Equity and inclusion in technical and vocational education and training (TVET) colleges: Addressing the needs of rural and marginalized students through a cross-sectional Mixed-methods study.

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Abstract
Background
Technical and Vocational Education and Training (TVET) colleges in South Africa play a critical role in promoting inclusive education and economic development. However, rural and marginalized students often face systemic challenges that hinder their access to, participation in, and successful completion of TVET programs. This study investigates how equity and inclusion are implemented in TVET colleges, with a focus on the lived experiences of rural and marginalized students.

Methods
A cross-sectional mixed-methods design was employed. Quantitative data were collected from 120 students across four public TVET colleges in KwaZulu-Natal through structured questionnaires, with 30 participants drawn from each institution. Additionally, 16 in-depth interviews were conducted with lecturers, academic support staff, and administrators.

Results
Participants included 120 students (58 males, 62 females) aged 18–35 years, with the majority (72%) originating from rural areas and the remainder from peri-urban campuses. About 64% reported being first-generation college students, and 59% came from households earning below the national poverty line. Language diversity was notable, with isiZulu as the dominant home language (74%), followed by isiXhosa (12%) and English (9%). Among staff participants (n=16), 10 were lecturers, 4 were academic support officers, and 2 were administrators, with professional experience ranging from 3 to 20 years. Overall, 68% of students reported persistent challenges with transport, digital access, and language barriers, while more than 70% cited financial constraints as negatively affecting academic progress. Qualitative findings underscored cultural insensitivity in teaching and limited institutional awareness of rural students' unique needs.

Conclusion
There remains a disconnect between equity policy and practice, leaving rural and marginalized students vulnerable to systemic exclusion.

Recommendations
TVET colleges should strengthen support systems, expand rural outreach, invest in culturally responsive teaching, and provide continuous professional development for staff on inclusive education.

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Background information

Technical and Vocational Education and Training (TVET) colleges in South Africa have been identified as critical drivers of national development, youth employability, and inclusive education. Positioned within the broader post-school education and training system, these institutions aim to provide practical skills and competencies that address the

country's high levels of youth unemployment and skills shortages. In line with the White Paper for Post-School Education and Training (DHET, 2013), TVET colleges are mandated to promote equity, access, and redress, especially for students from historically disadvantaged and underserved communities. Despite these policy intentions, rural and marginalized students continue to face numerous structural and institutional barriers within the TVET sector. These include geographic isolation, poor transport infrastructure, digital exclusion, financial constraints, and limited academic and psychosocial support. Additionally, institutional cultures and pedagogical practices often fail to reflect the lived realities of rural learners, resulting in a sense of alienation and disempowerment.

Although equity and inclusion are emphasized in national policy, there is a growing concern that these commitments are not being effectively translated into practice at the institutional level. Previous studies have shown that the gap between equity policies and their implementation is often due to a lack of institutional capacity, inadequate funding, and limited staff training on inclusive education (Akoojee, 2008; Papier, 2017). Furthermore, the intersectionality of socio-economic disadvantage, language barriers, and geographic marginalization compounds the vulnerability of affected students. Without deliberate and context-sensitive interventions, the risk of student disengagement, academic failure, and dropout remains high. This study, therefore, seeks to explore how equity and inclusion are experienced by rural and marginalized students in TVET colleges and to examine the extent to which institutional policies and practices address their needs. The primary objective is to assess the alignment between policy intent and implementation, and to provide evidence-based recommendations for enhancing inclusion within the TVET sector.

Methodology
Study design
This study employed a cross-sectional mixed-methods design, combining quantitative and qualitative approaches to provide a comprehensive understanding of equity and inclusion in TVET colleges. The design enabled the researchers to capture the current experiences of students and staff at a single point in time while allowing for both statistical analysis and thematic exploration of perceptions and challenges.

Study setting
The study was conducted across four public TVET colleges located in KwaZulu-Natal, South Africa. These institutions were selected based on their geographic diversity, covering both rural and peri-urban campuses to reflect a range of socio-economic contexts. The data collection took place from 15 March to 30 April 2024.

Participants
Participants included 120 students and 16 staff members (lecturers, academic support personnel, and administrators). Students were eligible if they were enrolled full-time at any of the four selected TVET colleges and self-identified as coming from a rural or marginalized background. Staff participants were selected based on their involvement in student support, policy implementation, or curriculum delivery. A purposive sampling method was used to ensure a diverse mix of participants from different campuses and backgrounds. From each college, 30 students were selected, ensuring equal representation across institutions.

Social demographics of the participants
Student participants (n = 120)
The student participants were drawn from four public TVET colleges in KwaZulu-Natal, with 30 students selected from each institution. All students were full-time enrollees and self-identified as being from rural or marginalized communities.

Bias
To reduce selection bias, purposive sampling was guided by predefined inclusion criteria (rural origin, full-time enrolment). The use of both student and staff perspectives also helped mitigate response bias by triangulating data sources. To minimize researcher bias, data collection tools were pilot-tested, and coding during qualitative analysis was conducted independently by two researchers before consensus was reached.

Study size
The sample size of 120 students was determined based on feasibility and the need for statistical reliability within a cross-sectional study design. Thirty students per institution ensured campus-level representation while maintaining manageable group sizes for focus groups and questionnaire administration. The 16 staff participants provided

complementary qualitative data to contextualize institutional practices and policies.

Data measurement / sources

Quantitative data were collected using structured questionnaires with closed-ended questions focusing on access, support, and equity-related experiences. Qualitative data were collected through open-ended questions, focus group discussions with students, and semi-structured interviews with staff. All instruments were developed based on prior literature and refined through pilot testing to ensure clarity and relevance.

Statistical analysis

Quantitative data were analysed using descriptive statistics (percentages, frequencies) and inferential statistics where appropriate, using SPSS Version 26. Themes from qualitative data were identified through thematic analysis, using a manual coding framework followed by categorization of recurring patterns. Missing data were addressed through pairwise deletion for quantitative responses and exclusion of incomplete narratives for qualitative analysis, without altering the thematic outcomes.

Ethical consideration

The study received ethical clearance from the Research Ethics Committee of TVET Colleges KZN on 11 February 2024. All participants provided informed consent before participation, and confidentiality was maintained throughout the research process.

Research and findings

The demographic characteristics of the student group are summarized below:

- **Gender**:
  - Female: 62 (52%)
  - Male: 58 (48%)
- **Age Range**:
  - 18–24 years: 72 (60%)
  - 25–30 years: 38 (32%)
  - Over 30 years: 10 (8%)
- **Language Background**:
  - isiZulu: 93 (78%)
  - English (as second language): 18 (15%)
  - Other (Xitsonga, isiXhosa, Sesotho): 9 (7%)

- **Geographic Origin**:
  - Deep rural areas: 66 (55%)
  - Peri-urban areas: 54 (45%)
- **Year of Study**:
  - First-year: 41 (34%)
  - Second-year: 45 (38%)
  - Third-year: 34 (28%)
- **Access to Digital Tools**:
  - Owns smartphone only: 85 (71%)
  - Owns both smartphone and laptop: 28 (23%)
  - No personal digital device: 7 (6%)
- **Financial Support Type**:
  - NSFAS beneficiary: 92 (77%)
  - Self-funded: 21 (18%)
  - Sponsored by private entity or NGO: 7 (5%)

Staff participants (n = 16)

The staff participants included lecturers, student support officers, and campus administrators directly involved in academic delivery and support functions. Their demographic characteristics are outlined below:

- **Gender**:
  - Female: 9 (56%)
  - Male: 7 (44%)
- **Professional Role**:
  - Lecturers: 8
  - Student support staff: 4
  - Administrators: 4
- **Years of Experience in the TVET Sector**:
  - 1–5 years: 5
  - 6–10 years: 6
  - Over 10 years: 5
- **Training on Inclusive Education**:
  - Received formal training: 4
  - No formal training but some exposure through workshops: 7
  - No prior training or exposure: 5

Participants flow

The table below shows the number of participants at each stage of the study for both the student survey and the staff interviews. A flow diagram can also be included for visual clarity if required by the reporting guidelines.

Stage	Students (Quantitative)	Staff (Qualitative)	Notes
Potentially eligible	150 approached	20 approached	Recruited from 4 TVET colleges (rural & peri-urban)
Examined for eligibility	140 screened	18 screened	Based on enrolment (students) & teaching/support role (staff)
Confirmed eligible	130	16	After applying the inclusion/exclusion criteria
Included in the study	120	16	Consented and participated fully
Analysed	120	16	No withdrawals or incomplete cases

Thematic analysis

Number of coders: Two independent researchers coded the transcripts, cross-checked themes, and reconciled discrepancies.

Theme derivation: Themes were inductively derived from the data using Braun & Clarke's six-phase framework.

Codes Identified	Themes Developed
Transport difficulties, poor connectivity	Structural barriers to access
Financial stress, part-time work, and lack of bursary support	Socio-economic constraints
Language barriers, isiZulu vs. English instruction	Linguistic and cultural challenges
Absence of mentorship, limited counselling	Weak academic and social support systems
Unequal resource allocation across campuses	Policy–practice gaps in equity implementation

Illustrative respondent quotations

- *"I sometimes miss classes because the bus from my village only comes twice a day. If I miss it, I lose a whole day." (Student 04, female, 21)*
- *"The equity policies look good on paper, but at the campus level, we do not have the staff capacity to implement them." (Lecturer 02, male, 45)*
- *"English is the only language used in exams, but many of us think and understand better in isiZulu. That makes it harder to perform well." (Student 11, male, 23)*
- *"We have no targeted support programs for rural students. It is assumed they will cope like everyone else, but the reality is different." (Support Officer 01, female, 38)*

Figure 1 illustrates the key challenges reported by rural and marginalized students in TVET colleges based on structured questionnaire responses. A significant 70% of students indicated that financial limitations were the most pressing barrier affecting their academic engagement and prospects of completing their programs. Additionally, 68% of respondents consistently reported challenges related to transport, digital access, and language barriers. These high percentages suggest that structural and socio-economic obstacles are widespread across the sampled colleges, impacting students' ability to fully participate in their educational journeys. The proximity in percentage values across these categories also implies that these challenges are not isolated but rather interlinked, compounding students' vulnerability and marginalization within the TVET system. These findings align with broader national concerns about inequality in educational access for rural youth.
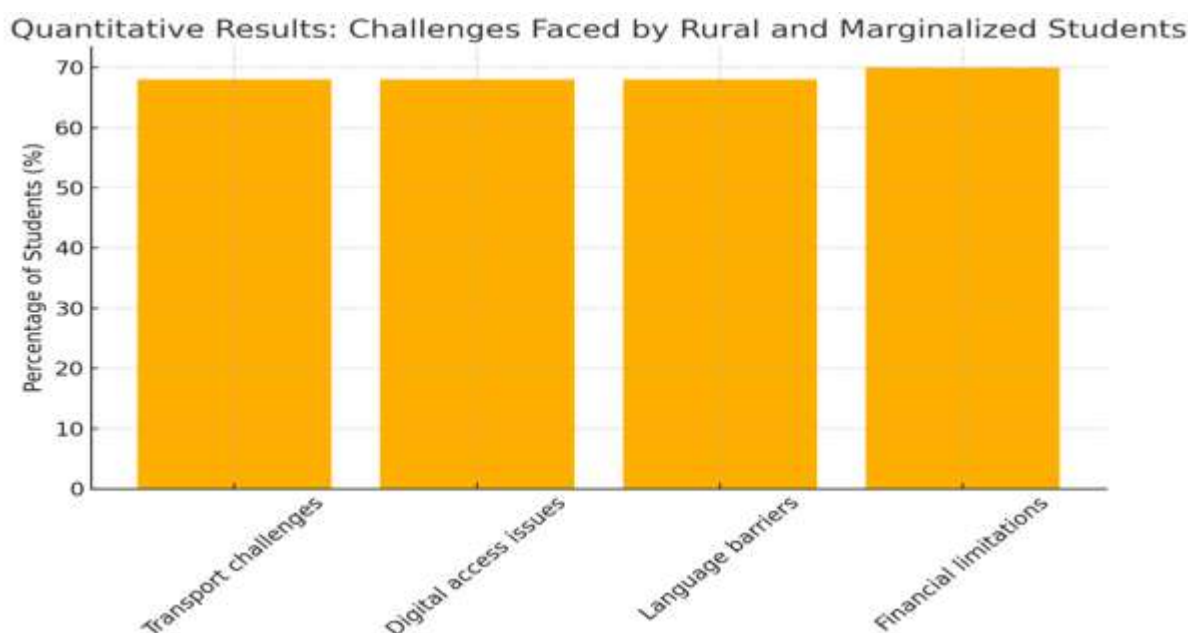
Figure 1: The bar graph shows the percentage of students who reported challenges with transport, digital access, language, and finances.

Figure 2 presents the frequency of major themes that emerged from qualitative data collected through focus group discussions and interviews. The most prevalent theme, mentioned 50 times, was the lack of targeted academic support for students from marginalized backgrounds. This was followed by concerns around cultural insensitivity in teaching practices (40 mentions) and limited awareness among staff about the unique needs of rural students (45 mentions). These themes collectively reveal significant implementation gaps in institutional equity policies. While policy frameworks may exist, they are not sufficiently supported by practical, day-to-day interventions that respond to students' lived realities. The high frequency of these themes highlights the urgency for training and resource allocation to enable staff to better serve a diverse student population. The qualitative data complements the quantitative findings by offering deeper insights into how systemic challenges are experienced and perceived on the ground.
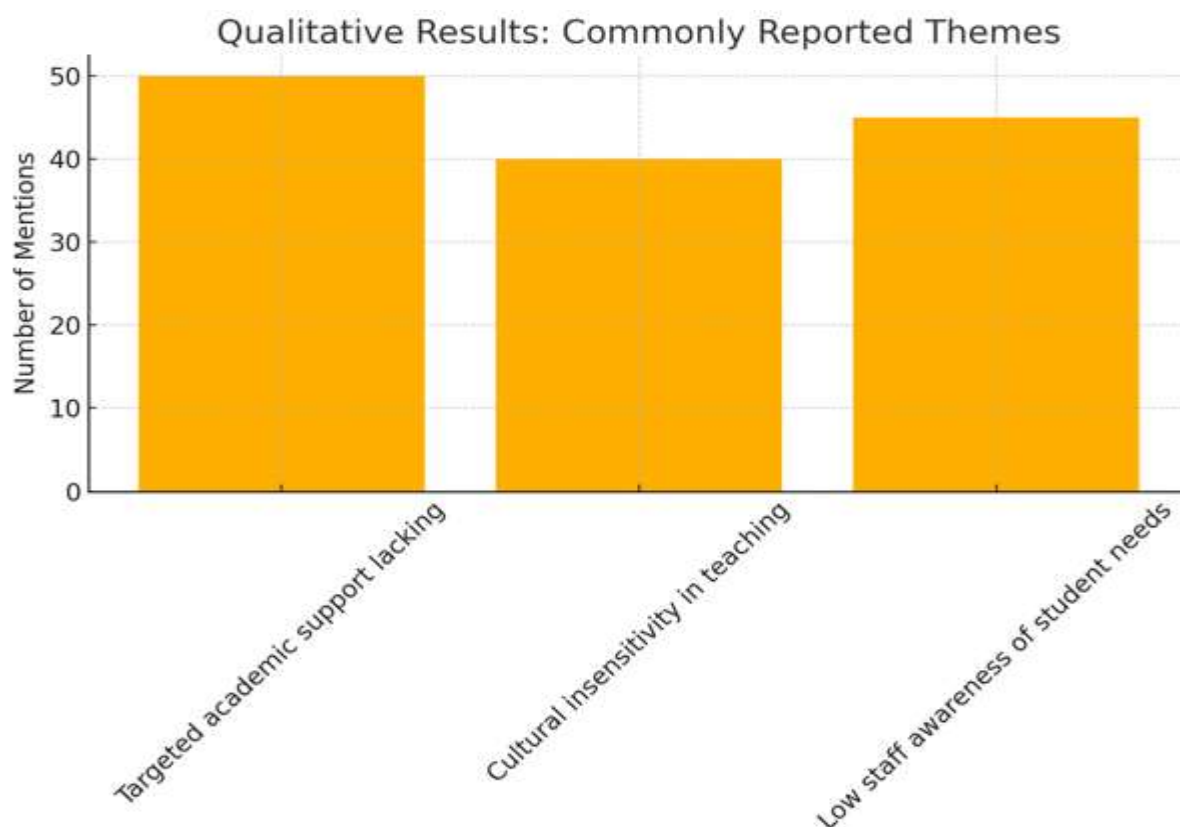
Figure 2: The bar graph represents the frequency of key themes from student and staff narratives, highlighting gaps in academic support, cultural insensitivity, and low staff awareness.

Discussion

The findings of this study, as illustrated in the graphs, reveal the pervasive structural and institutional challenges that continue to impede the success of rural and marginalized students in TVET colleges. The quantitative results show that over 68% of students reported difficulties related to transportation, digital access, and language barriers, while financial hardship was identified by 70% of respondents as a critical obstacle to academic engagement and completion. These findings are consistent with those of Lolwana (2015), who argued that TVET colleges often fail to provide adequate logistical and financial support to rural students, thereby perpetuating educational inequality. The qualitative results further deepen this understanding by highlighting themes of institutional neglect. The most frequently reported issue was the lack of targeted academic support (50 mentions), followed closely by limited staff awareness of rural student needs (45 mentions) and cultural insensitivity in teaching approaches (40 mentions). These findings reinforce the argument made by Akoojee (2008), who emphasized that while South African TVET colleges have inclusive policies on paper, practical implementation often remains weak due to insufficient capacity, fragmented support services, and undertrained personnel.

The graphs underscore a key concern: the disconnect between policy and practice. Although the Department of Higher Education and Training (DHET, 2013) has promoted equity and access as national priorities, these ideals have not been consistently realized at the institutional level. The study by Papier (2017) also found that students from

underprivileged backgrounds were more likely to drop out due to a lack of academic and emotional support, echoing this study's findings regarding students' feelings of exclusion and isolation. Moreover, the findings highlight the multidimensional nature of exclusion. The overlap in percentage values in the quantitative graph suggests that challenges such as transport, finances, and digital access are interconnected, aligning with the intersectionality framework described by Walker and Mathebula (2020). These overlapping barriers not only hinder educational access but also diminish the overall student experience, resulting in lower retention and success rates. In sum, the results presented in the graphs provide both a quantitative and qualitative account of exclusion in TVET colleges. They validate prior studies while offering new insights into how rural and marginalized students navigate institutional spaces designed without sufficient regard for their realities. These findings call for urgent reforms that go beyond policy declarations to implement inclusive practices and responsive support systems.

Generalizability
The findings of this study may be most applicable to TVET colleges in KwaZulu-Natal and similar socio-economic contexts in South Africa. Given the purposive sampling and qualitative components, the results are not statistically generalizable to all TVET institutions. However, the patterns and themes identified offer valuable insights that may inform national strategies and policies aimed at improving equity and inclusion across the broader TVET sector.

Conclusion
This study highlights the significant and persistent barriers faced by rural and marginalized students in TVET colleges in KwaZulu-Natal. Both quantitative and qualitative findings revealed that students encounter intersecting challenges, including financial hardship, poor transport infrastructure, language difficulties, and limited digital access. Although TVET colleges have equity-oriented policies in place, their inconsistent implementation contributes to students' feelings of exclusion and disempowerment. The study concludes that equity and inclusion in TVET institutions remain more aspirational than experiential for many students, and that real transformation requires systemic, context-sensitive interventions.

Limitations of the study
While this study provides valuable insights, it is not without limitations. First, the use of self-reported data may introduce bias, as participants may over- or underreport their experiences. Second, the study was limited to four public TVET colleges in KwaZulu-Natal, which may not fully capture the diversity of experiences in other provinces. Additionally, although the study included 120 students and 16 staff members, the sample may not represent the full spectrum of stakeholders, such as parents, employers, or policy implementers. Finally, the cross-sectional design captures experiences at a single point in time and may not reflect changes or improvements in policy and practice over time.

Recommendations
To bridge the gap between equity policy and student experience, TVET colleges must adopt a more targeted, context-sensitive approach to institutional transformation. First, student support systems should be strengthened to address the practical barriers faced by rural and marginalized learners. This includes the provision of transport subsidies, expanded financial aid, multilingual academic support, and access to digital resources. Second, localized interventions should be developed to reflect the specific socio-economic and geographic realities of different campuses, particularly those serving remote communities. Staff development is also crucial; educators and support personnel require continuous professional training on inclusive pedagogy, cultural competence, and effective engagement with diverse student populations. Furthermore, the implementation of equity policies should be supported by clear monitoring and evaluation mechanisms to ensure accountability and continuous improvement. Lastly, student voices must be meaningfully integrated into institutional planning and decision-making processes. Establishing formal feedback platforms and participatory governance structures will not only empower students but also ensure that inclusion strategies are responsive to their evolving needs. Through these coordinated efforts, TVET colleges can transform inclusion from a policy ideal into a lived reality for all students.

Biography

Dr. Sibonelo Thanda Mbanjwa is a dedicated lecturer in the Department of Nature Conservation at Mangosuthu University of Technology (MUT), South Africa. He holds a Ph.D. in Environmental Science and specializes in biodiversity conservation, sustainable development, and environmental education. Dr. Mbanjwa is deeply committed to community engagement, student mentorship, and the integration of indigenous knowledge systems into conservation practices. His work bridges academia and practical application, empowering students and communities through innovative teaching, research, and outreach initiatives.

Competing interests

The author has no relevant financial or non-financial interests to disclose.

Author contributions

I, the author, contributed to the study conception and design. Material preparation, data collection, and research were performed by Mbanjwa S.T. The first draft was written by Mbanjwa S.T.

Data availability

The data supporting the findings of this study are available upon reasonable request from the corresponding author. Due to ethical considerations and confidentiality agreements, individual participant data cannot be publicly shared. However, anonymized and aggregated data may be provided for academic or research purposes upon institutional approval.

References

1. Akoojee, S. (2008). FET College Lecturers: The 'Devolving' Link in the South African Skills Development Equation. *Journal of Vocational Education & Training*, 60(3), 297–313. https://doi.org/10.1080/13636820802305645
2. DHET (Department of Higher Education and Training). (2013). *White Paper for Post-School Education and Training: Building an Expanded, Effective and Integrated Post-School System*. Pretoria: Government Printer.
3. Lolwana, P. (2015). The South African Post-School Education and Training Policy and the Challenge of Youth Unemployment. *Journal of Vocational, Adult and Continuing Education and Training*, 1(1), 1–18.
4. Papier, J. (2017). Supporting Student Success in South African TVET Colleges: Challenges and Possibilities. *Southern African Review of Education*, 23(1), 54–70.
5. Walker, M., & Mathebula, T. (2020). A Capabilities-Based Equity Agenda for South African Higher Education: Implications for Policy and Pedagogy. *Higher Education Quarterly*, 74(4), 351–366.

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