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Navigating the entrepreneurial landscape: Barriers encountered by students at the Innobiz DUT centre for entrepreneurship and innovation

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Abstract: This study examines the obstacles faced by student entrepreneurs at the Innobiz DUT Centre for Entrepreneurship and Innovation, located at Durban University of Technology (DUT) in South Africa. Utilizing the Resource-Based View (RBV) framework, the research identifies key resource limitations—including financial, human, technological, and social factors—that significantly hinder entrepreneurial development. A quantitative survey of 76 student entrepreneurs highlights institutional and socio-economic challenges, such as restricted access to funding, mentorship, infrastructure, and networking opportunities. Additionally, psychological and academic barriers, including fear of failure and time management issues, further impede entrepreneurial participation. The findings emphasize the importance of implementing inclusive, context-specific strategies that address structural inequalities, promote experiential learning, and support student-led innovation. Recommendations include improving resource accessibility, integrating entrepreneurship education into academic programs, and strengthening institutional support systems to foster a sustainable entrepreneurial ecosystem within the university.

Keywords: *Durban university of technology (DUT), Entrepreneurial barriers, Resource-based view (RBV), Student entrepreneurship, University-based ecosystems.*

1. Introduction

Entrepreneurship is widely acknowledged as a vital engine for economic growth, innovation, and job creation, particularly in developing economies. Within higher education institutions (HEIs), the incorporation of entrepreneurship education has gained considerable attention as a means of preparing students with the necessary knowledge, skills, and mindset to effectively navigate the challenges of a competitive global market [1]. The innobiz DUT Centre for Entrepreneurship and Innovation at Durban University of Technology has emerged as a key initiative in nurturing entrepreneurial talent among students. Nonetheless, despite its commendable objectives, student entrepreneurs at the Innobiz DUT Centre for Entrepreneurship and Innovation encounter numerous barriers that impede their entrepreneurial efforts, including resource limitations, institutional challenges, and socio-economic constraints.

The realm of student entrepreneurship is characterized by a complex interaction of opportunities and challenges. Although the emergence of entrepreneurial ecosystems within universities has created new pathways for aspiring entrepreneurs, the journey continues to be marked by significant obstacles. These barriers are often manifested as structural, financial, and experiential limitations that hinder students from fully utilizing the resources and opportunities [2]. Gaining insight into these barriers is

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essential for optimizing the impact of entrepreneurial centers and ensuring they effectively meet the varying needs of student entrepreneurs.

University-based entrepreneurial ecosystems have become a crucial aspect of contemporary higher education, particularly in fostering innovation and economic development. These ecosystems are designed to nurture entrepreneurial mindsets and facilitate the journey from idea conception to business establishment. The Innobiz DUT Centre for Entrepreneurship and Innovation exemplifies this vision by providing a structured environment where students can access training programs, mentorship, and funding opportunities. However, the effectiveness of these ecosystems greatly relies on their ability to address the contextual and institutional barriers faced by students.

Entrepreneurial ecosystems are not without their challenges. Research indicates that the success of these systems is often contingent upon their integration within the broader institutional framework, which includes academic curricula, administrative policies, and external partnerships [3]. For the Innobiz DUT Centre for Entrepreneurship and Innovation, this integration is particularly crucial, considering the diverse socio-economic backgrounds of its student body. While the center's programs strive to bridge the gap between academic knowledge and practical entrepreneurial experience, ongoing barriers continue to undermine the realization of its full potential.

The South African entrepreneurial landscape presents distinct challenges that influence the experiences of student entrepreneurs. With youth unemployment exceeding 40%, entrepreneurship is increasingly perceived as a viable avenue for economic empowerment and job creation [4]. However, the socio-economic conditions that drive the need for entrepreneurial initiatives also introduce formidable barriers. Limited access to capital, insufficient infrastructure, and systemic inequalities are among the factors that impede entrepreneurial activities in the country [5]. For student entrepreneurs at the Innobiz DUT Centre for Entrepreneurship and Innovation, these challenges are exacerbated by the dual pressures of academic commitments and the complexities of developing a business.

The historical and economic context of South Africa further intensifies these obstacles. The legacy of apartheid has left enduring effects on access to resources, education, and opportunities, disproportionately impacting marginalized communities. For many students at DUT, entrepreneurship is not simply an aspiration, but a necessity compelled by socio-economic realities. However, the structural inequalities inherent in the broader economic system often hinder their ability to succeed as entrepreneurs, even with the support of initiatives like the DUT Centre for Entrepreneurship and Innovation.

Within HEIs, institutional barriers significantly influence the entrepreneurial journey of students. The transition from academic learning to entrepreneurial practice is frequently obstructed by a lack of alignment between curricula and the practical requirements of business creation. Although the Innobiz DUT Centre for Entrepreneurship and Innovation offers targeted programs to bridge this divide, resource constraints remain a notable challenge. Limited access to seed funding, inadequate workspaces, and insufficient technological tools are among the barriers that hinder the progress of student entrepreneurs.

Additionally, the institutional culture within universities can either foster or inhibit entrepreneurial activities. Research underscores the importance of cultivating an entrepreneurial culture that promotes risk-taking, innovation, and collaboration [6]. At DUT, efforts to nurture such a culture must navigate traditional academic frameworks that often prioritize theoretical knowledge over experiential learning. The effectiveness of the Innobiz DUT Centre for Entrepreneurship and Innovation in addressing these institutional barriers is contingent upon its ability to foster a supportive environment that integrates entrepreneurship into the wider academic and administrative landscape.

1.1. Theoretical Perspectives- Resource-Based View (RBV)

The Resource-Based View (RBV) serves as a strategic management framework that underscores the significance of resources in achieving competitive advantage [7]. When applied to the entrepreneurial challenges encountered by students at the Innobiz DUT Centre for Entrepreneurship and Innovation,

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RBV offers a comprehensive perspective on how the availability, access, and utilization of resources influence entrepreneurial success. This section explores the alignment of RBV with the barriers faced by students and provides insights into strategies for overcoming these challenges.

1.2. Core Concept of the Resource-Based View

RBV focuses on the critical nature of resources that meet the criteria of being valuable, rare, inimitable, and non-substitutable (VRIN) [8]. These resources, whether tangible or intangible, provide a competitive edge that assists organizations or individuals in achieving their objectives. For student entrepreneurs at the Innobiz DUT Centre for Entrepreneurship and Innovation, access to such resources—including funding, mentorship, technological tools, and knowledge—is essential for their ability to innovate, compete, and sustain their ventures. RBV emphasizes that the strategic management of resources significantly enhances the probability of success within entrepreneurial environments [9].

1.3. Barriers Related to Resource Constraints

A key correlation between the Resource-Based View (RBV) and student entrepreneurship is the recognition of resource constraints as substantial barriers to success [10]. At the Innobiz DUT Centre for Entrepreneurship and Innovation, students often face challenges related to financial, human, technological, and social capital, all of which are critical for entrepreneurial success. Financial resources are fundamental for launching and sustaining entrepreneurial ventures. Access to startup capital is crucial, yet many students struggle to secure funding through grants or other investment opportunities [11]. According to RBV, financial resources are highly valuable and provide a competitive advantage in entrepreneurship [12]. Without adequate funding, students at the Innobiz DUT Centre for Entrepreneurship and Innovation may find it difficult to transform their ideas into viable businesses.

In addition to financial constraints, human capital plays a significant role in entrepreneurial success. Many students lack specialized skills, industry knowledge, and experience, which are essential for innovation and problem-solving [13]. RBV highlights human capital as an intangible yet indispensable resource that fosters creativity and competitive advantage [14]. Without access to training and mentorship, students may struggle to navigate the complexities of entrepreneurship. Technological resources are another critical factor in innovation-driven entrepreneurship. Access to advanced tools, software, and equipment enables students to prototype and implement their ideas effectively [15]. However, limited availability of such resources at the Innobiz DUT Centre for Entrepreneurship and Innovation can hinder students' ability to develop and commercialize innovative products or services. The lack of technological infrastructure can create significant obstacles in a rapidly evolving digital economy [16]. Finally, social capital is essential for entrepreneurial growth. Networks, including relationships with mentors, investors, and industry partners, provide valuable insights, funding opportunities, and strategic partnerships [17]. However, barriers to accessing these networks can leave student entrepreneurs at a disadvantage, making it harder to gain market entry and compete effectively. RBV underscores the importance of leveraging social capital to build a sustainable competitive advantage [18], yet without strong connections, students may struggle to establish themselves in entrepreneurial ecosystems.

Resource constraints—whether financial, human, technological, or social—can significantly impact the success of student entrepreneurs at the Innobiz DUT Centre for Entrepreneurship and Innovation. The RBV framework underscores the necessity of acquiring and utilizing these resources effectively to create a competitive edge in entrepreneurship [19]. Addressing these limitations through targeted support programs, mentorship, and resource accessibility can enhance students' entrepreneurial success and long-term sustainability [20].

1.4. Differentiating Students Based on Resource Access

RBV posits that competitive advantage arises from unequal access to resources. Within the Innobiz DUT Centre for Entrepreneurship and Innovation, students who already have financial support, prior

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entrepreneurial experience, or more robust social networks are more likely to achieve success. This differentiation underscores systemic inequities within the entrepreneurial ecosystem, wherein certain students have greater opportunities to leverage key resources than others. Such disparities resonate with RBV's assertion that resource distribution ultimately influences performance outcomes.

1.5. Strategic Role of the Innobiz DUT Centre

The Durban University of Technology (DUT) Innobiz DUT Centre for Entrepreneurship and Innovation plays a crucial role in fostering student entrepreneurship by serving as a dedicated hub for training, mentorship, networking, and resource provision [21]. From the perspective of the Resource-Based View (RBV), the Centre can be understood as a repository of strategic assets that students can utilize to navigate common entrepreneurial challenges. According to the RBV framework proposed by Zvarimwa and Zimuto [8] sustainable competitive advantage arises from resources that are valuable, rare, inimitable, and non-substitutable (VRIN). In this context, the Innobiz DUT Centre for Entrepreneurship and Innovation enhances entrepreneurial development by offering resources, including human capital, knowledge networks, technological infrastructure, and financial support mechanisms.

Nevertheless, the effectiveness of the Innobiz DUT Centre for Entrepreneurship and Innovation in facilitating entrepreneurial success is closely tied to its ability to maintain and enhance its VRIN characteristics. Institutional constraints, such as inadequate funding, can significantly limit the Centre's capacity to provide essential resources such as start-up capital, innovation grants, or seed funding, which are vital for early-stage entrepreneurs [22]. Furthermore, insufficient mentorship structures may hinder the Centre's ability to effectively guide students through the entrepreneurial journey, thereby diminishing the value and utility of its human capital resources [23]. Additionally, outdated or limited technological infrastructure could restrict students' access to essential digital tools for contemporary entrepreneurial activities, including prototyping, e-commerce, and digital marketing [24]. These challenges not only weaken the Centre's institutional support functions but also highlight broader systemic resource gaps that intersect with individual entrepreneurial obstacles.

The interplay between institutional resource constraints and student-level entrepreneurial barriers underscores the necessity for continuous investment in and enhancement of the DUT innobiz Centre's capabilities. To fulfill its role as a transformative resource hub, the Centre must ensure that its offerings align with the evolving needs of student entrepreneurs in a dynamic economic environment. This includes maintaining the VRIN characteristics of its financial, technological, and mentorship resources to ensure they remain a competitive advantage. The Centre can better empower students to convert their entrepreneurial aspirations into sustainable ventures, consistent with the RBV's focus on strategic resource utilization for competitive advantage.

2. Literature Review

The entrepreneurial landscape is a dynamic and multifaceted arena that requires a combination of resources, skills, and enabling environments to achieve success. For students at the Innobiz DUT Centre for Entrepreneurship and Innovation, a thorough understanding of the obstacles they face necessitates a comprehensive review of existing literature on entrepreneurship, resource accessibility, and educational support systems. This literature review critically examines key themes associated with student entrepreneurship, including resource constraints, entrepreneurial ecosystems, institutional support, and the broader socio-economic challenges affecting student entrepreneurs.

2.1. Entrepreneurship Education and Its Importance

Entrepreneurship education has emerged as a vital driver of innovation, economic development, and job creation [25]. Higher education institutions (HEIs) are instrumental in preparing students with the essential knowledge, skills, and attitudes required for success in entrepreneurial endeavors. Badawi [26] assert that entrepreneurial education nurtures creativity, problem-solving abilities, and resilience—

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crucial traits for navigating the uncertainties of starting and sustaining a business. However, the effectiveness of entrepreneurship education is often contingent upon the availability of resources and institutional support systems.

At the Innobiz DUT Centre for Entrepreneurship and Innovation, the objective of entrepreneurship education is to connect theoretical concepts with practical application. Nevertheless, challenges such as limited funding, inadequate mentorship, and insufficient access to advanced technologies can inhibit these efforts, as indicated in global studies addressing challenges in entrepreneurship education [27].

2.2. Resource Constraints and Entrepreneurial Barriers

The Resource-Based View (RBV) highlights the significance of access to valuable, rare, inimitable, and non-substitutable (VRIN) resources for achieving a competitive advantage [8]. Student entrepreneurs often face substantial resource constraints, including limited access to financial capital, human capital, and technological tools [24]. Financial limitations are among the most common challenges, with students frequently lacking the funding required to launch or expand their ventures [28].

Human capital, comprising entrepreneurial skills and experiences, is another critical resource for students. Yani and Zaakiyyah [20] note that a lack of entrepreneurial experience and mentorship can impede students' ability to make informed decisions and navigate complex business environments. Additionally, access to technological resources, such as prototyping equipment and software, is essential for fostering innovation but can be prohibitively expensive for student entrepreneurs [29].

2.3. The Role of Entrepreneurial Ecosystems

Entrepreneurial ecosystems consist of the networks, institutions, and resources that foster entrepreneurial activity within a specific context [30]. For students at the DUT innobiz Centre, the local entrepreneurial ecosystem can significantly impact their ability to overcome challenges and attain success. Research conducted by Ermawati [31] underscores the importance of collaborative networks, access to mentors, and supportive policies in promoting entrepreneurial growth.

However, studies indicate that inefficiencies within ecosystems, such as fragmented networks and bureaucratic obstacles, can hinder the progress of student entrepreneurs [32]. For instance, at the Innobiz DUT Centre for Entrepreneurship and Innovation, challenges like unclear processes for accessing resources and a lack of coordinated mentorship programs may limit the ecosystem's effectiveness in supporting students.

2.4. Institutional Support and Incubation

Business incubators and entrepreneurship centers, such as the Innobiz DUT Centre for Entrepreneurship and Innovation, play a pivotal role in enabling student entrepreneurship by offering resources, training, and networking opportunities. Kaggwa, et al. [33] assert that the success of incubation programs relies on their ability to meet the specific needs of entrepreneurs, including access to funding, mentorship, and market insights.

Nonetheless, institutional support systems frequently encounter challenges in maintaining the quality and accessibility of their services. Research by Rambe [34] highlights that resource limitations within incubators, such as restricted funding or outdated infrastructure, can undermine their capacity to support student entrepreneurs effectively. Moreover, the success of such programs is dependent on their alignment with the socio-economic context of the surrounding region [35].

2.5. Socio-Economic Challenges and Entrepreneurial Barriers

Socio-economic factors significantly influence the entrepreneurial experiences of students. In areas characterized by high youth unemployment rates and limited access to funding, students encounter additional pressures that can obstruct their entrepreneurial aspirations [36]. For South African

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students, systemic inequalities and economic disparities further complicate these challenges, creating a challenging environment for entrepreneurship [37].

Furthermore, cultural attitudes toward entrepreneurship can affect students' willingness to take risks and pursue business ventures. Hofstede's cultural dimensions theory suggests that societies exhibiting high levels of uncertainty avoidance may deter entrepreneurial activity [38] which could have implications for students at the Innobiz DUT Centre for Entrepreneurship and Innovation. Addressing these socio-economic barriers necessitates a multi-faceted approach encompassing policy interventions, community engagement, and targeted support programs.

2.6. Gender-Specific Barriers in Student Entrepreneurship

Gender disparities in entrepreneurship are well-documented, with female entrepreneurs frequently encountering distinct challenges compared to their male peers [39]. For female students at the Innobiz DUT Centre for Entrepreneurship and Innovation, obstacles such as limited access to mentorship, cultural biases, and fewer networking opportunities may hinder their entrepreneurial achievements.

Research conducted by Chen, et al. [40] through the Global Entrepreneurship Monitor (GEM) indicates that women often face systemic barriers in securing financial and social capital, which are essential for entrepreneurial success. To address these disparities, it is crucial to implement targeted initiatives that foster inclusivity and empower female entrepreneurs within the DUT ecosystem.

3. Methods

This study employed a quantitative research design to systematically investigate the motivations driving student entrepreneurship at the Innobiz DUT Centre for Entrepreneurship and Innovation. The research was grounded in a positivist perspective, concentrating on the objective measurement and analysis of variables to enhance the understanding of the entrepreneurial intentions of students at the Durban University of Technology (DUT).

3.1. Research Design

A quantitative approach was selected for this study as it allows for the collection of numerical data that can be statistically analyzed to identify trends and relationships. This methodology was considered appropriate given the objective nature of the research question and the aim of generating widely applicable insights regarding the motivations of student entrepreneurs. Data collection was conducted through a survey utilizing a structured, closed-ended questionnaire.

3.2. Population and Sampling

The target population for this study consisted of 90 students actively involved in entrepreneurial activities at the Innobiz DUT Centre for Entrepreneurship and Innovation. A convenience sampling method was applied to select participants, chosen for its practicality and cost-effectiveness, thereby enabling efficient data collection from readily available and willing students. Out of the 90 students approached, 76 completed and returned the survey, yielding a response rate of 84%. This considerable response rate bolsters the reliability and validity of the findings.

3.3. Data Collection

The primary data collection instrument was a structured, closed-ended questionnaire designed to capture various motivational factors influencing student entrepreneurship, including personal fulfillment, economic opportunities, problem-solving, autonomy, role models, career aspirations, and networking. Each item was assessed on a five-point Likert scale, ranging from "strongly disagree" to "strongly agree." The structured format of the questionnaire ensured consistency in data collection, resulting in reliable and comparable outcomes.

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3.4. Ethical Considerations

The study adhered to recognized ethical research standards. Participation was voluntary, and respondents were informed of the study's objectives prior to completing the questionnaire. Confidentiality and anonymity were upheld throughout the research process, ensuring that no identifying information was solicited from participants.

3.5. Data Analysis

The data obtained from the 76 respondents were analyzed using the Statistical Package for the Social Sciences (SPSS) version 30. Both descriptive and inferential statistical methods were applied to explore and validate the findings. Descriptive statistics provided insight into the distribution and central tendencies of the motivational factors, while inferential statistics were employed to identify significant trends and relationships within the data. The results were further analyzed to highlight key themes and draw meaningful conclusions regarding the motivations propelling student entrepreneurship at DUT.

3.6. Reliability and Validity

To assess the reliability of the items measuring the factors motivating students to engage in entrepreneurship, Cronbach's alpha coefficient (α) was utilized. Reliability serves as an indicator of internal consistency among the constructs and their stability [41]. Cronbach's alpha coefficient ranges from 0 to 1, with a value greater than 0.6 suggesting consistency and reliability for data analysis [42]. In this study, the value of α was found to be 0.759, indicating that the items measuring factors motivating students to engage in entrepreneurship were consistent with one another (see Table 1).

Table 1.
Reliability Statistics, Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy and Bartlett's Test of Sphericity (BTS).

Section	Items	Cronbach's alpha	KMO value	Bartlett's Test of Sphericity			Determinant
				Approx. Chi-square	df	Sig.	
Obstacles faced by students pursuing entrepreneurship	15	0.876	0.801	394.736	105	<0.001*	0.000

The findings presented in Table 1 highlight the robustness and suitability of the dataset for identifying the challenges encountered by students pursuing entrepreneurship. The elevated Cronbach's alpha value verifies the reliability of the measurement scale, indicating that the 15 items effectively encompass various dimensions of entrepreneurial barriers.

Furthermore, the KMO value underscores the adequacy of the sample for factor analysis. As noted by Kaiser [43] a value exceeding 0.8 indicates a commendable level of sampling adequacy, suggesting that the data yield strong correlations among variables, thereby justifying further statistical analysis. Coupled with the significant results from Bartlett's Test, it is evident that the correlation matrix is appropriate for factor analysis, as the variables are interrelated and provide meaningful insights. However, the determinant value of 0.000 raises potential concerns regarding multicollinearity. This issue can distort the results of factor analysis by exaggerating the relationships between variables. To mitigate this risk, strategies such as removing redundant variables or employing principal component analysis (PCA) may be considered [44]. These approaches will help ensure that the identified factors accurately represent distinct dimensions of the challenges faced by students.

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Table 2.
Demographic characteristics of respondent.

Variable	Frequency (%)
Age/Generation	
Gen Z (1997-2012) 12 -27 years	48 (63.2)
Millennials (1981-1996) 28-43 years	23 (30.3)
Gen X (1965-1980) 44-59 years	4 (5.3)
Boomers (1955-1964) 60-69 years	1 (1.3)
Gender	
Female	45 (59.2)
Male	31 (40.8)
Race	
African	72 (94.7)
Indian	2 (2.6)
Other	2 (2.6)
Faculty	
Accounting and Informatics	3 (3.9)
Applied Sciences	1 (1.3)
Health Sciences	3 (3.9)
Management Sciences	69 (90.8)
Academic year	
Advanced Diploma/Degree	34 (44.7)
Diploma 1st year	1 (1.3)
Diploma 2nd year	9 (11.8)
Diploma 3rd years	25 (32.9)
Masters	1 (1.3)
Post-graduate diploma/Honours	6 (7.9)

3.7. Generational and Age-Related Insights

The predominance of Gen Z participants suggests that younger individuals are more actively engaged in entrepreneurship, potentially influenced by their exposure to technology and innovation [45]. Millennials also play a significant role, often bringing prior work experience or entrepreneurial endeavors. The limited representation of older generations, such as Gen X and Baby Boomers, may indicate a lower participation in academic entrepreneurial programs among these demographics.

3.8. Gender Distribution

The higher representation of females (59.2%) indicates a positive shift towards gender inclusivity in entrepreneurship and higher education. However, challenges related to access to funding and mentorship tend to disproportionately impact female entrepreneurs, which warrants further investigation [46].

3.9. Racial Representation

The substantial proportion of African participants reflects the socio-economic and demographic landscape of South Africa. While this relevance addresses local entrepreneurial challenges, the limited diversity may restrict the generalizability of findings to other racial groups or contexts.

3.10. Faculty Engagement

The predominance of students from the Management Sciences faculty highlights that entrepreneurship initiatives at DUT are largely concentrated within this discipline. This raises questions regarding the inclusivity of these programs for students from other fields, such as Applied or Health Sciences, who may also benefit from entrepreneurial training.

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3.11. Academic Year

The significant involvement of advanced and final-year students suggests a trend where entrepreneurial engagement increases as students' progress in their academic journey. Conversely, the minimal representation of first-year students underscores the need for early exposure to entrepreneurship to foster foundational interest and skills.

Table 3.
Barriers faced by students pursuing entrepreneurship.

Item	Responses, number (%)					Mean (SD)	t (p-value)
	SD	D	N	A	SA		
The lack of access to startup capital poses a significant barrier for student entrepreneurs at DUT.	25 (32.9)	6 (7.9)	13 (17.1)	22 (28.9)	10 (13.2)	2.82 (1.485)	16.53 (<0.001)
Limited availability of mentorship and guidance impedes the progress of student entrepreneurs at DUT.	5 (6.6)	3 (3.9)	18 (23.7)	26 (34.2)	24 (31.6)	3.80 (1.132)	29.30 (<0.001)
Inadequate networking opportunities hinder the growth of ventures by student entrepreneurs at DUT.	17 (22.4)	8 (10.5)	21 (27.6)	25 (32.9)	5 (6.6)	2.91 (1.267)	20.01 (<0.001)
Balancing academic commitments with entrepreneurial pursuits presents challenges for students at DUT.	1 (1.3)	7 (9.2)	23 (30.3)	28 (36.8)	17 (22.4)	3.70 (0.966)	33.36 (<0.001)
Regulatory and bureaucratic complexities discourage student entrepreneurs at DUT.	2 (2.6)	6 (7.9)	30 (39.5)	20 (26.3)	18 (23.7)	3.61 (1.021)	30.79 (<0.001)
The absence of affordable workspace and facilities serves as a barrier for student entrepreneurs at DUT.	2 (2.6)	4 (5.3)	21 (27.6)	31 (40.8)	18 (23.7)	3.78 (1.961)	34.27 (<0.001)
Difficulty in finding suitable business partners or collaborators poses obstacles for student entrepreneurs at DUT.	15 (19.7)	1 (1.3)	23 (30.3)	33 (43.4)	4 (5.3)	3.13 (1.204)	22.68 (<0.001)
Limited access to market research and customer insights creates challenges for student entrepreneurs at DUT.	3 (3.9)	5 (6.6)	24 (31.6)	26 (34.2)	18 (23.7)	3.67 (1.038)	30.84 (<0.001)
Fear of failure or risk aversion inhibits students from taking entrepreneurial risks at DUT.	2 (2.6)	2 (2.6)	14 (18.4)	37 (48.7)	21 (27.6)	3.96 (0.901)	38.32 (<0.001)
Limited access to industry-specific knowledge and expertise presents challenges for student entrepreneurs at DUT.	2 (2.6)	5 (6.6)	15 (19.7)	34 (44.7)	20 (26.3)	3.86 (0.976)	34.44 (<0.001)
Competition from established businesses creates hurdles for student entrepreneurs at DUT.	2 (2.6)	2 (2.6)	21 (27.6)	37 (48.7)	14 (18.4)	3.78 (0.873)	37.70 (<0.001)
Inadequate access to funding or resources for product development and prototyping hinders student entrepreneurs at DUT.	2 (2.6)	4 (5.3)	24 (31.6)	45 (59.2)	1 (1.3)	3.49 (0.759)	41.43 (<0.001)
The lack of institutional support or recognition for entrepreneurial ventures is a barrier for student entrepreneurs at DUT.	14 (18.4)	12 (15.8)	22 (28.9)	23 (30.3)	5 (6.6)	2.91 (1.213)	20.90 (<0.001)
Limited access to legal and accounting services poses challenges for student entrepreneurs at DUT.	3 (3.9)	1 (1.3)	26 (34.2)	34 (44.7)	12 (15.8)	3.67 (0.900)	35.55 (<0.001)
Cultural or societal stigma surrounding entrepreneurship deters students from engaging in entrepreneurial endeavors at DUT.	15 (19.7)	8 (10.5)	28 (36.8)	20 (26.3)	5 (6.6)	2.89 (1.195)	21.11 (<0.001)

Note: SD = strongly disagree, D = disagree, N = neutral, A = agree, SA = strongly agree.

The findings presented in Table 3 offer important insights into the challenges encountered by student entrepreneurs at DUT's Innobiz Centre. These challenges can be classified into several categories:

3.12. Financial and Resource-Related Barriers

The financial obstacles identified, such as the lack of startup capital and insufficient funding, align with the broader entrepreneurial literature. As noted by Moloi [47] financial constraints represent a significant hurdle for South African entrepreneurs, particularly among youth and early-stage ventures.

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Shahriar, et al. [48] further emphasize that access to financial resources is essential for fostering entrepreneurial activity, especially in developing economies. Additionally, the shortage of affordable workspaces corresponds with findings by Khawaja [49] who underscore the critical role of incubators and coworking spaces in providing the necessary infrastructure for entrepreneurial development.

3.13. Institutional and Ecosystem Barriers

The limitations related to mentorship and networking opportunities are supported by Fernandes and Ferreira [30] who argue that robust entrepreneurial ecosystems rely on strong mentorship networks and collaborative connections. Aeeni, et al. [50] also suggests that bureaucratic inefficiencies and institutional voids can significantly hinder entrepreneurial initiatives. Addressing these gaps may involve the establishment of structured mentorship programs and the promotion of collaborations with industry partners, as advocated by Nwaichi, et al. [51] in their triple helix model of university-industry-government interactions.

3.14. Psychological and Social Barriers

The psychological challenges stemming from fear of failure and societal stigma have been extensively examined in entrepreneurial studies. Neneh [52] contend that entrepreneurial self-efficacy and perceptions of societal support substantially affect the likelihood of engaging in entrepreneurial activities. Additionally, Boucher, et al. [53] highlights that in South Africa, cultural attitudes and perceptions regarding entrepreneurship are often influenced by historical and socio-economic factors. Initiatives aimed at cultivating an entrepreneurial mindset, as proposed by Cui, et al. [54] could assist students in developing confidence and resilience.

3.15. Academic and Time Management Challenges

Juggling academic obligations and entrepreneurial endeavors is a well-recognized challenge for student entrepreneurs. Al Balushi, et al. [55] assert that academic institutions should prioritize the creation of flexible curricula that accommodate entrepreneurial ventures. Moreover, Wang, et al. [56] highlight the necessity of integrating entrepreneurship into educational programs to enhance the synergy between education and entrepreneurial activities. The burden on students can be alleviated by providing structured guidance and adjusting policies to support time management [57].

3.16. Knowledge and Skill Gaps

The restricted access to industry-specific knowledge and market insights reflects the findings of Lattacher and Wdowiak [58] who identifies learning and knowledge acquisition as critical components for entrepreneurial success. Pinto and Reshma [59] propose that experiential learning methods, such as project-based activities and real-world problem-solving, can significantly enhance entrepreneurial skills. Additionally, Silva, et al. [60] advocate for lean startup methodologies, which emphasize iterative learning and market engagement as essential strategies for bridging knowledge gaps.

Table 4.
Tests of Normality.

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	**df**	**Sig.**	**Statistic**	**df**	**Sig.**
Obstacles faced by students pursuing entrepreneurship	0.135	76	0.001	0.863	76	<0.001

Note: a. Lilliefors Significance Correction.

The findings indicate that the data regarding obstacles encountered by student entrepreneurs significantly deviate from a normal distribution. This situation requires the use of non-parametric statistical methods, such as the Mann-Whitney U test or the Kruskal-Wallis test [61]. The observed non-normality is indicative of the diverse and heterogeneous nature of entrepreneurial barriers, which are influenced by individual, institutional, and socio-economic factors [62]. Supporting the views of

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Williams, et al. [63] the results underscore the non-linear and varied challenges faced by entrepreneurs. It suggests that customized support programs—designed to meet specific financial, psychological, and institutional needs—are likely to be more effective than one-size-fits-all solutions. In the South African context, implementing targeted interventions such as mentorship, flexible academic schedules, and financial assistance is crucial to overcoming these barriers and promoting entrepreneurial growth [64].

Table 5.
Hypothesis Test Summary.

	Null Hypothesis	Test	Sig.[a,b]	Decision
1	The distribution of obstacles faced by students pursuing entrepreneurship is the same across categories of gender .	Independent-Samples Mann-Whitney U Test	0.248	Retain the null hypothesis.

Note: a. The significance level is .050.
b. Asymptotic significance is displayed.

The findings suggest that gender does not play a significant role in the challenges encountered by student entrepreneurs, which is consistent with prior research indicating that structural barriers tend to affect all genders similarly [65]. However, the gendered differences in resource access or societal expectations may not be present in this context. In South Africa, where entrepreneurship is instrumental in tackling youth unemployment [66] these results imply that institutional barriers exert a uniform impact. While gender-neutral programs may be adequate, it is crucial to implement inclusive interventions to address underlying biases, as emphasized by de Bruin and Swail [67]. The application of the Mann-Whitney U Test highlights the importance of appropriate statistical methodologies, and future research could investigate additional demographic factors for more comprehensive insights.

4. Conclusion

The findings provide a thorough understanding of the barriers and demographic trends influencing student entrepreneurship at DUT's Innobiz Centre. The demographic analysis reveals a significant representation of Gen Z and Millennials, particularly among female students, suggesting an increasing inclusivity in entrepreneurial activities. However, the limited participation of older generations, racial diversity, and students outside the Management Sciences discipline indicates a pressing need for more inclusive and accessible entrepreneurship programs. The challenges faced by student entrepreneurs can be categorized into several key areas. Financial limitations, including inadequate funding and a lack of affordable workspace, present considerable obstacles, aligning with broader trends in entrepreneurial research. Addressing these issues necessitates institutional support to enhance funding opportunities, provide affordable coworking spaces, and facilitate infrastructure development. Additionally, institutional and ecosystem-related barriers, such as insufficient mentorship and networking opportunities, highlight the necessity for structured mentorship programs and collaborative initiatives with industry and government.

Furthermore, psychological and social barriers, including fear of failure and societal stigma, underscore the need for programs designed to shift mindsets and build entrepreneurial confidence and resilience. Academic and time management challenges advocate for academic institutions to implement flexible curricula and policies that support entrepreneurial endeavors. Addressing knowledge and skill gaps through experiential learning opportunities, industry partnerships, and the integration of lean startup methodologies can significantly enhance students' entrepreneurial capabilities. Promoting student entrepreneurship at DUT requires a comprehensive approach that tackles financial, institutional, psychological, and academic challenges while ensuring inclusivity across diverse demographics and disciplines. The university can cultivate a thriving entrepreneurial ecosystem that empowers students to overcome obstacles and succeed in their entrepreneurial pursuits by implementing targeted interventions and capitalizing on the unique socio-economic landscape of South Africa.

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Transparency:

The authors confirm that the manuscript is an honest, accurate, and transparent account of the study; that no vital features of the study have been omitted; and that any discrepancies from the study as planned have been explained. This study followed all ethical practices during writing.

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