutional initiatives, such as extended curricula, bridging programmes, and academic development initiatives, play a critical role in supporting both students and staff.

However, resource limitations often prevent these programmes from reaching all who could benefit.

This publication can be accessed at: <https://www.che.ac.za/publications/monitoring/higher-education-monitor-no-16-understanding-epistemic-access-and-success>

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RESEARCH EVENTS



1. Announcement of the Council on Higher Education's Higher Education Conference 2025 (*Amani Saidi*)

The Council on Higher Education (CHE) has announced its next Higher Education Conference, scheduled for 26 to 28 February 2025, to be held within the vicinity of the Oliver Reginald (OR) Tambo International Airport in Johannesburg. The theme of the conference is The State of Quality of Higher Education in South Africa Three Decades into Democracy, with the following subthemes:

- (1) Conceptual and/or philosophical discourses on the manifestation of quality of higher education;
- (2) State of quality of teaching and learning;
- (3) State of quality of postgraduate student supervision and thesis/dissertation assessment;
- (4) State of quality of community engagement and/or engaged scholarship;
- (5) State of quality of student support and wellness services;
- (6) Implications of the state of higher education in relation to any of the following goals:
 - (6.1) meeting the learning needs and aspirations of individual students;
 - (6.2) serving the labour market needs in an increasingly knowledge-driven and knowledge-dependent economy;
 - (6.3) developing and nurturing enlightened, responsible, and constructively critical citizens;
 - (6.4) creating a rich pipeline of future academics, scholars, researchers, and innovators;
- (7) Changing trends and trajectories in quality of higher education: 1994 – 2024;
- (8) Key factors that enable and facilitate the continuous enhancement or improvement in the quality of higher education; and;
- (9) Current and/or potential barriers or obstacles that militate or may militate against initiatives towards continuous improvement or enhancement in the quality of higher education.

The aim of the conference is to provide a platform at which role players and stakeholders in higher education would engage in reflecting on how much has been achieved during the last three decades in terms of foregrounding quality in the provision of higher education; how much is still remaining to be achieved in this regard, going forward; and what, if any, are the outstanding barriers or obstacles that militate against initiatives towards continuous improvement, or enhancement in the quality of higher education.

Abstract guidelines and more information on the conference can be accessed at: <https://www.che.ac.za/news-and-announcements/first-announcement-call-abstracts-higher-education-conference-26-28-february>. The abstracts should be sent to the conference Organising Committee through the following email address: Research@che.ac.za (cc Qampi.w@che.ac.za).

Any person who wishes to be part of the conference should complete and submit a formal registration form which can be accessed via the following link: <https://www.surveymonkey.com/r/69CCTRV>. The conference's registration closes on 14 February 2025. Queries about the conference should be addressed to research@che.ac.za (cc Qampi.W@che.ac.za), or by calling +27 (0) 83 319 9170 or +27 (0)83 319 7907.

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2. Higher Education Conference 2024 Proceedings (*Amani Saidi*)

The Council on Higher Education (CHE) held a Higher Education Conference on 28 February until 01 March 2024 under the theme: Deepening the Discourse on Academic Freedom, Institutional Autonomy and Public Accountability in South African Higher Education.

The Higher Education Conference successfully established a national forum for revisiting discussions on academic freedom, institutional autonomy and public accountability. The engagements at the conference underscored the importance of academic freedom, institutional autonomy and public accountability within South Africa's higher education system. Key points raised by keynote speakers underscored the urgent state of academic freedom, institutional autonomy and public accountability especially amid the widespread influence of neoliberalism across numerous institutions. A focal point of the discussions emphasised the responsibility of institutional leaders and stakeholders to preserve these core principles, a theme also echoed in breakaway sessions. The engagements also highlighted the enduring relevance of academic freedom, institutional autonomy and public accountability as conceptual frameworks for analysing and shaping the future of higher education. Despite evolving challenges and changing landscapes, these principles remain vital for fostering intellectual growth, innovation and societal progress. Of particular significance was the reflection on the inclusion of academic freedom as a fundamental right in the Constitution of the Republic of South Africa.

Models for exercising this right were explored, recognising its pivotal role in promoting diversity of thought, expression and inquiry within academic institutions. Moreover, the engagements addressed the impact of contemporary technological advancements, notably generative Artificial Intelligence (AI), on the perception and practice of academic freedom, institutional autonomy and public accountability. As technology continues to reshape educational landscapes, careful consideration is essential to ensure these principles are upheld in the digital age.

For further information on the conference proceedings, please email Dr Amani Saidi at saidi.a@che.ac.za.

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3. Upholding Impartiality in Summative Assessments: Managing Undetected Errors in Approved Question Papers (*Mary-Mary Antoinette Dliwayo*)

This paper, presented at the 14th Southern Africa Association for Educational Assessment Conference held from 13 to 16 May 2024 at Esibayeni Lodge in Matsapha, Eswatini, examines the impact of undetected errors in national examination question papers on the fairness and quality of assessments. Despite Umalusi's rigorous moderation processes, some errors whether administrative, technical, or content-based still go unnoticed, negatively affecting learners' performance.

Appropriately, a question paper should be error free in terms of the content that is assessed, mark allocation, and other technical requirements. Therefore, quality controls should be in place at every stage of question paper development with consensus on the part of the assessment body examining panels and Umalusi before the question paper is approved.

Over three years, 320 question papers for the National Certificate (Vocational) (NC(V)) Level 2-4 were reviewed. In 2021, 14 question papers contained errors, followed by 17 in both 2022 and 2023. These errors, impacting between 1 to 16 marks, were attributed to omissions, ambiguity, or questions set outside the prescribed syllabus. Key issues included missing formulas, incomplete sentences, unclear diagrams, and questions that confused learners or exceeded the curriculum's scope.

The study highlights that the root cause of these errors lies in insufficient adherence to quality assurance guidelines. Factors such as limited content knowledge among setters and moderators, poorly constructed questions, and inadequate proofreading contributed to these issues. The research stresses that errors compromise the validity and fairness of assessment outcomes, misrepresenting learners' capabilities.

The paper offers several recommendations to minimise errors and ensure impartiality in future assessments:

- Utilisation of Independent Verifiers: Introduce a separate panel to evaluate and test question papers before printing.

- Development of a Question Item Bank: Establish a secure database of vetted questions to streamline the paper-setting process.
- Integration of Technology: Use digital tools to ensure standardised, error-free question papers.
- Comprehensive Proofreading: Employ expert moderators and setters for thorough reviews before final approval.
- Joint In-Service Training: Provide collaborative training for moderators, involving both Umalusi and the assessment body, to clarify roles and enhance quality assurance.

The findings emphasise that upholding the integrity of examinations requires continuous refinement of quality assurance processes to eliminate errors and maintain the reliability and fairness of summative assessments.

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4. Toward Innovative Quality Assurance of the Integrated Summative Assessment and Practical Assessment Tasks for Post-School Qualifications (*Mary-Mary Antoinette Dliwayo*)

A paper presented at the 49th International Association of Educational Assessment held from 22 to 26 September 2024 in Philadelphia highlighted the challenges and recommendations for improving the quality assurance of Integrated Summative Assessment Tasks (ISAT) and Practical Assessment Tasks (PAT) used in South Africa's National Certificate (Vocational) (NC(V)) qualification.

ISAT/PAT assessments contribute 15% to students' final marks and are designed to evaluate both theoretical knowledge and practical skills through real-life scenarios. These tasks require the integrated application of competence and should be executed and recorded in compliance with examination conditions. The primary aim of these tasks is the mastery of practical skills. Hence, the ISAT/PAT form part of the formal summative assessment that is administered to students annually.

Umalusi, South Africa's quality assurance body, externally moderates these tasks to ensure alignment with subject guidelines, policy standards, and workplace relevance. The assessment body is required to submit print-ready tasks for external moderation. Umalusi may approve, conditionally approve or reject these tasks. In 2023, 44% of these tasks were approved during initial moderation, while 54% required revisions and 2% were rejected.

The study found several gaps, primarily in compliance with assessment policies. Reviewers struggled with implementing guidelines, leading to misalignment between tasks and required cognitive skills, such as problem-solving and communication. Additionally, inconsistencies were identified between task content, allocated marks, and completion time, potentially disadvantaging students. Both PAT 1 and PAT 2 were non-compliant with content coverage requirements compared to ISAT, undermining the principle of validity in assessments.

To address these challenges, the paper proposed several solutions:

- Pacing Guide: Develop a clear guide to manage the lifespan of ISAT/PAT instruments at each qualification level.

- Item Bank Development: Create a dynamic question bank aligned with industry standards and updated curricula. Expert contributors should regularly review and update the bank.
- Technology Integration: Explore cost-effective software solutions to streamline moderation and approval processes.
- Virtual Collaboration Platform: Establish an online forum for continuous stakeholder dialogue and feedback.
- Targeted Training: Provide joint training for developers, internal, and external moderators on roles, responsibilities, and moderation standards.

These recommendations aim to enhance the credibility, consistency, and relevance of ISAT/PAT instruments, ensuring they adequately prepare students for industry demands.

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5. Summary of the Proceedings of the 40th Association for Educational Assessment in Africa Annual Conference hosted by Umalusi on Reimagining Educational Assessment in the Age of Multiple Dimensions of Learning in a Global Society (Agnes Mohale, Tsholofelo Madise and Nthabiseng Khotlele)

The 40th Annual Conference of the Association for Educational Assessment in Africa (AEAA), hosted by Umalusi, the Council for Quality Assurance in General and Further Education and Training, took place from August 19–23, 2024, at the Century City Conference Centre and Hotels in Cape Town, South Africa. The Conference's theme, "Reimagining Educational Assessment in the Age of Multiple Dimensions of Learning in a Global Society," explored how assessment systems must evolve to meet the demands of a changing educational landscape.

Sub-themes provided a focused lens for discussions throughout the event, addressing crucial topics such as:

- Enhancing accessibility, credibility, and accountability through digital assessments.
- Quality assurance in non-traditional learning experiences.
- Safeguarding assessment data while maintaining ethical standards.
- Partnering to improve learning outcomes and accessibility.
- Navigating the shift to digital assessments, particularly in high-stakes exams.
- Research and policy initiatives aimed at advancing assessment practices.
- The pivotal role of assessments in fostering accountability and improving the quality of education.

This four-day event, followed by an excursion on the fifth day, featured a rich programme that included three hands-on workshops, three plenary discussions, five keynote addresses, and presentations from leading conference sponsors. Additionally, 112 papers were presented, focusing on the various sub-themes.

South Africa's Minister of Basic Education, Ms Siviwe Gwarube, formally opened the conference, emphasising how the theme aligned with two key priorities for the nation's 7th Administration: improving access to quality education, particularly for vulnerable communities and learners with special needs, and enhancing literacy and numeracy skills at all school

levels. She encouraged participants to leverage the conference to rethink strategies for building inclusive and high-quality education systems in Africa and globally.

Workshops were a key component of the conference. "Mastering Competency-Based Assessment: A Ready-to-Go Workshop Aligned with International Quality Standards," "Tips on Academic Writing," and "Assessment for Learning: Policy and Practice Implications for Scaling Up in African Schools" offered participants practical strategies for reimagining assessment.

The keynote addresses highlighted key challenges and innovations in educational assessment. Prof Loyiso Jita's address, "Difficult Dialogues on Assessment," was particularly impactful, calling for a reconsideration of large-scale national assessments in light of equity and quality concerns. Dr Nkosinathi Sishi challenged the current reliance on assessment outcomes for holding educators accountable, advocating for a more nuanced approach that focuses on enhancing learning. Dr Heidi Bolton's comparative analysis of high-performing education systems provided valuable insights into strengthening national assessment policies in diverse countries like South Africa.

Prof Anil Kanjee delivered the fourth keynote address, exploring assessment as a lever to improve the quality of education, especially for learners from under-resourced education systems. He called for a more holistic and thoughtful approach to improving education quality and accountability through better assessments, teacher development, and policy reforms. Prof Vukosi Marivate's contribution explored the intersection of Artificial Intelligence (AI) and education, particularly its potential to improve learning outcomes. He also discussed the inclusion of African languages as teaching resources, highlighting their importance in the digital age.

The three-panel discussions covered a wide range of current and forward-looking topics. "Reimagining Educational Assessment: Enhancing Accessibility and Credibility for Learners with Special Educational Needs through Inclusive and Digital Approaches" explored the potential of inclusive and digital strategies to transform education for marginalised students. "Rethinking Educational Assessment to Support Learner Competencies in a Changing Global Society" delved into how assessments can foster crucial competencies in a rapidly evolving

world, while a third panel focused on “Reimagining Educational Assessment for Emerging Industries: Enhancing Youth Employability through Digital Platforms.”

Breakaway sessions followed each plenary discussion, with multiple tracks for the 112 paper presentations aligned with the main conference theme and its sub-themes. These presentations deepened the exploration of innovative practices, offering both academic and practical insights into the future of educational assessment in Africa and beyond.

The 40th AEAA conference not only brought together leading scholars and practitioners in educational assessment but also positioned itself as a vital platform for rethinking how assessments can better serve diverse learning environments in a global society. The discussions and insights shared throughout the conference underscored the urgency of adapting educational assessments to meet new demands while ensuring inclusivity, credibility, and quality across the board.

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6. The 5th Human Resource Development Council Summit 2024 (*Samantha Senosha*)

The 5th Human Resource Development Council (HRDC) Summit is scheduled to take place in early 2025, with the exact date to be confirmed. This important event aims to advance South Africa's Human Resource Development (HRD) Strategy, considering the challenges and shifts of the 21st century, particularly the global disruptions triggered by the Corona Virus Disease (COVID)-19 pandemic.

Background:

The HRDC was established to enhance South Africa's human resource capacity by facilitating collaboration among social partners to address the country's skills development needs. The pandemic has accelerated the shifts already underway due to the fourth industrial revolution, forcing organisations to adapt to new ways of working, including remote work, digital skills, and multi-generational workforces. This rapid transformation demands new HRD strategies to foster resilience, agility, and innovation in the workforce.

Summit Objectives:

- To provide a progress report on the implementation of the HRDC Social Compacts arising from the 4th HRDC Summit in 2021.
- To refresh and revise the 2021 Social Compacts, with a view to integrating them into a single universal Compact, to be signed by leaders at the end of the Summit.
- To officially launch the Reconceptualised HRD Strategy and the Master Skills Plan (MSP), ensuring coordinated efforts for effective implementation of the new HRD framework.

Summit Theme:

Living and Working in a Changing World

Sub-Themes:

Building the Foundations for Learning:

- Care and Support for Teaching and Learning (CSTL)
- Mathematics and Science

Building the Skills for a Transformed Economy and Society

- Massifying skills development
- Education and labour mobility

Building a Capable and Developmental State

- Corporate Social Investment and the development of a capable state
- Models of Collaboration between government, business and labour

Summit Structure:

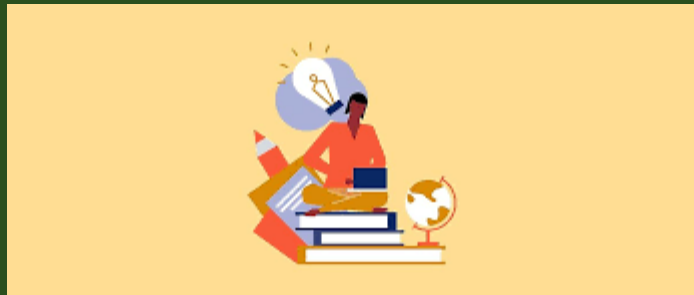
- **Day 1:** The summit will commence with a formal opening, keynote address and the launch of the Reconceptualised HRD Strategy and the MSP, followed by panel discussions and commissions focused on each sub-theme. The day will conclude with an evening reception.
- **Day 2:** The second day will feature Statement of Commitment from constituencies, report back from commissions, and the signing of the Summit Declaration, marking the formal conclusion of the summit.

Target Audience:

The Summit will bring together key stakeholders from government, organised business, organised labour and professional bodies. The summit will further engage with representatives from research institutions, youth representatives, media outlets, and other relevant parties who will contribute to shaping the summit's outcomes and ensure a broad and inclusive dialogue on human resource development. International delegates will also be invited to participate, enriching the summit's discussions with global perspectives.

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RESEARCH PRACTICE



1. Research Repository on Post-School Education and Training (*Lebogang Setsepu*)

The Department of Higher Education and Training (DHET) Research Repository on Post-School Education and Training (PSET) is the central location for all PSET-related research. It houses research reports, research and policy briefs, bulletins, factsheets, presentations and conference proceedings. Contributions are mostly supplied from the Department, entities, research organisations, researchers, and students. All material is publicly available. Storing such material provide insights and observations over time and across research projects, helping to uncover research themes that might not be identified from one research project alone. This also assists with reducing duplication.

The link to the PSET Research Repository is as follows:

<https://psetresearchrepository.dhet.gov.za/>

Research outputs for the repository can be sent to Govender.R@dhet.gov.za and dhetresearch@dhet.gov.za.

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2. Research Bulletin on Post-School Education and Training: Survey Results (Lebogang Setsepu)

The Department of Higher Education and Training (DHET) has been producing the Research Bulletin on Post-School Education and Training (PSET), annually, since 2013. Twelve issues have been produced. The Bulletin is a resource for the research community, stakeholders and participants in lifelong learning. The purpose of the Research Bulletin is to share information about the latest research developments in the PSET sector with stakeholders. The Bulletin comprises abstracts, summaries, and excerpts of complete, current and planned research and evaluations; reviews; summaries of event proceedings; reflections on research practice; and statistics on PSET.

DHET wants to improve the relevance and usefulness of the Bulletin as a research resource. As such, a survey was developed to determine how the Bulletin is being utilised, identification of gaps and how to make the Bulletin more helpful to readers. The survey was circulated to stakeholders on 20 June 2024.

The survey focused on participation and interest, objectives, and recommendations. The findings indicated positive results and good suggestions for improvement were provided. Recommendations were based on audience and participation, design, length and layout, content, frequency of publishing, and administration and quality assurance.

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3. Implementation of Artisan Recognition of Learning: Key Lessons in Accelerating Policy Benefits (*Matheko Elliot Mpe and Fumane Mbowen*)

The Artisan Recognition of Prior Learning (ARPL) policy, introduced by the Department of Higher Education and Training (DHET) in 2016, represents a significant step towards acknowledging and giving credentials on skills and knowledge acquired outside formal education. This noble policy initiative benefits workers from disadvantaged backgrounds and communities, bridging the gap between informal and formal economic sectors.

Implemented through the Criteria and Guidelines for Implementation of ARPL, the policy replaced previous regulations for recognising prior learning in artisan trades. The policy's implementation is conducted by Trade Test Centers (TTCs) and overseen by the National Artisan Moderation Body (NAMB).

The key objectives of the ARPL policy include the following:

- Formalising skills acquired through informal learning;
- Integrating skilled workers into the formal economy;
- Increasing artisan output and productivity;
- Creating a more skilled workforce to support various economic sub-sectors; and
- Enabling artisans to contribute to sustainable livelihoods through formal qualifications.

Since its establishment, NAMB and the National Artisan Development (NAD) Support Center have actively supported both public and private TTCs in implementing the programme. This support includes data collection and information gathering related to the intervention's implementation by TTCs.

The ARPL policy plays a transformative role in the South African economy by recognising and validating the skills of previously marginalised workers. By providing formal credentials, it empowers artisans to pursue better opportunities and contribute more effectively to the nation's economic growth. This initiative not only enhances individual livelihoods but also strengthens the overall workforce, facilitating a more inclusive and skilled labour market.

The ARPL programme has seen varying levels of uptake across different trades. High-uptake trades include Boilermaker, Diesel Mechanic, Electrician, Mechanical Fitter, Plumber, and Welder. These trades have a high number of applications across various TTCs. In contrast, specialised trades such as Goldsmiths, Panelbeater, and Lift Mechanic have experienced limited ARPL uptake, possibly due to factors such as smaller overall workforce and sub-economic sectors, less awareness of ARPL opportunities, or challenges in assessing prior learning for these highly specialised skills.

To address the disparity in uptake and ensure equitable access to ARPL benefits, targeted advocacy and outreach initiatives are important. These efforts should focus on raising awareness about ARPL opportunities in underrepresented trades, engaging with industry associations and labour unions and other social partners. Particular attention should be given to facilitating access for individuals from historically marginalised communities and workers in the informal sector.

A significant gender imbalance has been observed in the implementation of the ARPL programme, with only 8% of ARPL candidates being women. This low percentage reflects the historical male domination of artisan trades. To address this disparity and promote gender equality, interventions should include targeted recruitment campaigns and advocacy, mentorship, collaboration with both Technical and Vocational Education and Training (TVET) colleges, Community Education and Training (CET) colleges and Private Education providers, review of assessment methods to minimise ensure gender and class bias. The intervention should also include showcasing of women in various trades especially those that entered through the ARPL route.

While the ARPL programme has seen success in several trades as observed above, there is a need for targeted interventions to increase uptake in more trades, improve access for previously disadvantaged individuals, and address the significant gender imbalance in artisan trades. By focusing on these areas, the ARPL programme can maximise its impact and contribute to a more diverse, capable, skilled, and equitable artisan workforce that support growth of industries and overall development of the country.

The implementation of the ARPL programme has made a high contribution towards skills development in the country. It is important to conduct a further analysis of its implication to maximise its benefits. This analysis should not be limited to the existing data but incorporate insights from monitoring reviews and information provided by NAMB. The additional research, including evaluations and in-depth profiling of candidates who have undergone the ARPL process should be prioritised. This research can include both successful and unsuccessful candidates, focusing on their lived experiences throughout the assessment process. By capturing these diverse lived experiences, valuable insights can be gained into the programme's effectiveness while identifying potential areas for improvement.

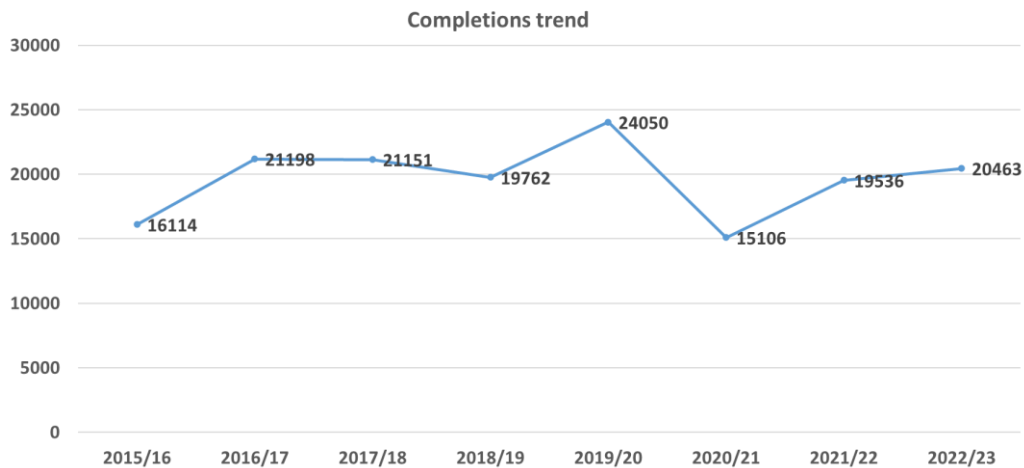
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4. Analysis of Apprenticeship Completion Trends Across Key Trades (*Matheko Elliot Mpe, Mackson Motedi and Fumane Mbowen*)

The INDLELA-National Artisan Development (NAD) Chief Directorate is tasked with artisan development, monitoring and research. The Chief Directorate has worked closely with other directorates in the Department of Higher Education and Training (DHET), Technical and Vocational Education and Training (TVET) colleges and Sector Education and Training Authorities (SETAs) to gather and analyse policy-making data. Guided by National Apprenticeship and Artisan Development Strategy 2030 in analysing, monitoring and addressing blockages and challenges that hinder the production of artisans and apprentices in the country. This analysis of registrations and completions for artisans and apprentices for 2015-2023 as reported by SETAs and TVET colleges. The method used during the analysis included desktop analysis by two researchers.

The overall trends indicate that between 2015 and 2023, the total number of artisan completions reached 157,380 with an annual average of 19,672. The data reveals significant year-to-year changes that were influenced by implementation of the apprenticeship programme by SETAs, TVET colleges and Skills Development Providers (SDPs). This ranges from a low of 15,106 to a peak of 24,050 completions. The highest output was recorded in 2019/20 with 24,050 completions. However, the following year (2020/21) saw a decline to 15,106 completions, due to the Corona Virus Disease (COVID)-19 pandemic and associated lockdowns. This represents the lowest point in the review period. Since the 2020/21 disruptions, a recovery trend has emerged. While completion numbers have been increasing, they have not yet returned to pre-pandemic levels. Despite the volatility and changing patterns in various trades, a comparison of the earliest and latest years in the dataset indicates a slight upward trend overall. To reach the previous peak of around 24,000 completions again, increased efforts will be necessary. This goal serves as a key milestone for future growth and recovery for the programme.



The analysis of trade completions reveals a landscape dominated by 14 leading trades, with Electricians consistently topping the charts and reaching a peak of 7,332 completions in 2019/20. Following closely are Mechanical Fitters, Diesel Mechanics, and Plumbers, each surpassing 11,000 total completions over the period. Notable trends include a significant increase in Plumber numbers, particularly in 2022/23, a substantial growth in Bricklayer completions in recent years, and a decline in Heavy Equipment Mechanic numbers. Other prominent trades such as Welders, Boilermakers, and Automotive Motor Mechanics round out the list, contributing to a diverse and evolving skilled trades workforce.

Besides the more prominent trades, there exists a diverse range of specialised occupations with lower enrollments and completion rates. While these niche trades have fewer participants, they are important to various industries and deserve to be supported by both the Post-School Education and Training (PSET) sector and industry roleplayers. These trades include the following in various economic sectors:

- Construction and Masonry: Refractory Mason
- Automotive: Motorcycle Mechanic, Forklift Mechanic
- Woodworking: Joiner
- Metalworking: Metal Machinist, Sheet Metal Worker, Moulder
- Precision Crafts: Diamond Cutter, Patternmaker
- Printing and Packaging: Paper Sheetfed Lithographic Printing Technician, Coldset Rotary Offset Lithography Technician, Roll Label Machine Minder, Rotary Printing Technician, Packaging Manufacturing Machine Setter
- Specialised Mechanics: Radar Mechanic

The trends observed in completion of apprenticeships have shown dynamics involved in implementation of various trades. The key influences have been mainly in funding provided by SETAs and available capacity in both TVET colleges and private skills providers in supporting the trades. The prominence of trades such as Electrician and Mechanical Fitter is mainly indicating the historical strength of the PSET sector in supporting these trades. There is a need to replicate the systematic strengths that have been built over the years in offering these trades to other occupations in high demand such as Airconditioning and Refrigeration Mechanic and Mechatronics Technician.

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5. Skills Supply and Demand in South Africa: A Conceptual Framework *(Mamphokhu Khuluvhe, Haroon Bhorat, Morné Oosthuizen, Zaakhir Asmal, Elvis Ganyaupfu and Christopher Rooney)*

Since the Department of Higher Education and Training (DHET) adopted the function of skills planning since its establishment in 2010, it has been compelled to look more closely at the relationship between education and training on one hand and the labour market on the other. The DHET undertakes this work through the Labour Market Intelligence (LMI) research programme, which is a major multi-year research project intended to support the DHET in its move towards a more responsive Post-School Education and Training (PSET) system, due to a demand-driven approach to education and training.

A key component of the LMI research programme is the development of conceptual frameworks to guide each research project. Conceptual frameworks serve as lenses through which the activities of the LMI research programme are viewed and ensures conceptual consistency across the research programme so that its objectives can be achieved. Importantly, the framework facilitates a common understanding not only between researchers, but stakeholders in government, the private sector and civil society, too. Conceptual frameworks for individual projects also set the parameters of each project and is part of the research process where ideas for the research topic are explored and enunciated.

This framework outlines how skills supply and demand is understood. This is done for the purpose of conducting relevant research and building a body of LMI to guide skills planning that is responsive to the skills needs of the country within the context of the LMI research programme. This framework should be used to guide the development of key individual projects under the LMI research programme within a shared understanding of the approach the LMI research programme takes to understanding skills supply, skills demand, and the imbalances between the demand for and supply of skills. Through the framework, which allows skills shortages, surpluses and mismatches to be identified and analysed, government policy can be formulated.

Ultimately, rigorous labour market information combined with evidence-based policies will result in reduced mismatches between education and training on the one hand and the labour

market on the other, as well as in improved levels of employability and the identification of self-employment opportunities for sustainable livelihoods.

The full document can be accessed on the following link:

<https://lmi-research.org.za/publication/skills-supply-and-demand-in-south-africa-a-conceptual-framework/>

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6. Key Indicators for Skills Planning in South Africa (*Zaakhir Asmal, Morné Oosthuizen and Christopher Rooney*)

There is a need for consistent and reliable production, analysis and dissemination of national- and sector-level labour market information on which to make informed decisions and base planning, to ensure that the skills available in the country are aligned with the needs of the economy and society. To this end, the Labour Market Intelligence (LMI) research programme aims to coordinate and conduct research and share it broadly in support of the Department of Higher Education and Training (DHET)'s goal of building a Labour Market Information System (LMIS) as part of a national skills planning mechanism, to align skills planning with economic planning, and to support sustainable and inclusive economic growth in South Africa.

Within this context, it is important that the platform, as well as all research conducted and disseminated through the programme, be located within a common framework for understanding skills supply, skills demand and the imbalances between these. Central to this is the development of indicators to provide a common basis for policy deliberations. The Conceptual Framework for Skills Supply and Demand lays out the approach to understanding skills supply and demand taken in the LMI research programme. This document should be read in conjunction with that one and explains a number of indicators consistent with the Conceptual Framework for Skills Supply and Demand.

The LMI research programme aims to build intelligence on the demand for skills, the supply of skills and the imbalances between them, with the ultimate goal of informing policy and planning responses to minimise skills imbalances in the future, and of supporting inclusive economic growth for South Africa. It is within this context that this document lays out relevant concepts and indicators for informing skills planning to achieve these goals. Specifically, this document aims to provide a foundation of common understanding for researchers, policymakers, stakeholders in government, and the private sector and civil society, to support the attainment of these goals.

An indicator is a quantitative metric that provides information to monitor performance, measure achievement and determine accountability. Indicators are an essential information tool for monitoring and managing systems. More specifically, they are useful for:

- Adding value to raw data by generating outputs that can be analysed or interpreted;
- Measuring advancements and achievements;
- Making clear the consistency between activities, outputs, outcomes and goals;
- Ensuring legitimacy and accountability to stakeholders by demonstrating progress;
- Assessing project and implementation performance;
- Supporting resource allocation and target setting; and
- Enabling comparability across countries and over time.

By verifying change, indicators provide an opportunity to confirm progress when things go according to plan and provide early warning signals of unexpected outcomes. Constructing indicators is essential to contribute to the functionality of a LMIS. Managing the demand-supply relationship remains the primary goal for skills planning. A fundamental starting point for skills planning is to acquire the best possible understanding of the demand for skills from employers and supply capabilities of relevant education institutions in the post-secondary sector. Accordingly, the indicators must be grounded in the demand and supply needs of the various individuals, public and private sector employers, and supply institutions, while recognising that labour markets are complex environments in which the expected supply of skills does not match neatly with predicted demand. In this regard, this document provides and explains with examples a list of indicators relevant for the purposes of LMI for the Post-School Education and Training (PSET) system. Specifically, it provides indicators for the purposes of LMI with respect to the following three key components: The supply of skills; the demand for skills; and imbalances between the demand for and supply of skills. These concepts are explained in more detail in the report, before providing the list of indicators relevant to these.

The full document can be accessed on the following link:

<https://lmi-research.org.za/publication/key-indicators-for-skills-planning-in-south-africa/>

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7. Strategic Focus of the National Skills Fund Monitoring and Evaluation Framework (*Thenjiwe Ncube, Trudi Smit, Amy Revello, Ashlee McLachlan, Mike Lesley and Elena Broughton*)

The Policy Framework for Government-Wide Monitoring and Evaluation (M&E) (Presidency, 2007) sets out the importance of M&E across multiple spheres within South Africa. As an overarching policy framework, it seeks to assert and institutionalise M&E in recognition of the need for all of government to be more effective. The importance of M&E in relation to the National Skills Fund (NSF) is in its contribution to supporting transparency and accountability for how a crucial Post-School Education and Training (PSET) institution executes its mandate in relation to the public interest. This should ultimately support performance improvement and a more effective use of government's scarce resources through better decision-making.

In the context of various policies, strategies, plans, and platforms, there is a need to be clear as to what are the things that the NSF will routinely monitor and track on a quarterly or annual basis, and what are those things that will be the subject of systematic assessment of the relevance, efficiency, effectiveness, impact, and sustainability, among others. Conceptualising of this holistically and at the level of the NSF serves to help the institution to better execute its mandate and achieve its policy objectives. Therefore, the focus of this study was as to design and develop an M&E Framework comprising of a Monitoring Plan and an Evaluation Plan to be used for assessing and monitoring the progress of the NSF outputs and outcomes.

As a catalytic funder for research and skills development initiatives that respond to national priorities and skills development objectives, it is crucial that the NSF have robust M&E practices and systems in place to effectively measure performance and outputs. As such, NSF and the Department of Higher Education and Training (DHET) commissioned the development of the NSF Framework to the service provider, Urban Econ-Nikela.

There were five Specific Objectives (SOs) for this assignment which were successfully achieved, as follows:

- SO1 - To refine the Theory of Change (ToC) for the NSF and development of a Logical Framework (LogFrame) to guide the development of the framework.

- SO2 - To conduct an analysis of stakeholders and decision-making processes, and identification of roles and responsibilities of various parties in relation to M&E of NSF activities.
- SO3 - To develop a Monitoring Plan to guide the collection, analysis, and data reporting with the purpose of providing managers, decision makers and other stakeholders of the NSF with: (a) regular feedback on the progress of implementation of its interventions, and (b) early indications of problems that need to be corrected.
- SO4 - To develop an Evaluation Plan to guide time-bound and periodic evaluation exercises to assess relevance, efficiency, effectiveness, impact and sustainability of the interventions and determine what worked, what did not work and why.
- SO5 - To obtain buy-in from various stakeholders on the M&E Framework developed to ensure its speedy adoption and institutionalisation.

The research methodology followed in this project entailed an in-depth desktop review of existing literature regarding M&E, policies and legislation governing the NSF, as well as key NSF documents, such as the NSF Strategic Plans. In addition to this, engagements with key informants from the NSF, DHET, National Skills Authority (NSA) and Sector Education and Training Authorities (SETAs) have informed this Framework, specifically the ToC.

The engagements took the form of interviews and workshops. The workshops focused specifically on gaining inputs regarding the revised ToC to be developed. As such, both secondary and primary information has been collected to develop and culminated in this Framework. Additionally, a series of skills transfer sessions were conducted to ensure that all relevant NSF staff were familiar with the principles and importance of M&E, and ensure adoption and assimilation of the M&E Framework into the organisation functioning.

The expected impact of a good M&E Framework should reflect in iterations of on-going performance improvement and results for the NSF in relation to its core mandate and policy objectives. This should generate data and evidence that advances greater transparency and accountability for the NSF and enhances its ability to make evidence-based decisions in the public interest.

By developing and institutionalising the M&E framework for the NSF, the DHET, as a custodian of the PSET system, will be able to better understand the contributions made by the NSF towards the attainment of the PSET system development objectives. This in turn will assist the DHET and other PSET system stakeholders to make informed decisions on the interventions that need to be implemented to bridge the gaps. Such information could lead to more efficient spending by the public sector, rendering better value for money results.

The full document will be available on the following link (under the Research Repository):

<https://nsf.org.za/publications/>

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8. Viva Voce: The Oral Examinations of a Thesis for a Doctoral Degree (Sioux McKenna)

This article offers an in-depth exploration of the oral defence, or viva, as an essential component of doctoral assessments. The term viva voce means "the living voice" in Latin, reflecting its purpose as a more dynamic form of assessment. The viva provides a candidate with the opportunity to engage with examiners, clarify ambiguities, rebut arguments, and gain feedback. This process is often referred to as an oral defence or thesis defence and can vary in intent across institutions.

In South Africa, the viva is not uniformly applied in doctoral examinations. Some universities, such as Stellenbosch University (SUN), have a long-standing tradition of incorporating it, while others like the University of Pretoria (UP) allow faculties to decide its necessity. However, a 2022 Council on Higher Education (CHE) report recommended that all South African institutions adopt the viva as a standard component of the doctoral assessment process, particularly as a tool to measure graduate attributes like autonomy and communication skills. The viva serves multiple functions beyond mere assessment. These include the oral presentation of research, clarification of ambiguities in the thesis, inducting candidates into their respective academic fields, and verifying the authenticity of the thesis. There are three main models of the viva: the private viva, which is a closed session between candidate and examiners; the public viva, which often serves as a celebratory event; and a hybrid model, which includes both public and private elements.

The viva is a vital element of doctoral education, allowing for personal engagement between candidates and examiners. It provides an avenue for thorough assessment, feedback, and opportunities for the candidate to present their research in a broader context.

The full document can be accessed on the following link:

<https://www.che.ac.za/publications/research/brieflyspeaking-no-30-viva-voce-oral-examination-thesis-doctoral-degree>

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9. A Reflection on the Unintended Consequences of Promoting Research and Publication Using Monetary Incentives (*Keyan Gray Tomaselli and Amani Saidi*)

This research paper looks into how the Research Output Policy (Department of Higher Education and Training (DHET), 2015) is being implemented and the implications of its implementation thereof. This policy seeks to promote research productivity in public Higher Education Institutions (HEIs) by rewarding research outputs in the form of articles published in recognised scholarly journals, published scholarly books and/or book chapters, and published conference proceedings. The intention of the policy was to promote research and publication by rewarding outputs so that the funds earned could be used by institutions to invest more in research capacity and infrastructure, which would, in turn, spur further research work and the generation of more scholarly publications. Although all evidence points to the fact that the implementation of the policy has resulted in the rapid increase in research outputs generated by public HEIs, it contends that when the reason for publishing is shifted to monetary gain, as it has since the introduction of the research incentive funding, researchers and scholars become no different from the producers who sell their products at a marketplace for profit.

The unintended consequences are that this often results in the displacement of academic values, ethos and good practices by 'laws of the marketplace' which include producing more output with less resource inputs, rationalising processes to gain more production efficiencies, competition, and using any available avenue to make more in monetary gain – gaming the system. Applying the laws of the marketplace in the research and publication environment may result in phenomenal increases in research outputs. However, the quality may start to be compromised, and the value of research to advance knowledge generation and application for the good of society, may start to diminish. It also risks creating scholar-writers and publishers for hire.

The full document can be accessed on the following link:

https://www.che.ac.za/sites/default/files/inline-files/Briefly%20Speaking%209_A%20Reflection%20on%20the%20Unintended%20Consequences%20of%20Promoting%20Research%20and%20Publication%20Using%20Monetary%20Incentives.pdf

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10. Micro-Credentials in the Context of the South African National Qualifications Framework: Towards a Position (*Tshepho Mokwele, Nthabiseng Matsobane and Heidi Bolton*)

The South African Qualifications Authority (SAQA) conducted research into ‘What are micro-credentials?’ and developed a discussion document used as a basis for engagements with key stakeholders. In 2024, SAQA established an internal Task Team on micro-credentials to advance this research and engagement towards developing a National Qualifications Framework (NQF) position. Several issues are under consideration, as outlined in the following paragraphs.

The term ‘micro-credential’ has currency globally. Literature suggests multiple drivers for micro-credentials, including the need for upskilling and reskilling, disruptions caused by the Fourth Industrial Revolution (4IR) and Artificial Intelligence (AI), and post-Corona Virus Disease (COVID)-19 global pandemic recovery. In South Africa, micro-credentials can be linked to developments regarding digitisation as exemplified by the National Digital and Future Skills Framework and Digital Skills Forum, the introduction of subjects like Coding and Robotics in Grades R – 9 of the schooling curricula, an ongoing focus on lifelong learning, and both ‘forced’ and voluntary migration.

There is no universally agreed definition for ‘micro-credential’ and various terms are used interchangeably, such as ‘verified certificates’, ‘alternative credentials’, ‘micro-certification’, ‘micro-qualifications’, ‘micro-degrees’, ‘units’, ‘modules’ and others. This lack of clarity and the multiple terminologies underscore the importance of context.

In South Africa, terms such as ‘unit standards’, ‘part-qualifications’ (registered on the NQF), and ‘short courses’ or ‘short learning programmes’ (not registered on the NQF) that resemble micro-credentials, have been used. In the Occupational Qualifications Sub-Framework (OQSF) context 15699 unit standards are registered on the NQF, of which 9 408 have learner achievements against them. Unit standards have been criticised for fragmenting learning by focusing on task performance at the expense of knowledge; the new micro-credentials would take a different form. In the Higher Education Qualifications Sub-Framework (HEQSF) context, the focus is seen to be on ‘knowledge’. Higher Education Institutions (HEIs) offer short courses or short learning programmes that are not registered on the NQF and lie outside the HEQSF

qualification types. Consequently, the related data are not uploaded to the National Learners' Records Database (NLRD), and quality assurance is carried out within HEIs.

Generally, the literature suggests that micro-credentials need to be portable, learning outcomes-based, assessed, quality assured, and carry the possibility of being stackable or otherwise – flexibility is needed. Furthermore, micro-credentials may or may not carry credits, and may respond to labour, societal, or personal needs. They are awarded in various ways including as digital badges or physical or digital certificates, amongst others, and recorded in databases.

Discussions are underway regarding the form micro-credentials will take in the three NQF Sub-Framework contexts in South Africa, and the location, character, and quality assurance of these learning offerings. These discussions include consideration of the advantages of including, or alternatively, excluding, micro-credentials in the NQF. On one hand, micro-credentials are used widely internationally and are generally known to enhance the flexibility of access to and progression in learning and work. On the other hand, their inclusion in the NQF will require regulation which can act against this flexibility. At the same time, South Africa is involved in a Southern African initiative to clarify the conceptualisation and use of micro-credentials in Southern Africa. The Quality Council for Trades and Occupations (QCTO) is considering micro-credentials in the OQSF context and, in 2016, the Council on Higher Education (CHE) published 'A Good Practice Guide for the Quality Management of Short Courses offered outside the HEQSF', which can be replicated for micro-credentials – some HEIs are already offering, or planning to offer, 'short courses' as 'micro-credentials'.

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STATISTICS AND FACTSHEETS



1. Statistics on Post-School Education and Training in South Africa: 2022 (*Nthabiseng Tema and Sonnyboy Manthata*)

Since 2010, the Department of Higher Education and Training (DHET) has consistently published the annual Statistics on Post-School Education and Training (PSET) in South Africa report, and the most recent report for 2022 was published in July 2024. These reports are important tools for decision-making and strategic planning across various levels of the PSET system, and are key in tracking progress toward the targets outlined in the National Development Plan (NDP).

In addition to providing the most recent statistics on 2022 student enrolment and completion, the report encompasses a diverse range of information. The information in the report includes: statistics on staffing levels at PSET institutions; information about Workplace-Based Learning (WBL); and financial data notably that pertaining to the National Student Financial Aid Scheme (NSFAS), the National Skills Fund (NSF), the skills levy fund and voted funds.

Data for the various sectors is gathered from multiple sources, namely: the Technical and Vocational Education and Training Management Information System (TVETMIS), Sector Education and Training Management Information System (SETMIS); Higher Education Management Information System (HEMIS); annual survey data for registered private colleges and Community Education and Training (CET) colleges; CET Management Information System (CETMIS); annual reports submitted by registered private Higher Education Institutions (HEIs); National Artisan Development (NAD) Database Management System, the DHET levy system; NSF annual reports and the National Examinations Database for TVET, CET and private colleges.

In summary, the report highlights that in 2022 more than 1.3 million students enrolled at public and private HEIs, with public HEIs accounting for the majority (1 077 768), while private HEIs enrolled 258 215 students. Graduates in public and private HEIs were 225 702 and 57 302 respectively. TVET colleges had 518 584 students enrolled in 2022, with 45 209 completing National Accredited Technical Education Diploma (NATED)/N3, N6 and National Certificate (Vocational) (NC(V)) Level 4. Private colleges on the other hand enrolled 71 856 students, and 10 900 completed N3, N6 and NC(V) Level 4 in 2022. In the CET colleges sector, 130 752

students were enrolled in 2022, and 10 383 achieved the General Education and Training Certificate (GETC): Adult Basic Education and Training (ABET) Level 4 qualification.

During the 2022/23 financial year, Sector Education and Training Authorities (SETAs) registered 127 412 learners registered in learnerships, internships and skills programmes, and 76 100 learners obtained certificates in these programmes. Furthermore, 20 463 learners registered in various artisanal learning programmes and 17 042 of them were registered in scarce skills trades. In the same period, 20 062 learners completed their artisanal learning programmes with a significant majority (17 499) completing in scarce skills trades. The NSF supported 221 skills development projects in 2022/23 financial year, benefitting 24 318 individuals.

Additional information pertaining to the PSET sector for 2022 can be found in the 2022 report accessible through the link:

<https://www.dhet.gov.za/Information%20Systems%20Management/Statistics%20on%20Post-School%20Education%20and%20Training%20in%20South%20Africa%2c%202022.pdf>

Reports for the previous years (2010-2021) can also be accessed through the link:

<https://www.dhet.gov.za/SitePages/HRDPlanningNew.aspx>

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2. VitalStats 2022 (Amani Saidi)

VitalStats 2022 presents data for public higher education covering the period from 2017 to 2022. The datasets are principally from the Higher Education Management Information system (HEMIS) at the Department of Education and Training (DHET), and the population data is mainly sourced from Statistics South Africa (Stats SA). It also presents datasets on private higher education which have been sourced from the Higher Education Quality Committee Information System (HEQCIS) which is maintained by the Council on Higher Education (CHE). This makes VitalStats 2022 a richer resource of data for the broader higher education sector in South Africa. It is important to note, however, that data on private higher education is not currently available on all variables that the publication focuses on.

The structure and format of VitalStats 2022 is similar to the previous issues of VitalStats which have been produced since 2012 but has also been enhanced significantly to make the publication more user-friendly. Each section is colour-coded, showing the size and shape of the sector using graphs and data tables. The first section presents data and graphs on student enrolment and completion; and the second section presents data and graphs on levels of qualifications. The third and fourth sections present data and graphs on headcount numbers of students by field of study, and headcount numbers of students by institutional type, respectively. Section five presents data on staffing, disaggregated into various categories. Section six presents cohort analysis of students that entered 360-credit diplomas, 3-year and 4-year degrees and postgraduate studies in 2016, tracking their throughput for the particular qualification types.

VitalStats 2022 reveals that 1,077,768 enrolled in public universities in 2022. Close to 870 000 of the total enrolment were African students and only 36 800 were Indian students. The details of various demographics of the enrolled students as well as those of the graduates are summarised and presented in easy-to-follow graphs in the document.

Additional information can be accessed through the following link:

<https://www.che.ac.za/publications/vital-stats>

Previous publications of VitalStats can also be accessible through the same link.

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3. Highest Level of Educational Attainment in South Africa (*Mamphokhu Khuluvhe and Welcome Gwantshu*)

This factsheet draws the attention of policymakers and other stakeholders to the progress made by South Africans in terms of their Highest Levels of Educational Attainment (HLEA). It provides signals on how best to balance the provisioning of education at distinct levels of the system and seeks to provide answers to the following research questions:

- What is the HLEA of South Africa's population, including its workforce?
- What is the profile of those who completed education at different levels, disaggregated by race, gender and age?
- How does South Africa compare internationally, in terms of HLEA?

The data in this factsheet demonstrates that the HLEA of South Africans aged 25–64 has risen significantly over the past eight years. For example, the proportion of people in this age group who had a degree as their HLEA increased from 6.0% in 2015 to 7.3% in 2023, while those with secondary education as their HLEA increased from 27.4% in 2015 to 33.0% in 2023. However, racial disparities therein continue to reflect historical legacies, with Whites continuing to have significantly higher levels of education attainment compared with Black Africans and Coloureds. Moreover, a larger share of females appeared to have a degree as their HLEA compared with males in the same year. Despite South Africa's improved performance with regards to its HLEA, it performs relatively poorer compared with many other countries.

According to a global comparative analysis based on the percentage of the population aged 25 and older having at least a finished Bachelor's or equivalent degree (International Standard Classification of Education (ISCED) 6) or above, South Africa's performance (7.7%) was significantly lower than that of several nations in Europe, Asia and the Americas, namely, Singapore (33.0%), Portugal (22.5%) and Denmark (33.1%), all of which have Gross Domestic Products (GDPs) that are comparable with South Africa's. The workforce had a larger proportion of South Africans with a Bachelor's degree (11.8%) than the general population (7.3%).

In the case of unemployed persons, the majority had some secondary as their HLEA. Although there was a substantial rise in the unemployment rate for persons with degrees from 4.1% in 2015 to 7.5% in 2023, the percentage is relatively lower when compared with other lower educational attainment levels. This could suggest that higher educational levels generally correlate with higher employment rates. The results of this study therefore suggest that the government should intensify policy measures so the majority of the work force can improve their educational attainment levels in order to, in turn, improve their prospects for employment.

The factsheet can be accessed on the following link:

<https://lmi-research.org.za/publication/highest-level-of-educational-attainment-in-south-africa-2024/>

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4. Gender Parity in Post-School Education and Training: Access, Completion and Labour Market Status (*Mamphokhu Khuluvhe and Edzani Netshifhefhe*)

This factsheet outlines access and completion in Post-School Education and Training (PSET) institutions, as well as labour market status, in terms of gender. It uses the Gender Parity Index (GPI) to measure relative access to PSET opportunities of males and females. The GPI is often used internationally to compare relative access to education between males and females across various countries. Such comparisons serve as a barometer for how countries perform in terms of equity and transformation, and speak to the proportional representation of historically and currently disadvantaged groups within all levels of the education system.

The findings in this factsheet show that South Africa continues to soar in terms of female representation in PSET institutions in both access (enrolment) and success (completion), even among fields that are traditionally male-dominated, like Science, Engineering and Technology (SET). The GPI for tertiary enrolment has remained among the highest in the world. Although the participation rates of females in the PSET system far exceed that of their male counterparts, there is still disparity in favour of males in the labour market. The high levels of female participation and completion in PSET institutions are commendable and reflect substantial progress towards gender equality. However, it is important to recognise that gender issues still persist in these institutions. The high levels of Gender-Based Violence (GBV) at PSET institutions stand in stark contrast to higher female participation rates at PSET institutions. Factors such as toxic masculinity, patriarchal attitudes, power imbalances and a culture of silence surrounding sexual violence may contribute to the prevalence of GBV.

Moreover, the very high levels of GPI for enrolment and completion in PSET institutions suggest that male participation in PSET is at risk, and that male exclusion and alienation from PSET is slowly becoming a norm. This needs to be addressed, perhaps by targeting greater male enrolment in PSET institutions. According to the United Nations Educational, Scientific and Cultural Organization (UNESCO), all forms of discrimination based on gender are violations of human rights and impede the achievement of the 2030 Agenda for Sustainable Development.

The factsheet can be accessed on the following link:

<https://imi-research.org.za/publication/gender-parity-in-pset-2024/>

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5. Are We Producing Enough Doctoral Graduates in South Africa? (*Mamphokhu Khuluvhe and Edzani Netshifhefhe*)

It is generally well known that investing in the education and training of Doctor of Philosophy (PhD) graduates is essential for a country's long-term growth, development and competitiveness. It is important for a country to have a sufficient number of PhD graduates for several reasons: firstly, countries need enough PhDs to train the next generation of students at Higher Education Institutions (HEIs). Secondly, PhD graduates are often at the forefront of research and innovation in various fields; they contribute new knowledge, ideas and technologies that can drive economic growth and improve the quality of life. Thirdly, countries with a strong base of PhD graduates are more competitive globally – they are better positioned to attract investment, talent and opportunities for collaboration with other countries. Furthermore, they are often perceived as being more advanced and influential on the world stage.

In South Africa, the National Development Plan (NDP) 2030 places higher education as the major driver of information and knowledge systems that contribute to economic development. The NDP recognises that knowledge production must increase if South Africa is to achieve its development goals. The number of doctoral graduates per million of population in 2022 was 61. This is a huge improvement from the 36 doctoral graduates produced in 2012. To ensure that universities contribute to and adequately address the development needs of our society and economy, the NDP has set the following targets to be met by 2030:

- Increase the percentage of academic staff in the higher education sector with a doctoral degree from the current share of 34% to more than 75%.
- Produce more than 100 doctoral graduates per million of population per year.

This factsheet provides insight into the progress made against the goal to increase doctoral graduates in South Africa. It does so by answering the following research question: Are we producing enough doctoral graduates in South Africa?

Despite significant progress in the production of PhD graduates in South Africa over the past decade, it is highly unlikely that the NDP targets will be met by 2030. The number of doctoral graduates produced per year have more than doubled since the inception of the NDP, but it is

not enough to reach 100 per million of population by 2030, because the population has grown over the years. It is therefore proposed that the targets for doctoral graduates be reviewed and aligned with the projected population estimates for 2030. The Department of Higher Education and Training's (DHET's) University Staff Doctoral Programme (USDP), aimed at improving the proportion of university academic staff with PhDs, needs to be strengthened to achieve the target of 75% of academics with PhDs by 2030.

South Africa has fared well in terms of doctoral graduates in relevant fields of study, as most doctoral graduates were in the Science, Engineering and Technology (SET) fields (despite the slight drop in 2022). However, more needs to be done in terms of equity, as there were fewer female doctoral graduates than males. There should also be improved efforts to increase the pipeline of doctoral degree candidates, as the share of postgraduate students enrolled at universities has decreased and remained very low in the last three years.

By investing in research infrastructure, improved funding, more mentorship programmes and collaboration opportunities, South Africa can further enhance its capacity to produce a sufficient number of doctoral candidates who can drive innovation and research excellence, and contribute to the country's long-term development goals. It is imperative for stakeholders across academia, government and industry to work together towards the common goal of strengthening the doctoral education ecosystem in South Africa for a brighter and more prosperous future.

The factsheet can be accessed on the following link:

<https://lmi-research.org.za/publication/are-we-producing-enough-doctoral-graduates-in-south-africa-may2024/>

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6. Throughput Rate of TVET College National Certificate (Vocational) Students 2024 *(Marietta Swart, Mamphokhu Khuluvhe and Welcome Gwantshu)*

Information about throughput rates is crucial to understanding, among others, an education system's level of efficiency. Throughput rates provide insights into how quickly or slowly students move through the system. The slower the movement of students from enrolment to completion, the greater the cost to the system. Moreover, the slow movement of students through the system (which is caused largely by high levels of repetition) creates a bottleneck in the system, resulting in constraints to the number of new entrants admitted to Technical and Vocational Education and Training (TVET) colleges. As the number of students repeating courses overlaps with new student enrolments, entry into required courses becomes harder for all to access. Bottlenecks can cause both the student and the institution to incur increased education costs, waste time and delay completion. Low throughput rates impede student progress, increase costs, and impact negatively on teaching and learning, and on the ability of institutions to facilitate student success. Delays in the completion of qualifications entail a waste of resources both at individual and collective levels. They also deprive the economy of adequate numbers of new graduates.

To that effect, this factsheet provides information and insights into the extent and nature of the throughput rate of TVET college students enrolled in the National Certificate (Vocational) (NC(V)) programmes. The NC(V), which is a three-year qualification, was introduced by the then Department of Education at public TVET colleges in 2007 to respond to the priority skills demands of the South African economy. TVET colleges continue to offer the NC(V); however, many stakeholders have expressed concern about the low numbers of students completing the full NC(V) qualification within expected time frames. Thus, insights from this factsheet can be drawn upon to inform interventions to address relevant challenges and to improve accountability in the system.

This factsheet highlights that only 11.1% of students who enrolled for the NC(V) in 2020 completed the qualification within the three-year expected time frame (in 2022). Furthermore, it shows significant differences in the throughput rates across gender, provinces, TVET colleges and several of the programmes they offer. Limpopo was the leading province, with the highest throughput rate, while Northern Cape had the lowest. Overall, it appears that programmes with a focus on engineering seem to have had the lowest throughput rates, while

the Primary Health, Education and Development, and Office Administration programmes had the highest rates. Challenges in throughput rates raise concerns about high dropout rates, extended study durations, low graduation rates, and the education system's overall efficiency in facilitating student progression. To promote socioeconomic growth in the nation, improve workforce preparedness and guarantee equal access to higher education, it is imperative that throughput rate issues at South African institutions be addressed. Ongoing collaboration between educational institutions and government agencies is essential to implementing effective strategies and supporting student success.

The factsheet can be accessed on the following link:

<https://lmi-research.org.za/publication/throughput-rate-of-tvet-college-ncv-students-2024/>

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7. Persons Who Are Not in Employment, Education or Training (*Mamphokhu Khuluvhe and Welcome Gwantshu*)

The unemployment levels in South Africa are among the highest in the world, and have remained consistently high throughout the period under review. Currently, the overall unemployment rate has worsened to 32.9% as a direct consequence of low levels of economic growth, among other factors. More alarming is that in 2024: Quarter (Q)1, 35.5% of young people aged 15–24 years (3.6 million) were Not in Employment, Education or Training (NEET). Most young people who are NEET are from disadvantaged areas, especially rural communities, where opportunities are limited. This presents itself as an explosive situation that requires urgent attention in the education and training system. Since youth are a fundamental asset to South Africa, empowering them by creating favourable conditions to develop their skills so they can actively participate in the labour market is essential for sound economic and social development, and for the future sustainability of our country.

The Post-School Education and Training (PSET) system has a crucial role to play in expanding access to PSET opportunities beyond current provisioning levels, to accommodate the growing number of people who are NEET, and to reskill and upskill millions of workers who have lost their jobs. This requires PSET institutions to offer a diversity of programmes, not only to take account of the needs of the youth who completed schooling, but also for those who did not complete their schooling, as well as those who require education and training opportunities to live more productive lives as workers and citizens. Monitoring NEET trends is critical, as it can alert policymakers to the extent of the NEET problem and provide insights into the characteristics of those who are NEET.

This factsheet is therefore an essential information resource for policymakers, as well as for education and training providers, to guide improvements in the design and implementation of education and training policies that can respond to the NEET challenge in the country.

This factsheet provides a detailed statistical profile of people who are NEET. Information about NEETs assists the Department of Higher Education and Training (DHET), Community Education and Training (CET) colleges, Technical Vocational Education and Training (TVET) colleges and other stakeholders to make informed decisions about PSET provisioning. NEET data provides the DHET and its stakeholders with evidence that can be used to inform the

development of policy, strategies and interventions, as well as the setting of appropriate targets and effective budgeting.

This factsheet provides a profile of people who were NEET for the period 2017: Q1 to 2024: Q1. As indicated, South Africa has one of the highest NEET rates in the world. Most notable was the substantial and drastic upsurge in the share of NEETs in the 15–60-year-old population, which grew from 38.7% in 2017: Q1 to 43.7% in 2024: Q1. This translates to an increase of around 3.4 million people. Persons who were NEET were predominantly Black African, female, aged 25–34 and probably living in Gauteng, KwaZulu-Natal or Eastern Cape. Additionally, the data reveals that participation in PSET is not keeping pace with the growing number of NEET youths, due largely to significant declines in enrolment in TVET and CET colleges.

Thus, PSET opportunities are not enough to curb the high number of people who are NEET in the country. The majority of persons who are NEET in South Africa have education levels below matric, suggesting that higher levels of educational attainment are a contributing factor to the reduction of NEETs in South Africa. Overall, the PSET system has a crucial role to play in enabling the attainment of basic skills, including reskilling and upskilling.

The factsheet can be accessed on the following link:

<https://lmi-research.org.za/publication/persons-who-are-not-in-employment-education-or-training-neet-2024/>

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8. Access to Tertiary Education in South Africa: Country Comparison Using Gross Enrolment Ratio (*Mamphokhu Khuluvhe and Edzani Netshifhehe*)

The level of participation in tertiary education is considered a key social and economic indicator internationally, primarily because tertiary education is crucial for developing a highly skilled, knowledgeable and innovative workforce. In turn, this is essential for economic growth and competitiveness in the modern, knowledge-based economy. Higher levels of tertiary educational attainment generally correlate with increased productivity, technological advancements, and the ability to adapt to changing economic and social conditions. Moreover, access to tertiary education provides individuals, especially those from disadvantaged backgrounds, with opportunities for social and economic mobility, helping to reduce inequality and promote more inclusive societies. In addition, increased participation in tertiary education can lead to better employment prospects, higher incomes, and improved living standards, contributing to greater social cohesion and equality.

Tertiary education is essential for individual development, economic prosperity, social progress and global advancement. Investing in higher education yields numerous benefits for individuals, societies and the world at large, making it a critical component of sustainable development and prosperity. Tertiary education equips students with the skills needed to meet the everchanging labour market and, for those students in vulnerable circumstances, it is a passport to economic security and a stable future.

Over the past four years, South Africa has seen a substantial rise in tertiary education participation rates. Given past trends, it is evident that the National Development Plan's (NDP's) target of a 30% participation rate for higher education by 2030 will most likely be met. However, South Africa's tertiary education participation rate remains significantly lower than those observed in similar middle-income countries such as Brazil, Russia, India, and China. This finding calls for improved strategic measures and innovative solutions by the South African government, to enhance access to higher education, thereby promoting inclusivity, equity and socio-economic advancement.

The level of participation in tertiary education has key implications for a country's international position on the production of graduates. The National Planning Commission notes that although the South African higher education system functions relatively well, the system still

suffers from low participation rates, making it a mid-level performer in terms of knowledge production, by international standards.

The Gross Enrolment Ratio (GER) is commonly used to measure the degree of participation in tertiary education. It is often used to compare the education levels of people across countries. The GER is an important indicator for policymakers and educators to track progress towards educational goals, detect gaps, and conduct targeted interventions to increase access to high-quality education for all.

The factsheet can be accessed on the following link:

<https://lmi-research.org.za/publication/access-to-tertiary-education-in-sa-country-comparison-using-gross-enrolment-ratio-2024/>

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9. Characteristics of the South African Labour Force (*Mamphokhu Khuluvhe and Welcome Gwantshu*)

This factsheet provides information about the size and shape of the South African labour force, with particular emphasis on education and training. The analysis of the labour force provides crucial insights into the development and monitoring of policy measures aimed at boosting skills development and job creation. Improved and inclusive access to Post-School Education and Training (PSET) opportunities, especially increased shares of those with degrees in the labour force, contributes positively towards the growth of the economy and its global competitiveness.

This factsheet reveals that about two-thirds of South Africa's labour force was employed in 2023 (16.3 million), while one-third (7.8 million) was unemployed. However, there was a substantial increase in the number of persons employed in 2023 compared with 2022. This was due largely to recovery from the Corona Virus Disease (COVID)-19 pandemic. The increase in employment levels was mainly driven by gains in the community and social services, trade and manufacturing sectors. Although there was a slight recovery in employment, the number of persons employed remain staggeringly low and represents a major social risk for South Africa.

This suggests a need for government to provide and prioritise initiatives that will reintegrate those who have lost jobs during the COVID-19 period back into the labour market, as well as grow the economy to absorb both new entrants and long-term unemployed persons. The findings from this factsheet also demonstrate a strong correlation between higher levels of education and higher employment rates, as the absorption rates were higher for persons with higher levels of education (e.g., tertiary), compared to those who had lower levels of educational attainment. Improved equitable access to PSET opportunities, especially higher levels of educational attainment like tertiary education, can increase the chances of the unemployed to secure better employment opportunities.

The factsheet can be accessed on the following link:

<https://lmi-research.org.za/publication/characteristics-south-africa-labour-force-2024/>

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10. Adult Illiteracy in South Africa (*Mamphokhu Khuluvhe and Welcome Gwantshu*)

Adult illiteracy continues to pose an obstacle to social, economic and political advancement in South Africa. Although significant strides have been made in improving education outcomes since 1994, a small proportion of adults remain illiterate, especially in marginalised communities. Other factors that limit educational chances are poverty, a lack of funding for education and poor infrastructure. Adults who are illiterate struggle to obtain jobs, get access to healthcare and engage fully in community activities. Insufficient reading comprehension limits their capacity to function in the contemporary environment, impeding both individual development and community progress. Furthermore, illiteracy frequently results in fewer chances for the following generations, keeping families stuck in a cycle of disadvantages.

The White Paper on Post-School Education and Training (WPPSET) (Department of Higher Education and Training (DHET), 2013) calls on Community Education and Training (CET) colleges to target adults who, for a variety of reasons, never went to school or did not finish their education (DHET, 2013). According to Talbot (1916), 'literacy is the first requisite for democracy' and, unless ways are provided to reach the illiterate and near-illiterate, illiteracy unnecessarily complicates every social problem and makes them difficult to solve, because social and representative administration is based on the implicit assumption of universal capacity to read and write (Talbot, 1916).

This factsheet reveals a significant and consistent reduction in the adult illiteracy rate in South Africa over the past decade. This finding is indeed celebratory. However, it is concerning that almost 4 million adults, particularly in the North-West, Eastern Cape and KwaZulu-Natal were still illiterate in 2022. It is therefore evident that CET colleges need to continue providing Adult Basic Education and Training (ABET) programmes to further reduce illiteracy in South Africa, especially in the provinces with the highest number of illiterate adults. The CET sector needs to set a target for reducing illiteracy rates and ensure the provisioning of quality ABET programmes that address illiteracy. Through investment in education, community-based initiatives and the promotion of a lifelong learning culture, South Africa can equip its adult population with the information and skills required for both personal fulfilment and significant societal contribution, thus breaking the cycle of illiteracy.

The factsheet can be accessed on the following link:

<https://lmi-research.org.za/publication/adult-illiteracy-in-south-africa-2024/>

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11. Funding and Expenditure Trends in Post-School Education and Training ***(Mamphokhu Khuluvhe and Edzani Netshifhefhe)***

The purpose of this report is to provide a high-level overview and analysis of funding and expenditure trends in the Post-School Education and Training (PSET) system. The report provides an analysis of public budgetary or expenditure trends on PSET for the period 2019/20 to 2021/22. The report further provides Treasury-estimated budgetary projections until 2025/26. The period of review is guided by the latest available data. Consumer Price Index (CPI) inflation is used in this report to convert nominal or current values to real values, where applicable. The January 2023 CPI numbers from Statistics South Africa (Stats SA), and National Treasury's 2023 budget review CPI inflation projections, were used in this regard. The 2015/16 base year has been used to transform nominal or current values to real values.

Government expenditure on PSET in South Africa has been steadily increasing over the past few years. This reflects government's commitment to investing in the development of a skilled and capable workforce, and promoting access to education for all. The increased expenditure demonstrates the recognition of the importance of lifelong learning, and the need to equip individuals with the necessary skills and knowledge to thrive in a rapidly changing world. However, it is important to ensure that these funds are effectively utilised, and that there is a focus on quality education to maximise the impact of this investment. Furthermore, the data in this report shows that despite the increase in public expenditure on PSET, it has remained inadequate to meet the National Development Plan (NDP) targets for enrolment in the Technical and Vocational Education and Training (TVET) and Community Education and Training (CET) sub-sectors. It is also inadequate to address the funding of students in the 'missing middle' income bracket and postgraduate students who cannot source funding from the National Research Foundation (NRF).

It is encouraging that, in January 2024, the former Minister of Higher Education, Science and Technology announced the implementation of phase 1 of the comprehensive student funding model. This will ensure that the missing-middle students (i.e., those who come from families with a total income of more than R350 000 but not more than R600 000 per annum) will be able to access financial support from government in the form of a loan to pursue their studies. It was announced that government has committed R3.8 billion to support the loan scheme, which is expected to fund 47% of the total estimated missing-middle students.

This report draws attention to two interesting findings. Firstly, although public spending in the university sector is over three times more than the TVET college sector, the difference in expenditure reduces considerably when examining per-capita expenditure of Full-Time Equivalent (FTE) students. More specifically, the real cost for training an FTE public university student was only R10 400 more than the cost of training a TVET college student in 2021/22.

Real per FTE student public expenditure at universities and TVET colleges is not comparable with the figures published in the previous reports, because it excludes the National Student Financial Aid Scheme (NSFAS) due to outstanding audit processes. Although the amount of NSFAS is reported in the Estimates of National Expenditure, there is no indication of how much was split between universities and TVET colleges. These figures should therefore be interpreted with caution. This difference in real per FTE student expenditure is expected, considering the different kinds of programmes offered by the two institutions. In effect, this report reveals that when interrogating the distribution of public funding between TVET colleges and universities, it is imperative to consider per-capita expenditure for FTE students in such analysis.

The second observation of interest in this report relates to the indicators on tertiary education. The report shows that South Africa's expenditure on tertiary education is relatively low compared with similar-income countries. However, expenditure on tertiary education in terms of Gross Domestic Product (GDP) per capita is extraordinarily higher relative to similar income countries. South Africa has continued to prioritise education, together with other social functions. Spending on education as a percentage of total government expenditure and GDP far exceeds the benchmarks set by the United Nations Educational, Scientific and Cultural Organization (UNESCO), which recommends allocating 15–20% of total government expenditure to education and 4–6% of GDP to education. When compared with other countries, South Africa's total government expenditure on education as a percentage of government expenditure far exceeds other BRIC (Brazil, Russia, India, and China) countries, and even exceeds Organisation for Economic Co-operation and Development (OECD) countries' average, as well as all comparative countries in terms of its spend on education as a percentage of GDP (except for Brazil).

The factsheet can be accessed on the following link:

<https://lmi-research.org.za/publication/funding-expenditure-trends-pset-2024/>

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12. Factsheet on Gender for Students in Post-School Education and Training Institutions, 2022 (*Nthabiseng Tema and Sonnyboy Manthata*)

The Department of Higher Education and Training (DHET publishes, among others, annual statistics on Post-School Education and Training (PSET) institutions, which also covers the enrolment and graduates' data by gender. This assists the Department in tracking progress toward improved access; however, the gender analysis on this aspect is limited. Gender analysis of access to PSET institutions is an important indicator as it gives an indication on the provision of education and equality in terms of accessing PSET institutions.

In summary, the factsheet indicates that in 2022, overall enrolment in public Higher Education Institutions (HEIs) was higher as compared to the other sub-sectors, and over 60% of students were females as compared to 37.9% males. Female dominance was observed in all fields of study, and the most noticeable difference was in the Education field of study, where 74.2% were females as opposed to 25.8% of males in the same field. The proportion of enrolment in the Science, Engineering and Technology (SET) field of study was similar for females and males (50.6% and 49.4% respectively).

In private HEIs, females' enrolment was higher (62.0%) as compared to 37.8% of males. The majority of students chose to enrol in Business, Commerce, and Management Studies. Over 85% of students enrolled in the Education, Training, and Development, Health Sciences, and Social Services fields were female. The fields of Manufacturing, Engineering, Technology, Physical, Mathematical, Computer and Life Sciences, Physical Planning and Construction, Agriculture and Nature Conservation were, on the other hand dominated by men.

Females made up 65.2% of enrolment in TVET colleges, while males comprised 34.8% of total enrolment. Except for skills programmes, female enrolment in TVET colleges was strong across nearly all programmes. The highest variation in terms of proportions was observed in Level 5 and Level 6 qualifications, where female students accounted for over 88% of enrolment. The second largest variation was in NC(V) programmes, where a significant proportion of enrolments were for females (70.6%), compared to 29.4% males. In terms of numbers, the largest gender differences were observed in Report 191 and NC(V), where 98 497 and 55 889 more females than males enrolled.

In private colleges, a slightly higher proportion of males (53.8%) enrolled compared to 46.2% of females. The majority of male students enrolled in National Certificate: (Vocational) (NC(V)), Report 191 and skills programmes, while female students had a higher proportion in occupational qualifications and Report 550/National Senior Certificate (NSC). When it comes to Community Education and Training (CET) colleges, female students made up over 71.4% of enrolments compared to 28.6% of males. The largest gender variations were observed in the General Education and Training Certificate (GETC) - Adult Basic Education and Training (ABET) level 4 and Grade 12 enrolment, where 25 837 and 25 237 more females enrolled than males.

These results show that there is a difference in the types of qualifications that males enrol in and complete as opposed to females, even though enrolment and graduation numbers were greater for females than for males in almost all PSET sectors. This could be of interest if the Department needs to comprehend the driving forces behind these decisions, and the implications for the future.

The factsheet can be accessed on the following link:

https://www.dhet.gov.za/Planning%20Monitoring%20and%20Evaluation%20Coordination/Factsheet%20on%20Gender%20for%20Students%20in%20PSET%20Institutions_2022.pdf

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13. Factsheet on New Entrants in Technical and Vocational Education and Training Colleges: 2022 (*Nthabiseng Tema and Sonnyboy Manthata*)

The Department of Higher Education and Training (DHET) regularly publishes annual statistics on Post-School Education and Training (PSET) institutions. However, it is worth noting that the report does not cover information pertaining to new entrants in the Technical and Vocational and Education and Training (TVET) colleges. This gap has prompted the development of this factsheet.

Data on new entrants in TVET colleges is crucial for assessing the demand for new enrolments and the necessity for adequate physical facilities. It also offer insights on the capacity of TVET colleges to accommodate potential new entrants. Such data can be used undertake future projections of new entrants and thereby support enrolment planning in TVET colleges. These projections can be used by DHET to communicate education and training opportunities at TVET colleges to the public and prospective students.

In 2022, new entrants in TVET colleges were 176 548, which was 9.7% lower compared to 195 420 recorded in 2021. In 2022, declines were recorded in almost all programmes except Level 5 and 6 qualifications which recorded an increase between 2021 and 2022. Female students made up the majority of new entrants, though their numbers also fell, particularly in Report 191. A significant gender gap was observed in National Certificate (Vocational) (NC(V)) programmes, with females predominantly enrolling in Office Administration. Enrolment in Report 191 indicates that almost half of male students enrolled in Engineering Studies (43.8%), and the proportion of females enrolled for the same programme was lower (19.9%).

Despite overall declines, some TVET colleges like Letaba and Capricorn reported increased new entrants, while others, including Northlink and Gert Sibande, saw significant decreases. Over 61% of new entrants were aged 20-24 years, and the majority enrolled in Report 191 and NC(V) programmes. The older students (30 years and above) enrolled mainly in Report 191 and occupational qualifications.

Further analysis revealed that 54 929 of the new entrants had written the Grade 12/National Senior Certificate (NSC) examinations in 2021. Nearly one-third of these students achieved a

Diploma pass, and a similar proportion (21.3%) obtained a Bachelor's degree pass or did not complete their NSC.

The factsheet can be accessed on the following link:

https://www.dhet.gov.za/Planning%20Monitoring%20and%20Evaluation%20Coordination/Factsheet%20on%20new%20entrants%20in%20TVET%20colleges_2022.pdf

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14. The Factsheet on the Number of Students who Enrolled and Completed their Studies During the Academic Year 2023 (*Suyekiye Jeanneth Nxumalo*)

The South African Nursing Council (SANC) publishes annual and time-series statistics. Annual statistics show either the figures at the end of the year or the number (counts) of items over the period of a particular year. Time-series statistics show the changing figures from year to year over a period of up to 10 years.

The provided statistics are for the year 2023. The statistics provide crucial information which assists in development/review of policies and decision-making.

The annual statistics depict the number of students who were enrolled in 2023 for the Higher Education Qualifications Sub-Framework (HEQSF)-aligned nursing qualifications including legacy the legacy qualifications from different institutional types (universities, public colleges, and private institutions).

Commencement of Nursing Programmes:

SANC registered 5,214 students who enrolled in various undergraduate programmes that were HEQSF-compliant, including legacy basic programmes. Additionally, SANC registered 671 students who enrolled in postgraduate diploma programmes that were HEQSF-compliant, including legacy additional programmes.

In summary, 5,885 students were registered for both undergraduate (basic) and postgraduate (additional qualification) programmes.

Completion of Nursing Programmes:

SANC registered 7145 students who completed education and training for various undergraduate programmes that were HEQSF-compliant, including legacy basic programmes. Additionally, SANC registered 1106 students who completed education and training for postgraduate diploma programmes that were HEQSF-compliant, including legacy additional programmes.

In summary, 8251 students were registered for both undergraduate (basic) and postgraduate (additional qualification) programmes.

Additional information can be obtained accessible through the following link:

<http://www.sanc.co.za/statistics/>

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