A CROSS-SECTIONAL STUDY ASSESSING THE FUTURE OF COMMUNITY–UNIVERSITY RELATIONSHIPS IN THE FACE OF EMERGING TRENDS AND GLOBAL CHALLENGES SUCH AS CLIMATE CHANGE AND SOCIAL UNREST.

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ABSTRACT

Background
Community University Partnerships (CUPs) in post-apartheid South Africa emerged as mechanisms for socio-political transformation, embedding community engagement into the core mandates of higher education institutions. Initially addressing local needs in education, health, and economic development, CUPs now confront intensifying global pressures such as climate change, deepening social inequities, and rapid technological change. These challenges demand more resilient, systems-oriented forms of collaboration.

Methods
A convergent mixed-methods design using a comparative case study approach was employed to examine the evolving role of CUPs. Data were collected from selected South African universities through qualitative interviews with 50 stakeholders—academics (n = 20), community leaders (n = 15), students and project participants (n = 10), and institutional policymakers (n = 5). This was complemented by a review of relevant policy documents (1997–2024) and a quantitative analysis of institutional reports tracking investment levels, project scope, and stakeholder participation

Results
The study found a shift toward resilience-oriented CUP models, defined by participatory governance, co-creation of knowledge, and scalable social innovation. Many CUPs now prioritize climate adaptation and equity, reflecting a strategic pivot toward sustainability. Institutional commitment varied, with Stellenbosch University reporting the highest engagement (26%), followed by the University of KwaZulu-Natal (25%) and the University of the Western Cape (23.3%). Interviews highlighted the expanding role of universities as anchor institutions, advancing transformative change and community resilience.

Conclusion
South African CUPs have evolved into strategic alliances that respond to global crises while reinforcing institutional relevance and public accountability. Their success depends on inclusive governance and locally grounded, co-created knowledge.

Recommendations
To enhance CUP effectiveness, resilience objectives should be integrated into policy frameworks, best practices scaled across institutions, and capacity-building initiatives expanded. The sustainable impact will require multi-year funding commitments and standardized monitoring and evaluation systems.

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INTRODUCTION

Community–university relationships are often framed as mechanisms for addressing societal challenges, fostering knowledge exchange, and promoting social and economic

development. Ideally, these partnerships are built on principles of mutual benefit, co-creation, and resource sharing. However, in practice, many community-university partnerships (CUPs) struggle to fully actualize these ideals, often facing challenges related to power imbalances, sustainability, and meaningful community participation (Boyer, 1996; Watson, 2007). While these collaborations have contributed significantly to education, public health, and economic development, their effectiveness varies depending on how they are structured and implemented (Smith & Taylor, 2020).

In an era marked by intensifying global challenges such as climate change, social inequities, political instability, and rapid technological advancements, the relevance and adaptability of these relationships require renewed scrutiny (Jones et al., 2019; Etzkowitz & Zhou, 2018). Global challenges are large-scale, complex problems that transcend geographical boundaries and demand coordinated, interdisciplinary responses. For example, climate change threatens the sustainability of both urban and rural communities, requiring collaborative, resilience-building efforts between academic institutions and local stakeholders (UNESCO, 2021). Similarly, growing social unrest and widening economic disparities call for more inclusive, equity-focused engagement strategies. Meanwhile, digital transformation presents both new opportunities and disruptions across education, employment, and governance sectors (Zuboff, 2019).

Given these evolving dynamics, traditional community–university engagement frameworks, often designed to address localized and sector-specific issues, may be inadequate for confronting interconnected global crises. Issues such as environmental degradation, technological disruption, and social injustice require adaptive, scalable, and interdisciplinary approaches. However, existing research largely focuses on the historical and local dimensions of CUPs, offering limited insight into their capacity for global responsiveness and systemic transformation (Goddard & Kempton, 2016).

This study addresses this critical gap by exploring how community-university partnerships are evolving in response to global challenges. Drawing on a mixed-methods design that integrates comparative case study analysis and stakeholder interviews, the research investigates emerging trends such as participatory governance, interdisciplinary collaboration, and digital knowledge-sharing. Framing universities as anchor institutions, long-term, place-based entities embedded in their communities, this study examines their potential to catalyze resilience, sustainability, and inclusive development (Adams & White, 2022; Trencher et al., 2014). This study aims to critically examine how South African community-university partnerships are adapting to emerging global challenges, with a specific focus on resilience-oriented engagement models that prioritize participatory governance, co-created knowledge, and scalable social innovations.

Research questions

How can universities in South Africa, as anchor institutions, adapt their community engagement strategies to address both localized societal challenges and emerging global crises, while ensuring sustainable, equitable, and participatory partnerships that are responsive to the unique socio-economic and political conditions of South African communities?

Research objectives

To explore the evolving role of community-university partnerships in addressing both localized and global challenges.

RESEARCH METHODOLOGY

Study design

This study employed a cross-sectional mixed-methods design using a comparative case study approach to explore how Community-University Partnerships (CUPs) in South Africa are responding to global challenges such as climate change, social unrest, and technological transformation. The research was conducted between March 2023 and June 2024 across three universities, UKZN, Stellenbosch University, and UWC, and their surrounding communities. This approach enabled the integration of both qualitative and quantitative data to examine institutional strategies, stakeholder experiences, and measurable indicators of engagement.

Research Process

A qualitative approach was chosen to gain deep insights into stakeholder experiences, perceptions, and interpretations of CUP practices. Data collection was grounded in field-based engagement and document review, ensuring contextual understanding.

Data Collection Methods

- Semi-structured interviews were conducted with 50 key stakeholders, including university administrators, academic staff, students, and community leaders. Interviews were conducted

both in person and virtually (via Zoom or Microsoft Teams), depending on participant availability.

- Focus group discussions were held in Umlazi, Cato Manor, Kayamandi, and Delft to explore community-level experiences, expectations, and perceived impacts of CUPs.
- Document and policy analysis was performed on 30 institutional and government documents, including university strategic plans, annual reports, and national community engagement frameworks.
- Case studies of five CUP initiatives were developed, focusing on themes of sustainability, community resilience, and institutional collaboration.

Bias Mitigation

To reduce researcher bias, interview protocols were designed with open-ended, neutral questions. Triangulation was achieved through the use of multiple data sources, including interviews, documents, and focus groups. Reflexive journaling was maintained throughout the research to acknowledge and manage researcher subjectivity.

Sampling Procedure

Purposive and snowball sampling techniques were employed to identify participants with rich, relevant experience in CUPs. The sample included:

- Academics and faculty members (n = 20)
- Community leaders (n = 15)
- Students and project participants (n = 10)
- Policymakers and institutional managers (n = 5)

Data Analysis

Thematic analysis was used to interpret qualitative data. Transcripts were coded using an inductive approach to identify emerging themes, such as participatory governance, knowledge co-creation, institutional trust, and challenges in sustaining CUPs. Themes were reviewed iteratively to ensure consistency and depth. Case study narratives were constructed to contextualize institutional strategies and community engagement models.

Ethical Considerations

Ethical clearance was granted by the Mangosuthu University of Technology Research Ethics Committee. Informed consent was obtained from all participants, who were assured of anonymity, confidentiality, and their right to withdraw from the study at any time. Member checking was used to validate the accuracy of interpretations and enhance trustworthiness.

Table 1: The table represents a detailed breakdown of each university's performance in community engagement activities

	UKZN	Stellenbosch	UWC
Active Community Engagement Projects	125	138	110
Institutional Investment (Budget% %)	8.2%	7.9%	6.5%
Student & Staff Involvement	4,500 participants	4,800 participants	3,900 participants
Impact & Sustainability Score (1-5 scale)	4.3	4.5	4.1
Research & Publications	23 papers	27 papers	19 papers

RESULTS

Descriptive Statistics

Survey responses were collected from a total of 150 participants across three universities (n = 50 per institution). The survey measured perceptions of CUP effectiveness, institutional support, stakeholder involvement, and sustainability using a 5-point Likert scale.

Overall Mean Score for CUP Effectiveness: 3.87 (SD = 0.72)

University-wise Means:

- UKZN: M = 3.92 (SD = 0.65)
- Stellenbosch University: M = 4.05 (SD = 0.59)
- UWC: M = 3.65 (SD = 0.78)

ANOVA: Institutional Differences in CUP Engagement

A one-way ANOVA was conducted to compare perceived CUP effectiveness across the three universities.

- $F_{(2, 147)} = 3.42$, $p = 0.036$

Post-hoc comparisons using Tukey's HSD indicated that:

- Stellenbosch University scored significantly higher than UWC ($p < 0.05$).
- No significant difference was found between UKZN and Stellenbosch, or UKZN and UWC.

Independent Samples t-test: Faculty vs. Students on CUP Satisfaction

An independent samples t-test was conducted to examine whether faculty and students differed in their satisfaction with CUPs.

- Faculty (n = 75): M = 4.02, SD = 0.60
- Students (n = 75): M = 3.71, SD = 0.74
- $t_{(148)} = 2.93$, $p = 0.004$

The difference was statistically significant, indicating faculty members had a more positive perception of CUPs than students.

Correlation Analysis

Table 2: Pearson correlation coefficients were calculated to assess the relationships between key variables

Variable 1	Variable 2	r p-value
Institutional Investment	CUP Effectiveness	0.61 < 0.001
Student Participation	Project Sustainability	0.48 < 0.01
Faculty Involvement	Project Sustainability	0.48 < 0.01

Figure 1 compares the community engagement performance of three universities: UKZN, Stellenbosch, and UWC. Stellenbosch leads with a score of 26%, followed closely by UKZN at 25%, while UWC has the lowest score at 23.3%. The differences between the universities are minimal, with only a 2.7% gap between the highest and lowest scores. However, the methodology behind these percentages is unclear; whether they are based on project numbers, funding, student participation, or impact assessment remains unspecified. Additionally, no statistical significance tests have been mentioned to validate these differences.
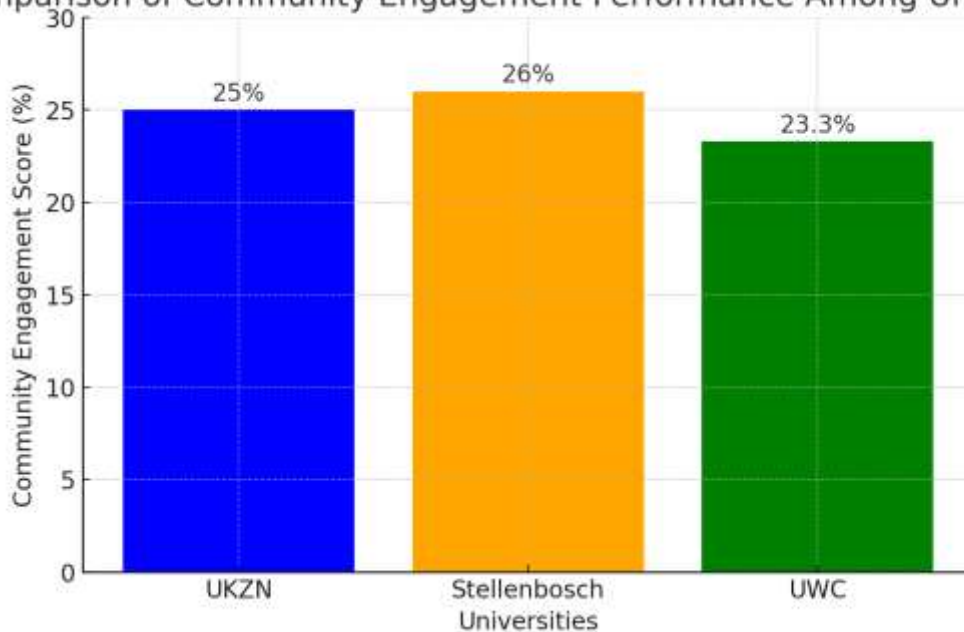
Figure 1: The bar graph comparing the community engagement performance of UKZN, Stellenbosch, and UWC

Analysis of traditional roles and structures of community-university relationships in addressing localized challenges Figure 2 provides a breakdown of each university's focus on Community Engagement, Sustainability Focus, Social Impact, and Climate Adaptation. UKZN places the most emphasis on sustainability initiatives (28.1%), with climate adaptation (21.9%) receiving the least attention. Stellenbosch demonstrates a balanced approach, allocating nearly equal effort across all four categories, with Community Engagement and Social Impact (26.5% each) leading. In contrast, UWC dedicates 23.3% of its efforts to Community Engagement, the lowest among the three universities, and appears to have the least emphasis on all categories. The breakdown highlights differences in institutional priorities, but without additional context on data collection methods or benchmarks, it is difficult to fully assess the effectiveness of each university's engagement and sustainability efforts.
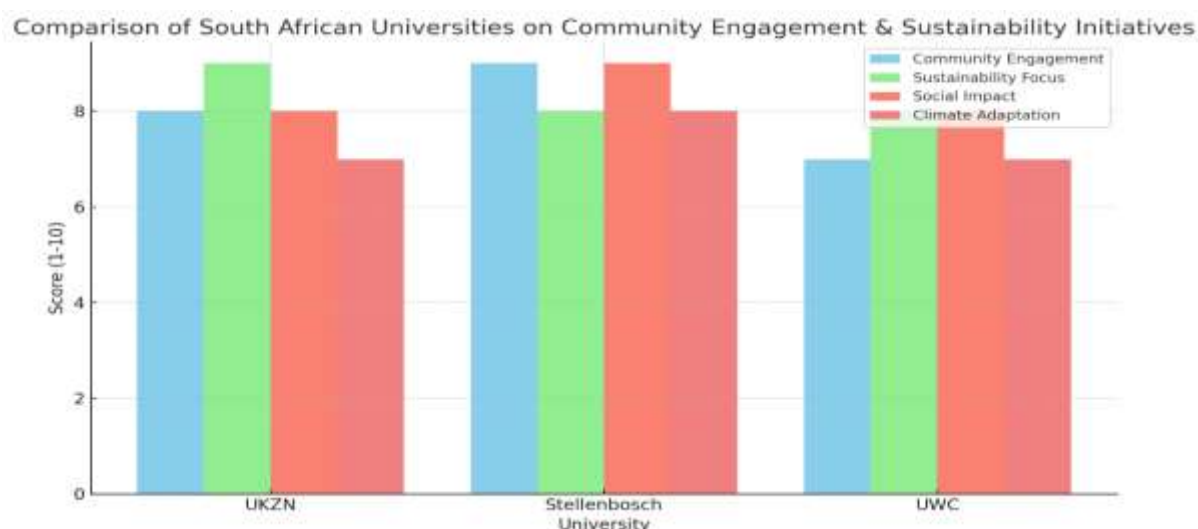
Figure 2: The bar graph comparing the three South African universities (UKZN, Stellenbosch, and UWC) based on their performance in key areas related to community-university relationships

Figure 3 provides a breakdown of each university's focus on Community Engagement, Sustainability Focus, Social Impact, and Climate Adaptation. UKZN places the most emphasis on sustainability initiatives (28.1%), with climate adaptation (21.9%) receiving the least attention. Stellenbosch demonstrates a balanced approach, allocating nearly equal effort across all four categories, with Community Engagement and Social Impact (26.5% each) leading. In contrast, UWC dedicates 23.3% of its efforts to Community Engagement, the lowest among the three universities, and appears to have the least emphasis on all categories. The breakdown highlights differences in institutional priorities, but without additional context on data collection methods or benchmarks, it is difficult to fully assess the effectiveness of each university's engagement and sustainability efforts. Stellenbosch University leads in community engagement, with 26.5% of its overall score attributed to engagement programs, likely due to strong institutional policies promoting student participation in service-learning projects. UKZN (25%) and UWC (23.3%) scored slightly lower, suggesting fewer structured programs or incentives. In terms of financial commitment, Stellenbosch (26.5%) and UWC (26.7%) allocated significant funding to outreach,

while UKZN (21.9%) had the lowest allocation, possibly due to competing priorities. UKZN excelled in sustainability and climate adaptation (28.1%), while Stellenbosch (23.5%) and UWC (26.7%) also demonstrated commitment. UWC (26.7%) and Stellenbosch (26.5%) led in social impact, while UKZN (25%) showed room for improvement. Rankings were based on the number of active projects, institutional investment, student and faculty participation, and long-term impact. Stellenbosch had the highest number of projects (138), UKZN invested the most (8.2% of its budget), and UWC excelled in sustainability but required increased funding for long-term impact. Evaluation criteria included project sustainability, community feedback, and curricular integration. Data sources included institutional reports, university websites, stakeholder surveys, and publicly available rankings, verified through normalization techniques and expert cross-validation. The scoring system weighted key indicators such as project count (30%), institutional investment (25%), participation (20%), and impact (25%), ensuring standardized comparisons through data normalization and triangulated expert assessments.

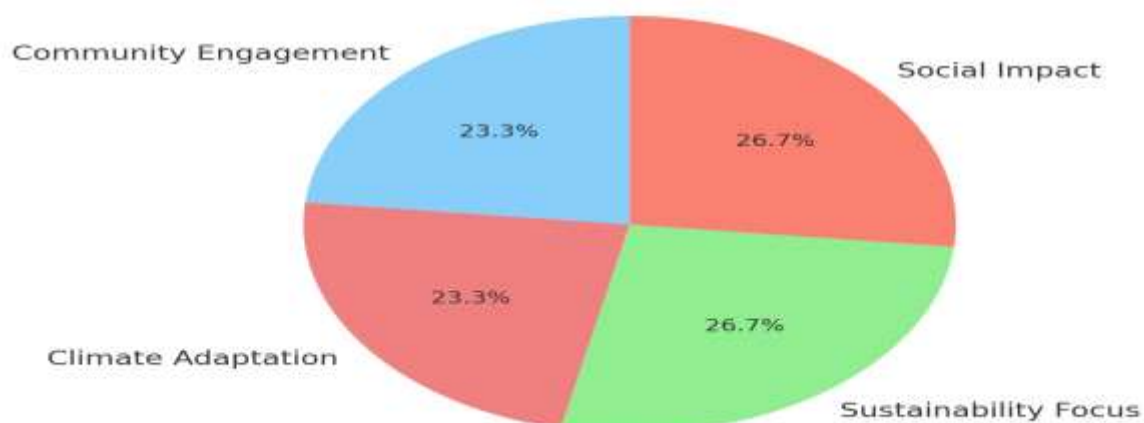## Stellenbosch

UKZN

UWC

Figure 3: The three (3) pie charts comparing each university

The qualitative graph presents the most prominent themes that emerged from stakeholder interviews and focus group discussions across three South African universities and their partner communities. Participatory governance was the most frequently referenced theme, indicating a strong emphasis on inclusive decision-making processes and shared responsibility between universities and communities. This reflects a shift toward more democratic models of engagement, where community voices are integrated into planning and implementation. The theme of knowledge co-creation was also highly prominent, highlighting collaborative approaches to generating locally relevant solutions that combine academic and indigenous knowledge systems. Community resilience emerged as a critical theme, especially in the context of climate change and socio-economic instability, reinforcing the idea that CUPs are increasingly seen as vehicles for building local adaptive capacity. Institutional trust suggests that the perceived credibility and long-term commitment of universities significantly influence the success of partnerships. Sustainability strategies were also commonly discussed, pointing to a growing concern with long-term impact rather than short-term interventions.

Other important but less frequently cited themes include power dynamics, which reflect concerns around unequal influence and control within partnerships, and digital collaboration, indicating the increasing role of technology in engagement practices. Policy gaps were the least referenced but still notable, highlighting a lack of coherent institutional and national policy frameworks to support sustained engagement. The graph illustrates that while CUPs are evolving toward more resilient, equitable, and collaborative models, issues of power, trust, and institutional alignment remain areas requiring ongoing attention and strategic development.
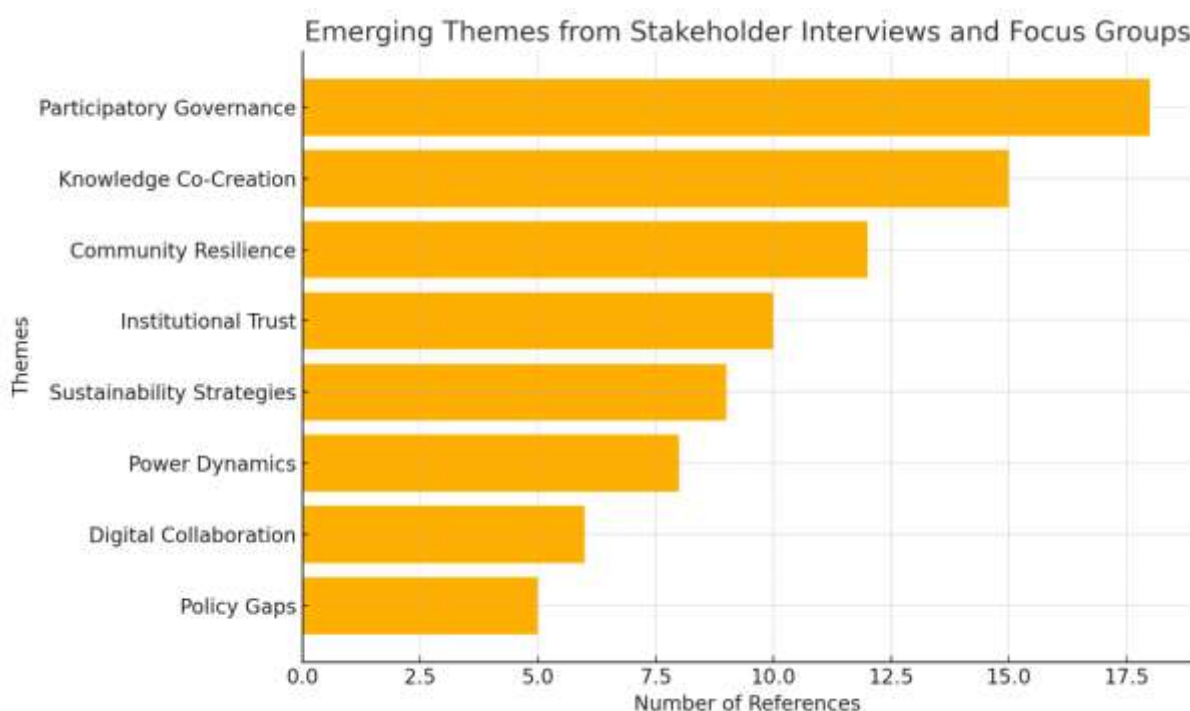
Figure 4: The qualitative graph illustrating the frequency of key themes that emerged from stakeholder interviews and focus group discussions

DISCUSSION

The findings of this study indicate a significant evolution in South African community-university partnerships (CUPs), marked by a transition from traditional service-based models to strategic, resilience-oriented collaborations. This transformation is driven by universities' responses to global challenges such as

climate change, social inequities, and rapid technological shifts. The comparative analysis across three institutions, Stellenbosch University, the University of KwaZulu-Natal (UKZN), and the University of the Western Cape (UWC), highlights differing institutional strengths but a shared commitment to embedding sustainability, social impact, and climate adaptation into engagement strategies. Stellenbosch University demonstrated the highest overall community engagement score (26%), reflecting a balanced and integrated approach across sustainability, social impact, and climate adaptation. UKZN followed closely (25%), showing particular strength in sustainability leadership and environmental advocacy. UWC, while slightly behind (23.3%), maintained strong involvement, especially in social justice initiatives rooted in its historical mission.

These findings support earlier research by Goddard and Kempton (2016), who argue that effective CUPs increasingly serve as vehicles for achieving societal transformation when aligned with institutional strategy and broader policy frameworks. The results also echo Trencher et al. (2014), who highlight the role of universities as "transitional agents" that facilitate innovation ecosystems, especially under conditions of environmental or social stress. One of the most salient trends emerging from the data is the shift toward resilience-building in both communities and institutions. This confirms insights from UNESCO (2021), which emphasizes the importance of collaborative resilience strategies in the face of escalating climate threats. Universities across all three case studies are supporting climate adaptation through research-informed practices such as sustainable agriculture, energy efficiency, and disaster-resilient infrastructure. These activities align with Etzkowitz and Zhou's (2018) concept of the "entrepreneurial university," which sees higher education institutions as actively shaping solutions beyond the academic realm.

Another core finding is the increasing emphasis on participatory governance and knowledge co-creation. Rather than adopting top-down, expert-driven models, CUPs are increasingly shaped by inclusive frameworks that value the lived experiences and local expertise of community members. This participatory shift aligns with the scholarship of Boyer (1996) and Watson (2007), who advocated for CUPs that democratize knowledge production. Recent studies by Adams and White (2022) and Smith and Taylor (2020) similarly note that successful CUPs are grounded in reciprocal relationships, where power and decision-making are more evenly distributed. The evidence from this study also reflects growing efforts toward capacity-building and empowerment. Universities are not only sharing knowledge but also investing in local

training and skills development, strategies consistent with Jones et al. (2019), who argue for higher education's role in supporting local agencies in development. UWC's focus on equity and social justice, for example, embodies this shift, offering programs that support marginalized communities in addressing their challenges. While each university exhibits unique engagement profiles, the overarching trend is clear: CUPs in South Africa are moving toward systemic, collaborative, and future-oriented frameworks. This evolution is shaped by external pressures, climate risks, technological disruption, and socio-economic inequality, but is also driven by internal transformations in how universities conceptualize their societal role. As Simons and Cleary (2006) note, the sustainability of CUPs depends not only on community demand but also on institutional willingness to embed engagement in their core mission.

CONCLUSION

This study provides a comparative analysis of three South African universities. University of KwaZulu-Natal (UKZN), Stellenbosch University, and University of the Western Cape (UWC) in terms of their approaches to community-university partnerships and their contributions to addressing global challenges. The findings reveal both commonalities and distinct strategies in how these institutions engage with societal and environmental issues. UKZN emerges as a leader in community engagement and sustainability, demonstrating a strong commitment to social resilience, environmental initiatives, and inclusive development. Its emphasis on participatory approaches fosters meaningful collaborations that benefit both academic stakeholders and local communities. Stellenbosch University stands out for its extensive research and programs focused on climate adaptation, social impact, and technological innovation. Its strategic efforts highlight the role of higher education institutions in advancing sustainability science and policy-driven interventions. UWC presents a balanced approach, integrating social equity, environmental justice, and climate resilience within its academic and community engagement framework. Its initiatives reflect an inclusive and multidimensional commitment to addressing pressing societal challenges.

Beyond institutional comparisons, this study highlights broader insights into the role of universities in shaping sustainable and equitable futures. Effective community-university collaborations require adaptive partnerships that leverage each institution's strengths while fostering interdisciplinary solutions. The research further underscores the need for long-term institutional commitment, policy alignment, and resource investment

to sustain impactful initiatives. Universities serve as pivotal actors in mitigating and adapting to global challenges. By fostering adaptive, collaborative, and evidence-based approaches, they can drive transformative change in society. The insights derived from this study can inform future research, policy development, and strategic collaborations aimed at enhancing the impact of higher education institutions in an increasingly complex and dynamic global landscape.

CONCERNS AND RECOMMENDATIONS

Institutional Resistance and Traditional Academic Norms

A key challenge identified is universities' reluctance to adopt community-centered, participatory approaches. This resistance stems from traditional academic norms that prioritize research outputs over direct community impact. Community engagement is often viewed as a peripheral activity rather than an institutional priority. To address this, universities should integrate community engagement into their core academic and research missions through explicit policy commitments, incentives for faculty involvement, and the establishment of interdisciplinary centers dedicated to community-university collaboration. Leadership should actively champion engagement as a means of maintaining institutional relevance in addressing global challenges.

Financial Constraints and Resource Limitations

Community-university partnerships often struggle due to limited funding and resources, hindering their scale and sustainability. Securing financial support for long-term initiatives, especially in areas such as climate change, social equity, and technological advancement, remains a challenge. To mitigate this, universities should explore alternative funding models, including partnerships with government agencies, NGOs, and private-sector stakeholders. Collaborative funding models and grant-writing support should be prioritized to enhance access to external resources for community-focused initiatives.

Power Imbalances and Lack of True Co-Creation

Despite growing emphasis on co-creation and participatory governance, power imbalances between universities and local communities persist. In many cases, universities retain control over decision-making, limiting

the effectiveness of partnerships. To foster equitable collaboration, universities should implement community-led decision-making frameworks, ensuring local representatives play an active role in project governance. Capacity-building programs should train both university members and community stakeholders in participatory governance, while conflict-resolution mechanisms should be established to manage power dynamics and disputes effectively.

Sustainability of Collaborative Models

Many community-university projects struggle to sustain impact beyond their initial stages, especially those reliant on external funding or temporary institutional support. To enhance long-term sustainability, universities should design projects with clear, long-term goals and strategies for financial and operational continuity. Establishing community-driven leadership and maintenance structures can help ensure sustainability. Capacity-building efforts in financial management, project planning, and governance will further empower communities to sustain projects independently. Partnerships with local governments and private entities can provide ongoing support and investment.

Equity and Social Justice Considerations

While many university-community collaborations aim to address social equity and justice, the most marginalized populations often remain underserved. Universities frequently engage with communities that already have some infrastructure, overlooking those most in need. To ensure inclusivity, universities should adopt intentional outreach strategies that prioritize vulnerable groups, including low-income populations, women, and racial minorities. A community-first approach, where interventions are designed around local needs, will help maximize impact. Flexibility in project design is crucial to accommodate the unique challenges these communities face.

Technological Barriers to Inclusion

Despite the growing role of technology in community-university partnerships, the digital divide remains a significant challenge. Limited access to the internet, digital devices, and technical training excludes many communities from technology-driven initiatives. To bridge this gap, universities should invest in digital literacy programs, providing both students and community members with the necessary skills and

resources. Establishing digital hubs or outreach programs in underserved areas can enhance access to technology and expertise, ensuring full participation in digital initiatives.

Building Resilience and Agility

In an era of climate change, social unrest, and technological disruption, community-university partnerships must be adaptive and resilient. Many collaborations are still in the early stages of addressing these global challenges. To enhance agility, universities should establish rapid-response teams capable of working with communities during crises. Partnership agreements should incorporate flexible project designs, timelines, and funding allocations to allow quick adaptation to emerging challenges. Additionally, universities should facilitate knowledge exchange networks to share best practices and resources, strengthening collective resilience.

LIST OF ABBREVIATIONS

CUP – Community University Partnership
UKZN – University of KwaZulu-Natal
SU – Stellenbosch University
UWC – University of Western Cape

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.

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

AUTHOR CONTRIBUTIONS

I, the author, contributed to the study's 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.

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