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Facilitating Student Innovation at the University Level: Exploring the Implementation and Economic Sustainability Potential of the Midlands State University Innovation Hub

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Abstract:

The role of the university has been evolving from its traditional functions of teaching, research and community engagement. Universities across the globe are embracing innovation and industrialisation in a drive to contribute to economic sustainability. This paradigm shift has led to the rise of university innovation hubs. In line with this global trend, Zimbabwean universities have also established innovation hubs to bridge the gap between theoretical knowledge and practical application among students. However, the impact of these hubs, particularly in facilitating student innovation, remains under-researched. This study seeks to fill this gap by examining the role of the Midlands State University (MSU) innovation hub in promoting student innovation and economic sustainability. A mixed-method research design was employed, involving data collection from 21 lecturers and 11 students through semi-structured questionnaires and open-ended responses. Findings reveal that the innovation hub plays a significant role in enhancing student innovation. The study further shows how student-driven innovations have the potential to contribute to economic sustainability through entrepreneurship and small business development. However, the study identifies several challenges, including limited financial resources, equipment shortages, geographic limitations and time management issues. Theoretically, the study contributes to the literature on innovation and entrepreneurship for promoting sustainable value addition and beneficiation. Practically, it offers actionable insights for university administrators and policymakers on enhancing the functionality and impact of innovation hubs in facilitating student innovation.

Keywords:

University Innovation Hubs, Student Innovation and Entrepreneurship, Economic Sustainability, Midlands State University, Higher Education

Introduction

Universities across the globe are embracing innovation and industrialisation in a drive to contribute to economic sustainability. This paradigm shift has led to the emergence of university innovation hubs, positioning universities as catalysts for innovation and entrepreneurship. These hubs aim to cultivate skills and entrepreneurial mindsets among students, enabling them to address the complex and multidimensional challenges of the 21st century.

There is a strong rationale behind this transformation in higher education. First, the rapid technological changes that the world is experiencing in the fourth industrial revolution is disrupting the nature of traditional work, requiring students to be equipped with innovative skills to thrive in this new age (OECD, 2025). Second, the world is confronted by complex existential crises that require innovation to solve, such as climate change, populism, pandemics and rising economic inequality among the haves and have-nots. It is against this rapidly changing world that universities' roles are expanding by establishing innovation hubs to facilitate student innovation and critical thinking.

In the absence of a universally agreed-upon definition, an innovation hub is generally understood as a centre that fosters innovative thinking by providing a conducive environment for cultivating creativity, entrepreneurship and complex problem-solving skills, particularly among students (Hall, 2021; Youtie and Shapira, 2008). Innovation hubs have also been defined by several catch phrases such as 'incubators', 'makerspaces', 'accelerator labs', and 'co-working space' (Nnanna et al, 2024; Eriksson et al, 2020; Rosli and Cacciolatti, 2022). Universities in the Global North have been on the forefront of establishing innovation hubs. However, in recent years innovation hubs have gained a foothold in African universities. According to Afrilabs and Briter Bridges (2019), the number of innovation hubs in Africa, both private and at universities, had reached 643 at the end of 2019. The Africa Union (AU) has played a significant role in the promotion of innovation hubs in Africa. The AU has set a strong continental agenda for facilitating innovation and entrepreneurship among the youth. For example, the Science, Technology and Innovation Strategy for Africa (STISA-2024) policy framework that was developed and adopted by the African Union Commission (AUC) in 2015 which promotes innovation hubs in the agenda of accelerating Africa's transition to an innovation-driven economy. In the same vein, the AU developed the Continental Education Strategy for Africa (CESA, 2016-2025) that promotes innovation hubs in its education strategy that focuses on STEM and feed into the broader AU Innovation Agenda 2063.

In line with this trend, Zimbabwean universities have also established innovation hubs to bridge the gap between theoretical knowledge and practical application among students. The Ministry of Higher and Tertiary Education, Innovation, Science and Technology introduced Education 5.0 a new policy framework to transform higher education towards innovation, entrepreneurship and industrialisation (Matongo and Goronga, 2025). The Education 5.0 policy framework mandated all state universities to establish innovation hubs to facilitate innovation and entrepreneurial mindsets among students for them to solve the complex and multidimensional challenges facing Zimbabwe and the African continent.

Despite the recent proliferation of innovation hubs at universities in Zimbabwe, their design, implementation and outcomes remain under-researched. This is mainly because innovation hubs are a recent phenomenon at the university level. Therefore, there are glaring gaps in the literature on the role of innovation hubs in facilitating students' innovation at the university level. It is against this background that this study aims to fill this gap in existing literature by examining the MSU's innovation hub, as a case study, in providing empirical insights on understanding its role in facilitating student innovation in terms of skills capacitation, mentorship, networking and entrepreneurial outcomes. The main objective of this study is to examine the role of MSU innovation hub in facilitating students' innovation. To operationalise this objective, the following specific research objectives were formulated: (1) to assess the level of student and lecturers' awareness and engagement with the MSU Innovation Hub, (2) to analyse the impact of the Innovation Hub on student innovation, entrepreneurship and practical skills, (3) to examine the extent of integration of the Innovation Hub with teaching and learning, (4) to examine the effectiveness of the innovation hub in bridging the gap between academic theory and practical innovative solutions among students, (5) to analyses the challenges faced by the innovation hub in facilitating student innovation. Therefore, the study contributes to the improvement of implementation of innovation hubs at universities in Zimbabwe and other higher tertiary institutions in Africa with similar contexts.

Literature Review

This section critically engages existing literature on the role of university innovation hubs in facilitating student innovation. The literature review follows a logical flow that is organised in key thematic areas of the study. The section begins by conceptualising the concept of innovation, with a specific focus on its application in higher education and the guiding theoretical framework for the study. The section then transitions into contextualising the study by exploring the global and regional landscape of innovation hubs. It then identifies key drivers of student innovation in higher education from the existing literature before examining the relevant Zimbabwean higher education policies guiding innovation at universities. The section wraps up by identifying key research gaps that the study seeks to contribute to the existing literature.

The Concept of Innovation in Higher Education

The concept of innovation has been evolving over the past decades. The classical work of Schumpeter (1934) defines innovation as a process that generates novel ideas, products and services. In addition, innovation can be viewed as processes that are designed, developed and implemented in a bid to enhance or improve existing systems. In the context of higher education, innovation is broader and evolving concept that includes a wide range of activities such as curriculum reforms, research, adoption of digital technologies, pedagogical strategies, student led initiatives, entrepreneurship and organisational structures (Tierney and Lanford, 2016; Altbach et al, 2019). In the same vein, Tierney and Lanford (2016) argues that innovation in higher education is significant to address the global challenges of the 21st century and to enhance educational outcomes.

There has been extensive literature on the concept of innovation in higher education. It is, therefore, meaningful at this juncture to explore some of these viewpoints which often overlap. According to Kayyali (2025), innovation in higher education encompasses the integration of creativity in academic programmes, enhancing curriculum design and adopting effective pedagogical teaching methods. The key objective is to prepare, develop and equip students with the requisite creativity skills to confront the rapidly changing global economy, while addressing institutional challenges on the other hand (Tierney and Lanford, 2016; Kayyali, 2025).

In line with this perspective, Mykhailyshyn et al (2018), notes that innovation in higher education is grounded in the advancement in five key categories. First, educational advancement, which refers to changes in how learning is delivered and assessed in higher education. The key goal is to make education relevant and accessible for students. Second, scientific advancement where higher education institutions create a conducive environment for students and staff to carry out original research which leads to knowledge creation that addresses practical economic, political and social challenges that confront societies globally. Third, technological advancement plays a significant role in transforming higher education through adopting digital technologies such as the learning management systems and simulation classrooms. These digital technologies equip students with practical skills needed in this fourth industrial age. Fourth, infrastructural advancement that is anchored on the improvement of both physical and digital infrastructure, such as innovation hubs and computer labs with fast and reliable internet access—providing students and staff an efficient working environment. Fifth, advancement of the administrative process on how higher education institutions are managed and coordinated for the provision of quality services. It is significant to note that innovation at high education institutions is often confronted with challenges of resistance to change and lack of resources. Therefore, high education institutions must navigate the complexity of balancing innovation with traditional educational values.

Narrowing down to the concept of student innovation in higher education reveals that it is a multifaceted concept that includes creativity, problem solving and impacting the communities. UNESCO (2017) dissects the concept of student innovation to refer to capability of learners to use theoretical knowledge and practical skills to develop real-life solutions including products and services. In the same vein, Liu et al (2024), defines student innovation at universities as the ability to come up with creative ideas and solutions. It is significant to note that innovation in higher education has transcended beyond the realm of science, technology and mathematics to include the social science continuum. This is referred to as social innovation, which refers to the development of frameworks that address the social needs of societies, particularly on service delivery issues (Bariakova, 2019). Students are regarded as social innovators with competencies to confront complex global challenges (Selznick and McCarthy, 2020). Pilar Martin et al (2017) research shows that there are several factors that drive student innovation such as autonomy, cognitive demands, and past experiences with innovation.

Theoretical and Conceptual Frameworks

This study is grounded in three complementary theories, that is, social cognitive theory (Bandura, 1986), experiential learning theory (Kolb, 1984) and social capital theory (Bourdieu, 1986) as complementary theoretical lenses to critically examine how innovation hubs at universities facilitate student innovation. The adoption of these three theories in this study addresses the multi-dimensional nature of innovation hubs, which serves as centres that develop student skills, while facilitating the learning process and providing students with access to mentorship, networks and much needed resources. Therefore, Bandura's social cognitive theory (1986) is critical for this study as it provides grounding in understanding the psychological mechanisms through which students develop innovative skills. On the other hand, Kolb's experiential learning theory (1984) is complementary in that it provides the pedagogical foundation on how the students practical activities or engagements at the innovation hub leads into learning and innovation, while Bourdieu social capital theory (1986) complements the other two theories by explaining how resources and networks play a critical role on facilitating or hindering innovation outcomes. Therefore, these three theories provide a holistic framework in examining the role of university innovation hubs in facilitating student innovation.

Social Cognitive Theory

According to Bindura's social cognitive theory there are three significant factors that affect learning, that is, cognitive, behavioural and environmental (1991). Bandura departs from the understanding postulated by traditional psychological theories which emphasised that the key ingredient to learning was through direct experience. In contrast to this view, Bandura argued that learning could also take place through observation of others (Bandura, 1986). Therefore, the theory central thesis is that learning takes place through a dynamic cognitive dynamic process observation, thinking and self-adjustment (Burney, 2008). The purpose of relating the theory to innovation is to examine the implications of the theoretical extensions for the role of innovation hubs in facilitating student innovation.

There are four components of the theory that are significant to innovation hubs. Firstly, self-efficacy which is the "beliefs in one's capabilities to organise and execute the courses of actions required to manage prospective situations" (Bandura ,1997). In simple terms, this means that an individual's belief in their competence to execute a given task. Secondly, observation learning where an individual can acquire skills and knowledge through observation. There are key components to observational learning, that is, attention, retention, production, and motivation (Schunk and DiBenedetto, 2023). Thirdly, behavioural enactment where an individual translates acquired knowledge and motivation into externally observable action (Bandura, 2001). In simple terms, the ability of an individual to go beyond comprehending a concept or skill to showing it through their actions. Fourthly, environmental structuring where institutional contexts have the power to facilitate or constrain innovative behaviour (Bandura, 2006). Accordingly, Simarasl (2024) notes that these institutional contexts include rules, culture and resources that can act as springboard for individuals to be innovative or create barriers that constrain their agency.

Experiential Learning Theory

The roots of the experiential learning theory are located within the experiential works of Dewey and Lewin (McCarthy, 2010). According to Zuber-Skerritt (1992), the experiential learning theory by Kolb is anchored on strong intellectual foundation of philosophy and social and cognitive psychology. Kolb (1984) defines learning as "the process whereby knowledge is created through the transformation of experience. Knowledge results from the combination of grasping and transforming experience." To that end, the experiential learning theory postulate that learning is not a linear process but a cyclical process of learning requiring learners to go through the whole cycle of learning—that is experience, reflection, understanding and application—for effective learning (McCarthy, 2010).

In the context of innovation hubs, the four experiential learning cycles play a significant role in bridging the gap between academic knowledge and practical solutions by creating a dynamic environment that promotes ideation, problem solving and entrepreneurial outcomes. First, innovation hubs provide concrete experience (CE) for learners through direct participation such as prototype designs and machinery that facilitate the process of experimentation to produce tangible solutions. Second, innovation hubs provide space for reflective observation (RO) that is critical for the translation of experiences to abstract or theoretical frameworks (Schön, 2017). Third, the availability of collaborative teams at innovation hubs exposes learners to diverse viewpoints, which facilitates systems thinking. Fourth, provides an environment for completing the learning cycle by creatin a platform for testing refined ideas into practice through numerous ways such as iterative prototyping and pitch competitions.

Social Capital Theory

Bourdieu (1985) conceptualised social capital theory as "the aggregate of the actual or potential resources which are linked to possession of a durable network of institutionalised relationships of mutual acquaintance or recognition." The theory notes that there are resources that are embedded in social networks which are available for the advancement of individual goals. According to Florin et al (2003) the key tenet of the social capital theory is that a network allows its members to benefit from the social resources within the network. These resources include institutional affiliations, relationships, shared norms, trust as well as network of influence. Lin (1999) postulated that social networks enhance outcomes of actions in three ways. First, by providing a flow of information among individuals in the network which might not be available in the public. Second, social networks can exert influence on individuals or key stakeholders in decision making positions. Third, social networks provide individuals with acceptance—often referred to as "social credentials".

There are three critical applications from the social capital theory to innovation hubs. First, innovation hubs act as social networks that bring together a diverse range of individuals such as students, lecturers, mentors and external partners. Therefore, the social capital that individuals gain at innovation hubs includes access to information and opportunities. Second, innovation hubs provide the capital of institutional affiliation as individuals obtain "social credentials" for being part of a recognised innovation hub which signals a student competency. Third, innovation hubs create a collective culture that creates a fertile ground for innovation through the creation of norms, values, trust and shared purpose.

University Innovation Hubs and Economic Sustainability: A Birds-Eye-View

The 21st century has witnessed the rise of innovation hub to address the rising global challenges. Innovation hubs are seen as the launchpad for collaboration, creativity, innovation, startup and entrepreneurship. Innovation hubs started as small private ventures, but their utility has seen them being adopted by public universities which harbours most of the young intelligent people of any given country. It is in this light that university innovation hubs have emerged as vital platforms that are connecting academic research, student innovation, entrepreneurship and industry with a goal of confronting complex societal challenges across the globe. This trend of establishing innovation hubs at universities is championed as a strategic approach for anchoring a sustainable global economy and positioning universities at the core of national and international innovation systems (Magumba, 2023).

The growing landscape of innovation hubs in the economic and scientific spheres has positioned them as catalysts for future progress. Universities in the Global North have been on the forefront of establishing innovation hubs. However, in recent years innovation hubs have gained a foothold in African universities. According to Afrilabs and Briter Bridges (2019), the number of innovation hubs in Africa, both private and at universities, had reached 643 at the end of 2019. Innovation hubs at universities have risen to become beacons of innovation that forms an umbilical cord between the academia, industry and society in driving the agenda of economic development (Magumba, 2023). Therefore, university innovation hubs are playing a significant role in narrowing the gap between academic research and practical application for the benefit of society—economically, environmentally and socially (Herron & Wolfe, 2021). In the same line, Dzingirai et al (2024) study shows that university innovation hubs promote collaboration across different academic fields which promotes research and development endeavours and producing innovative graduates.

International Perspectives on University Innovation Hubs: Key Models and Best Practices

Globally, top ranking universities have established innovation hubs that act as a springboard for student-led innovative ventures. For example, the MIT innovation hub has stood out as a leading model for universities for facilitating innovation and entrepreneurship within academic institutions (Baydoun, 2015). This model has been adopted by various universities across the globe, especially its approach of bridging the gap between academia and industry through the creation of a conducive environment that give birth to innovative ideas and entrepreneurial startups for students (Roberts et al, 2019). The MIT innovation hub has been celebrated as a success case of integrating research with practical applications. The MIT innovation hub has one of the largest ecosystems that comprise of students, staff and alumni who are involved in in classes, mentorship and other related activities across the 80 innovation and entrepreneurship organisations that dotted around the campus (MIT website) and whose influence feeds into the sustainable regional innovation ecosystem. However, Mejia et al (2019) argues that even though MIT innovation hub is a beacon of success it may not be universally applicable. This is because other regions may not possess the necessary conducive environment that can breed such an innovative enterprise because of insufficient government support and the lack of a culture that promotes innovation and entrepreneurship (Mejia et al, 2019; Pfotenhauer, 2019).

Literature show that Stanford University's innovation model has been adopted by other universities across the globe. On of its key innovation hub is housed at its School of Medicine which integrates research with practical applications by providing guidance and financial resources to students (Kim et al., 2017). Accordingly, Etzkowitz et al (2018) also concurs that this innovation institutionalisation has been adopted by other universities because of its success in the biomedicine continuum. Extensive literature has shown that the Stanford University's innovation model has a played a significant role as an innovation leader for other universities.

On the other side of the Atlantic, the University of Cambridge through its Cambridge Enterprise innovative hub programme has created an extensive ecosystem that has led to the commercialisation of academic research (Caselli et al., 2021). The Cambridge University model is anchored on a web of spin-off enterprises, collaboration and consultancy (Lowe, 1993). It is clear from these international models that university innovation hubs success is scaffolded within deep institutional support and strong ecosystems that spreads across the university's faculties and external stakeholders.

The Emergence of African University Innovation Hubs

In Africa, the institutionalisation of innovation hubs at university is gaining traction over the past two decades. Available literature portrays them as panacea for youth empowerment, creativity, entrepreneurship and national development (Cherunya and Ahlborg, 2020). In addition, innovation hubs in Africa have been hailed as platforms for finding solutions to the complex challenges confronting the continent of Africa (Messerli, 2019; Schmitt and Muyoya, 2020). According to Atiase et al (2020) the rise of innovation hubs in Africa is the traditional notion of a university as they pose as new centres of fusing academic knowledge with practical applications leading to new euphoria in embracing the entrepreneurial spirit for sustainable development. Teleporting back into literature reveal that the earliest use of the concept of innovation hub in Africa is in 2001 where South Africa established its first innovation hub (Baark and Sharif, 2006). By 2019, more than 600 innovation hubs were operating across the African continent (Afrilabs and Briter-Bridges, 2019)

The establishment of innovation hubs in African universities is because of several key factors that creates a conducive environment for innovation and entrepreneurship. Schmitt and Muyoya (2020) study show three critical factors that shaped the emergence of innovation hubs in Africa. First, they point out that there has significant improvement in operating environment and ecosystems. Second, there has been increased funding and third, the pre-existing innovation hubs are constantly reworking their business models with a goal of scaling out. The existing literature on innovation hubs in Africa also points out that several factors that are essential in developing innovation hubs in African Universities. Kibwika (2006) points out the need for innovation competence, whereby African universities need to nurse a culture of innovation competence among its students and staff to solve complex development challenges facing their communities. Mashau and Fields (2022) advocates for strong collaborative partnership between universities, government and the private sector as key ingredients for developing a strong innovation ecosystem. In addition, infrastructure and support systems are necessary for the development of innovation hubs at African universities for bridging the gap between research and practical application for economic sustainability (Mashau and Fields, 2022).

The existing literature on innovation hubs in Africa are emerging as springboards for innovation and technology entrepreneurship for sustainable development. According to Friederici (2017), these innovation hubs are creating a conducive environment for collaborative value creation as well as creating a culture of entrepreneurship. In support of this view, Peters and Chepken (2016) notes that African universities are playing a critical role in the innovation ecosystem by institutionalising innovation hubs that incubate entrepreneurial start-ups which is fuelling the innovation revolution across the continent.

One of the most recognised innovation hubs in Africa is iHub, which is based in Kenya. While not limited to any single university, iHub has developed strong collaborative engagements with Kenyan universities, providing a platform for university students to engage in innovative project while receiving mentorship and guidance from industry experts and access to funding. To that end, iHub is recognised to have contributed to the growth of many startups in Kenya and has attracted international capital (Marchant, 2018).

In West Africa, the University of Lagos Innovation and Technology hub has developed robust innovation ecosystems that is merging the gap between research ideation and practical application among students and staff (Okonji & Amuda, 2023). According to Egberongbe (2011) the University of Lagos Innovation and Technology hub has provided students with the space to develop innovative ideas and start entrepreneurial projects despite the challenges of limited infrastructure and funding. It significant to note that these initiatives are significant in African universities, where traditionally academic research lacked practical applicability (Okonji & Amuda, 2023).

Existing literature shows that two of the most recognised innovation hubs in Southern and Eastern Africa includes the UCT Graduate School of Business Solution Space in South Africa and Makerere Innovation and Incubation Centre (MIIC) in Uganda. The UCT Graduate School of Business Solution Space is an innovation hub that seeks to find practical solutions to the complex and unique challenges confronted by South Africa in the post-apartheid period. The cornerstone of this initiative is grounded on the innovative pedagogical approaches, entrepreneurship and engaging the community to drive the development agenda (Munyai, 2016). The MIIC was established by Makerere University to support student innovators and has risen to be one of the leading innovation hubs on the continent. Literature has shown that MICC has become a launchpad for student startups and entrepreneurial projects (Ssekiziyivu et al., 2023; Amick et al., 2022).

Innovation and Higher Education Policy: Innovation Hubs at Universities in Zimbabwe

In line with global and regional trends, Zimbabwe in the past decade has embarked on reforming the higher education sector with a strategic goal of revamping the universities from traditional academic institutions into zones of innovation and industrialisation. The Ministry of Higher and Tertiary Education, Innovation, Science and Technology introduced Education 5.0 a new policy framework to transform the higher education towards innovation, entrepreneurship and industrialisation (Matongo and Goronga, 2025). This was an intentional shift from the traditional Education 3.0 policy framework that focused on three pillars, that is research, teaching and community service. The Education 5.0 model adopted in 2017 have added two critical pillars, that is, innovation and industrialisation (Togo and Gandidzanwa, 2021)

Central to the Education 5.0 policy framework is the establishment of innovation hubs at state universities to facilitate innovation and entrepreneurial competences among students to solve the complex and multidimensional challenges facing Zimbabwe and the African continent. The innovation hubs that have since been established at state universities—National University of Science and Technology (NUST), University of Zimbabwe (UZ), Great Zimbabwe University (GZU), Harare Institute of Technology (HIT) and Midlands State University (MSU) (Simuka and Chinakidzwa, 2022).

It is against this background that the MSU innovation hub was birthed with a mandate of:

"promoting entrepreneurship, innovation, research and development for students, staff, communities, industry and the nation by serving start-up business ventures with mentoring, workspace, funding and networked services designed to accelerate their success" (MSU).

However, since the genesis of university innovation hubs in Zimbabwe they remain under-researched, particularly their role in facilitating student's innovation. This study seeks to fill this gap in existing literature by examining the role of the MSU innovation hub in facilitating students' innovation. Specifically, the study unpacks the skills that students acquire in innovation hubs and how they translate to their innovation capabilities. Additionally, the study examines how innovation hubs promote networking and mentorship, and the entrepreneurial outcomes results from student engagement in innovation hubs. Given the central role being played by innovation hubs in the university education system, this study contributes to academic literature on innovation and entrepreneurship at the university level while providing practical findings for policy makers and university administrators.

Research Design

The study employs a case study research design that adopts a mixed method approach. According to Yin (1994), a case study can be defined "an empirical inquiry that investigates a contemporary phenomenon within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident." Broadening this view, Woodside and Wilson (2003) note that "a case study is an inquiry focusing on describing, understanding, predicting, and/or controlling the individual." Therefore, a case study design best suits this study as it provides grounds for in-depth and intensive analysis of the innovation hub in its real-life setting.

The strategy used to combine quantitative and qualitative methods in studying the case study is significant in that it scaffolded the study to triangulate findings providing the necessary ingredients for an enriched interpretation. This research design was effective in comprehending lecturers and student perspective on the impact of the innovation hub on student innovation.

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Population and Sampling

The target population for the study was lecturers and students from MSU. The study targeted participants in the Science, Technology, Engineering and Mathematics (STEM) and Business Science which often engage in innovation-related projects. The study also targeted students, who had been exposed to the projects or initiatives at the innovation hub.

Purposive sampling was employed to select participants for the study. According to Kelly (2010) the purposive sampling strategy is employed to deliberately select respondents that are most capable of providing appropriate and relevant information. This sampling strategy is also best suited for effectively utilising constrained research resources (Palinkas et al., 2015). Participants targeted were lecturers and students in STEM and Business Science which often engage in innovation-related projects housed at the innovation hub. The students, who had been exposed to the projects or initiatives at the innovation hub were targeted. In addition, the respondents were also selected through the snowball sampling method, where the first identified respondents referred other students who had engaged the innovation hub in their projects or learning. This approach was strategic in reaching out to include respondents who would have been difficult to reach. As a result, 21 lecturers were purposively sampled from faculties most likely to engage with the Innovation Hub, while 11 students who had been exposed to the projects or initiatives at the innovation hub were selected using purposive and snowball sampling. Given the exploratory nature of the study, this sample was adequate as recommended by Creswell's (2014) framework for small case studies that employ mixed methods.

Data Collection Methods

At the centre of the data collection process was the use of semi-structured questionnaires that captured quantitative data from a sample of both students and lecturers. This provided key statistical data into levels of awareness, participation and perceived impact of the innovation hub in facilitating student innovation. In addition, open-ended questionnaire was employed to capture qualitative insights on respondents' perceptions and experiences on the impact of the innovation hub on student innovation. This qualitative data was essential in triangulating the quantitative findings by adding deeper context and nuanced comprehension. This ensured that the results painted a complete picture of the impact of the innovation hub on student innovation.

Data Analysis

The descriptive statistical data analysis was employed for the data collected though semi-structured questionnaires. The key objective was to identify key trends and patterns answering the key research question on the role of the MSU innovation nub in facilitating student innovation. On the other hand, a thematic analysis was used to explore how the innovation hub is perceived, its challenges and

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suggestions for future improvement. This data analysis was essential in adding deeper context and nuanced comprehension. This ensured that the findings painted a complete picture of the impact of the innovation hub on student innovation.

Findings and Discussions

This section critically presents and engages with the findings of the study on the role of the MSU Innovation Hub in facilitating student innovation. The section triangulates quantitative and qualitative data from both lecturers and students to examine the levels of awareness, engagement, impact and challenges associated with the innovation hub in fulfilling its role in promoting student innovation. A mixed-method approach is significant in studies that focuses on innovation because they provide the foundation for measurement and interpretation (Creswell, 2014). The section is structured in two key sections. First, it presents and discusses the quantitative data from both the lecturers and students. Second, it discusses the four key thematic areas established from the qualitative open-ended responses from lecturers and students on their perceptions and engagement with the innovation hub. This section engages the findings in line with the existing literature, showing the implications for university policies and practices.

Quantitative Findings and Discussion

Lecturer Responses

Figure 1 shows that 52.4 per cent of the respondents were female and 47.6 per cent were male showing a moderate gender balance among the academic staff that were engaged.

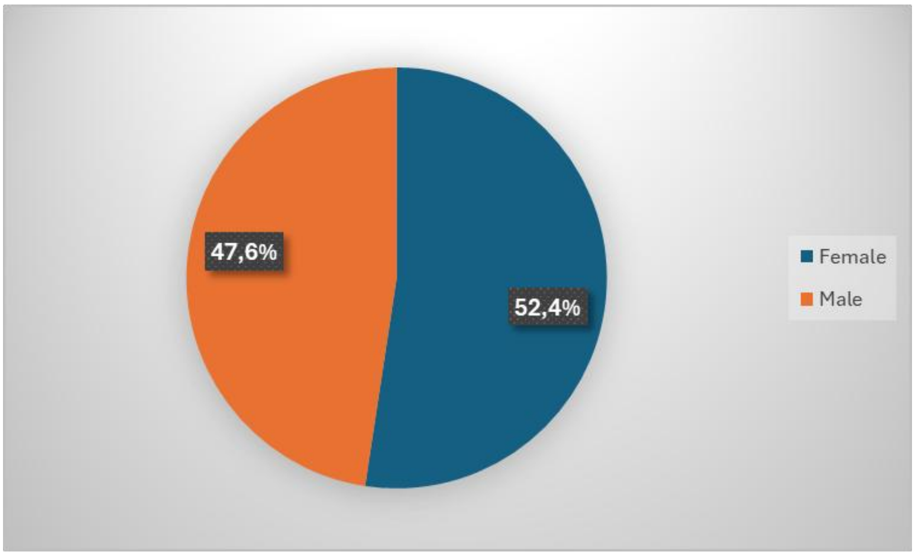

Figure 1: Gender distribution of lecture of lecturers' respondents

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Figure 2 shows that the respondents were from five STEM faculties. The majority were 47.6 per cent from the faculty of science and technology as the innovation hub has a strong orientation towards STEM programmes, followed by Business Sciences with 28.6 per cent which reflect the innovation hub role in entrepreneurship. The faculty of Built Environment, Art and Design accounted for 14.3 per cent of the respondents, followed by 4.8 per cent from both faculties of Engineering and Geosciences and Agriculture, Environment and Natural Resources Management.

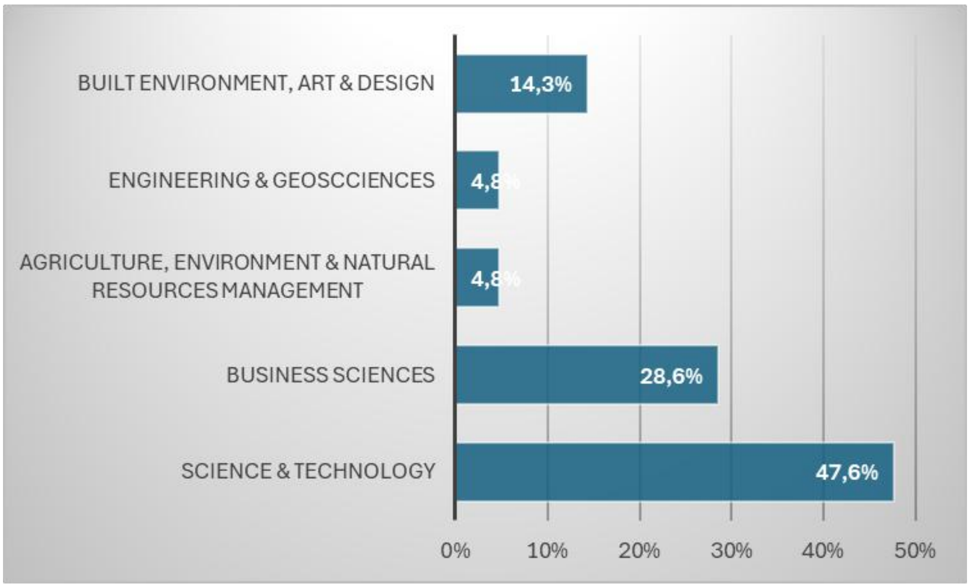

Figure 2: Distribution of lecturers' respondents across five STEM faculties

In terms of academic teaching experience, Figure 3 reveals that the study's participants shows that the majority are early-career academics with 57.1 per cent possessing experience of 1 to 3 years. The participants with 3 to 6 years teaching experience accounted for 38.1 per cent, while only 4.8 per cent of the participants had 7 to 10 years' experience. This range of experience shows the brain drain trend in Zimbabwe's tertiary education sector where senior academics are leaving the countries for greener pastures and their positions being field by early career academics (Bhowmik, 2024; Akhtar, 2025).

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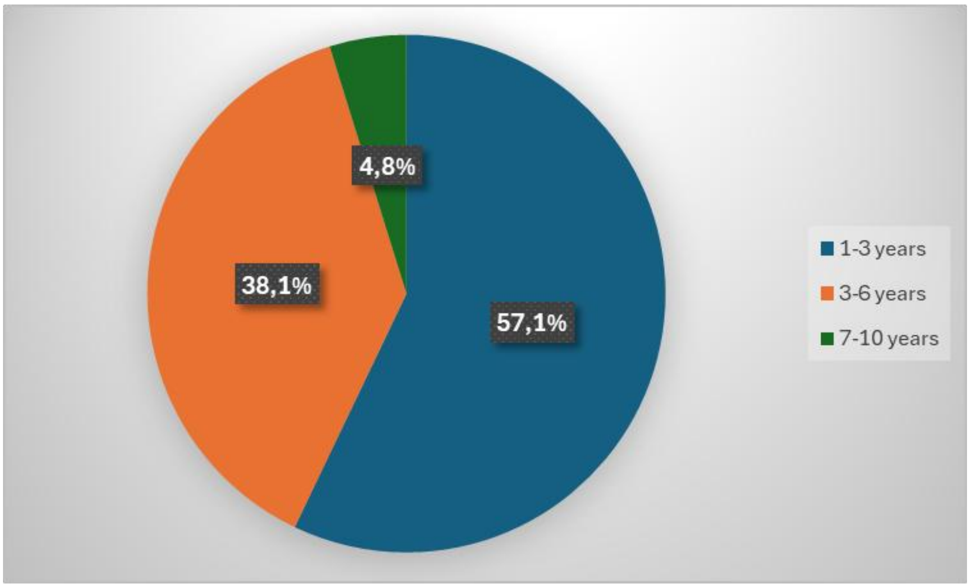

Figure 3: Respondents' academic teaching experience levels

Awareness and Institutional Integration: Lecturers' Perspectives and Practices

Table 1 below shows a summation of lecturers' awareness of the MSU innovation hub and how they integrate its activities into their teaching and research

Statement	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
I am aware of the activities and mandate of the MSU Innovation Hub.	9.5%	71.4%	9.5%	4.8%	4.8%
I have collaborated with the Innovation Hub in my teaching or research.	14.3%	47.6%	19%	9.5%	9.5%
I include innovation-related activities (e.g., problem-solving, ideation, project-based learning) linked to the Innovation Hub in my teaching.	14.3%	57.1%	14.3%	14.3%	0%
I believe the Innovation Hub contributes to fostering student creativity and entrepreneurship.	38.1%	47.6%	14.3%	0%	0%
I regularly inform students about opportunities at the Innovation Hub.	9.5%	52.4%	9.5%	4.8%	9.5%

Table 1: Lecturers' perspectives on institutional integration and awareness

The research data shows significant trends and patterns on how lectures engage with the MSU innovation in facilitating student innovation. The data reveals that most of the academic staff were well

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versed with the activities that take place at the innovation hub, with 80.9 per cent (71.4% Agree, 9.5% Strongly Agree) highlighting that they are fully aware of the role and mandate of the innovation hub. This high level of awareness among the academic staff suggests that there is effective institutional communication about the role and activities of the innovation. This is significant as lecturers' awareness assist in information dissemination to their students and integration with their curriculum. However, 9.6 per cent (4.8% Disagree, 4.8 Strongly Disagree) of the lecturers indicated that there were not aware of the activities and mandate of the innovation hub.

However, the data points out to a huge gap between knowing the hub and actively engaging in projects related to it. Despite, the high percentage of awareness of the innovation hub, only 61,9 per cent (47.6% Agree, 14.3% Strongly Agree) highlighted that they had collaborated with it their teaching and research activities. This finding is line with literature on factors that hinders lecturers from collaborating with innovation centres (Leydesdorff and Etzkowitz, 2001). Key factors point to (1) time constraints because of demanding teaching obligations (Karlsdottir et al, 2023)., (2) individual perception of innovation as extra work and limited resources (Sanchez and Gutierrez-Esteban, 2023).

The data from the study also show that 85.7 per cent of the lectures strong perceive that the innovation hub is contributing to the creativity and entrepreneurship of students. This view finds expression in the systematic review on entrepreneurship education at universities by Nabi et al (2017) which shows academic positive perception of innovation centres as places that promotes innovation. Only 14.3% remain neutral on the perceived role of the innovation hub on facilitating student innovation.

Student Responses

Figure 4 shows that 54.5 per cent of the respondents were male and 45.5 per cent were female showing a moderate gender balance among the students that were engaged. The slightly larger representation of male student respondents also reflects the general findings in literature that shows academic enrolment trends of males in the field of STEM faculties in Zimbabwean university and the world in general (Gweshe and Chiware, 2023). Most of the students for the study, 81.8 per cent, were in their fourth year of study, with the remain 18.2 per cent in their second year.

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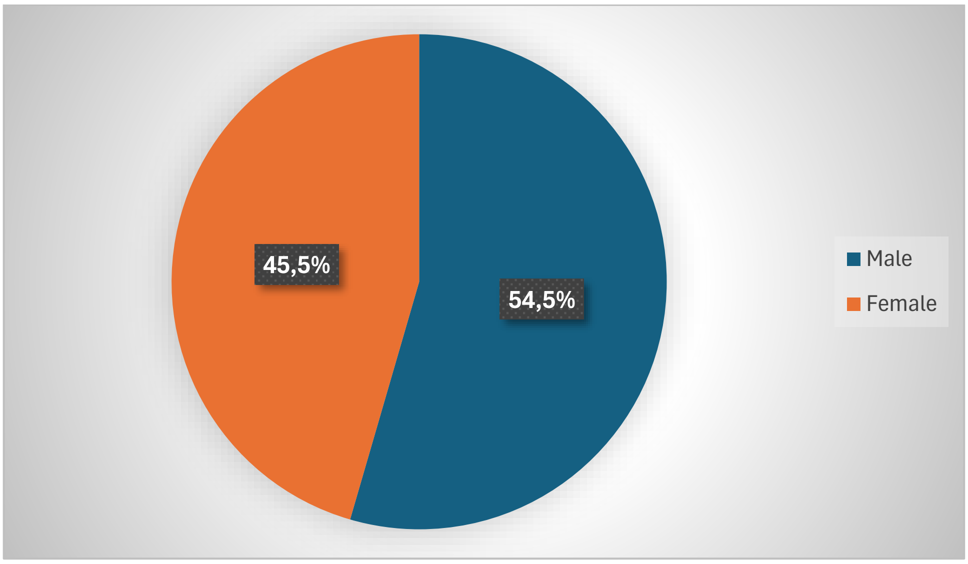

Figure 4: Gender distribution of student respondents

Figure 5 shows that the student respondents were from a wide range of faculties. The majority were 45.5 per cent from the faculty of science and technology, followed by Engineering and Geosciences with 27.3 per cent, which reflects literature findings where innovation ecosystems tend to tilt towards STEM faculties (Guerrero and Urbano, 2016). The faculty of Social Sciences accounted for 18.2 per cent of the respondents, followed by 9.1 per cent from the faculties of Business Sciences. It is significant to note that the faculty distribution of the respondents shows three significant patterns. First, the STEM faculties dominate with a combined 72,8 per cent showing the innovation hub traditional strength in supporting technical innovation. Second, the meaningful representation of the Social Sciences reflects the increasingly interdisciplinary engagement. Lastly, the low representation from the faculty of Business Sciences was surprising given the variety of the innovation hub's entrepreneurial programmes.

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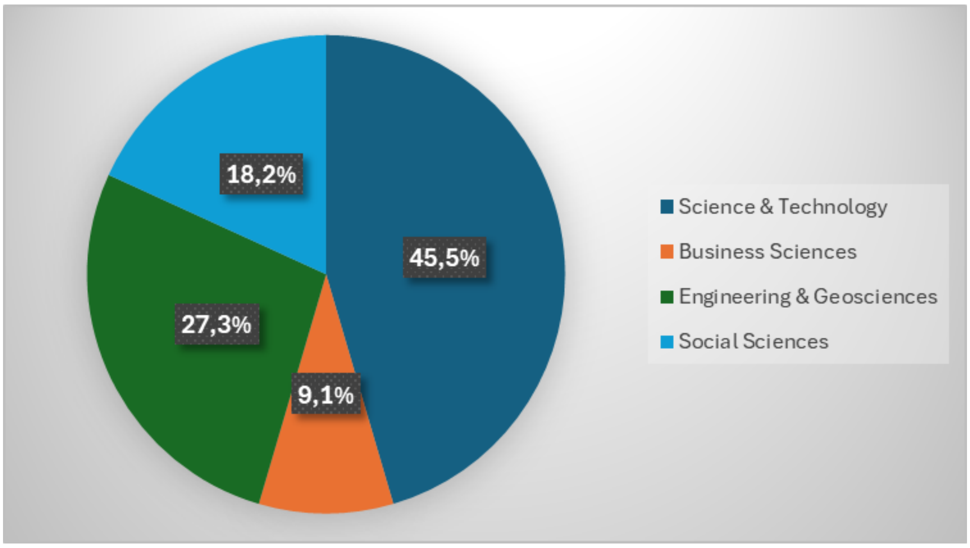

Figure 5: Distribution of students' respondents across faculties

Student Experiences: Skills Development and Entrepreneurial Outcomes

The study's data shows significant insights into how the MSU Innovation Hub plays a role in the development of the student's skills and entrepreneurial ambitions. This section presents the students responses across five dimensions, revealing the role of the innovation hub in facilitating students' innovation. Table 2 below shows a summation of students' responses on how the MSU innovation hub has impacted their skills development and entrepreneurial endeavours.

Statement	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
I have developed new skills (for example, creativity, problem-solving, design thinking, etc) through the Innovation Hub.	18.2%	63.6%	18.2%	0%	0%
I have received mentorship or guidance through the Innovation Hub.	27.3%	63.6%	9.1%	0%	0%
I have interacted with other students, mentors, or external stakeholders through Innovation Hub activities.	45.5%	45.5%	9.1%	0%	0%
I have applied classroom knowledge in innovation projects linked to the Innovation Hub.	18.2%	63.6%	9.1%	9.1%	0%
I have considered starting a business, social enterprise, or community innovation because of my participation in the Innovation Hub.	45.5%	45.5%	9.1%	0%	0%

Table 2: Students' perspectives on skills development and entrepreneurial outcomes

Student Skills Development

Most students', 81.8 per cent, indicated that they had acquired significant innovation-related skills because of their engagement with the innovation hub. This view finds expression in global findings by Lorenceau et al (2021) that take note of the significant role that innovation hubs in university in capacitating students with critical skills for the fourth industrial revolution. The skills mentioned include, technical, creativity, problem-solving as well as complementary soft skills. This shows that the innovation hub is playing a significant role in students' skills development. However, 18.2 per cent of the respondents were neutral, which could indicate passive dissatisfaction, where the respondents might have experienced some skills development but not significant enough to warrant full endorsement.

Provision of Mentorship and Guidance

The research findings show that the innovation hub is playing a vital role in providing mentorship and guidance to the students. According to Prince et al (2022) the significant role of mentors is to provide guidance students and advising students. The data shows that 90.9 per cent (27.3% strongly agreeing and 63.6% agreeing) of the students engaged with the hub had received positive mentorship and guidance. This data shows that the innovation hub has created a conducive environment that natures the student's innovation competences through efficient mentorship and support programmes which are essential for professional growth. This aligns with the study by Friederici (2017) which shows that these innovation hubs are creating a conducive environment for collaborative value creation as well as creating a culture of entrepreneurship.

Bridging Theory and Practice

Most students' respondents, 81.8 per cent, indicated that they were able to apply what they learned from the classroom during their engagement with the innovation hub. Bridging of theory and practice was also reflected in the study of iHub of Kenya which revealed that it contributed to the growth of many startups in Kenya (Marchant, 2018). However, 9.1 per cent of the respondents expressed disappointment in that they did not bridge theory and practice in their engagement with the innovation hub, while 9.1 per cent were neutral, which could indicate passive dissatisfaction.

Cultivating Entrepreneurial Mindsets

The research findings highlight that innovation hub is playing a vital role in cultivating entrepreneurial mindsets among students. The data shows that 91 per cent (45.5 % strongly agreeing and 45.5 % agreeing) respondents indicated that their engagement with the innovation inspired or encouraged them to consider starting their own businesses. This reflects trends witnessed in innovation-driven higher education systems such as in West Africa, where the University of Lagos Innovation and Technology hub has provided students with the space to develop innovative ideas and start entrepreneurial projects despite the challenges of limited infrastructure and funding (Egberongbe,2011). This is significant for African universities because its academic research lacked practical applicability (Okonji & Amuda, 2023).

The high percentage of students (91 per cent) who indicated that they are considering starting their own start-ups, small business or social enterprises shows the potential of the innovation hub to serve as a platform for economic sustainable initiatives. Given that the MSU innovation hub is relatively new, most of the ventures by the students are still in the ideation or prototyping stages. However, they possess great potential to contribute to a sustainable local economy through economic diversification and job creation. This finding aligns with Dzingirai's (2025) study which concludes that "university-based innovation hubs play an instrumental role in fostering entrepreneurship from a design thinking perspective as they promote industrial parks, ensure a rise in intellectual rights, foster stakeholder collaboration, spark creativity and innovation, strengthen entrepreneurship resilience and promote sustainable value addition and beneficiation."

Qualitative Findings and Discussion

This section employs a thematic analysis to explore how the innovation hub is perceived, its challenges and suggestions for future improvement. These qualitative data triangulate the quantitative findings discussed earlier by adding deeper context and nuanced comprehension. This ensures that the results paint a complete picture of the impact of the innovation hub on student innovation.

Lecturer Perspectives

The data findings show four interconnected themes that collectively show how the academic staff, lecturers, perceive the role of the innovation hub in facilitating student innovation.

Resource Provision and Infrastructure Support

Lecturers who participated in the study indicated that the innovation hub plays a significant role in enabling student innovation through the provision of valuable resources and infrastructure. Reponses such as, "the innovation hub is critical as it provides access to technology, tools and funding that is not available to most students" and "the hub provides the students with labs to manufacture prototypes and products" shows the significance of the innovation hub in providing resources and infrastructure support to students. It is crystal clear from these responses that without this support, most of the ideas from students would remain abstract concepts. Minguillo and Thelwall's (2015) research identifies infrastructure such as research parks and campuses as key elements that create a conducive environment for promoting innovation among students. In addition, university innovation hubs require robust information infrastructure such as advanced computers and high-speed internet connection to support student innovation in this fast-paced technological world (O'Brien, 2010). It is critical to note that

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resources are not only limited to infrastructure but human capital resources as well. Saihi et al (2021) notes that human resource capital which shapes institutional culture is significant for strategic management and external collaborations is essential for creating the environment conducive to innovation among students.

Skills Development and Capacity Building

The second theme that emerged from the lecturers' responses was on the role of the innovation hub on capacitating the students through skill development and experiential learning. Responses such as, "it assists in moulding students into entrepreneurs and creative problem-solvers to developmental challenges" and "it promotes the ideation process as students develop critical thinking skills" reflects a positive perception of the role of the innovation hub. Lecturers view it as providing the conducive environment for students to move beyond classroom knowledge or theory to application leading to the growth of technical skills and entrepreneurial thinking. This aligns with the experiential learning theory (Kolb, 1984), as innovation hubs plays a significant role in bridging the gap between academic knowledge and practical solutions by creating a dynamic environment that promotes ideation, problem solving and entrepreneurial outcomes

Motivation Influence

Lecturers who participated in the study highlighted the psychological impact of the innovation hub in providing inspiration and motivation for the students. Statements such as, "the students are motivated into innovation when the see other projects of fellow students at the hub" and "it's a source of inspiration when students collaborate with leading industry players" shows how the innovation hub serves as catalyst for changing mindsets of students. Therefore, the innovation hub creates an environment that induces curiosity and promotes ambition and confidence (Olokundun et al, 2017).

Collaborative Ecosystem Development

The fourth theme that emerged from the lecturers' responses was on the role of the innovation hub in creating an environment that promotes collaboration innovation. One of the lecturers stated that, "it encourages collaboration among different stakeholders." Most lecturers also pointed out that the innovation hub creates an innovative ecosystem that brings together different stakeholders—such as students, peers, mentors, entrepreneurs and industry players. This aligns with the effective innovation ecosystems described by Leydesdorff and Etzkowitz (2001) in their Triple Helix model.

Challenges in Integrating the Innovation Hub: Lecturers Perspectives

Lecturers highlighted four key challenges that hinder the effective integration between the innovation hub and academic programmes which negatively impact on student innovation. First, curriculum

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misalignment. Most respondents noted that transformation of the traditional pedagogical curriculum to a practical-based curriculum is taking long. Similar findings have been discussed in the literature by Okonji and Amuda (2023) when examining the case of University of Lagos. The respondents pointed out that the curriculum is still exam oriented and fail to converge with the practical focus of the innovation hub. The negative effect is that lecturers are hesitant to incorporate the innovation hub activities into their teaching. Secondly, time constraint was raised as an obstacle for lecturers to integrate the innovation hub related activities with modularised academic programme. One lecturer stated that, "There is just too much pressure to cover prescribed content in a short period of time." Therefore, these pressures negatively impact the potential of innovation hubs to serve as a robust extension of the learning environment. Thirdly, communication gaps also act as barriers to integrate the innovation into the academic programmes. Respondents pointed out that the need for more awareness programmes for both the lecturers and students on the activities related to the innovation hub.

Challenges in Accessing the Innovation Hub: Student Perspectives

The students' responses to the open-ended questions highlight a range of challenges that limit their ability to fully engage with the innovation hub. Although most students positively indicated the role of the innovation hubs to their skills development, they have pointed several persistent barriers that impede their full participation. These challenges will be discussed from the four recurring themes identified and the implications for the innovation hub to deliver on its mandate of facilitating student innovation.

Financial Resources Barriers

Majority of students who participated in the study cited limited financial resources as one of the significant barriers to their ability to develop and scale their innovation at the hub. Many students indicated that despite having ground-breaking ideas, their progress was being stalled by limited funding. This view finds expression in responses such as, "the funding is just not much against the demand," and "we have good ideas but limited funding to turn them into products and services." These findings align with literature that examines the implementation of Zimbabwe's Education 5.0 policy, whose two key pillars are innovation and industrialisation, in an environment characterised by poor funding (Vurayai, 2024). The implications on student innovation are devastating. For instance, limited access to funding stalls student projects and often leads to disengagement by the students from the innovation hub.

Geographic and Logistical Constraints

One of the most often cited constraint was the fact that the innovation hub is in only on one campus, which is in Gweru, while the university has a total of five campuses across the country. Responses such as, "as the engineering faculty we are based at Zvishavane campus, how can we go up and down to Gweru to access the hub," and "it's a logistical nightmare to consider participate in the innovation hub activities." This shows the frustration of students who are not based on the Gweru campus. The negative implications are that students from satellite campuses are often excluded in participating in the innovation hub activities. In addition, the logistical financial costs often lead to student disengagement from the hub's activities.

Equipment and Resource Shortages

Most students who took part in the study cited insufficient access to equipment and workspaces especially for prototyping and digital fabrication as a significant barrier to their ability to develop and scale their innovation at the hub. Many students indicated that despite having ground-breaking ideas, their progress was being stalled by limited equipment and resources. This has emerged as one of the key barriers in project process in the areas of experimentation and iteration. To that end, most students expressed frustration and hindered their creative momentum. This view finds expression in comments such as, "I had to drop the project as I could not get the right equipment for digital fabrication," and "I wish the workspace should be enlarged to accommodate many students." This is why most literature advocates for infrastructure and support systems at African universities for bridging the gap between research and practical application (Mashau and Fields, 2022).

Academic Pressures

One of the most frequently cited constraint raised by students was the challenge of managing time within the highly demanding modularised degree schedules. Several students indicated that they often struggle to balance the innovation hub projects with exam schedules and strict continuous assessment deadlines. Therefore, the major implication is that innovation hub related activities is then considered as optional and leading to student disengagement. This finding supports the calls in literature for innovation hubs to develop a collaborative curriculum and extracurricular activities that is supportive and engaging to facilitate students' innovation (Zhang and Qin (2024).

Conclusion

The study seeks critically examined the role of universities' innovation hub in promoting student innovation by focusing on MSU. Using a case study approach, the study employed a mixed-method research design, involving data collection from 21 lecturers and 11 students through semi-structured questionnaires and open-ended responses. The findings show the significant role being played by the innovation hub in facilitating student innovation through skills capacitation, mentorship, networking and entrepreneurial outcomes. In addition, the study reveals the potential of MSU innovation hub to serve as a springboard for local economic sustainability through nurturing entrepreneurial competencies, supporting student-driven ventures and promoting value creation. However, the study identified a wide range of factors that are confronting the MSU innovation hub in fulfilling its mandate. These include, limited financial resources, equipment shortages, geographic setting and time management issues. Lecturers also indicated an array of factors hindering the effective integration between the innovation hub and academic programmes which negatively impact on student innovation. These factors include, curriculum misalignment, time constraints and communication gaps. In a nutshell, the respondents both lecturers and students highlighted the potential of the innovation hub in facilitating student innovation but is currently constrained with the issues discussed in this section. Theoretically, the study contributes to the literature on innovation and entrepreneurship for promoting sustainable value addition and beneficiation. Practically, the study provides actionable empirical evidence for university administrators and policymakers on improving the efficiency of innovation hubs in facilitating students' innovation. Therefore, this study is significant for both theoretical and practical contributions to the evolving role of the university.

Considering the findings unearthed by this study, the following several strategic actions are recommended:

- Curriculum integration: as best practice from other international universities such as MIT, MSU should integrate innovation hub participation into degree programmes as graded continuous assessment.
- Financial funding and resources: the university should create a student innovation fund. This fund can also fund fourth year dissertations with potential to be turned into products and services. This fund should have clear and efficient application process to avoid bureaucratic delays.
- Geographical accessibility: the university should strive to have innovation hubs at all the campuses. However, the resource challenges, the university can invest in mobile innovation spaces that can rotate between all the satellite campuses to ensure that all students have access.
- Communication and outreach programmes: to address the issue of communication gaps, the innovation hub should invest in coming up with a strategic communication campaign with academic departments. In addition, to capture the technology generation, the communication strategy should also be anchored on digital platforms.
- Promote economic sustainability: for MSU Innovation hub to be a springboard for economic sustainability it should create a digital database of viable student-driven innovations to track and support students through partnering with local industries for sustainable value addition and beneficiation.

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