



# Repositioning indigenous knowledge in digitally-enhanced global classrooms: A South African perspective on epistemic justice and curriculum innovation

Benjamin Seleke<sup>1</sup> 

<sup>1</sup> Department of Adult Education Foundations, Faculty of Education, Walter Sisulu University, South Africa.

## ABSTRACT

This conceptual paper examines how Indigenous Knowledge Systems (IKS) can be repositioned within digitally-enhanced global classrooms to advance epistemic justice and curriculum relevance in South African higher education. A critical-interpretive conceptual design combines an integrative literature review (2013–2025), with illustrative South African cases in Technology Education and higher-education internationalisation. Sources include peer-reviewed scholarship, national policy, and scholarly books, synthesised through three lenses, epistemic justice, decoloniality, and Ubuntu-informed self-directed learning. Eurocentric defaults in digital pedagogy risk reproducing exclusions; a hybrid framework integrating IKS with 4IR tools (AI, AR, OER) enables multilingual, community-embedded, and ethically grounded curriculum design. Enablers include policy alignment, capacitation of academics, ethical protocols for Indigenous intellectual property, and South–South collaborations. Targeted actions are proposed for DHET/CHE (epistemic-diversity criteria in QA/accreditation), universities (governance, funding, digital inclusion), curriculum committees (IKS-aligned review rubrics), academics (culturally responsive, multilingual digital pedagogies), EdTech partners (co-design with communities), and funders (IKS-centred digital archives/infrastructure). The paper offers a theoretically coherent hybrid knowledge framework and a policy-to-practice roadmap connecting IKS, digital pedagogy, and curriculum internationalisation, thereby advancing scholarship on epistemic justice in global higher education.

**Keywords:** Indigenous Knowledge Systems, Digital Pedagogy, Epistemic Justice, Hybrid Knowledge Framework, Decolonial Education, Self-Directed Learning.

## INTRODUCTION

The higher education landscape is undergoing a paradigmatic shift, catalysed by rapid technological advancements, increasing global interconnectedness, and the urgent imperative to decolonise knowledge systems. Institutions across the globe are being called upon to transform teaching and learning practices to respond meaningfully to the needs of a post-pandemic, digital-first society.<sup>1</sup> Central to this

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<sup>1</sup> Satya Subrahmanyam, “Trustworthiness in Qualitative Research in the Aviation Industry,” in *Qualitative Research Methods in Air Transport Management* (IGI Global Scientific Publishing, 2025), 123–52.

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**CORRESPONDENCE** – Benjamin Seleke Email: [bseleke@wsu.ac.za](mailto:bseleke@wsu.ac.za)

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transformation is the demand for curricula that are not only technologically innovative but also socially inclusive and epistemologically diverse.<sup>2</sup> Nowhere is this transformation more pressing than in post-colonial contexts like South Africa, where historical inequities continue to influence the structure, content, and delivery of higher education.

While global discourses on education reform frequently emphasise the role of digital equity, innovation, and global citizenship, they often remain entrenched in Eurocentric paradigms that marginalise non-Western knowledge systems.<sup>3</sup> This has led to what decolonial scholars refer to as "epistemic injustice", the systematic exclusion of Indigenous ways of knowing from formal academic discourse and practice.<sup>4</sup> As a result, despite the increasing deployment of Artificial Intelligence (AI), Augmented Reality (AR), and Open Educational Resources (OER) in teaching, these technologies risk reproducing colonial hierarchies if not grounded in pluralistic knowledge frameworks.

In South Africa, Indigenous Knowledge Systems (IKS) offer a powerful, yet underutilised, epistemological foundation for rethinking curriculum design, teaching methodologies, and student engagement.<sup>5</sup> IKS embody deeply contextual, relational, and ethical ways of knowing that resonate with the lived experiences of many African learners. When coupled with emerging educational technologies and pedagogies such as blended learning, digital storytelling, and virtual exchange, IKS can offer a powerful means of achieving epistemic equity and global relevance in higher education. This conceptual paper argues for the repositioning of IKS within digitally-enhanced global classrooms. It proposes a hybridised curriculum framework that integrates Indigenous epistemologies with 4IR technologies to foster inclusive, culturally responsive, and globally connected learning environments.<sup>6</sup> Drawing on the South African context and aligning with broader global discourses on curriculum internationalisation and innovation, this paper seeks to contribute to the reimagination of higher education as a transformative, equitable, and pluralistic enterprise.

## THEORETICAL FRAMEWORKS

Transforming higher education to be more inclusive, innovative, and globally relevant requires not only pedagogical or technological shifts but also a profound epistemological reorientation. This section draws on three theoretical lenses, Epistemic Justice, Decoloniality, and Ubuntu as a Foundation for Self-Directed Learning (SDL), to frame the integration of IKS into digitally mediated, globally engaged curricula.

### Epistemic Justice

Epistemic justice, as articulated by, Frickers refers to the fair recognition and representation of different knowledge systems, identities, and voices within processes of knowledge production and dissemination.<sup>7</sup> It comprises two main dimensions: testimonial injustice, which occurs when individuals are discredited due to identity prejudice, and hermeneutical injustice, where a group's social experiences are excluded

<sup>2</sup> Benjamin Seleke et al., "Revitalizing Teacher Development Programs for Indigenous African Languages at a South African University: Insights from Qualitative Research," *TWIST* 20, no. 1 (2025): 258–73.

<sup>3</sup> Munyaradzi Hwami and Michelle Bedeker, "Reimagining Representation and Recognition of the 'Other' in International Higher Education (IHE): Towards Epistemic Justice," in *Second International Handbook of Educational Leadership and Social (In) Justice: Critical Perspectives* (Springer, 2025), 1–28.

<sup>4</sup> Miranda Fricker, "Evolving Concepts of Epistemic Injustice," in *The Routledge Handbook of Epistemic Injustice* (Routledge, 2017), 53–60; Sabelo J Ndlovu-Gatsheni, *Coloniality of Power in Postcolonial Africa* (African Books Collective, 2013); Sabelo J Ndlovu-Gatsheni and Katharina Schramm, "Thinking as Moving—Knowledge Practices and Decolonial Frames in African Studies," *Knowing—Unknowing: African Studies at the Crossroads*, 2025, 1–27.

<sup>5</sup> Benjamin Seleke, "Scaffolding Teachers' Professional Development for the Infusion of Indigenous Knowledge Transfer in the Technology Classroom" (North-West University (South Africa), 2021); Benjamin Seleke et al., "Indigenous Knowledge Integration in South Africa's Technology Education Curriculum: Current Status, Challenges, and Future Directions," *Journal of Education and Learning Technology* 6, no. 1 (2025): 130–38.

<sup>6</sup> Benjamin Seleke, Marietjie Havenga, and Josef De Beer, "The Enhancement of Self-Directed Learning through the Engagement in Problem-Based Learning Activities during a Professional Development Programme on Indigenous Knowledge for Technology Teachers," in *Proceedings of Teaching and Education Conferences* (International Institute of Social and Economic Sciences, 2019).

<sup>7</sup> Miranda Fricker, *Epistemic Injustice: Power and the Ethics of Knowing* (Oxford university press, 2007).

from collective understanding due to structural marginalisation.<sup>8</sup> In the South African higher education context, the dominance of Western epistemologies perpetuates both forms of injustice by sidelining African worldviews and Indigenous knowledge forms.<sup>9</sup> Digitally enhanced learning environments present both a risk and an opportunity. Without deliberate design, educational technologies may continue to reinforce colonial logics and linguistic hierarchies. However, when approached with a justice-oriented mindset, these tools can democratise access to knowledge and amplify silenced voices. Recognising IKS as a valid and valuable source of knowledge, institutions can disrupt epistemic injustice and promote intellectual plurality in the global classroom.<sup>10</sup>

### Decoloniality

The theoretical framing of decoloniality, advanced by scholars such as Mignolo and Ndlovu-Gatsheni, challenges the entrenched colonial matrix of power and knowledge that continues to shape contemporary education systems.<sup>11</sup> Decoloniality advocates for delinking from Eurocentric epistemological assumptions and embracing pluriversal ways of knowing that emerge from the Global South. It highlights the need to acknowledge the historical violence embedded in curriculum structures and pedagogical practices and to recover and revitalise marginalised epistemologies.<sup>12</sup> In the context of this paper, decoloniality serves as a critical tool for understanding why Indigenous Knowledge Systems have been excluded from mainstream higher education and how they might be reclaimed in digitally enabled teaching and learning. By embedding decolonial principles in curriculum innovation, higher education institutions can move toward a pluriversal model, where Western, Indigenous, and other epistemologies coexist and interact without hierarchisation.

### Ubuntu as a Foundation for Self-Directed Learning (SDL)

Ubuntu, a Nguni Bantu philosophy roughly translated as "I am because we are", emphasises communal relationships, interdependence, and respect for human dignity. When applied to the realm of education, Ubuntu challenges the Western liberal model of the autonomous, individualistic learner and instead promotes relationality, social responsibility, and co-learning.<sup>13</sup> In the South African context, Ubuntu offers a culturally grounded framework for cultivating SDL that is not atomised but anchored in community, identity, and shared meaning-making. Self-directed learning is increasingly recognised as a crucial competence in the 21st-century knowledge economy, particularly in technologically mediated environments.<sup>14</sup> However, the SDL must be reconceptualised in ways that resonate with the cultural contexts of learners. Ubuntu-based SDL encourages learners to take initiative not only for personal gain but also for the benefit of their communities, positioning knowledge as a collective good.<sup>15</sup> When fused with digital platforms and collaborative tools, this model has the potential to transform global classrooms into spaces of inclusive, co-constructed, and socially just learning. To illustrate the theoretical underpinnings that guide this paper, the following figure maps the intersection of three core lenses, epistemic justice, decoloniality, and Ubuntu, as a basis for reimagining curriculum transformation in digitally mediated, pluralistic classrooms.

<sup>8</sup> Fricker, "Evolving Concepts of Epistemic Injustice."

<sup>9</sup> Mishack T Gumbo, Christopher B Knaus, and Velisiwe G Gasa, "Decolonising the African Doctorate: Transforming the Foundations of Knowledge," *Higher Education* 88, no. 4 (2024): 1611–27.

<sup>10</sup> Hwami and Bedeker, "Reimagining Representation and Recognition of the 'Other' in International Higher Education (IHE): Towards Epistemic Justice."

<sup>11</sup> Walter D. Mignolo, "Coloniality of Power and De-Colonial Thinking-Introduction," *Cultural Studies* 21, no. 2–3 (March 3, 2007): 155–67, <https://doi.org/10.1080/09502380601162498>.

<sup>12</sup> Ndlovu-Gatsheni and Schramm, "Thinking as Moving—Knowledge Practices and Decolonial Frames in African Studies."

<sup>13</sup> Seleke, "Scaffolding Teachers' Professional Development for the Infusion of Indigenous Knowledge Transfer in the Technology Classroom."

<sup>14</sup> Malcolm Shepherd Knowles, *Self-Directed Learning*, vol. 291 (association press New York, 1975).

<sup>15</sup> B Seleke, C J Els, and J De Beer, "Utilising Indigenous Knowledge in Higher Education for the Professional Development of Culturally Responsive Technology Teachers," *A Scholarly Approach to Student Success in Higher Education*. Ivyline Academic Publishers, 2019.



*Figure 1: Intersecting Theoretical Lenses for Decolonial Curriculum Reform in the Digital Era*

This figure visually represents the convergence of epistemic justice, decoloniality, and Ubuntu as foundational frameworks for inclusive, pluralistic, and transformative curriculum design. At its intersection lies the potential for higher education to transcend colonial legacy and reconstitute learning environments that are culturally grounded and globally engaged. By synthesising these three theoretical strands, the figure affirms the necessity of a multi-dimensional, values-driven approach to curriculum innovation that honours Indigenous epistemologies while embracing technological advancement.

## **METHODOLOGY**

This study employs a conceptual, critical-interpretive design that combines an integrative review with elements of critical interpretive synthesis to theorise how Indigenous Knowledge Systems (IKS) can be operationalised in digitally mediated curricula and global classrooms. Anchored to South Africa's post-school policy moment and the SDG-4/4IR discourse (e.g., the 2013 DHET White Paper), we systematically searched literature published between 2013 and 2025 using the terms "Indigenous Knowledge Systems," "epistemic justice," "decoloniality," "digital pedagogy," "internationalisation," and "South Africa," drawing on Scopus, Web of Science, specialist publishers, and backward/forward citation chasing. Inclusion criteria admitted higher education/TVET/Technology Education studies that explicitly engaged Indigenous or decolonial frames, addressed digital/online/blended pedagogies or internationalisation, and offered conceptual, theoretical, policy-analytical, or empirical insights transferable to South Africa; excluded were opinion pieces lacking scholarly grounding, non-HE contexts without clear transferability, and non-English sources without reliable translation. Selection and appraisal prioritised relevance, conceptual clarity, theoretical coherence, methodological transparency (where empirical), and policy salience; evidence was coded against three a priori lenses, epistemic justice, decoloniality, and Ubuntu-informed self-directed learning, and then thematically synthesised. To enhance transferability, we incorporated purposively selected South African exemplars (Technology Education tasks, higher-education language revitalisation initiatives, community-embedded learning designs, and pluriversal approaches to internationalisation) to demonstrate how the framework "travels" across contexts. Although desk-based, the study is guided by principles consistent with free, prior and informed consent, benefit-sharing, data sovereignty, and the protection of Indigenous intellectual property in digital environments, thereby shaping ethical parameters for future applied work. As a conceptual synthesis, findings are theory-driven rather than statistically generalisable; potential publication bias and uneven

subfield coverage were mitigated through triangulation across policy, conceptual and empirical sources, explicit inclusion/exclusion criteria, and transparent, theory-informed synthesis, an approach that, in our view, maximises credibility, policy relevance, and practical utility.

## DISCUSSION

### Indigenous Knowledge Systems (IKS) and Curriculum Innovation

The imperative to indigenise higher education curricula is gaining increasing traction within both global and local academic discourses.<sup>16</sup> In the South African context, where the legacies of apartheid and colonialism have produced enduring epistemic inequalities, Indigenous Knowledge Systems (IKS) offer a vital pathway for curricular transformation that is both contextually relevant and globally resonant.<sup>17</sup> IKS are living bodies of knowledge, cultivated over generations through intimate engagement with specific ecological, cultural, and spiritual environments. Unlike the often abstracted and universalising logic of Western epistemologies, IKS are relational, embedded in community practices, orally transmitted, and infused with ethical values grounded in interconnectedness, sustainability, and responsibility.<sup>18</sup> The inclusion of IKS in higher education is not merely a corrective gesture; it is a transformative strategy that expands the epistemic repertoire of learners and promotes intellectual justice.

Reforming the curriculum to meaningfully include IKS entails more than inserting isolated examples of indigenous content. It requires a reimagining of the curriculum's very architecture, moving from knowledge transmission to knowledge co-construction. In this sense, curriculum innovation must embrace transdisciplinarity, allowing students to explore themes that transcend disciplinary boundaries while accommodating both scientific and indigenous worldviews.<sup>19</sup> For instance, a module on environmental sustainability could simultaneously draw on climatological data and indigenous ecological knowledge, thus allowing students to appreciate the epistemic complementarity that exists between these knowledge systems. Equally important is the revitalisation of narrative forms, oral traditions, and experiential learning. Storytelling, idiomatic expressions, local rituals, and intergenerational dialogue are not ancillary to knowledge but central to many indigenous cultures.<sup>20</sup> These forms of knowledge transmission, when digitised through audio-visual technologies, become powerful tools for pedagogy in the digital age.

Curriculum innovation also requires strengthening the interface between universities and communities. Community-based learning, where students engage directly with local elders, artisans, or cultural practitioners, allows for the co-production of knowledge while validating lived experience as a legitimate epistemic source.<sup>21</sup> Such engagements contribute to building reciprocal relationships between institutions of higher learning and the communities they are meant to serve. The question of language also remains fundamental. Indigenous languages serve as carriers of culture and thought, and their use in academic discourse improves epistemic access while affirming the learner's cultural identity. Thus, multilingual pedagogies are not simply about translation but about reconfiguring epistemic authority and legitimacy.<sup>22</sup>

<sup>16</sup> Hwami and Bedeker, "Reimagining Representation and Recognition of the 'Other' in International Higher Education (IHE): Towards Epistemic Justice"; Mpumelelo Ennocent Ncube, "Towards a Decolonial Higher Education: Praxis and Theoretical Foundations," *African Journal of Inter/Multidisciplinary Studies* 7, no. 1 (2025): 1–15.

<sup>17</sup> Ncube, "Towards a Decolonial Higher Education: Praxis and Theoretical Foundations."

<sup>18</sup> Seleke et al., "Indigenous Knowledge Integration in South Africa's Technology Education Curriculum: Current Status, Challenges, and Future Directions."

<sup>19</sup> Woube Kassaye, "Conceptualization of Curriculum in Africa," in *Modern Education in Africa Vol. 2: Curriculum Development of Ethiopia* (Springer, 2025), 187–284.

<sup>20</sup> Seleke et al., "Revitalizing Teacher Development Programs for Indigenous African Languages at a South African University: Insights from Qualitative Research."

<sup>21</sup> G Veronese and A Kagee, "Interrogates the Complicity of Psychology in Colonial Violence While Advancing a Fanonian and Freirean Framework That Centres Political Consciousness, Collective Struggle, and Transformative Action," in *Contesting Borders. Book of Abstracts*, 2025.

<sup>22</sup> Seleke et al., "Revitalizing Teacher Development Programs for Indigenous African Languages at a South African University: Insights from Qualitative Research."

An illustrative example of how IKS can be integrated into formal learning emerges from the field of Technology Education.<sup>23</sup> In South African schools and community colleges, educators have begun to incorporate traditional design methods, indigenous materials, and locally situated innovation into the curriculum. For example, design projects can include the use of traditional weaving techniques, indigenous architectural principles or local food preservation technologies, demonstrating that technological knowledge has always existed within African societies. These efforts underscore the potential of IKS not as static traditions but as evolving systems of innovation, capable of responding to contemporary challenges. In Technology Education, IKS thus become not merely content to be learned but frameworks for inquiry, problem-solving, and critical reflection.<sup>24</sup>

To sustain these efforts, curriculum frameworks must be aligned with national and institutional policy. South Africa's White Paper on Post-School Education and Training explicitly advocates for the inclusion of IKS in higher education, recognising its role in promoting inclusivity, redress, and social cohesion.<sup>25</sup> However, implementation has often been uneven, hindered by a lack of pedagogical models and institutional support. Therefore, the next frontier lies in developing robust, context-sensitive strategies for curriculum transformation that harness the potential of IKS to enrich both local relevance and global engagement. To deepen the understanding of how IKS can be operationalised within curriculum transformation, the following visual abstract presents a conceptual overview of the key pathways through which IKS can shape inclusive and context-responsive curriculum innovation.

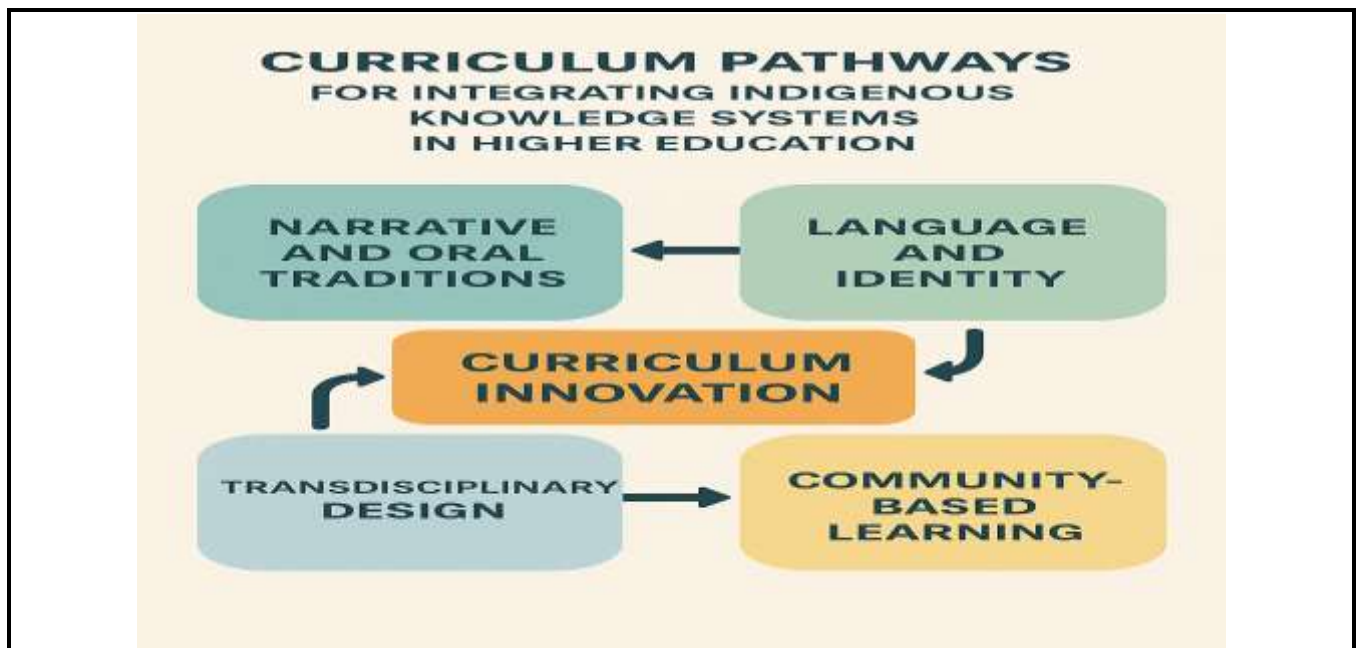


Figure 2: Curriculum Pathways for Integrating Indigenous Knowledge Systems in Higher Education

This figure illustrates four interrelated pathways, Narrative and Oral Traditions, Language and Identity, Community-Based Learning, and Transdisciplinary Design, which collectively feed into curriculum innovation. The diagram affirms that IKS integration is most effective when it is multidimensional, engaging both pedagogical strategies and community-rooted knowledge systems. As the figure demonstrates, curriculum innovation grounded in IKS requires a holistic and dialogic approach, whereby culturally embedded practices inform educational design, learner engagement, and institutional transformation.

<sup>23</sup> Seleke, "Scaffolding Teachers' Professional Development for the Infusion of Indigenous Knowledge Transfer in the Technology Classroom."

<sup>24</sup> Seleke et al., "Indigenous Knowledge Integration in South Africa's Technology Education Curriculum: Current Status, Challenges, and Future Directions."

<sup>25</sup> DHET, "White Paper for Post-School Education and Training. Building an Expanded, Effective and Integrated Post-School System," 2013.

## Digital Pedagogy and Inclusion

In the rapidly evolving landscape of higher education, digital pedagogy has emerged as both a disruptor and an enabler of inclusive learning. The Fourth Industrial Revolution (4IR), characterised by the convergence of AI, AR, big data, and ubiquitous connectivity, presents profound opportunities for curriculum innovation.<sup>26</sup> However, these opportunities are not value neutral. Without deliberate efforts to ground digital innovation in principles of inclusion and epistemic plurality, digital platforms risk reproducing the very exclusions they are purported to address. For South African higher education, the challenge lies not merely in adopting new technologies but in ensuring that such technologies serve to enhance, rather than marginalise, the cultural, linguistic, and intellectual diversity embodied in IKS.<sup>27</sup> Digital pedagogy, when thoughtfully designed, can be a powerful catalyst for bridging the gap between traditional knowledge systems and contemporary educational modalities. Emerging tools such as interactive multimedia, virtual field trips, and digital storytelling platforms offer innovative ways to preserve, disseminate, and engage with IKS in the classroom.<sup>28</sup> For instance, AI-powered translation tools can be used to support multilingual teaching practices, while AR applications can simulate cultural rituals or traditional technologies, thereby bringing Indigenous heritage to life in immersive and respectful ways.<sup>29</sup> Furthermore, OER platforms provide a decentralised medium through which local communities and academics can co-create and share IKS-based content, enhancing both epistemic agency and global reach.<sup>30</sup>

However, these possibilities come with risks. Most digital learning environments are designed based on Western pedagogical assumptions, privileging linearity, abstraction, and text-based engagement.<sup>31</sup> These modalities may conflict with the relational, oral, and contextual nature of IKS. Moreover, issues of digital access remain a pressing concern in the South African context.<sup>32</sup> Students from rural or under-resourced backgrounds often lack stable internet access, digital devices, or the digital literacies needed to navigate complex online environments.<sup>33</sup> As such, the pursuit of digital inclusion must address both infrastructural deficits and curricular biases. Inclusion must be conceptualised not simply as technological access but as epistemological recognition.<sup>34</sup>

To move toward truly inclusive digital pedagogy, higher education institutions must adopt a dual strategy. First, they must invest in digital infrastructure and literacy programmes that are sensitive to the socioeconomic realities of their student populations. Second, and perhaps more importantly, they must embrace curriculum designs that emphasise the cultural relevance and intellectual legitimacy of IKS. This includes collaborating with indigenous communities in the development of digital content, ensuring that digital platforms reflect indigenous aesthetics, ethics, and ontologies.<sup>35</sup> For example, co-producing

<sup>26</sup> Benjamin Seleke and Nixon J P Teis, "Bridging the Digital Divide: Integrating Fourth Industrial Revolution (4IR) Technologies in TVET for Enhanced Youth Skilling and Employability in South Africa," *TWIST* 20, no. 2 (2025): 441–52.

<sup>27</sup> Oluwatoyin Ayodele Ajani, "Exploring the Prospects and Challenges of AI Integration in Curriculum Delivery for Pre-Service Teachers at Rural Universities," *J. Res. Rev. Soc. Sci. Pakistan* 7, no. 2 (2024): 2771–89; Robert Chirima, "Harnessing Digital Technologies to Preserve and Promote Indigenous Knowledge Systems in Africa," *International Journal of Innovative Science and Research Technology*, June 12, 2025, 4411–16, <https://doi.org/10.38124/ijisrt/25may1906>.

<sup>28</sup> Iris-Panagiota Efthymiou, "Integrating Indigenous Media for Educational Progress: Merging Traditional Knowledge With Modern Curricula," in *Indigenous Teaching Disciplines and Perspectives for Higher Education* (IGI Global Scientific Publishing, 2025), 285–308.

<sup>29</sup> James Hutson, *The Rise of AI in Academic Inquiry* (IGI Global, 2024); Dinesh Kumar Nanduri, "Exploring the Role of Generative Artificial Intelligence in Culturally Relevant Storytelling for Native Language Learning Among Children" (University of Maryland, 2024).

<sup>30</sup> Charles Musarurwa et al., "Leveraging Indigenous Knowledge for Strengthening Respiratory and Immune Health Responses: Lessons from BRICS and SADC Member States During Global Health Crises," 2025.

<sup>31</sup> Daehyun Won, "Teaching Digital-Multimodal Composition for Digital-Born Students: Exploring Pedagogical Applications of Interactive Narrative Media" (2023).

<sup>32</sup> Kehinde Aruleba and Nobert Jere, "Exploring Digital Transforming Challenges in Rural Areas of South Africa through a Systematic Review of Empirical Studies," *Scientific African* 16 (2022): e01190.

<sup>33</sup> Gardner Mwansa, Matipa Ricky Ngandu, and Zolisa Mkwambi, "Bridging the Digital Divide: Exploring the Challenges and Solutions for Digital Exclusion in Rural South Africa," *Discover Global Society* 3, no. 1 (2025): 54.

<sup>34</sup> S Maleka and Catherine Maidu, "The Societal Implications of Technological Innovations and AI in South Africa" (Apr, 2024).

<sup>35</sup> Noel Fitzpatrick et al., "Policy Recommendations for Higher Education Institutions to Begin Advancing from Digital Transformation to Bifurcation," *NanoEthics* 19, no. 2 (2025): 10; Fulufhelo Oscar Makananise and Shumani Eric Madima, *Decolonising Digital Media and Indigenisation of Participatory Epistemologies* (Routledge, 2025).

a digital archive of local medicinal plants or architectural designs with community elders not only safeguards indigenous knowledge but also validates its contemporary relevance within academic discourse. Ultimately, the goal is not to simply insert IKS into digital formats but to reimagine digital learning spaces as decolonial sites of encounter, spaces where diverse epistemologies interact, contest, and co-construct meaning.<sup>36</sup> By doing so, higher education can transcend the limitations of traditional and digital pedagogy, moving toward a future where innovation and inclusion are not oppositional but mutually strengthening.

The internationalisation of higher education curricula has long been framed as a strategic response to globalisation, aiming to prepare students for participation in an interconnected world.<sup>37</sup> However, this process has often unfolded through the uncritical adoption of Euro-American knowledge systems, pedagogies, and benchmarks, reinforcing global academic hierarchies and sidelining epistemologies from the Global South. In the South African context, and more broadly across the African continent, the internationalisation agenda must be reimaged through a lens of epistemic equity, where IKS are positioned not as parochial or localised, but as globally significant and intellectually robust frameworks.<sup>38</sup>

Curriculum internationalisation that privileges global partnerships without attending to the localisation of content risks perpetuating a one-directional flow of knowledge and authority. True internationalisation must go beyond academic mobility or curriculum benchmarking to embrace the co-creation of knowledge across cultural, regional, and epistemic boundaries.<sup>39</sup> This calls for a curriculum that integrates global concerns with local realities, a curriculum that is at once situated and outward-looking. For instance, embedding IKS into global classrooms through transnational collaboration projects allows students from different regions to engage with Indigenous perspectives on sustainability, health, education, and innovation. Such engagements foster intercultural empathy, decolonial thinking, and shared problem-solving capacities.<sup>40</sup>

One way to achieve this is by adopting an approach of “pluriversal internationalisation”, a framework that affirms the coexistence of multiple worldviews and challenges the presumed universality of Western thought. This approach requires higher education institutions to design curricula that are sensitive to both global competencies and local intelligences.<sup>41</sup> For example, courses in environmental science can explore climate change from both scientific and Indigenous cosmological perspectives, while programmes in innovation studies may include traditional engineering practices, artisanal knowledge, and communal innovation strategies from rural contexts. Internationalisation also provides a platform for South–South collaborations that have historically been undervalued in global academic discourse.<sup>42</sup> Institutions in Africa, Latin America, and Asia share many contextual commonalities, such as multilingualism, post-colonial legacies, and socioeconomic disparities, that create opportunities for solidarity and mutual learning. Joint curriculum initiatives, collaborative research projects, and student exchange programmes between institutions in the Global South can serve to strengthen Indigenous

<sup>36</sup> Hamza R'boul, “Postcolonial Interventions in Intercultural Communication Knowledge: Meta-Intercultural Ontologies, Decolonial Knowledges and Epistemological Polylogue,” *Journal of International and Intercultural Communication* 15, no. 1 (2022): 75–93.

<sup>37</sup> Elspeth Jones et al., “Global Social Responsibility and the Internationalisation of Higher Education for Society,” *Journal of Studies in International Education* 25, no. 4 (2021): 330–47.

<sup>38</sup> C. Odora Hoppers, “Research on Indigenous Knowledge Systems: The Search for Cognitive Justice,” *International Journal of Lifelong Education* 40, no. 4 (2021): 310–27; M. Sibanda, “Data Reliability Issues in At-Risk Student Identification Systems,” *African Journal of Higher Education* 30, no. 1 (2024): 75–88; Kudzayi Savious Tarisayi, “Theoretical Foundations of Internationalisation and Sustainable Development in Higher Education,” *Internationalisation of Higher Education for Sustainable Development: A Southern African Perspective* 22 (2025): 4.

<sup>39</sup> Memory Deredzai and Pedzisai Goronga, “Contemporary Approaches to Internationalization in Higher Education: Global Alliances for Academic Excellence-Strategies for Cultivating Enduring International Partners,” in *Contemporary Approaches to Internationalization in Higher Education* (IGI Global Scientific Publishing, 2025), 95–124.

<sup>40</sup> Danielle Lake et al., “Design Thinking in Higher Education: Opportunities and Challenges for Decolonized Learning,” *Teaching and Learning Inquiry* 12 (2024): 1–22.

<sup>41</sup> Abdelkarim Oubkkou, “Building Global Bridges and Fostering Global Competence: The Role of Multicultural Education in Higher Education Institutions,” in *Internationalization of Higher Education and Digital Transformation: Insights from Morocco and Beyond* (Springer, 2025), 69–87.

<sup>42</sup> Panchalingam Suntharalingam, “Internationalisation of Higher Education: Mission and Concerns,” in *Navigating Quality Assurance and Accreditation in Global Higher Education* (IGI Global Scientific Publishing, 2025), 407–34.

scholarship, validate alternative paradigms of development, and decentre Euro-American epistemic dominance.

In this reconceptualisation of curriculum internationalisation, digital technologies play an enabling role. Virtual exchange programmes, digital storytelling platforms, and collaborative online learning environments can serve as bridges between geographically dispersed yet epistemically aligned communities.<sup>43</sup> However, such technologies must be leveraged with care to ensure that they do not flatten cultural complexity or commodify Indigenous identities. Instead, they must be used to foster authentic dialogue, knowledge co-production, and reciprocal learning.

Ultimately, the internationalisation of the curriculum in a South African university should not mean diluting African epistemologies for global appeal. Rather, it should involve amplifying and translating these knowledge systems into global conversations in ways that retain their integrity, nuance, and relational ethos. When curriculum internationalisation centres epistemic justice, it becomes a powerful strategy for cultivating students who are not only globally competent but also rooted in their histories, cultures, and responsibilities to their communities.<sup>44</sup>

### Toward a Hybrid Knowledge Framework

To realise a transformative vision for higher education, one that is inclusive, globally relevant, and epistemologically just, there is a pressing need to develop a hybrid knowledge framework that meaningfully integrates IKS with digital innovation and global pedagogical practices. A hybrid framework does not seek to amalgamate disparate epistemologies into a singular, homogenised model; rather, it creates dialogic spaces where multiple knowledge systems can interact on equal epistemic footing.<sup>45</sup> This approach disrupts the binary between the “traditional” and the “modern,” challenging hierarchies that have long privileged Western scientific rationality over experiential, spiritual, and ecological intelligences inherent in IKS.

Such a framework must begin with the ontological recognition that IKS are dynamic, evolving, and capable of engaging with emerging challenges, whether technological, environmental, or social.<sup>46</sup> It must also acknowledge that knowledge is always situated, historically embedded, and culturally mediated. Therefore, the integration of IKS into digitally mediated classrooms must be anchored in the principles of epistemic humility, mutual respect, and co-construction.<sup>47</sup> Rather than treating digital tools as mere vehicles for content delivery, they should be seen as dialogic instruments that facilitate intercultural exchange, deepen learner engagement, and foreground pluralistic worldviews.

In practical terms, a hybrid knowledge framework could involve curriculum designs that combine AI-enhanced learning platforms with community-driven case studies rooted in indigenous practices.<sup>48</sup>

<sup>43</sup> Doris Chasokela and Lungisani Mpofu, “Strategies for Using Online Education in Support of Global Contexts,” in *Best Practices and Strategies for Online Instructors: Insights From Higher Education Online Faculty* (IGI Global Scientific Publishing, 2025), 41–72; Patrick Zingisa Msekela, “Beyond the Borders Global Collaboration in Open Distance Education through Virtual Exchanges,” *Journal of Knowledge Learning and Science Technology ISSN: 2959-6386 (Online) 2*, no. 2 (2023): 1–13.

<sup>44</sup> Hwami and Bedeker, “Reimagining Representation and Recognition of the ‘Other’ in International Higher Education (IHE): Towards Epistemic Justice”; Siyin Liang, “Curriculum Internationalization: Aligned with Equity and Social Justice? Considerations and Perceptions from International Graduate Students in Canada,” *Journal of Comparative and International Higher Education* 17, no. 2 (2025): 143–58.

<sup>45</sup> Franca Buelow et al., “Promoting Diversity of Thought: Bridging Knowledge Systems for a Pluriverse Approach to Research,” *Earth Science, Systems and Society* 5, no. 1 (2025): e2024-006; Markus F Peschl and Thomas Fundneider, “Designing and Enabling Spaces for Collaborative Knowledge Creation and Innovation: From Managing to Enabling Innovation as Socio-Epistemological Technology,” *Computers in Human Behavior* 37 (2014): 346–59; Patricio Silva-Ávila, Jorge Rojas Hernández, and Ricardo O Barra, “Traditional Ecological Knowledge and Socio-Ecological Resilience in Chilean Agroecosystems: A Comparative Analysis of Transformative Adaptation Dimensions,” 2025.

<sup>46</sup> Princess Blose and Elliot C Ndlovu, “Enabling Indigenous Knowledge Systems in Action Research and Action Learning: How IKS Co-Exist in the Field of Technology Education,” in *Enabling Indigenous Knowledge Systems in Action Research and Action Learning* (IGI Global Scientific Publishing, 2025), 129–50; Seleke et al., “Indigenous Knowledge Integration in South Africa’s Technology Education Curriculum: Current Status, Challenges, and Future Directions.”

<sup>47</sup> Seleke, “Scaffolding Teachers’ Professional Development for the Infusion of Indigenous Knowledge Transfer in the Technology Classroom.”

<sup>48</sup> Prashant Mahajan, “What Is Ethical: AIHED Driving Humans or Human-Driven AIHED? A Conceptual Framework Enabling the Ethos of AI-Driven Higher Education,” *ArXiv Preprint ArXiv:2503.04751*, 2025.

For example, modules on sustainable development might incorporate drone-assisted mapping of indigenous agricultural techniques, while simultaneously engaging students in critical reflection on the ontological underpinnings of sustainability in African cosmologies.<sup>49</sup> Similarly, blended learning platforms could be designed to include oral histories, recorded in indigenous languages, accompanied by student-led digital projects that interpret and present these narratives through interactive media.<sup>50</sup> In this way, learners are not only recipients of diverse knowledges but also active co-creators of epistemic bridges.

Institutionalising this hybrid framework requires deliberate policy shifts and leadership support. Academic staff need training in culturally responsive pedagogy and digital innovation, while curriculum review committees must be capacitated to evaluate programmes through lenses of epistemic diversity and social relevance.<sup>51</sup> Moreover, ethical protocols must be developed to protect Indigenous intellectual property rights in digital spaces, ensuring that community knowledge is not commodified or extracted without consent.

At a systemic level, this hybrid approach aligns well with national policy imperatives in South Africa, including the Department of Higher Education and Training's policy on the recognition of prior learning, the National Digital and Future Skills Strategy (2020), and the call for universities to become "engaged institutions" that are locally grounded and globally networked.<sup>52</sup> A hybrid knowledge framework positions the university as a transformative agent, one that transcends its colonial foundations and repositions itself as a site of pluriversal learning, innovation, and social renewal.<sup>53</sup> This model envisions a higher education environment where digital equity, cultural relevance, and knowledge plurality intersect to create meaningful, responsive, and socially just learning experiences.<sup>54</sup> It holds promise for South African institutions striving to honour the epistemological dignity of their students while preparing them to participate ethically and effectively in a globalised, digitally mediated world. To encapsulate the conceptual synthesis proposed in this paper, the following figure presents a hybrid knowledge framework that merges Indigenous epistemologies with digital pedagogical innovation to support inclusive, future-oriented higher education.

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<sup>49</sup> Jonathan Cotte, "The Implementation of Development Technologies and the Future of Drones: The Way Forward with Sustainable Technological Solutions through a Focus on Drones and the SDGs," 2021.

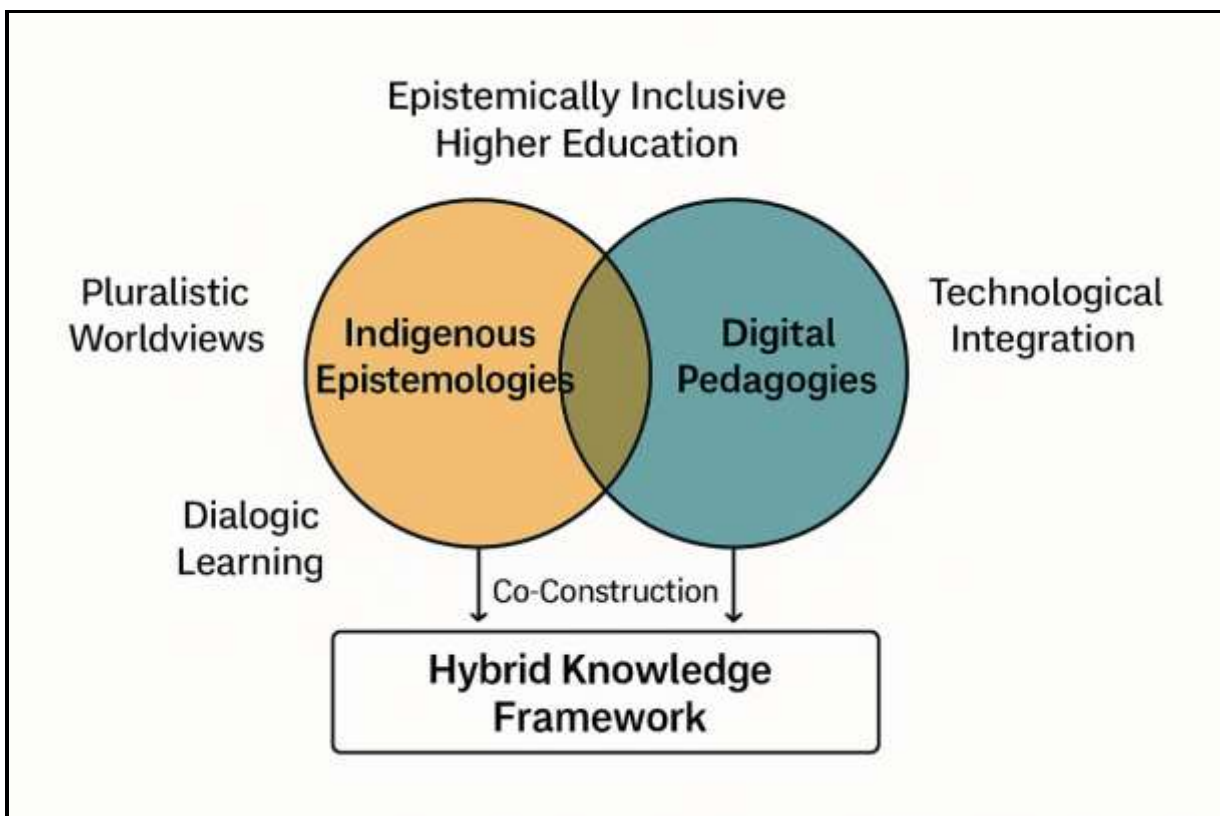
<sup>50</sup> Helen Roger, "Beyond the Obvious: A Practice Oriented Investigation into Blended Learning Cultures of Creative Subjects in the University of Highlands and Islands" (University of Dundee, 2023); Kristin Severinsen Spieler, Anne Karin Vikstøl Olsen, and Randi Engtrø, "Intercultural Dialogue on Indigenous Perspectives: A Digital Learning Experience," *Education Sciences* 15, no. 5 (2025): 615.

<sup>51</sup> Izelque Botha and Danitza Klopper, "Navigating Change: A Journey through Curriculum Review," *South African Geographical Journal*, 2025, 1–16; Seleke, Havenga, and De Beer, "The Enhancement of Self-Directed Learning through the Engagement in Problem-Based Learning Activities during a Professional Development Programme on Indigenous Knowledge for Technology Teachers."

<sup>52</sup> Johannes N Zongozzi and Sindile A Ngubane, "Equitable Access to Digital Higher Education for Students with Disabilities in South Africa," *African Journal of Disability* 14 (2025): 1525.

<sup>53</sup> Sabelo J Ndlovu-Gatsheni, "Internationalisation of Higher Education for Pluriversity: A Decolonial Reflection," *Journal of the British Academy* 9, no. 1 (2021): 77–98; Spyros Themelis, *The Pedagogy of Radical Change: Social Movements, Resistance and Alternative Futures in Higher Education and Society* (Bloomsbury Publishing, 2025).

<sup>54</sup> Sally Baker et al., "Equitable Teaching for Cultural and Linguistic Diversity: Exploring the Possibilities for Engaged Pedagogy in Post-COVID-19 Higher Education," *Educational Review* 74, no. 3 (2022): 444–59; Mario Antonio Kelly, "Bridging Digital and Cultural Divides: TPCK for Equity of Access to Technology," in *Handbook of Technological Pedagogical Content Knowledge (TPCK) for Educators* (Routledge, 2014), 41–68; Farhat Naureen Memon and Sarwat Naureen Memon, "Digital Divide and Equity in Education: Bridging Gaps to Ensure Inclusive Learning," in *Impact of Digitalization on Education and Social Sustainability* (IGI Global, 2025), 107–30; Frank Tuitt, Chayla Haynes, and Saran Stewart, *Race, Equity, and the Learning Environment: The Global Relevance of Critical and Inclusive Pedagogies in Higher Education* (Taylor & Francis, 2023).



*Figure 3: A Hybrid Knowledge Framework for Epistemically Inclusive Higher Education*

This figure illustrates the intersection of Indigenous Epistemologies and Digital Pedagogies as a conceptual space for Hybrid Knowledge Frameworks. Key components, such as pluralistic worldviews, dialogic learning, technological integration, and co-construction, converge to support the development of curricula that are both locally grounded and globally relevant. The framework aspires to reposition higher education as a site of epistemic justice, cultural responsiveness, and pedagogical innovation. As depicted, the hybrid knowledge framework provides a strategic and values-driven model for curriculum transformation, fostering learning environments that honour Indigenous worldviews while leveraging the affordances of digital education.

## RECOMMENDATIONS

To translate the above analysis into actionable steps, we recommend a policy-to-practice pathway that is targeted at key actors across the South African higher-education system:

- i. DHET and CHE should embed explicit epistemic-justice and IKS integration criteria in accreditation and quality-assurance instruments, requiring evidence of multilingual, community-embedded digital pedagogy and ethical handling of Indigenous intellectual property, thereby aligning transformation with the system-wide intent of the White Paper for Post-School Education and Training and addressing persistent patterns of testimonial and hermeneutical exclusion in knowledge practices.
- ii. university leadership and governance should resource digital-inclusion infrastructure (devices, connectivity, accessibility) and structured academic development for culturally responsive, technology-enhanced teaching, building on insights about post-COVID digital transitions and uneven participation in online spaces, while establishing MoUs and protocols with communities to guarantee co-creation, data sovereignty, and benefit-sharing consistent with a decolonial re-centering of African epistemologies.

- iii. faculty and school curriculum committees should adopt review rubrics that test for IKS alignment, multilingual design, accessibility, and community partnerships, using curriculum-review evidence to structure iterative, evidence-based improvement cycles
- iv. academics and learning designers should implement hybrid pedagogies that integrate IKS with 4IR tools (e.g., digital storytelling, AI-supported multilingual scaffolding, AR-enabled fieldwork), co-designing learning with Indigenous practitioners and revitalising learning ecologies that extend beyond the classroom.
- v. EdTech partners and university libraries should co-develop platforms and metadata practices that surface Indigenous languages, categories and media, strengthening institutional repositories for community-authorized artefacts and oral histories.
- vi. funders/industry should prioritise grants for IKS-centred digital archives, multilingual content creation, and community–university knowledge labs that enable pluriversal, South–South forms of internationalisation rather than extractive globalisation. Collectively, these measures operationalise a coherent governance–pedagogy–infrastructure nexus that advances epistemic justice while ensuring that IKS-informed digital curricula are academically rigorous, ethically grounded, and practically scalable across global classrooms.

## CONCLUSION

In conclusion, this study set out to clarify how IKS can be purposefully repositioned within digitally enhanced global classrooms to advance epistemic justice and curriculum relevance in South Africa, and our critical-interpretive synthesis demonstrates that a hybrid framework, linking IKS to accessible 4IR-mediated pedagogy, multilingual design, and community co-creation, offers a coherent and practicable pathway for transformation. At system level, aligning accreditation and quality-assurance instruments with epistemic-diversity criteria can counter testimonial and hermeneutical exclusions in knowledge production while legitimising local epistemologies within internationalising curricula. Institutionally, investment in digital inclusion and academic development is essential to convert post-COVID adoption into equitable, culturally responsive practice, ensuring that technology mediates recognition rather than reproduces asymmetries. Pedagogically, evidence from South African contexts shows that decolonial design choices, such as integrating Indigenous practitioners, oral and visual assessment, and pluriversal learning ecologies, can be scaled through iterative curriculum review and robust repository practices. Our final position is that durable change requires a governance–pedagogy–infrastructure nexus: policy instruments that mandate epistemic plurality, institutional capabilities that make inclusion operational, and classroom practices that treat IKS as living, assessable knowledge, together constituting a policy-to-practice roadmap capable of reshaping global classrooms from sites of epistemic extraction into spaces of pluriversal co-production.

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## ABOUT AUTHOR

Dr Benjamin Seleke is a Senior Lecturer in the Faculty of Education at Walter Sisulu University, South Africa, where he coordinates Work-Integrated Learning (Dip ACET) and contributes to curriculum development and academic leadership. His scholarship spans Indigenous Knowledge Systems,

Technology Education, the Fourth Industrial Revolution, Self-Directed Learning, and decolonial approaches to teaching and learning. He supervises postgraduate research, presents at local and international conferences, and publishes on teacher preparation, WIL, and curriculum innovation aligned to national and continental frameworks (SDG 4, NDP 2030, AU Agenda 2063). Beyond academia, he is an active mentor and community-engaged scholar committed to equitable, context-responsive education.