

Impediments hindering higher education Institutions in readiness for future pandemics: A case of Eastern Cape province, South Africa

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Abstract

Higher institutions of learning are critical to the generation of knowledge among a country's citizens. Despite their importance to knowledge empowerment, they are not immune to future pandemic occurrences. Therefore, this study aims to determine the barriers hindering higher education institutions (HEIs) in the Eastern Cape readiness for future pandemics. A qualitative research method was adopted to achieve the study's aim. Data was collected using semi-structured interviews with seven respondents who were purposively sampled from two public universities. Thematic analysis was used to identify the impediments after the data were transcribed. The findings revealed that institutions readiness is constrained by a lack of governance structures, inconsistent operational preparedness, poorly communicated emergency response plans, and uneven institutional capacity. Although HEIs demonstrated adaptability during COVID-19, particularly by continuing academic activities through digital platforms, their preparedness was largely reactive rather than proactive. The absence of institutionalised disaster management frameworks, limited training, and gaps in policy implementation were identified as critical barriers to effective pandemic readiness. The study's geographical focus was the Eastern Cape province of South Africa, and its reliance on semi-structured interviews prevented the results from being generalised. These barriers reveal the need for sustainable institutional commitment, resource investment, and clear accountability structures.

Keywords: Future pandemic, Higher Education Institutions, Impediments, Readiness.

1. Introduction

The COVID-19 outbreak revealed significant weaknesses in global systems, with higher education among the most affected (Du Plessis et al., 2022; Aruleba, Jere & Matarirano, 2022). Woldegiorgis (2022) reveals that institutions were forced to shift immediately from traditional face-to-face learning strategies to remote and hybrid learning methods, often without adequate preparation. The literature review by Newlin and Grasia (2021) highlighted that the higher education sector should ensure that students are equipped with the necessary skills, professional attributes, and learning techniques to deal with outbreaks such as the COVID-19 pandemic. According to Landa, Zhou, and Marongwe (2021), these challenges require systemic flaws in institutional preparation, particularly in developing countries, where resource constraints, infrastructure limitations, and socioeconomic inequities are more severe. Other challenges affecting higher education include overcrowded classrooms, poor infrastructure, and linguistic and cultural diversity among the population, all of which complicate the development of inclusive and critical learning environments (Islam et al., 2023). Ndebele and Mbodila (2022) argued that the pandemic disrupted academic continuity and raised serious concerns about the resilience and preparedness of

higher education institutions (HEIs) for future crises that might affect the delivery of learning.

In South Africa, the pandemic had an unequal impact, with historically impoverished and rural provinces, such as the Eastern Cape Province, facing more serious challenges (Olawale et al., 2021). Du Plessis et al. (2022) and Muller and Shackleton (2014) uncover that higher education institutions in this region faced multiple challenges, including poor digital infrastructure, limited access to dependable internet connectivity, and insufficient institutional support systems. Furthermore, Mokoena (2023) states that the impact of COVID-19 exposed the vulnerability to limited access to online teaching and learning due to data unaffordability, poverty, no internet connectivity, lack of IT equipment (e.g. computer, laptop, tablet, smartphone, etc.) and lack of skills by some lecturers and students to work online, among other reasons. Research conducted by Tantoh, McKay and Llewellyn (2026), Ndebele and Mbodila (2022) and Woldegiorgis (2022) found that these issues were exacerbated by high levels of poverty and inequality in the province, which negatively affected students' ability to participate effectively in distant learning settings. The pandemic revealed profound structural and operational shortcomings that affect institutional readiness to deal with outbreaks such as COVID-19 (Salmi, 2020).

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Institutional readiness for future pandemics extends beyond emergency response; it includes HEIs' ability to anticipate, plan for, and adjust to disruptions while sustaining academic and operational stability (Babbar & Gupta, 2022). For institutions to effectively adjust, there is a need for resilient infrastructure, strong governance frameworks, long-term financial planning, and the use of digital technology in education and learning (Agbeyangi & Lukose, 2025). However, Mbunge and Batani (2023) stressed that several institutions remain reactive rather than proactive and lack comprehensive policies. These problems include infrastructure development, risk management, and academic continuity planning (Salmi, 2020). According to Boro and Stoll (2022), deferred maintenance, restricted building design, and ineffective asset management systems all undermine institutions' ability to respond effectively to emergencies.

Despite the expanding corpus of work on the impact of COVID-19 on higher education, there is a lack of context-specific studies examining the underlying barriers to institutional preparedness, particularly in rural and underserved areas such as the Eastern Cape province (Nguyen & Bandur, 2026). Considering the challenges confronting the Eastern Cape Province, including socioeconomic and infrastructure issues, the province has become an excellent candidate for such an examination (Dudley *et al.*, 2023). Understanding these barriers is critical to this study to develop a sustainable framework and culturally relevant interventions to enhance resilience in higher education (Kuguyo, Kengne & Dandara, 2020) in future.

Therefore, the purpose of this study is to investigate the challenges faced by higher education institutions in terms of readiness for future pandemics, with a focus on the Eastern Cape Province

2. Literature Review

2.1. Readiness and resilience in higher education

Institutional readiness and resilience have emerged as significant factors in higher education in response to COVID-19 disruptions and have remained sustainable amid the difficult times it caused (Whittaker & Montgomery, 2025). A study by Prayogo *et al.* (2025) defines readiness as HEIs' ability to anticipate, plan for, and successfully respond to challenges, whereas resilience is the institutions' ability to adapt and sustain key academic and operational functions under adverse conditions. However, HEIs recognise the need to introduce new academic programs in areas such as data science, cybersecurity and smart systems engineering to align education with evolving workforce requirements (Pasi & Dhamak, 2026).

Storms *et al.* (2019) note that the global move to remote learning and teaching revealed that most institutions were underprepared, relying on reactive practices rather than established contingency plans to deal with these challenges posed by COVID-19. Islam *et al.* (2023) argue that the COVID-19 pandemic has revealed gaps in strategic planning, digital infrastructure, and coordinated institutional responses, with numerous universities relying on emergency remote teaching rather than established online learning strategies.

According to Kaeane and Molokomme (2025), these challenges have a significant impact in South Africa, particularly in rural and underserved areas such as the Eastern Cape Province. Institutions in the Eastern Cape Province have more challenges, including but not limited to poor ICT infrastructure, inadequate maintenance of education facilities, and financial difficulties that affect both staff and students (Landa, Zhou & Marongwe, 2021). In terms of the built environment, ageing infrastructure, constrained space design, and inadequate asset management strategies for institutions all significantly contribute to institutional vulnerability (Landa, Zhou & Marongwe, 2021; Nguyen & Bandur, 2026). As a result, resilience in higher education institutions is understood as a multidimensional construct encompassing infrastructure, technology, financial capacity, and human capabilities for responding to this integrated challenge (Nguyen & Bandur, 2026); hence the need for context-specific research to better identify and solve these interconnected challenges affecting the Eastern Cape's higher education.

2.2. Infrastructure and digital inequality in higher education

Dyanti and Mkabile-Masebe (2025) reveal that COVID-19 revealed serious disruptions to both physical and digital infrastructure at HEIs, requiring a significant shift in HEIs systems to ensure continuous quality education delivery. Furthermore, Vishnu *et al.* (2024) claim that the rapid shift to online learning across tertiary education institutions exposed ICT capacity gaps, including poor learning management systems, unreliable connectivity, and limited access to digital devices. According to Sydorenko *et al.* (2024), many educational institutions were challenged by their inability to manage assessments during the COVID-19 outbreak. These issues were further complicated by persisting digital inequality, particularly in rural and underserved areas such as the Eastern Cape Province, where the majority of students lack inexpensive internet access and appropriate or conducive learning spaces (Sydorenko *et al.*, 2024). A study conducted by Timmis and Valladares-Celis (2025) pointed to the need for conceptualisation of 'haves' and 'have-nots' places a narrow emphasis on technological access, masking myriad social, spatial, cultural and material issues which are neither acknowledged nor addressed.

Moreover, Miah (2024) highlighted that HEIs were unable to provide effective spaces that enabled the adoption of hybrid or socially distanced learning methods, a situation that was most significant during the COVID-19 pandemic. Rydzewski (2025) indicates that this combination of infrastructure shortfalls poses a significant barrier to institutional preparedness, emphasising the importance of integrated and equitable infrastructure design that can respond to future pandemics in higher education.

2.3. Financial and policy constraints in higher education pandemic preparedness

Higher education institutions' (HEIs) response to COVID-19 exposed inadequate financial resources and insufficient policy frameworks (El Masri & Sabzalieva, 2020). As institutions were forced to quickly raise cash for digital infrastructure, student support, and operational changes, sometimes without any prior contingency budgets or financial resilience strategies (Vishnu *et al.*, 2024). Although the South African government played a significant role in supporting institutions to respond to the COVID-19 crisis, the challenges negatively affected universities' budgets and financial abilities (Ndembu *et al.*, 2024). According to Kaeane and Molokomme (2025), the pandemic strained an already limited financial source, particularly in public and historically disadvantaged institutions. Furthermore, Nguyen, Tran and Duong (2023) uncover that the lack of comprehensive and integrated pandemic preparedness policies, which include academic continuity, infrastructure resilience, and risk management, weakened institutional responses. These issues become more severe in regions such as the Eastern Cape Province due to ongoing funding restrictions and governance limitations (Landa, Zhou & Marongwe, 2021), emphasising the importance of proactive financial planning and collaborative policy development to enhance the future readiness of HEIs.

2.4. Human capacity and institutional adaptability in higher education

Human capacity and institutional adaptation had a significant impact on HEIs' resources for responding effectively to pandemic disruptions and continuing academic operations (Krishnannair, Krishnannair & Krishnannair, 2021; Rydzewski, 2025). Pereira *et al.* (2025) report that a significant shift from traditional to remote and hybrid learning revealed shortfalls in digital literacy, pedagogical preparation, and technical assistance among academic and administrative staff. According to Sporn and Godonoga (2024), academic staff were pressured to adopt new teaching and learning strategies with little training, thereby compromising the quality and consistency of learning delivery across South African universities.

In the Eastern Cape Province, these difficulties were exacerbated by limited resources and unequal access to capacity-building opportunities (Fobosi & Stal, 2026).

The flexibility of the institutions was constrained by tight institutional structures and limited change management methods, which reduced HEIs' ability to respond proactively to crises (Sarmiento & Riana, 2024). In addition, a lack of comparative studies intensifies the research gap, which consequently results in limited knowledge relative to the COVID-19 pandemic in South African Universities. However, a study by Krishnannair *et al.* (2021) reveals that the interconnected nature of the world, industrialised for the "fourth time", thus offers higher education a new facet in terms of its affordances and agency to undertake the cause of social transformation on a grand scale. This emphasises the necessity of ongoing skills development, institutional support structures, and adaptable governance to enhance overall preparedness for future pandemics and achieve sustainable educational development (Rydzewski, 2025). The government's COVID-19 Response Fund, a significant AU initiative, demonstrated the role of public-private partnerships (PPPs) in strengthening domestic capacity to reduce the impact of COVID-19. In the South African context, particularly within the Eastern Cape Province, the literature remains limited, with less focus on the impediments to future pandemic readiness of HEIs within the province. Therefore, this study addresses this gap.

3. Research Methodology

This study adopted a qualitative research method to examine the challenges that impede HEIs' ability to prepare for future pandemics, drawing on lessons learned from COVID-19. The qualitative research approach is useful for this study because it enables a thorough knowledge of participants' experiences and perspectives (Saunders *et al.*, 2018). Furthermore, qualitative research is a practical approach to studying authenticity, in which the researcher's source of information is the subject's perspective on reality (Fellows & Liu, 2015). This is captured through behaviours, beliefs, opinions, personal views, and experiences. The study relied on an interpretivist paradigm that focuses on subjective interpretations of their experiences and opinions and allows for a more nuanced examination of institutional preparation (Gelling, 2016). The study's data were collected through semi-structured interviews, a flexible yet focused method for obtaining comprehensive, detailed opinions from the selected sample (Turale, 2020). The study focused on Eastern Cape higher education institutions, including academic staff, institutional management, ICT personnel, and facilities and infrastructure managers, and academic staff. A purposive sampling technique was used to select the participants with relevant knowledge and experience of institutional responses during the COVID-19 pandemic. The sample size comprises 12 participants from two institutions, namely Walter Sisulu University and the University of Fort Hare, which is considered

appropriate for qualitative research data saturation. Data saturation was achieved at 58.33% across 12 participants. According to Naeem *et al.* (2024) and Saunders *et al.* (2018), in a qualitative research study, the adequacy of the response rate is achieved when a researcher reaches data saturation, rather than the number of participants, where no new themes or insights emerge from the data.

A thematic analysis was used to analyse the data, as recommended by Saunders *et al.* (2018). To enhance the study's trustworthiness, credibility, dependability, confirmability, and transferability were used. Ethical principles were maintained during the data collection period, including obtaining informed consent, maintaining participant confidentiality and anonymity, and obtaining the required ethical approval from the institution (Sharpley *et al.*, 2020). This methodological approach ensured a systematic and contextually grounded research of the difficulties affecting higher education institutions' preparedness for future pandemics in the Eastern Cape province.

4. Findings and Discussion

4.1. Demographics of participants

The demographic information from seven (7) participants who took part in this study established that 71.43% (5) of the participants were working in the operations and ICT departments, followed by 28.57% (2) were working in the built environment. Regarding the participants' current positions, 57.14% (4) were project managers, followed by 28.57% (2) operational managers and 14.29% (1) lecturer. The results underscore that the majority of participants are knowledgeable about the challenges affecting HEIs' ability to prevent future pandemics.

With respect to the experience of participants, 42.85% of participants have relevant experience ranging between $>5 \leq 10$ years, this is closely followed by 28.57% of participants ranging between $>2 \leq 5$ years, and 14.29% of participants have experience ranging between $>0 \leq 2$ years and >10 years respectively. The results show that the participants have relevant experience in managing cases related to impediments hindering higher education Institutions in readiness for future pandemics.

4.2. Thematic analysis and discussions of findings

This section shows a thematic analysis of qualitative data collected from seven participants (P1–7). The analysis focuses on challenges faced by HEIs' readiness for future pandemics, as informed by COVID-19 experiences. The data were classified and grouped into topics representing governance, operational preparedness, policy frameworks, and institutional capabilities to achieve the study objectives.

Theme 1: Fragmented governance and unclear institutional responsibility

The results from seven participants show the key results pertaining to the lack of a consistent and institutionalised disaster governance structure across HEIs of the Eastern Cape, which negatively affects institutions' ability to prevent future pandemic disruptions. The participants reported a formal Risk and Safety Committee; others indicated either absence or uncertainty regarding responsibility allocation. Evidence shows this fragmentation clearly, as the respondents stated that:

"No, the university does not yet have a formally assigned disaster preparedness team." (P1 and P5)

The findings are consistent with previous research from Van der Berg and Spaul (2020), who posited that the lack of institutionalisation of disaster risk governance inside higher education institutions significantly contributes to the inability of HEIs to manage pandemics, as many HEIs were structurally unprepared for the COVID-19 pandemic, owing mostly to the lack of established disaster risk management units prior to the crisis.

The results show that there is a reliance on transitory task teams during the epidemic, which demonstrates the lack of a long-term disaster management infrastructure.

"I would presume that it is our Facilities Management Department." (P3)

The findings are supported by Legusov *et al.* (2022), who posited that effective disaster preparedness in HEIs requires institutionalised governance frameworks with clearly defined roles, accountability strategies, and cross-departmental coordination systems, which will enhance a coordinated effort. The uncertainty expressed by participants, such as "I would presume..." reflects the absence of such structured governance, reinforcing the argument that preparedness is not embedded within institutional culture, which all leads to exposure to future pandemics.

"The university has a Risk and Safety Committee and Maintenance management plan." (P2, P6 and P7)

Even where structures exist, they are often functionally reactive, as shown during COVID-19:

"A special COVID-19 Task Team was established to respond to the challenges posed by COVID-19" (P4).

According to the study by Ahmed *et al.* (2022), HEIs often rely on temporary crisis committees rather than permanent disaster preparedness institutions, leading to inadequate coordination and inconsistent emergency responses when needed.

Theme 2: Inconsistent operational preparedness and training

The results from the interviews show that operational preparedness, particularly disaster drills and training, was found to be inconsistent by the participants and largely reactive across institutions. Evidence includes:

"I have never participated in a disaster tool..." (P7)

"Training, awareness and implementation was done concurrently." (P4, P3, and P1)

"We have participated in a few fire and evacuation drills... inconsistent participation from departments." (P6, P5, and P2)

The findings from this study are consistent with the normative literature by Bama and Nyikana (2021), who report that most institutions shifted to emergency remote operations without prior preparedness frameworks, reflecting a broader absence of institutional readiness planning. Similarly, research conducted by UNESCO (2020) reported that HEIs, not only in the Eastern Cape province but globally, lacked systematic disaster simulation programmes and relied on ad hoc responses rather than routine preparedness training. This finding exposes the absence of regular disaster drills identified in this study, aligning with this observation, indicating that preparedness is not embedded as a continuous institutional practice. However, a study by Alexander and Klein (2020) argues that effective disaster readiness requires repeated simulations, interdepartmental coordination, and scenario-based training, which strengthen institutional response capacity and reduce operational uncertainty during crises.

Theme 3: Weak policy frameworks and emergency planning deficiencies

The results from the qualitative responses reveal two critical governance failures:

- Policy incompleteness (absence of updated pandemic-specific frameworks)
- Policy invisibility (lack of communication and awareness)

The participants noted that, even where emergency plans exist, their effectiveness is undermined by poor dissemination and lack of institutional integration. Evidence from:

"No, the university does not yet have a comprehensive, regularly updated emergency response plan." (P1)

This creates a disconnect between formal policy existence and operational awareness, which is a major barrier to effective crisis response.

According to Bhaskar et al. (2020), while universities were compelled to respond quickly during COVID-19, the majority did so without pre-established emergency response strategies, resulting in inconsistent and fragmented institutional responses. Furthermore, these findings are parallel with those of Wirba (2022), who states that the findings are consistent with the current study, in which participants either were unaware of such plans or stated that they were out of date and not completely operational, indicating a need for the Eastern Cape to review its management strategies.

Alexander (2018) contends that disaster preparedness is only effective when rules are adequately recorded, routinely updated, and effectively communicated at all institutional levels to enable a culture within the universities. Uncertainty indicated by participants ("I cannot conclude that it is there...") indicates a breakdown in policy dissemination and institutional communication channels, limiting effective preparedness, particularly in universities located in rural areas.

Theme 4: Institutional readiness and capacity constraints

The results from this study show that there are differences in responses, which suggests that preparedness is unevenly distributed across institutional units, rather than being uniformly embedded. For instance, some respondents indicated that the institution is not ready, no disaster management awareness since COVID-19.

While HEIs demonstrated adaptive capacity during the COVID-19 pandemic, particularly in digital transformation and continuity of learning, these improvements were largely situational and not institutionalised, which weakens the ability of Eastern Cape universities to respond to future pandemics.

The absence of continuous training, awareness programmes, and structured capacity-building reinforces a fragile preparedness culture, where readiness depends on experience rather than established systems.

The findings are consistent with Louw et al. (2023), who highlight that while universities demonstrated rapid adaptation, long-term preparedness challenges are out of reach for universities located in the Eastern Cape province. Furthermore, the findings from Da Silveira et al. (2025) indicated that HEIs globally were able to successfully deliver teaching and learning through emergency remote teaching and learning delivery; however, this shift was not a planned change but a reactive one, rather than planned, exposing structural weaknesses in institutional readiness systems to respond to future pandemics.

These findings were further strengthened by the findings from Alghamdi (2021), who distinguishes between “emergency remote teaching” and well-planned online learning, arguing that the rapid transition during COVID-19 reflected crisis response rather than institutional preparedness. These findings are similar to those of the current study, in which participants acknowledged operational success (e.g., continuation of online learning) but also identified gaps in training, planning, and preparedness awareness.

5. Conclusion and Further Research

This study investigated the impediments hindering higher education Institutions in readiness for future pandemics, building on lessons learned during COVID-19, particularly in the Eastern Cape Province. The findings from this study indicated that institutional readiness is limited by disjointed governance structures, inconsistent operational preparedness, insufficient policy frameworks, and uneven institutional competence. Although HEIs were able to maintain academic activities during the crisis, this was primarily accomplished through reactive, improvised strategies rather than through planned and established disaster preparedness. As a result, preparedness remains unevenly institutionalised, relying on departmental capacity rather than integrated institutional frameworks.

Overall, the study indicates that the HEIs demonstrate a reactive resilience rather than a proactive

preparedness approach used by the Eastern Cape universities. While emergency actions during COVID-19 enabled the continuation of teaching and learning, the lack of ongoing disaster planning, training, and communication mechanisms restricts the sustainability of institutional resilience. This gap between operational response and strategic readiness underscores the need for HEIs to move from crisis-driven adaptation to systematic, continuous risk management. The study recommends that HEIs develop and implement comprehensive emergency risk management frameworks with well-defined roles, responsibilities, and reporting systems. Future research should expand the scope of this study by integrating a larger sample of higher education institutions from various provinces to enhance the generalisability of the findings across the nation and/or in other developing nations. Comparative studies of well-resourced and under-resourced institutions could provide further comprehension of how institutional capability affects pandemic preparedness. Furthermore, quantitative studies could be undertaken to assess the level of readiness among higher education institutions using standardised readiness indexes.

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