# Innovating While Maintaining Standards: Exploring the Tension Between Vertical Qualification Alignment and Innovation in Zimbabwean Higher Education

Evelyn Garwe[1]

1 IBSUniversity

## Abstract

Higher education institutions (HEIs) face increasing pressure to balance rigorous standards and innovation. However, little is known about how vertical qualification alignment requirements, which ensure coherence and quality across degree levels, affect this balance. This study explores this issue using the case of Zimbabwe, where vertical alignment of faculty qualifications is a key policy instrument for quality assurance. Through interviews and focus group discussions with lecturers, administrators and quality assurance officials, the study reveals how vertical alignment standards enable and constrain innovation in different ways. The findings suggest that while vertical alignment fosters depth of knowledge in a discipline, it can also limit the breadth of transdisciplinary knowledge acquisition required by changing workplaces. To achieve excellence and equity, higher education needs to uphold rigorous standards while promoting innovation through adaptable structures, a culture conducive to strategic risk-taking, and policies that balance oversight and autonomy. The study proposes a balanced approach that preserves qualification integrity while allowing regulated experimentation to ensure curriculum relevance amid changing needs. The study contributes to the understanding of the complex interplay between standards, flexibility and collaboration in higher education, and its implications for cultivating pioneering graduates and cutting-edge solutions that advance socio-economic progress. The findings of this study indicate that quality assurance agencies and HEIs must work together to implement innovative, evidence-based strategies that balance academic rigor with supportive flexibility in order to develop adaptable graduates equipped to solve complex problems and drive socio-economic progress. With a nuanced, evidence-based approach, vertical alignment need not impede HEIs' potential to cultivate agile thinkers and pioneers.

**Keywords:** Vertical qualification alignment; innovation; higher education, balance, Zimbabwe.

## Introduction

Higher education institutions (HEIs) play a vital role in cultivating human capital and fostering innovation and creativity in

society (Guerrero et al., 2016; Neck & Greene, 2011). However, they face increasing pressure to balance rigorous standards and innovation. This tension is particularly problematic in the context of Zimbabwe. As the nation strives to strengthen postsecondary opportunities while keeping pace with the Fourth Industrial Revolution using the heritage-based Education 5.0 doctrine (Ministry of Higher and Tertiary Education, Science and Technology Development, 2022), innovation has been identified as crucial for powering industrialization.

Vertical qualification alignment requirements that prescribe lecturers' subject expertise through obtaining undergraduate through doctoral degrees in the same field (Richardson, 2012) constrain creativity and innovation. If taken to an extreme, overemphasis on rigid alignment risks hindering the agility required.

The paper analyzes interviews and discussions with lecturers, administrators and quality officers (Smith et al., 2016) to answer three research questions: (1) What are the specific ways in which vertical qualification alignment acts as an enabler or barrier to innovation, as revealed by the views of stakeholders? (2) How do organizational culture characteristics contribute to either aiding or obstructing the balance between standards and innovation? and (3) What strategies can quality assurance agencies and institutions adopt to uphold qualification rigor while promoting innovation and creativity, considering the insights gained from the interplay between vertical alignment standards and innovation?

Insights gained provide guidance for policymakers and institutions seeking to optimize qualification frameworks in a way that safeguards educational excellence while catalysing responsive curricula and innovation (Perkmann et al., 2013). With universities poised to bolster Zimbabwe's knowledge economy, balancing disciplinary depth with interdisciplinary breadth deserves careful consideration.

## Literature Review

Innovation is a complex, multidisciplinary concept that encompasses the successful introduction of new ideas, products, services, or processes that add value (Solomon et al., 2019). Innovation can take many forms within higher education depending on intended outcomes and conceptual definitions (Levin, 2013). From an entrepreneurial perspective, innovation focuses on commercialization of research and cultivating an entrepreneurial mindset in students (Guerrero & Urbano, 2012). Other conceptualizations emphasize innovations in pedagogy, curriculum design, partnerships, and community engagement to better address societal needs (Smith et al., 2016). Overall, innovation involves the application of knowledge in novel ways to create economic, social, or academic value (Solomon et al., 2019; Wang & Wang, 2020). This provides the grounding for understanding different approaches to innovation in the higher education sector.

Universities play a vital role in enabling innovation through knowledge generation, skills development, and connections with industries and communities (Perkmann et al., 2013). However, the tension between academic standards and innovation outcomes involves ongoing debate. Quality assurance frameworks traditionally emphasize vertical alignment, where lecturers hold graduate degrees in closely related disciplines to their teaching areas (Rorrison, 2020). Supporters argue this enhances subject matter expertise, research quality, and teaching effectiveness (Richardson, 2012). However, critics note rigid structures can constrain innovation and cross-disciplinary collaborations needed to address complex

problems (Manathunga et al., 2012). This debate around the effects of vertical alignment standards sets the stage for empirical examination.

Previous empirical studies provide mixed evidence on the relationship between vertical alignment and innovation. Correlational studies found positive links to faculty productivity, student evaluations, and competencies (Smith et al., 2019; Miller et al., 2017). However, these analyses do not account for factors like disciplinary breadth, research quality, or innovation definitions. Qualitative case studies identified barriers rigid structures pose for interdisciplinary project-based learning and partnerships (Manrakhan, 2020; Kitchen & Sellami, 2019; Manrakhan et al., 2019). Emerging perspectives advocate developing disciplinary depth alongside wider skillsets to balance standards with agility (Lisy 2020; Levin, & Wilmer, 2016). These varying views highlight the need for more contextual analysis.

Notably, few studies examine innovation outcomes at multiple levels - including student mindsets, commercialization, pedagogical practices, and societal impacts. Definitions of innovation also vary considerably. More nuanced approaches are needed to understand contextual factors influencing different types of innovation from stakeholder perspectives. The relationship between vertical qualification alignment and holistic innovation remains an underexplored issue requiring multifaceted investigation. To help address this issue, this qualitative study examines specifically how vertical qualification standards impact innovation according to stakeholders within Zimbabwean higher education. Requirements aim to ensure teaching quality, but critics argue this narrow focus limits exposure beneficial for innovation as well as developing students' versatile thinking (Manathunga et al., 2012).

## The Zimbabwe case context

This paper examines the interplay between vertical qualification alignment and innovation in the context of Zimbabwe, where innovation is a key pillar of the national vision for the future of learning, known as Education 5.0 (Ministry of Higher and Tertiary Education, Science and Technology Development, 2022). Education 5.0 aims to equip students with human-centered skills for life and work in a rapidly changing world, driven by the fourth industrial revolution (Sorinola et al., 2022). An exploration of Education 5.0's goals sets the stage for examining its implications for qualifications and innovation.

Education 5.0 promotes collaborative, experiential learning approaches that develop technological proficiency alongside abilities like creativity, critical thinking and problem-solving (Makoni, 2020). It also encourages open, blended and distributed models of education delivery that leverage digital tools and platforms to reach wider audiences, especially in underserved rural communities (Chigona & Mbarika, 2017). Furthermore, it supports interdisciplinary and transdisciplinary programs that cut across traditional fields, fostering holistic competencies needed in interlinked domains like healthcare, agriculture and sustainability (Muzividzi et al., 2021). The overarching goal is to cultivate lifelong learners equipped for Zimbabwe's knowledge economy of the future (Mutambara, 2022). Therefore, Education 5.0 envisions that universities use innovation as a catalyst for industrialization and societal progress, requiring creativity and multidisciplinary perspectives (Zindiya et al., 2021; Chireshe & Chimuya, 2020). This ambition for transformation requires examination of any potential barriers.

However, achieving innovation through Education 5.0 also depends on the quality assurance frameworks and standards that govern higher education in Zimbabwe. The Zimbabwe Council for Higher Education (ZIMCHE) oversees academic standards and program accreditation (ZIMCHE, 2021). One of the standards is vertical qualification alignment, which requires that lecturers hold bachelor's, master's, and doctoral degrees in closely related fields. This is intended to ensure depth of knowledge and expertise in a discipline, which can enhance teaching quality and innovation (Richardson, 2012). However, some critics argue that vertical alignment can also inhibit interdisciplinary exposure and flexibility needed to cultivate agile thinking and solutions tailored to multifaceted societal issues (Manathunga et al., 2012). Moreover, a lack of coordination in policy implementation has resulted in inconsistencies in vertical alignment (Siziba et al., 2022) and overregulating amid capacity constraints risks stifling the agility tertiary programs must develop (Kasozi, 2017). Therefore, there is a need for more research on how vertical alignment standards impact innovation in different ways, and how to achieve a balance between rigorous standards and innovation tin Zimbabwe. This issue forms the basis of the current study.

## Theoretical framework

This section presents the theoretical framework that guides this study. The study explores how vertical alignment standards impact innovation in Zimbabwean higher education. The study is grounded in da Veiga's (2009) praxis orientation theory, which posits that higher education institutions must balance external standards with internal contextual realities through reflective adaptation. Specifically, da Veiga's theory argues that higher education systems must navigate tensions between policy demands and local circumstances. Borri et al. (2015) further developed this concept, arguing that praxis orientation allows for creativity within guidelines, enabling institutions to navigate complex policy environments while maintaining their social mission. An examination of previous applications of this theory provides a starting point.

Praxis orientation is a theoretical framework that emphasizes the need for higher education institutions to balance external standards with internal contextual realities through reflective adaptation. This framework highlights the tensions between external metrics and institutional responsiveness, and argues that praxis orientation allows for creativity within guidelines, enabling institutions to navigate complex policy environments while maintaining their social mission. This study adopts praxis orientation as a lens to examine how vertical alignment standards enable or constrain innovation in curriculum development in Zimbabwean higher education. The theory offers a lens for this analysis.

Previous research emphasizes the importance of balance and flexibility when managing alignment standards to enable or accelerate innovation. However, there remains a need to understand the relationship between vertical alignment policies and innovations occurring within institutions from the viewpoints of those directly involved. Therefore, this study aims to fill this gap by situating the research within the Zimbabwean higher education system, where vertical alignment is a key policy instrument for quality assurance. The study seeks to provide context-specific, qualitative data on how quality assurance frameworks interact with reform efforts from implementers' perspectives. The insights from this study could help policymakers and institutions optimize standards to both safeguard quality and catalyze responsive programming. A consideration of gaps establishes the purpose of this research.

## Methodology

This section describes the research design, data collection methods, and data analysis methods used in this study. The study aims to explore how vertical alignment standards affect innovation in curriculum development in Zimbabwean higher education. The study utilizes a qualitative case study methodology to gather rich insights from lecturers, administrators, and quality assurance officials in Zimbabwean higher education institutions. The case study approach allows for an in-depth exploration of the research questions and provides a contextualized understanding of the relationship between vertical alignment and innovation.

Two data collection methods were employed: online focus group discussions and semi-structured interviews. Online focus group discussions were conducted with a sample of 60 participants, 20 per each group of lecturers, administrators, and quality assurance practitioners from 10 higher education institutions in Zimbabwe. The discussions were facilitated through an online platform, lasted approximately 60 minutes each, and were audio recorded and transcribed verbatim. Semi-structured interviews were conducted with a purposive sample of 30 stakeholders, representing 10 lecturers, 10 administrators, and 10 quality assurance officials from the sample of 10 Zimbabwean higher education institutions. The interviews were conducted via video conferencing or in-person, based on participant preferences, and lasted approximately 60 minutes each.

Thematic analysis was employed to analyze the data collected from the focus group discussions and interviews. This involved the identification and coding of themes and sub-themes that emerged from the participants' perspectives and experiences. Content analysis was used to analyze relevant policies and documents related to curriculum development and quality assurance in Zimbabwean higher education institutions. This analysis provided additional context and supported the interpretation of the qualitative data.

Ethical clearance was obtained from the institutional research committee before the commencement of data collection, ensuring adherence to ethical guidelines and protection of participants' rights. Informed consent was obtained from all participants, clearly explaining the purpose of the study, voluntary participation, and confidentiality of their responses. Participants were assured of confidentiality and anonymity throughout the study, and identifying information was securely stored and accessible only to the research team. The study was conducted over a period of six months, allowing sufficient time for data collection, analysis, and interpretation.

Online tools such as Zoom were used to facilitate the online focus group discussions and interviews, ensuring efficient data collection while accommodating participant preferences and geographical constraints. Overall, these qualitative methods offer foundational understandings to address gaps in holistic, context-specific inquiry into innovation and standards.

The use of self-report methods is a limitation as responses may be impacted by social desirability bias. Additionally, the study relies on participant perceptions rather than objective measures, which provide an important but incomplete picture.

Further research using complementary methods could help triangulate findings.

## Findings

This section presents the findings of the study, which explored how vertical alignment standards affect innovation in curriculum development in Zimbabwean higher education. The study addressed three research questions: (1) What are the specific ways in which vertical qualification alignment acts as an enabler or barrier to innovation, as revealed by the views of stakeholders? (2) How do organizational culture characteristics contribute to either aiding or obstructing the balance between standards and innovation? and (3) What strategies can quality assurance agencies and institutions adopt to uphold qualification rigor while promoting innovation and creativity, considering the insights gained from the interplay between vertical alignment standards and innovation?

### Perceptions on Vertical Qualification Alignment as an enabler or barrier to innovation

The findings revealed nuanced perspectives on how vertical qualification alignment impacts innovation. Most stakeholders agreed that balancing rigorous quality standards with curricular flexibility is important for both promoting innovation and maintaining educational quality. As one lecturer described, "Rigid adherence to vertical standards now seems at odds with the agility learners need. We must empower creativity alongside core expertise." An administrator agreed cautiously: "While mastery through depth aids teaching and research if taken to extremes, could it also limit perspectives? A balanced understanding recognizes both merits." Most saw benefits and challenges, favoring balance. As a quality official concluded, "Standards ensure coherence but stifling flexibility harms relevance - both factors critically impact innovation outcomes."

However, not all agreed on vertical alignment's role in enabling innovation. Clear qualification standards were widely valued by lecturers and administrators for providing curricular coherence and quality across degree levels. Vertical alignment was seen as helpful for guiding curriculum design and facilitating student mobility. At the same time, participants felt rigid compliance with input-based alignment criteria could obstruct innovative program development.

Table 1 summarizes the study's key findings regarding the positive and negative impacts of vertical alignment on curricular innovation. In particular, ensuring educational quality and standards while allowing flexibility emerged as an ongoing tension, with calls for balance between regulation and innovation.

**Table 1.** Impact of vertical alignment on innovation

| Positive effects | Negative effects |
|---|---|
| Enhances expertise and authority in subject area which stimulates innovation | Narrows perspective on teaching and learning |
| Encourages specialization and in-depth knowledge which are necessary for innovation | Reduces interdisciplinary collaboration and communication |
| Increases focus and efficiency in teaching and research | Limits creativity and broad thinking due to over-specialization |
| Supports academic rigor and ensures that lecturers can prepare students for the labor market | Inhibits creativity due to alignment rigidity |
| Alignment is essential for maintaining quality standards in higher education | Prevents ability to respond to changing industry needs due to alignment rigidity |

The findings revealed varying perspectives on how vertical qualification alignment impacts curricular innovation. While some stakeholders believed balancing rigorous standards with flexibility best promotes innovation, others saw rigid compliance with alignment criteria as hindering innovative program development.

The positive impacts of vertical alignment included enhancing subject matter expertise, encouraging specialization, increasing focus and efficiency, supporting academic rigor, and maintaining quality standards. Consistent with prior research, vertically aligned qualifications allowed lecturers to demonstrate confident mastery of content and connect concepts to real-world applications, enhancing student engagement (Darling-Hammond & Bransford, 2019). Such focused specialization also tended to produce innovative disciplinary research and enable collaboration benefiting teaching and the institution (Adams et al., 2014).

However, the findings also indicated potential negative impacts. Strict vertical alignment was seen as narrowing perspectives, reducing interdisciplinary collaboration, limiting creativity and broad thinking, and inhibiting responsiveness to changing industry needs. Conversely, exposure to diverse ideas through interdisciplinary training can better equip students and lecturers for today's interconnected world. Prior studies confirm interdisciplinary qualifications foster wider thinking beyond single disciplines (Hiller & Peyer, 2019). By linking domains, such qualifications may generate innovative solutions to complex real-world problems (Bennett & Lemoine, 2014; Hiller & Peyer, 2019).

These positive and negative impacts imply vertical alignment has advantages in developing expertise but risks hindering the flexibility needed for innovation, especially in rapidly changing environments (Machado et al., 2021). An ability to draw from multiple perspectives, as interdisciplinary training provides, may better position lecturers and students to respond innovatively to uncertainty (O'Reilly et al., 2014; Powers et al., 2022). Striking a balance between depth and breadth therefore emerges as an ongoing challenge for supporting both educational quality and curricular innovation over time (Kasozi, 2017; Rorrison, 2020).

## Characteristics of Organizational Culture that Aid or Obstruct the Balance between Standards and Flexibility

The balance between standards and flexibility innovation is influenced by organizational culture. Quality assurance officials emphasized the importance of a culture that values both innovation/creativity as well as academic rigor. An innovative culture should foster experimentation, risk-taking, and collaboration among lecturers. "An environment

encouraging experimentation lets us test new ideas without fear of failure," explained one lecturer. However, others noted how inflexible cultures breed resistance to change. As a lecturer observed, "When leadership signals innovation isn't truly valued beyond rhetoric, gaining support proves nearly impossible." Colleagues agreed open communication and collaborative problem-solving better enable strategizing solutions balancing needs. Administrators and lecturers also observed that a culture prioritizing tradition/stability over innovation can impede balancing standards and flexibility.

Table 2 summarizes how certain cultural characteristics like collaboration, risk-taking and open communication aid balancing standards and flexibility, whereas reluctance to change hinders it. An innovative organizational culture emerged as supporting curricular agility while maintaining academic rigor. Fostering the right culture may thus help educational institutions navigate tensions between regulation and responsiveness over time.

**Table 2.** Characteristics of Organizational Culture that Aid or Obstruct the Balance between Standards and Flexibility

| Characteristics of Organizational Culture | Facilitates innovation | Obstruct Innovation |
| --- | --- | --- |
| Flexibility | Enables adaptability and responsiveness to changing industry needs, | May result in a lack of clarity and consistency in standards |
| Learning Orientation | Learning Orientation supports experimentation, risk-taking, and continuous learning | May result in a lack of focus on standardization |
| Performance Orientation | Supports high levels of performance and achievement, which can aid innovation by creating a culture of continuous improvement | May result in a lack of focus on standardization |
| Collaboration | Encourages collaboration and knowledge-sharing among employees, other institutions, industry, and government | May result in inefficiencies and conflicts |
| Risk Tolerance | Promotes experimentation and calculated risk-taking | May result in an inability to evaluate and manage risk effectively |
| Communication | Fosters open and effective communication, enabling employees to share ideas and collaborate on innovation | May result in communication breakdowns and misunderstandings, |
| Leadership | Supports and encourages innovation through leadership behaviors and practices | May result in a lack of leadership support and encouragement for innovation |

Table 2 indicates organizational culture influences the balance between standards and flexibility in curriculum development. Certain cultural characteristics were identified as aiding or obstructing this balance. Characteristics facilitating innovation included flexibility, a learning orientation, performance orientation, collaboration, risk tolerance, effective communication, and supportive leadership (O'Reilly et al., 2014; Schein, 2010). Conversely, characteristics obstructing innovation included a lack of clarity/consistency in standards, lack of focus on standardization, potential inefficiencies/conflicts, inability to evaluate/manage risk effectively, communication breakdowns, and lack of leadership support for innovation.

Recent studies support these findings. Cultures valuing flexibility, learning, collaboration and open communication foster innovation (De Jong & den Hollander, 2016). Flexible, collaborative cultures allow adaptation to new ideas/needs (Lewis et al., 2014). However, too much flexibility without clear goals/accountability can reduce focus/effectiveness (Kratzer, 2014). Similarly, while risk-taking enables experimentation, inadequate risk management hinders quality/sustainability

(Sitkin et al., 2011). A narrowly performance-oriented culture could discourage innovative behaviors seen as diverting from core operations (Birasnav, 2014).

Conversely, strong performance management coupled with learning drives continuous improvement linked to innovation outcomes (De Jong & den Hollander, 2016). Effective leadership communicating a shared vision of balancing standards with flexibility is likewise crucial to navigating this tension (Lewis et al., 2014).

In summary, the study's findings on how cultural characteristics interact with standards and flexibility aligns well with existing understanding around organizational culture, leadership, collaboration, risk orientation and their impacts on sustaining innovation over time. A balanced approach recognizes both the facilitating and obstructing impacts of different cultural dimensions.

## Strategies that quality assurance agencies and institutions can adopt to uphold qualification rigor while promoting innovation and creativity

Participants proposed strategies for upholding rigor while enabling creativity. As one lecturer noted, "Blended professional development and peer collaboration cultivates continuous improvement across our institution." An administrator concurred such synergistic approaches best serve all stakeholders. Most favored flexible yet clear guidelines. A quality assurance officer explained that "overly rigid rules hamper localized responsiveness to rapid changes, while principles-based guidance supports customizing innovative solutions." Overall, participants saw balancing standards and agility as key to strengthening universities' roles in societal advancement. Participants suggested that quality assurance agencies and institutions in Zimbabwe can adopt the balanced strategies to uphold qualification rigor while promoting innovation and creativity shown in Table 3.

**Table 3.** Balanced Strategies for Upholding Qualification Rigor and Promoting Innovation and Creativity

| Strategies for Quality Assurance Agencies and HEIs | Promotes Qualification Rigor | Promotes Innovation and Creativity |
|---|---|---|
| Fostering a Culture of Continuous Improvement | Promotes ongoing quality improvement and innovation. | Encourages experimentation and risk-taking. |
| Providing Guidelines and Standards | Ensures consistency and quality in qualifications. | Can stifle innovation if overly prescriptive. |
| Encouraging Collaboration | Promotes sharing of best practices and innovation. | Fosters creativity and innovation. |
| Supporting Innovation through Funding and Resources | Enables institutions to invest in innovation and new ideas. | Encourages innovation and creativity. |
| Regularly Reviewing and Updating Qualifications | Ensures qualifications remain relevant and up-to-date. | Promotes innovation and adaptability. |
| Encouraging Risk-Taking and Failure | Promotes experimentation and learning from failure. | Encourages innovation and creativity. |
| Providing Training and Professional Development | Enhances capacity for innovation and creativity. | Promotes innovation and adaptability. |
| Encouraging Stakeholder Engagement | Promotes collaboration and buy-in for innovation | Encourages innovation and creativity |
| Interdisciplinary course design and research | Maintains academic rigor and research impact | Fosters broader thinking and problem-solving skills among students |
| Flexible curriculum design | Enhances academic standards | Enable HEIs to respond quickly to changing workforce needs and technological advancements |

Table 3 shows that fostering a culture of continuous improvement, providing guidelines and standards, encouraging collaboration, supporting innovation through funding and resources, regularly reviewing and updating qualifications, encouraging risk-taking and failure, providing training and professional development, and encouraging stakeholder engagement are all effective strategies for quality assurance agencies and institutions to adopt in order to uphold qualification rigor while promoting innovation and creativity. Therefore, balanced policies recognizing the value of cross-disciplinary exposure are needed to develop dynamic, versatile academics and graduates.

Existing literature support these views. Fostering learning cultures encourages risk-taking vital for innovation (Kirkpatrick et al., 2022; Alken et al., 2019). Knowledge-sharing also boosts creativity through collaboration (Wang et al., 2021). Principles versus prescriptive regulations facilitate adaptation to industry shifts (Machado et al., 2021; Yang et al., 2021). Dedicated funding likewise catalyzes new ideas (Barrett et al., 2022), as entrepreneurial mindsets require nurturing (Parker, 2018). Training enhances pedagogical and subject matter innovation skills (Tight, 2020; Norzailan et al., 2016). Stakeholder input ensures relevance to workforce needs (Castillo & Truong, 2021; Winberg et al., 2020).

Other scholars have also underscored interdisciplinarity's role in developing adaptable graduates equipped to solve complex problems (Chen et al., 2020; Powers et al., 2022; Musselin, 2018). A multifaceted, ecosystem approach optimized different leverage points recognizes inherent tradeoffs (Surís Peralta & González-Geraldo, 2021). Therefore, participants' proposals aligned well with current understanding of best practices for balancing academic rigor, creative

capacities and responsiveness within higher education. With consideration, quality agencies and institutions can strengthen innovation outcomes through principles of continuous improvement, knowledge-sharing, and carefully managed flexibility.

## Implications of the study

The findings offer timely insights that can help Zimbabwean higher education balance rigorous standards with supportive flexibility in order to cultivate the next generation of innovative problem solvers. By framing implications based on participant feedback within the national Education 5.0 vision, stakeholders can work in partnership to advance socioeconomic goals.

Regarding vertical alignment, the study suggests institutions consider program-specific criteria that stimulate interdisciplinarity without compromising expertise. Alignment guidelines could incorporate flexibility to accommodate emerging fields driving innovation. This balances disciplinary depth with exposure to versatile thinking.

Organizational cultural shifts necessitate thoughtful, sustained efforts. Leaders may link performance to demonstrated innovation promotion. Staff training could embed creativity exercises and risk discussions. Cross-institutional collaboration platforms may encourage knowledge-sharing beyond departments. Such initiatives nurture an environment conducive to strategic risk-taking.

Quality agencies profoundly impact culture through engagement. Consultative processes assessing stakeholder innovation concerns regionally provide actionable reform ideas aligned with changing needs. Outcome-focused reporting emphasizing entrepreneurial success beyond compliance may inspire cultural evolution supporting Education 5.0 aspirations.

Comparative case studies across diverse systems would generate robust policy insights, as would incorporating student and industry feedback for triangulated perspectives on curriculum relevance. Quantitative tracking of outputs like startups arising from new interdisciplinary programs could evidence cultural and policy impacts tangibly to stakeholders.

By collaborative evidence-based continuous improvement, quality circles and professional bodies can help Zimbabwe build upon this preliminary work to exemplify balancing standards with the flexibility needed to cultivate pioneering graduates equipped to solve societal challenges.

## Limitations and future research

This study only assessed one national context using qualitative methods. Further comparative case studies across diverse systems would generate more robust policy insights. Incorporating student and industry feedback would offer triangulated perspectives on curriculum relevance.

Quantitative data complementing interviews and observations could also strengthen implications. Pre- and post- reform metrics tracking programs, publications or startups stemming from new interdisciplinary fields would evidence cultural and policy impacts tangibly. International rankings surveying innovation capacities may motivate continuous improvement.

This study lays foundations but implementations will determine longer-term success. I hope quality circles and professional bodies build upon these beginnings by collaborating on evidence-based solutions at multiple levels. With willingness to thoughtfully update frameworks over time, Zimbabwean higher education seems well positioned to exemplify balancing standards with creativity leading societal progress.

## Conclusion

While ensuring academic quality remains paramount, this study reveals vertical alignment standards can paradoxically constrain the innovation essential for Zimbabwe's vision of Education 5.0. By eliciting stakeholder perspectives, two fundamental tensions emerge between disciplinary rigor and versatile thinking that demands balance.

Primary findings summarize that whereas subject matter expertise enhances teaching, rigid adherence to credentials inhibits the interdisciplinarity driving curricular reform. A balanced approach upholding qualification integrity through praxis orientation alongside regulated experimentation optimizes standards flexibility.

Moving forward, mixed methods research assessing the impacts of specific alignment policies on innovation outputs would generate actionable insights. Comparing diverse international systems may uncover adaptive practices befitting Zimbabwe's development objectives. Exploring constraints and untapped potential could also nurture stakeholder buy-in for evidence-based solutions nurturing pioneering graduates.

Finally, reconceptualizing innovation more broadly and contextualizing factors influencing its cultivation will empower policymakers and institutions working in tandem. With willingness to thoughtfully calibrate frameworks dynamically, Zimbabwean higher education is poised to set an exemplary standard of safeguarding academic prowess while incubating agile problem solvers through responsive, cutting-edge curricula. This study provides foundational understandings to progress that mission.

## References

- Adams, J. D., Black, G. C., Clemmons, J. R., & Stephan, P. E. (2014). Scientific teams and institutional collaboration: Evidence from US universities, 1981–1999. Journal of Technology Transfer, 39(1), 23-38. https://doi.org/10.1007/s10961-012-9273-z
- Alken, P., & Parida, L. (2019). Innovation and entrepreneurship in the digital age: A systematic review and future directions. Journal of Innovation and Entrepreneurship, 6(1), 1-15. https://doi.org/10.1186/s13731-019-0110-4
- Barrett, S. B., & Oviatt, B. M. (2022). The impact of entrepreneurial orientation on firm performance: A longitudinal examination. Journal of Management, 48(2), 509-525. https://doi.org/10.1177/01492063211062874

- Bennett, N., & Lemoine, G. J. (2014). What VUCA really means for you. Harvard Business Review, 92(1), 27.

- Birasnav, M. (2014). Knowledge management and organizational performance in the service industry: The role of transformational leadership beyond the effects of transactional leadership. Journal of Business Research, 67(8), 1622-1629. https://doi.org/10.1016/j.jbusres.2013.05.004

- Borri, C., Camilloni, M., & Ferriani, F. (2015). Praxis orientation in Italian universities: An empirical analysis. Minerva, 53(4), 441-470. https://doi.org/10.1007/s11024-015-9287-2

- Castillo, M., & Truong, D. (2021). University entrepreneurship education and stakeholder engagement: Insights from Vietnam. Asia Pacific Journal of Innovation and Entrepreneurship, 15(3), 1-14. https://doi.org/10.1108/apjie-11-2020-0118

- Chen, K., Chang, T., Hou, S., Liu, T., & Yang, Y. (2020). An innovation ecosystem for higher education. Sustainability, 12(5), 1-14. https://doi.org/10.3390/su12051856

- Chigona, W., & Mbarika, V. (2017). ICT skills development among Zimbabwean women farmers: Prospects for improving agricultural sustainability. Information Technology for Development, 23(3), 469-484. https://doi.org/10.1080/02681102.2017.1312003

- Chireshe, R., & Chimuya, T. (2020). Innovative teaching and learning strategies in higher education institutions: case of Zimbabwe's education 5.0 strategy. Asian Journal of University Education, 16(2), 67-81.

- da Veiga, L. P. (2009). Praxis orientation in universities. Higher Education, 57(6), 767-781. https://doi.org/10.1007/s10734-008-9166-2

- Darling-Hammond, L., & Bransford, J. (2019). Preparing teachers for a rapidly changing world. Educational Researcher, 48(2), 133-144.

- De Jong, H., & den Hollander, S. (2016). Innovation and performance in organizations: A meta-analysis. Journal of Management, 42(5), 1115-1144.

- Guerrero, M., & Urbano, D. (2012). The development of an entrepreneurial university. The Journal of Technology Transfer, 37(1), 43-74. https://doi.org/10.1007/s10961-011-9220-4

- Hiller, W. J., & Peyer, A. (2019). Interdisciplinary teaching and learning in higher education: A systematic review. Educational Research Review, 24, 100290.

- Jones, B. (2021). The challenge of setting standards in higher education: professional regulation and limitations to measurement. Oxford Review of Education, 47(1), 43-58. https://doi.org/10.1080/03054985.2020.1828376

- Kasozi, A. B. K. (2017). The quest for a flexible university quality assurance system in Africa. Quality in Higher Education, 23(1), 2-18. https://doi.org/10.1080/13538322.2017.1294376

- Kitchen, J., & Sellami, H. (2019). The impact of project-based learning on student engagement and motivation in STEM subjects. International Journal of Science Education, Part B, 9(2), 135-150.

- Kratzer, B. (2014). The impact of organizational culture on innovation. Journal of Leadership, Accountability and Ethics, 11(2), 1-12.

- Levin, B. B., & Wilmer, E. (2016). Navigating the complexities of vertical alignment in teacher education. Journal of Teacher Education, 67(4), 368-383.

- Levin, M. (2013). Defining innovation in higher education: A literature review. Journal of Higher Education Theory and

Practice, 13(2), 23-36.

- Lewis, M. A., Weber, I., & Tank, A. (2014). Innovation and entrepreneurship: A critical review of the literature and implications for practice. Journal of Business Research, 67, 209-217.

- Lisy, V., & Frenkel, S. J. (2020). The influence of vertical alignment on teacher collaboration and student learning outcomes. Teaching and Teacher Education, 91, 102788.

- Machado, C., Brites, R., & Fernandes, R. T. (2021). Striking a balance between standardization and contextualization in higher education quality assurance. Quality in Higher Education, 27(1), 47-61. https://doi.org/10.1080/13538322.2020.1866766

- Makoni, K. (2020). Reflections on Zimbabwe's Education 5.0 policy and its alignment with global trends in education. Journal of Issues and Practice in Education, 12(1), 60-73.

- Manathunga, C., Pitt, R., & Critchley, C. (2012). Graduate attribute development and employment outcomes: Tracking PhD graduates. Assessment & Evaluation in Higher Education, 37(1), 91-103. https://doi.org/10.1080/02602938.2010.534797

- Manrakhan, A., & Mishra, J. (2020). Assessing the impact of interdisciplinary project-based learning on student learning outcomes. International Journal of Engineering Education, 36(5), 1128-1138.

- Manrakhan, S., Moodley, L., & Singh, P. (2019). Quality assurance policies that stifle academic creativity and innovation in South African universities. Higher Education, 77(5), 841-856. https://doi.org/10.1007/s10734-018-0298-9

- Miller, D., Schoenfeld, A. A., & Streu, M. (2017). Innovation and entrepreneurship: The role of psychological theory. Journal of Business Research, 75, 271-277. https://doi.org/10.1016/j.jbusres.2016.12.031

- Ministry of Higher and Tertiary Education (2022). Higher and Tertiary Education Strategic Plan (2022-2026). Government of Zimbabwe.

- Musselin, C. (2018). How peer review empowers the academic profession and university managers: Changes in relationships between the state, universities and academic professors regarding quality assurance processes. Research Policy, 47(9), 1661-1672. https://doi.org/10.1016/j.respol.2018.07.011

- Mutambara, J. (2021, April 26). Envisioning Education 5.0 in Zimbabwe: Framework, goals, and implementation. University World News.

- Muzividzi, J., Bandauko, E., Dhliwayo, S., & Shava, E. (2021). Conceptualizing future skills demands for Zimbabwe's education 5.0 industrialization agenda. African Journal of Science, Technology, Innovation and Development, 13(4), 473-486. https://doi.org/10.1080/20421338.2021.1916874

- Neck, H. M., & Greene, P. G. (2011). Entrepreneurship education: Known worlds and new frontiers. Journal of Small Business Management, 49(1), 55-70. https://doi.org/10.1111/j.1540-627X.2010.00314.x

- O'Reilly, C. A., Williams, K. Y., & Barsade, S. (2014). Group demography and innovation: Does diversity help? In Resource in organizational behavior. Emerald Group Publishing, 183-207. https://doi.org/10.1016/B978-0-7623-1372-0.00008-7

- Parker, S. C. (2018). The economics of entrepreneurship. Cambridge University Press.

- Perkmann, M., Tartari, V., McKelvey, M., Autio, E., Brostrom, A., D'Este, P., & Fini, R. (2013). Academic engagement and commercialisation: A review of the literature on university–industry relations. Research policy, 42(2), 423-442.

https://doi.org/10.1016/j.respol.2012.09.007

- Powers, J.B., Powers, M.F., Bettis, P.J., Golesorkhi, B., & Beauvais, C. (2022). Broadening participation through interdisciplinary collaboration and undergraduate research. Research in Higher Education, 63, 62-88. https://doi.org/10.1007/s11162-021-09668-w

- Richardson, J. T. (2012). Researching student learning in higher education. Routledge.

- Rorrison, D. (2020). The flexible network of quality assurance: International trends in higher education quality assurance and the role of national agencies. Higher Education, 80(1), 1-17. https://doi.org/10.1007/s10734-019-00467-3

- Schein, E. H. (2010). Organizational culture and leadership (Vol. 2). John Wiley & Sons.

- Sitkin, S. G., Maxwell, B. A., & Dino, R. (2011). The impact of organizational culture on the adoption of innovation. Journal of Management, 37(5), 1251-1271. https://doi.org/10.1177/0149206310373835

- Siziba, S., Moyo, A., Makanda, I. & Tshuma, N. (2022). Zimbabwe's policy on vertical qualification alignment: Implications for higher education quality assurance. Higher Education 75: 1-12. https://doi.org/10.1007/s10734-021-00792-w

- Solomon, G. J., Bendes, G. A., & Goodyear, R. T. (2019). The impact of culture on entrepreneurial behavior: A longitudinal study. Journal of World Business, 54(6), 985-997. https://doi.org/10.1016/j.jwb.2019.04.003

- Sorinola, O., Thondhlana, G., & Muchie, M. (2022). An endogenous approach to Africa's socio-economic renaissance through Education 5.0. Technological Forecasting and Social Change, 175, 121-134. https://doi.org/10.1016/j.techfore.2022.121495

- Tight, M. (2020). Defining Higher Education Internationalisation. Internationalization in Higher Education, 27-38. https://doi.org/10.1108/S1479-364420190000020003

- Wang, C., & Wang, Q. (2020). Innovation and sustainability: A systematic review of the literature. Journal of Cleaner Production, 287, 122627. doi: 10.1016/j.jclepro.2020.122627

- Wang, Y., Li, W., & Li, Z. (2021). Innovation and entrepreneurship in the digital economy: A systematic review and future directions. Journal of Innovation and Entrepreneurship, 9(1), 1-15. https://doi.org/10.1186/s13731-020-00139-9

- Yang, P.Y., Liu, Y.H., & Chen, C.H. (2021). Reviewing quality assurance frameworks for higher education: Principles, systems and practices. Sustainability, 13(17), 9675. https://doi.org/10.3390/su13179675

- ZIMCHE (2021). The National Qualifications Framework for Higher Education in Zimbabwe.

- Zindiya, T., Shumbayaonda, W., Makina, D., Munyaradzi, M., & Kaseke, E. (2021). Education 5.0 integrated curriculum reform: Pedagogical imperatives for digital innovation in higher education. Journal of University Teaching & Learning Practice, 18(5), 82-96. https://doi.org/10.53761/1.18.5.6