International Journal of Business and Social Science
ISSN: 2219-1933 (Print), 2219-6021 (Online)

BRPI

Original Article | Open Access | Peer Reviewed

Check for Updates

Exploring the Impact of Artificial Intelligence in Entrepreneurship Education: Students' Skills and Capacity to Secure Funding

Mahlatse Ragolane[1], Hasan Evans[2], Hoosen Essof[3], and Shahiem Patel[4]

[1]Research Associate, REGENT Business School, Johannesburg, South Africa; Mahlatse.ragolane@regent.ac.za

[2]redHUB Incubation Manager, REGENT Business School, Johannesburg, South Africa.

[3]Chief Innovation and Student Experience, REGENT Business School, South Africa.

[4]Academic Dean, REGENT Business School, Johannesburg, South Africa.

ORCID iD:

[1] https://orcid.org/0000-0002-1889-7616
[2] https://orcid.org/0009-0007-7425-2226
[3] https://orcid.org/0009-0000-2749-9153
[4] https://orcid.org/0000-0002-2340-0440

Address for Correspondence:

Mahlatse Ragolane, Research Associate, REGENT Business School, Johannesburg, South Africa. (mahlatse.ragolane@regent.ac.za)

Article History:

Received: 5 August 2025; Accepted: 8 September 2025; Published: 11 September 2025

Abstract: This study explores the impact of Artificial Intelligence (AI) on entrepreneurship education, focusing on its role in developing students' entrepreneurial competencies and investment readiness. In an evolving digital economy, AI tools are increasingly integrated into higher education. However, little is known about how effectively AI prepares entrepreneurship students with the practical skills needed to secure funding in the South African higher education institutions, leaving a critical gap in research and practice. Using a mixed-methods research design, the study surveyed n=95 undergraduate and postgraduate students enrolled in entrepreneurship-related modules at selected South African higher education institutions. Quantitative data were analysed using descriptive statistics, while qualitative data were analysed using thematic analysis to capture nuanced experiences and perceptions. The findings reveal that AI significantly enhances students' ability to produce structured, professional business plans and pitch decks, improving strategic thinking, market analysis, and decision-making capabilities. Participants reported increased confidence in securing funding after using AI tools, due to improved clarity, data-backed proposals, and persuasive investor presentations. AI-enhanced pitch preparation efficiency, though its inability to replicate human authenticity was noted as a limitation. Challenges included technical constraints, accuracy issues, and the need for precise prompting. The study concludes that AI can democratise entrepreneurship education by making business planning and investor readiness training more accessible. However, sustainable integration requires balancing AI literacy, contextual relevance, institutional support, and human skills. The study recommends expanding AI training, providing tool access, incorporating market insights, and enhancing mentorship. By embedding AI into entrepreneurship education, institutions can equip students to be technologically proficient and investment-ready in a competitive economy.

Keywords: Artificial Intelligence, entrepreneurship education, business planning, funding readiness, higher education, South Africa

Volume 16, 2025

Publisher: The Brooklyn Research and Publishing Institute, 442 Lorimer St, Brooklyn, NY 11206, United States.

DOI: https://doi.org/10.30845/ijbss.v16p10

Reviewers

Dr. Olaleye Yetunde, University of Westminster, London, United Kingdom. ORCID iD: https://orcid.org/0009-0007-4617-6625. Email: y.olaleye@westminster.ac.uk; yettynike@gmail.com.

Dr. Lang Ling Yap, Independent Researcher, Malaysia. ORCID iD: https://orcid.org/0009-0009-7001-4970. Email: langlingyap@gmail.com

Citation: Ragolane, M., Evans, H., Essof, H., & Patel, S. (2025). Exploring the Impact of Artificial Intelligence in Entrepreneurship Education: Students' Skills and Capacity to Secure Funding. *International Journal of Business and Social Science*, *16*, 132-157. https://doi.org/10.30845/ijbss.v16p10

1. Introduction

In the *milieu* of evolving technological *nomenclatures* and *pedagogical* paradigms, the accelerating integration of Artificial Intelligence (AI) across educational domains has generated significant discourse on its transformative potential, particularly within entrepreneurship education. As higher education institutions strive to produce graduates who are not only innovative but also funding-ready, AI emerges as a strategic enabler of both pedagogical and entrepreneurial competencies (Ruano-Borbalan, 2025; Al-Zahrani & Alasmari, 2024). There is a broad consensus that entrepreneurship education, once focused on traditional business planning and market analysis, is now increasingly shaped by digital fluency, data literacy, and AI-driven innovation tools that influence both learning outcomes and real-world funding acquisition capabilities (Chalmers *et al.*, 2020). AI tools have shown promise in enhancing student engagement, personalisation of learning and fostering critical problem-solving skills essential to entrepreneurial success (Ruano-Borbalan, 2025; Al-Zahrani & Alasmari, 2024). Recent systematic reviews further confirm that AI positively impacts entrepreneurship by supporting opportunity recognition, decision-making, performance and research in education, demonstrating how AI acts as an enabler across multiple stages of the entrepreneurial process (Giuggioli & Pellegrini, 2023). This is particularly vital in a global economy where digital transformation is redefining access to capital and the criteria for funding viability. AI can support entrepreneurial education by simulating funding scenarios, offering intelligent mentorship, and providing predictive analytics for venture success, thereby bridging the gap between ideation and investment-readiness (Solórzano Solórzano *et al.,* 2024). Furthermore, evidence also shows that generative AI enhances entrepreneurial self-efficacy and intention, especially when universities provide supportive ecosystems that amplify these effects (Xie & Wang, 2025). Similarly, in South-East Asia and Indonesia, AI-mediated entrepreneurship education has been shown to significantly strengthen students' entrepreneurial intentions by improving their creativity and problem-solving abilities (Margaretha, Ariesia & Yustian, 2025).

While some studies emphasise the positive correlation between AI adoption and entrepreneurial intention (Solórzano Solórzano *et al.,* 2024), others warn against an overreliance on technology that may overshadow critical thinking and ethical judgment (Ruano-Borbalán, 2025). For example, Ahmad *et al.* (2023) caution that the use of AI in education may lead to dependency, loss of decision-making autonomy and reduced motivation, highlighting the need for careful pedagogical design. Moreover, despite the growing use of AI-powered platforms in learning environments, disparities remain in how these tools influence students' real-world outcomes, particularly in accessing venture funding and support networks. Recent work also shows that the migration of AI faculty to industry reduces students' startup formation and funding opportunities, underscoring the critical role of academic expertise in shaping entrepreneurial ecosystems (Gofman & Jin, 2024). This issue is particularly salient in South Africa, where unequal access to digital infrastructure and funding networks exacerbates educational and entrepreneurial inequalities. Although AI presents promising avenues to democratise entrepreneurship education, the country's persistent digital divide means that many students, especially from under-resourced institutions (Patel and Ragolane, 2024), face inequalities and structural barriers to fully leveraging AI tools for venture creation and funding access. These challenges highlight the need for locally responsive strategies that align AI integration with South Africa's developmental goals and inclusive education agenda. In the same vein, Mu & Zhao (2024) further argue that transforming entrepreneurship education in the AI era requires higher education institutions to embed interdisciplinary collaboration, industry partnerships and continuous curricular updates to align with rapidly evolving technological demands.

The significance of AI in higher education lies not only in its potential to automate routine tasks but also in its capacity to personalise learning, simulate real-world business scenarios, and provide predictive insights for decision-making (Slimi, 2023; Al-Zahrani & Alasmari, 2024). These capabilities are particularly relevant to entrepreneurship education, which demands more than theoretical knowledge. Entrepreneurial students must develop practical skills in opportunity recognition, articulating value propositions, networking, and engaging with investors. Studies show that integrating AI into incubation centres can further enhance entrepreneurial competencies, equipping students with real-time support for business planning and venture incubation (Thottoli, Cruz & Al Abri, 2025). AI-powered tools, such as business simulators, pitch training bots, and market analytics platforms, are increasingly being used to support the development of these competencies. Moreover, AI can help demystify funding processes by exposing students to realistic pitch environments and personalised feedback, thus equipping them with the confidence and acumen required to engage investors effectively (Pastarmadzhieva & Angelova, 2025). Additionally, exploratory research also highlights that ChatGPT use improves entrepreneurial competencies such as spotting opportunities,

creativity and valuing ideas, demonstrating how generative AI can augment experiential learning approaches (Somià & Vecchiarini, 2024).

Numerous studies have emphasised AI's transformative role in personalising education and fostering adaptive learning environments. These systems allow students to learn at their own pace, receive targeted feedback, and develop self-directed learning habits, all of which are essential for entrepreneurial thinking (Solórzano Solórzano *et al.,* 2024). Park, Kim & Lee (2025) add that large language models (LLMs) improve creativity, cognitive engagement, and problem-solving skills in entrepreneurship education, though they caution against over-reliance and stress the need for hybrid models combining AI with human mentorship. Furthermore, AI-powered platforms can enhance assessment mechanisms, providing educators with real-time data about student progress while helping students develop self-awareness regarding their strengths and areas for improvement. Such data-driven insights can inform curricular decisions, ensuring that entrepreneurship education remains aligned with the dynamic requirements of start-up ecosystems and funding environments.

The practical application of AI in entrepreneurship education goes beyond content delivery. Intelligent systems now support venture ideation, prototype testing, and funding readiness. For instance, students can use AI tools to generate and evaluate business models, conduct feasibility studies, and simulate investor interactions. In doing so, they not only refine their entrepreneurial ideas but also prepare to meet the expectations of funders, who increasingly rely on data-driven validation and tech-savviness as indicators of venture potential (Chalmers *et al.,* 2020). However, as promising as these developments are, they are not without challenges. There are growing concerns about the ethical implications of AI integration, including data privacy, algorithmic bias, and digital exclusion, especially in regions with unequal access to AI infrastructure (Al-Zahrani & Alasmari, 2024; Ruano-Borbalan, 2025). Levesque *et al.* (2022) further emphasise that AI extends its role beyond pedagogy by offering entrepreneurship researchers powerful tools for prediction, simulation and pattern recognition, enabling more impactful studies that can, in turn, inform educational design. Thottoli *et al.* (2025) emphasise that incubation centres in higher education remain underexplored in AI literature, calling for future research into how AI-powered incubation can foster entrepreneurial resilience and business survival. One critical area that remains underexplored is how AI-enhanced entrepreneurship education translates into tangible funding outcomes for students, particularly in developing countries such as South Africa. While there is emerging evidence that AI can positively influence entrepreneurial intention and skill acquisition, less is known about its role in shaping students' ability to secure real-world investment or startup capital (Solórzano Solórzano *et al.,* 2024). Given the increasing reliance on venture funding, angel investors, and grant mechanisms in the entrepreneurial ecosystem, this research gap is significant. Therefore, understanding whether AI-supported educational interventions can lead to greater funding readiness is vital for policymakers, educators, and students alike.

Moreover, entrepreneurship education is increasingly being viewed not just as a professional pathway, but as a vehicle for socio-economic development. This is particularly relevant in regions such as Africa and Latin America, where entrepreneurship is often a necessity-driven pursuit rather than an opportunity-driven one. In such contexts, AI could offer tools for levelling the playing field by providing students with access to global markets, virtual mentors, and funding platforms previously out of reach (Slimi, 2023). However, the integration of AI must be handled with care, ensuring that it augments rather than replaces human interaction, mentorship, and critical judgment, which remain central to entrepreneurial development. From a pedagogical standpoint, the implementation of AI in entrepreneurship education invites a re-evaluation of teaching philosophies and learning strategies. The role of educators is shifting from content delivery to facilitation and guidance. To put it more succinctly, educators are increasingly required to co-create knowledge with students, leveraging AI insights to foster innovation, resilience, and strategic thinking. This calls for a new set of educator competencies and institutional investments in AI literacy, infrastructure, and ethical standards (Al-Zahrani & Alasmari, 2024). Yet, despite these opportunities and challenges, there is limited empirical evidence on how AI shapes entrepreneurship education and whether it equips students with the competencies and investor readiness needed in real-world contexts, particularly in the South African higher education context. This lack of clarity represents the core problem that this study seeks to address.

This study aims to explore the impact of AI on entrepreneurship education, with a specific focus on how it influences students' development of key entrepreneurial skills and their capacity to secure funding. It examines whether AI applications in the classroom translate into enhanced funding competencies, such as the ability to articulate value propositions, conduct market analysis, create business plans, and engage investors. The inquiry is grounded in a multi-dimensional understanding of AI's role: as a pedagogical tool, a strategic enabler, and a socio-economic equaliser. It also considers the limitations and risks associated with AI deployment, including digital dependency,

ethical concerns, and the potential erosion of critical thinking skills (Ruano-Borbalan, 2025). Importantly, the study highlights the voices of students themselves, analysing how they perceive the role of AI in their entrepreneurial journey and whether it empowers or constrains their ability to fund their ventures.

2. Methodology

2.1 Research Design

This study adopted a mixed-methods research design, combining quantitative survey data with qualitative open-ended responses to provide a comprehensive understanding of how AI influences entrepreneurship education and funding readiness. The quantitative component captured descriptive statistics on participants' demographics, access to AI tools, and prior entrepreneurial experience, while the qualitative component explored perceptions, experiences, and suggestions in depth. This approach enabled the triangulation of findings, providing both measurable trends and rich narrative insights that addressed the research objectives.

2.2 Population and Sampling

The target population for this study was students enrolled in entrepreneurship-related modules at selected higher education institutions in South Africa. These students were selected as they were directly exposed to AI-based training within the curriculum. A purposive sampling strategy was employed to ensure that participants had experience with both AI tools and entrepreneurial learning. A total of n=95 students participated in the survey, representing both undergraduate and postgraduate levels, with a near-balanced gender distribution. However, while n=95 participants completed the survey, the number of responses varies slightly between questions due to occasional non-responses.

This sample size was sufficient to capture diverse perspectives while allowing for detailed qualitative and quantitative analysis**.**

2.3 Data Collection

Data were collected using a structured online questionnaire developed specifically for this study. The instrument consisted of three sections:

1. Demographic and background information – gender, level of study, prior entrepreneurial experience, and access to AI tools.
2. Quantitative measures – Likert-scale and multiple-choice questions assessing exposure to AI, perceived usefulness of AI tools, and confidence in funding readiness.
3. Qualitative questions – open-ended prompts allowing participants to elaborate on their experiences, perceived benefits, challenges, and suggestions for improving AI integration into entrepreneurship education.

The questionnaire was distributed electronically via the institutional learning management system and email to ensure accessibility for both on-campus and remote students. Participation was voluntary, and informed consent was obtained before completion.

To evaluate students' business planning skills, a **Business Plan Assessment Rubric (See Appendix A)** was employed. The rubric, adapted from the institution's school of commerce and economics, provided a structured framework for assessing multiple components of a business plan, including the Executive Summary, Operational Plan, Marketing Plan, Financial Plan, Strategic Plan, and Document Presentation. Each section was scored against clearly defined criteria on a four-point scale (Exemplary, Proficient, Developing, Basic). The rubric ensured a consistent, transparent, and comprehensive evaluation process, enabling the researcher to quantitatively measure improvements in students' entrepreneurial competencies following AI-based training.

2.4 Data Analysis

Quantitative data were analysed using descriptive statistics (frequencies, percentages, and mean scores) to summarise demographic information and survey responses. These were presented in tables and charts for clarity. Qualitative data were analysed using thematic analysis, following Braun and Clarke's (2006) six-phase approach:

1. Familiarisation with the data.
2. Generating initial codes.
3. Searching for themes.
4. Reviewing themes.
5. Defining and naming themes.
6. Producing the report.

Responses were coded inductively, allowing themes to emerge directly from the data. Representative quotes were selected to illustrate key findings and provide authentic participant perspectives.

2.5 Ethical Considerations

The study adhered to ethical guidelines for research involving human participants. Informed consent was obtained, participation was voluntary, and respondents were assured of anonymity and confidentiality. No personal identifiers were collected. The study was conducted in alignment with the selected higher education institutions' research ethics policy.

3. Results and Findings

This section presents the results of the survey conducted among participants. The findings are organised into two main parts: (1) demographic characteristics of the respondents, (2) prior experience, (3) AI exposure, use and effectiveness in entrepreneurial training and (4) qualitative findings.

3.1 Demographic Characteristics of Respondents

3.1.1 Gender/sex

Respondents were asked to indicate their gender. As shown in Table 1, the majority of participants identified as female (52.6%), followed closely by male respondents (45.3%). A small proportion of participants (2.1%) preferred not to disclose their gender, and no respondents selected "Other." This near-balanced gender distribution provides a relatively even perspective between male and female participants in the study, though the slightly higher proportion of females should be considered when interpreting the results.

Table 1: Distribution of respondents by gender/sex

Gender/Sex	Frequency	Percentage
Male	43	45.3%
Female	50	52.6%
Prefer not to say	2	2.1%
Other	0	0%

3.1.2 Age

The ages of participants ranged from 18 to 63 years. The largest groups of respondents were in the 36-40 and 41-45 age categories, each representing 17 participants. Table 2 presents the distribution of participants by age group.

Table 2: Distribution of respondents by age group

Age Group	Frequency	Percentage
16–20	5	5.4%
21–25	8	8.7%
26–30	10	10.9%

31–35	13	14.1%
36–40	17	18.5%
41–45	17	18.5%
46–50	11	12.0%
51–60	10	10.9%
61+	1	1.1%
Total	**92**	**100%**

This distribution shows a diverse range of ages, with the majority of participants being between their mid-thirties and mid-forties, indicating that the training attracted a mix of younger and more experienced aspiring entrepreneurs.

3.1.3 Level of Study

The survey participants were asked to indicate their current level of study. The results, presented in Table 3, show that a majority of respondents (77.2%) were postgraduate students, while 22.8% were undergraduate students. This indicates that the survey sample predominantly represents postgraduate students, which may influence the interpretation of subsequent findings.

Table 3: Distribution of respondents by level of study

Level of Study	Frequency	Percentage
Undergraduate	21	22.8%
Postgraduate	71	77.2%

3.1.4 Field of study

Participants represented a range of academic disciplines, with a strong predominance of business-related qualifications. According to the survey, the largest group were MBA students (n = 50), reflecting nearly half of the total respondents. This was followed by smaller clusters in BCom General (n = 3), Entrepreneurship (n = 3), Bachelor of Commerce (n = 2), BCom in Supply Chain Management (n = 2), and Business Administration (n = 2). Other individual fields of study included Law, Supply Chain Management, Bachelor of Business Administration, Computer Science, BCom in Accounting, Civil Engineering, Quantity Surveying, Finance, IT, Project Management, ECD (Education) and several postgraduate diplomas or certificates. Table 4 presents the distribution of participants by field of study.

Table 4: Distribution of respondents by field of study

Field of Study	Frequency
MBA	50
BCom General	3
Entrepreneurship	3
Bachelor of Commerce	2
BCom in Supply Chain Management	2
Business Administration	2
Other individual fields*	30

3.2 Prior experience

3.2.1 Access to AI tools in coursework

Participants were asked whether they had access to AI tools during their coursework. As shown in Table 5, the majority of respondents (73.9%) reported Yes, indicating they have had access to AI tools. Only 9.8% reported No, while a small proportion selected variations such as "Not really," "Yes and No," or other similar responses, each accounting for less than 3% of the total.

Table 5: Respondents' reported access to AI tools in coursework

Response Option	Frequency	Percentage
Yes	68	73.9%
No	9	9.8%
Not really	1	1.1%
Yes and No	1	1.1%
Yes I have	1	1.1%
Other variations	12	13.0%

The findings suggest that most students are already exposed to AI tools as part of their coursework, though a small percentage remain without access. The variety of responses, including partial or uncertain access, points to possible differences in the integration of AI tools across programs and institutions.

3.2.2 Previous Use of AI Tools

Respondents were asked whether they had ever used AI tools (e.g., ChatGPT, Notion AI, etc.) before the training. The majority (78.9%) reported **Yes**, while 21.1% indicated **No**.

Table 6: Previous experience with AI tools before training

Response	Frequency	Percentage
Yes	75	78.9%
No	20	21.1%

This finding indicates that most respondents already had some familiarity with AI tools before participating in the training. This suggests a generally high level of prior exposure, which may have influenced their readiness to engage with AI-assisted coursework and activities.

3.2.3 Business Idea Before Training

Respondents were asked whether they had a business idea before attending the training. The majority of respondents indicated that they already had a business idea, with many providing detailed descriptions of their concepts.

Table 7: Business idea responses

Response	Frequency	Percentage
Yes (including specific ideas)	57	93.4%
No	4	6.6%

One of the respondents said, "I did have an idea, and it was to create a cookbook that is very affordable for the middle class. The goal was to make their cooking lives more enjoyable with the recipes and meal prep included in the book. Beyond just affordability and ease, I also wanted to break the stereotypes of who belongs in the kitchen, making cooking accessible and appealing to everyone, regardless of gender or traditional roles." Another participant

mentioned that "yes but did not know how to go about it before the training adding subscription boxes which include a variety of different goods, gifts household clothing, etc. "The findings reveal that most respondents entered the training with a pre-existing business idea, though the level of development varied. Some ideas were already being implemented, while others were in the conceptual stage. A smaller number of participants reported having no business idea before the training. This indicates that the program attracted a significant number of individuals already inclined toward entrepreneurship, which could influence the types of outcomes and learning experiences derived from the training. Further examples of the business ideas are detailed in Table 8 below:

Table 8: Examples of Ideas Provided

Category	Examples from Responses
Food & Beverage	Ice pops; Halal play café for children; Food trucks; Beef tallow rendering; Cookbook for affordable meals; Food truck for diabetics; Munchville food restaurant; Spice business
Retail & E-Commerce	Jewelry store; T-shirt printing, mug design, 3D printing; Selling beauty products; Selling clothing; E-commerce business; Import business
Agriculture & Farming	Egg production; Crop farming; Lamb feedlot; Forestry contracting business; Farming
Hospitality & Tourism	Bed and breakfast / Airbnb; Hospitality training centre café; BnB with fresh produce sales
Services & Consulting	Business consultancy; Ambulance service bridging public/private gap; Carpentry & maintenance; Nail parlour; Tutorials/training services
Creative & Innovative Ventures	Esports; Subscription boxes (gifts, clothing, household items); Selling drones; Rug design/3D prints
Other/Non-Specific	Confidential business; Property business without a plan; Multiple ideas; On how to prepare a business plan; Foundation for vulnerable children

3.2.4 Completion of a Business Plan Before Training

Respondents were asked whether they had ever completed a business plan before attending the training. As shown in Table 9, 33.7% of participants reported having completed a business plan, while the majority (66.3%) had not.

Table 9: Completion of a business plan before training

Response	Frequency	Percentage
Yes	32	33.7%
No	63	66.3%

These results suggest that while a third of respondents entered the training with prior experience in developing a business plan, the majority had not engaged in formal business planning before. This indicates that the training could be particularly valuable for building foundational business planning skills for most participants.

3.2.5 Previous Pitching for Funding

Respondents were asked whether they had ever pitched for funding before the training. As illustrated in Table 10, only 21.1% of participants had previous experience pitching for funding, while the majority (78.9%) had not.

Table 10: Experience pitching for funding before training

Response	Frequency	Percentage
Yes	20	21.1%
No	75	78.9%

The results indicate that most participants had not pitched for funding before attending the training. This suggests that for many respondents, the training might represent their first formal exposure to developing and delivering funding pitches, potentially enhancing their entrepreneurial preparedness.

3.2.6 Confidence in Completing a Business Plan Before Training

Participants rated their confidence in completing a business plan before attending the training on a scale from 1 (Not confident at all) to 5 (Extremely confident). As shown in Figure 11, the most common rating was 3 (29.8%), followed by 2 (22.3%) and 4 (20.2%). Only 10.6% rated themselves at the highest confidence level (5), while 17% reported the lowest confidence (1).

Table 11: Confidence levels in completing a business plan before training

Confidence Level	Frequency	Percentage
1 (Not confident at all)	16	17.0%
2	21	22.3%
3	28	29.8%
4	19	20.2%
5 (Extremely confident)	10	10.6%

The results indicate that participants' confidence levels before the training varied widely, but overall, the majority fell within the low to moderate range (ratings 1–3). This suggests that while some participants had a degree of self-assurance, many lacked strong confidence in their ability to prepare a business plan before receiving formal training.

3.2.6 Reasons for Not Attending (or Missing Parts of) the Training

The majority of respondents (60.5%) attended all or most sessions. For those who missed sessions, the main reasons were work commitments (9.3%), followed by a small number citing technical challenges, personal circumstances, or external factors such as load shedding. A small percentage (4.7%) reported disengagement or perceived irrelevance of the content. The rest fell into miscellaneous or unspecified reasons (18.6%).

Table 12: Reasons for Not Attending

Category	Count	Percentage
Attended all or most sessions	26	60.5%
Work commitments	4	9.3%
Technical challenges	1	2.3%
Personal circumstances	1	2.3%
External factors	1	2.3%
Lack of engagement or perceived relevance	2	4.7%
Other reasons / Not specified	8	18.6%

3.3 AI exposure, use and effectiveness in entrepreneurial training

3.3.1 AI Exposure in Classrooms

When asked whether they felt more confident applying for funding after using AI-based training tools, the majority of participants expressed a positive response. A significant 43.0% strongly agreed and 29.0% agreed, indicating that more than seven in ten respondents perceived a clear improvement in their confidence levels. Neutral responses

accounted for 16.1%, while 9.7% strongly disagreed and 2.2% disagreed, suggesting that a small proportion did not experience an increase in confidence.

Table 13: Confidence in applying for funding after AI-based training

Response	Frequency	Percentage
Strongly agree	40	43.0%
Agree	27	29.0%
Neutral	15	16.1%
Strongly disagree	9	9.7%
Disagree	2	2.2%
Total	**93**	**100%**

These results suggest that AI-based training has had a **substantial positive impact** on students' perceived readiness to seek funding, although a minority remained unconvinced of its benefits.

3.3.2 Access and challenges

Participants were asked about their access to AI tools, institutional support, and any challenges they faced in using or understanding them. The results are presented in Figure 1**.**

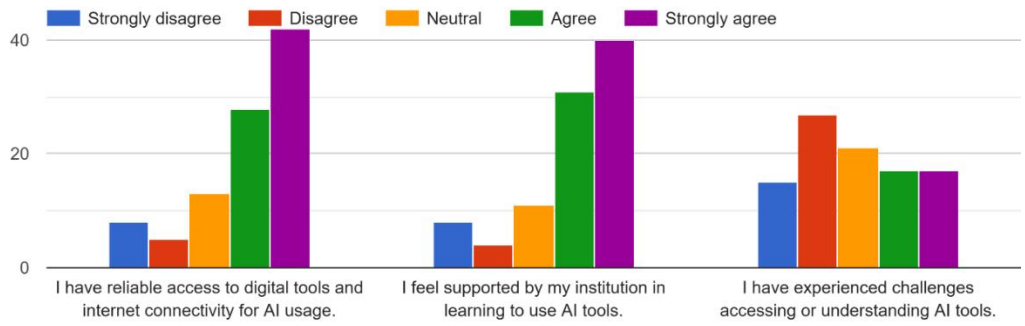

Figure 1: AI access and challenges

Most respondents agreed (n=28) or strongly agreed (n=42) that they had reliable access to digital tools and internet connectivity for AI usage. Only a small proportion expressed disagreement or strong disagreement, with n=13 being neutral, n=5 disagreed, and n=8 strongly disagreed. A similar pattern emerged regarding institutional support, where a majority agreed (n=31) or strongly agreed (n=41) that their institution supported them in learning to use AI tools. Few participants disagreed or strongly disagreed. When asked about challenges, responses were more mixed. Around n=17 and n=17strongly agreed that they had faced challenges accessing or understanding AI tools, while others remained n=21 neutral or n=27 disagreed. This suggests that despite generally strong access and support, a notable proportion of respondents still encountered difficulties.

3.3.3 AI Tools for Structuring and Enhancing Business Plans

Participants were asked whether AI tools significantly helped them to structure, format, or visually enhance their business plans (e.g., charts, layout, language clarity). The overwhelming majority (**95.8%**) of respondents reported that AI tools significantly helped them enhance the structure, formatting, and presentation quality of their business plans. Only a small minority (**4.2%**) indicated that AI tools did not help in this regard. This finding reinforces earlier results showing strong positive perceptions of AI integration into coursework and business planning.

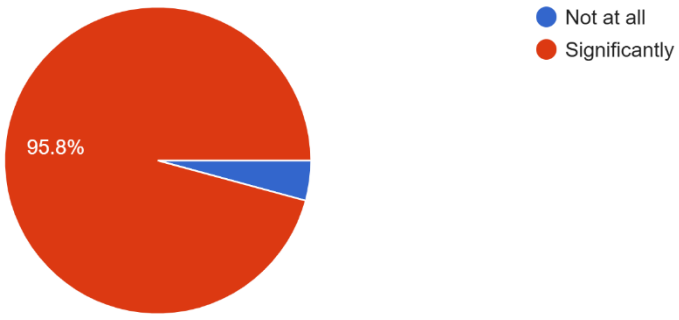

Figure 2: The Extent to which AI tools enhance business plan structure and presentation

3.3.4 Business Plan Sections Improved Most by AI Tools

Participants were asked which sections of their business plan benefited most from AI tool assistance. Since respondents could select multiple options, percentages reflect the proportion of participants selecting each section:

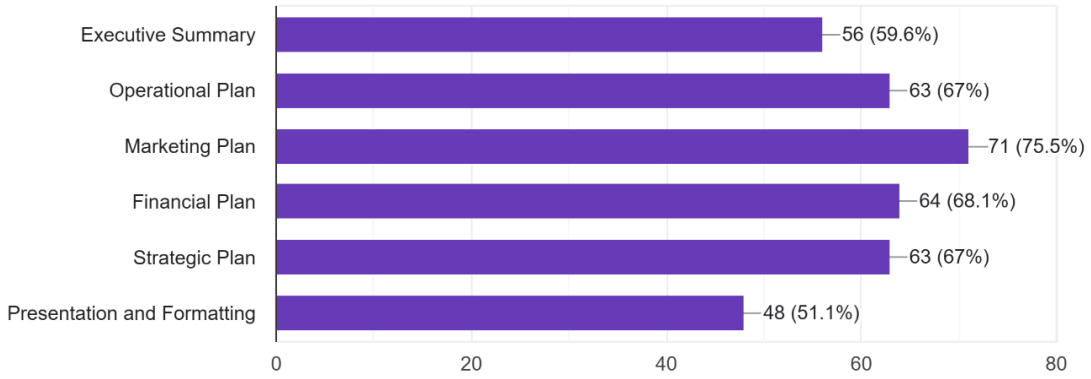

Figure 3: Business plan sections most improved by AI tools

The Marketing Plan was the section most frequently reported as being improved by AI tools (75.5%), followed by the Financial Plan (68.1%) and both the Operational Plan and Strategic Plan (67.0% each). Over half of the respondents also reported improvements in the Executive Summary and Presentation, and Formatting. This pattern suggests that AI tools were especially valuable for developing strategic and analytical components of business plans, as well as enhancing clarity and presentation.

3.3.5 Business plan Aspects Better Understood Through AI Training

Participants were asked which aspects of the business plan they understood better after completing the AI training. The Operational Plan and Financial Plan were the two most frequently cited aspects improved through AI training (71.3% each), closely followed by the Strategic Plan (70.2%). Understanding of the Marketing Plan also improved significantly (64.9%). While the Executive Summary and Presentation and Formatting were less frequently selected, about half of respondents still reported enhanced understanding in these areas. This suggests that AI training was particularly impactful in strengthening knowledge of strategic and operational planning elements within business plans.

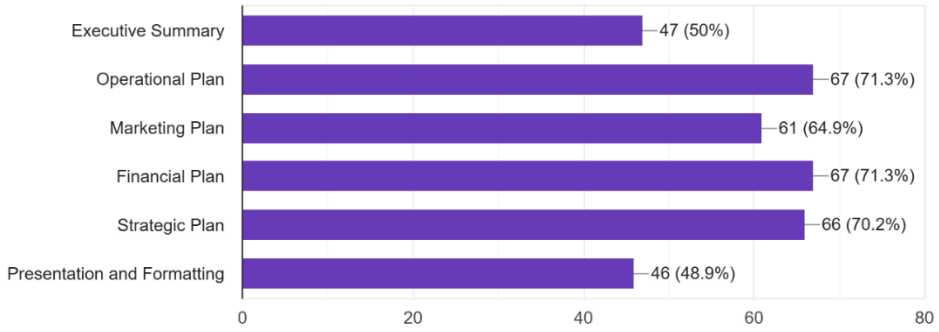

Figure 4: Business plan aspects better understood through AI training

3.4 Qualitative Findings

3.4.1 Use of AI Tools in Entrepreneurship Education

Participants reported a wide range of experiences with AI tools in their entrepreneurship education, with the majority describing their use as effective, extensive, and significant. Many respondents highlighted that AI tools were fully integrated into their learning process, often used on a daily basis, and considered a valuable enhancement to their entrepreneurial skills. Several participants noted that AI tools boosted creativity, supported faster decision-making, and improved research quality for developing business ideas. One participant emphasised that AI served as a practical guide in crafting business plans, structuring ideas, and generating innovative concepts. For example:

"Based on my experience, AI tools have been valuable in my entrepreneurship education by enhancing research, idea generation, and business planning. I've used AI to help develop business models, analyse market trends, create marketing content, and even simulate customer personas. These tools have made it easier to turn theoretical concepts into practical strategies, and they've helped me work faster and more creatively. AI has definitely become a key support system in how I learn and apply entrepreneurship skills".

Several participants emphasised the ethical use of AI, recognising the need to critically evaluate AI-generated content. Others highlighted its role in making complex entrepreneurial tasks more accessible and efficient, sometimes replacing the need for external assistance. While a small number of participants reported limited or no use, the dominant view was that AI served as a powerful learning and business planning tool, enabling the practical application of entrepreneurial concepts and encouraging innovative thinking.

3.4.2 AI Tools Used

When asked *"What types of AI platforms or applications have you interacted with in your learning?"* participants mentioned a wide range of tools. The responses reveal that ChatGPT was by far the most commonly referenced AI platform, with many respondents indicating that it was their primary tool for learning and research. Variations in spelling (e.g., "ChatGPT," "GPTchat") all referred to the same tool. A few participants reported not having interacted with AI tools in their learning, while others said they explore "most of them" or "continuously search for new and improved AI platforms." Overall, the findings suggest that ChatGPT, Claude, and Microsoft Copilot form the core set of AI tools learners rely on, with others like Gemini and DeepSeek serving as secondary or supplementary tools. This indicates a preference for conversational AI and productivity-oriented AI assistants in learning contexts.

3.4.3 Enhancing Entrepreneurial Competence through AI

Participants described how AI tools have become instrumental in building and refining a wide range of entrepreneurial skills, particularly business planning and market research. Across responses, learners consistently emphasised that AI not only accelerates the research process but also expands strategic thinking, improves decision-making, and boosts confidence as aspiring entrepreneurs. Many participants shared that AI was a catalyst for structured business planning. It helped them draft business plans, refine value propositions, and create pitch decks with greater clarity and professionalism. One respondent explained: *"AI tools have helped me develop key entrepreneurial skills in several ways. For business planning, AI has guided me in drafting business plans, creating*

financial projections, and refining value propositions. When it comes to market research, AI has made it easier to analyse industry trends, study competitors, and understand customer needs by generating summaries and insights quickly. These tools have improved my ability to think strategically, solve problems, and make informed decisions skills that are essential for any entrepreneur." Overall, participants viewed AI as a transformative enabler of entrepreneurial capability, not replacing human creativity and judgment but amplifying it. The tools empowered them to work faster, think more strategically, and approach entrepreneurship with a more informed and confident mindset.

3.4.4 Building Confidence in Funding Readiness Through AI Tools

The participants reported feeling more confident in securing funding for their business ideas after using AI tools. This increased confidence stemmed primarily from being able to produce professional, detailed, and well-structured business plans and pitch decks that could withstand investor scrutiny. For many, AI provided the clarity and structure they previously lacked. One participant shared, *"Yes, I feel more confident in securing funding after using AI tools. Tools like ChatGPT help me refine my business pitch, develop a clear and structured business plan, and anticipate investor questions."* Others noted that AI's contribution went beyond documentation, shaping their strategic understanding and market awareness: *"Yes, because my business plan is more comprehensive and covers the most critical issues the funder may be interested in knowing of. The pitch is also well crafted to attract the funder."* Another added, *"Yes, I have a broader understanding of what is out in my industry from a national and international perspective."*

Confidence also came from being able to present and communicate ideas persuasively: *"Yes, because I can do a proper pitch deck now,"* and *"Yes, AI has also improved how I communicate the value of my ideas clearly and persuasively."* A few respondents even reported real-world success, such as one participant who stated, *"Yes, because I've already received funding via 2024 Shark Tank, and one of the reasons was because I provided the AI-generated prototype, which impressed the panel."* However, some participants expressed lingering doubts about investor reception or cautioned that AI could not replace personal conviction and delivery: *"Not really, I sometimes feel like my idea is not really what investors are looking for… I might believe in my idea but my fear is the next person might not."* Overall, participants overwhelmingly viewed AI tools as a confidence booster in funding preparation, offering structured planning, credible data, persuasive communication, and strategic clarity while acknowledging that human judgment and delivery remain essential for investor success.

3.4.5 AI as a Supportive but Limited Partner in Investor Pitch Preparation

Most participants indicated that AI supported their preparation for pitching to investors, particularly by helping them create structured, professional, and well-informed pitch decks. AI was frequently credited with saving time, providing clear direction, and highlighting the key elements to include in a pitch. One participant shared, *"It helped me create a presentation that caught attention."* Another described how AI aided in organizing their ideas: *"AI supported my preparation for pitching to investors by helping me create a clear and compelling pitch deck for my Vehicle brand, Velvion. I used AI tools to organise my ideas, write a strong problem-solution statement, and structure my financial projections in a way that made sense. It also helped me practice answering tough investor questions by simulating possible scenarios… Overall, AI was a helpful assistant, but it couldn't replace my passion and real-life insight."* Participants also valued AI's ability to simulate investor questions, improve presentation clarity, and suggest visual elements, while recognising that the human element remained central to a compelling pitch.

However, several respondents pointed to limitations and challenges in using AI for pitch preparation. Some reported technical constraints such as document upload limits, word count restrictions, and difficulties integrating visuals: *"ChatGPT was not very helpful… I could not upload more than two documents without reaching my limit, and that set me back in terms of time."* Others emphasised that AI could not fully convey authenticity and emotional resonance, a critical factor in investor engagement: *"One challenge was that AI couldn't fully capture the emotional side of my brand story, so I had to rely on my personal voice to make the pitch more authentic and human."* A few also raised concerns about how AI-assisted work might be perceived, such as *"the fear that people might pick up that I used AI for my pitch."* While some participants had not yet pitched to investors, they believed AI would likely be a supportive, though not sufficient, partner. Overall, AI was seen as a valuable assistant for research, structuring, and design, but personal insight, passion, and delivery remained indispensable for successful investor engagement.

3.4.6 AI accessibility in institutions

Participants described AI tools as readily accessible in their learning environment, often available through personal devices, institutional licenses, or freely accessible online platforms. Many respondents emphasised that they could access AI tools "anytime and everywhere," with some institutions integrating them into specific courses, such as entrepreneurship. For some, accessibility was tied to broader learning opportunities, as one participant noted: *"Platforms at our institution are accessible as business training, networking opportunities, seminars or social events help us grow and be better individuals."* This suggests that while the technical ability to access AI is widespread, the degree of integration into structured learning varies.

However, several participants pointed out limitations in accessibility and institutional support. Some mentioned that AI tools were "accessible but not fully utilised" due to factors like accuracy concerns, lack of training, or minimal curriculum integration. A few respondents had never attempted to use AI through their institution, relying instead on personal platforms and self-learning. Others observed that access was uneven across different courses, with entrepreneurship benefiting more than other disciplines. This indicates that while most learners can reach AI tools easily, greater institutional guidance, encouragement, and integration could help ensure that accessibility translates into meaningful and consistent use.

3.4.7 Challenges and Limitations of AI in Entrepreneurial Learning

Many participants reported experiencing few or no major challenges when using AI in their entrepreneurial learning, with several indicating they had not encountered any significant issues at all. However, among those who did face challenges, the most common concerns related to accuracy, limitations in functionality, and the need for precise prompting. Respondents noted that AI-generated content sometimes lacked depth or provided incorrect information, especially in areas like market research or financial planning, which required closer scrutiny and fact-checking. As one participant explained, *"One of the main challenges I've experienced when using AI in my entrepreneurial learning is that AI sometimes gives generic or overly broad answers that lack the local context, especially for a South African market. It can also miss the emotional and cultural aspects of building a brand, which is important for connecting with real customers. Another limitation is relying too much on AI; it's helpful, but it can't replace hands-on experience or critical thinking. Also, without proper guidance, it's easy to misuse the tools or accept suggestions without questioning them."* Other frustrations included session limits, word count restrictions, document upload caps, and slow internet speeds that interrupted workflow. Some participants emphasised the importance of user skill and critical thinking when working with AI tools. They observed that without clear, specific prompts, AI often produced vague or repetitive results, and that over-reliance on AI could risk diminishing creativity and independent analysis. A few respondents raised concerns about the homogenization of ideas, fearing that if many learners relied on AI-generated suggestions, business pitches could become less distinctive. Others highlighted the need to verify calculations, correct spelling errors, and ensure outputs aligned with real-world realities. While these challenges did not deter most participants from using AI, they pointed to the need for greater awareness, training, and discernment to maximise the effectiveness of AI tools in entrepreneurial learning.

3.4.8 Improving AI Integration into Entrepreneurial Education

Most participants believed that AI tools are already useful and well-suited for entrepreneurship education, but many also saw opportunities for better integration, personalisation and training. Several respondents suggested that AI could be improved by making it more locally relevant, with South African case studies, market data, and cultural insights to ensure that outputs align with the realities of the local business environment. Others called for structured training on effective prompting, ethical use, and balancing AI-generated input with independent thinking. As one participant put it, *"AI can be improved and better integrated into entrepreneurship education by making it more personalised and locally relevant… Institutions should also offer structured training on how to use AI effectively for business planning, market research, and pitching."*

In addition to training, participants recommended technical improvements such as removing document upload limits, improving financial calculations, and expanding the number of prompts available in free versions. Several felt that AI should be fully integrated into entrepreneurship curricula through hands-on projects, simulated business scenarios, and real-time market analysis. Some suggested offering discounted or free premium AI access to students to reduce cost barriers, while others emphasised teaching students how to maintain the human and creative elements in business development. While a number of participants expressed satisfaction with AI "as it is," the

majority felt that blending AI tools with guided practice, local relevance, and broader access would significantly enhance their value in entrepreneurial education.

3.4.9 Useful Feature of the AI-based Training

Most participants identified prompting skills as the most valuable aspect of the AI-based training. Learning how to formulate clear, targeted prompts and, in some cases, attach documents or assign the AI specific roles was seen as the key to unlocking AI's full potential for entrepreneurial tasks. Many respondents noted that prompt training helped them retrieve more relevant, actionable information and made business planning, market research, and idea generation significantly more efficient. As one participant put it, *"The prompts given helped me rethink how I use AI and understand how to use it as a tool."* Others valued the speed and efficiency AI brought to their work, enabling them to quickly gather insights, develop strategic plans, and create business documents that would otherwise have taken far longer to produce.

Beyond prompting, participants appreciated AI's practical support in applying entrepreneurial concepts. Features such as instant feedback, structured guidance for pitch decks and business plans, and the ability to brainstorm creative strategies were frequently mentioned as highlights. Several respondents found that AI helped them better understand complex topics like financial forecasting and market analysis, while others emphasised the adaptability of AI-based learning to their personal pace and style. This made the training feel interactive, responsive, and immediately applicable to real-world entrepreneurial challenges. Overall, participants valued AI's combination of practical functionality and personalised learning, with prompting emerging as the essential skill for maximising its impact in entrepreneurship education.

3.4.10 Improving Entrepreneurial Education

Participants' suggestions for improving the AI-based entrepreneurship training focused on increasing practical, hands-on learning and providing broader access to AI tools. Many emphasised the value of more time for experimentation with AI, structured tutorials on prompting, and opportunities to apply AI to real-world business challenges through case studies, live projects, or simulations. Several called for face-to-face or one-on-one sessions to supplement online learning, as well as mentorship or peer collaboration to deepen understanding. As one participant explained, *"Including more practical, hands-on activities where students can apply AI tools to real business problems… and creating opportunities for students to collaborate and share how they're using AI in their ventures could make the training more interactive and inspiring."* Others recommended introducing AI training earlier in the program rather than waiting until the entrepreneurship module, to give students more time to build skills.

Technical and resource-related improvements were also highlighted. Suggestions included temporary access to paid AI platforms during training, reduced subscription costs, and removal of document upload or prompt limits. Some proposed expanding the training to cover multiple AI platforms beyond the primary tool taught, and integrating AI into all relevant modules rather than restricting it to entrepreneurship. A few also recommended adding sector-specific modules so learners could apply AI in areas such as agriculture, education, or retail. While several participants felt the training was already effective, the majority believed that enhancing practical exposure, access to tools, and curriculum integration would make it even more valuable for future students.

3.4.11 AI in Entrepreneurial Education

Many participants described their experience with AI in their entrepreneurial journey as transformative, empowering, and highly supportive. They highlighted AI's ability to save time, enhance creativity, and improve the quality of business planning, market research, and pitching. Several noted that AI provided them with structure, clarity, and a "business advisor" role, helping them focus on critical aspects that could make a meaningful difference in their ventures. As one participant reflected, *"AI has bridged gaps where I lacked resources, whether it was drafting business documents, conducting competitor analysis, creating marketing strategies, or even visualising financial data. It has given me the confidence to make more informed decisions and to act quickly without relying solely on external consultants or expensive software."* This sentiment was echoed by many who credited AI with boosting their confidence and making the entrepreneurial process less overwhelming, especially for those with limited resources.

At the same time, participants acknowledged that AI's value depends on how wisely and critically it is used. Some expressed caution about over-reliance, noting that AI can make mistakes, provide repetitive or inaccurate information, and should not replace critical thinking or real-world experience. A few shared concerns about AI

potentially encouraging laziness or reducing originality if not applied thoughtfully. Despite these caveats, the prevailing view was that AI is a powerful enabler that can level the playing field for entrepreneurs, particularly in under-resourced contexts. Many encouraged institutions to continue offering AI-based entrepreneurship training, integrate it into broader professional development, and provide ongoing support so that more learners can confidently leverage AI as both a strategic partner and a creative collaborator in building their businesses.

4. Discussion of Findings

This study set out to explore the impact of Artificial Intelligence (AI) on entrepreneurship education, particularly in developing students' entrepreneurial competencies and enhancing their readiness to secure funding. The findings confirm much of what the literature suggests about AI's transformative potential in higher education (e.g., Ruano-Borbalan, 2025; Al-Zahrani & Alasmari, 2024), while also highlighting important contextual factors, especially in the South African setting.

4.1 AI as an Enabler of Entrepreneurial Competence

Participants consistently reported that AI tools enhanced key entrepreneurial skills, especially business planning, market research, and strategic thinking. These results align with Pastarmadzhieva and Angelova's (2025) assertion that AI can accelerate the translation of entrepreneurial theory into practice. In this study, AI acted as a "thinking partner" enabling students to draft detailed business plans, identify market opportunities, analyse competitors, and refine value propositions. Importantly, participants indicated that AI expanded their capacity to think strategically, echoing Chalmers et al. (2020), who argue that AI fosters more agile and data-informed entrepreneurship. The training also strengthened students' confidence in completing entrepreneurial tasks. This reflects Slimi's (2023) view that AI's adaptive capabilities make complex business planning processes more approachable for novice entrepreneurs. However, students emphasised that AI was most effective when paired with their own creativity and judgment, reinforcing Ruano-Borbalan's (2025) warning against overreliance on automated outputs.

4.2 Building Confidence in Funding Readiness

A major finding was the extent to which AI boosted students' confidence in securing funding. By producing structured and persuasive pitch decks, AI helped students articulate their business ideas more effectively, a critical factor in investor engagement (Pastarmadzhieva & Angelova, 2025). In some cases, participants reported tangible funding outcomes, such as winning pitch competitions, which supports Solórzano Solórzano *et al.'s* (2024) argument that AI can help bridge the gap between ideation and investment-readiness. Nevertheless, not all participants felt equally confident. A few expressed uncertainties about investor reception and cautioned that human delivery, emotional storytelling, and market credibility remain essential. This echoes literature suggesting that while AI can enhance the structure and clarity of business pitches, entrepreneurial authenticity and relational skills cannot be automated (Chalmers et al., 2020).

4.3 AI in Pitch Preparation: Supportive but Limited

The findings show that AI was instrumental in structuring, refining, and visualising investor pitches. Participants appreciated its role in simulating investor questions and offering design suggestions, consistent with the work of Slimi (2023) on AI's role in presentation support. However, limitations emerged. Technical constraints such as document upload caps, prompt limits, and formatting restrictions hindered some students' workflow. More significantly, several respondents noted that AI could not replicate the emotional resonance of a live pitch, confirming Ruano-Borbalan's (2025) point that AI should complement, not replace, the human element in entrepreneurship.

4.4 Accessibility and Institutional Integration

While AI tools were generally accessible, institutional integration varied. This study found that some students relied primarily on personal access, with limited formal support or structured AI training in certain modules. This aligns with Patel and Ragolane's (2024) observation that digital access disparities persist in South African higher education. Expanding structured AI support including prompt engineering training, localised case studies, and integration across multiple disciplines, could help bridge these gaps.

4.5 Challenges and Responsible Use

Although many participants experienced few difficulties, several highlighted accuracy concerns, generic outputs, and the risk of overreliance. These findings reinforce Al-Zahrani and Alasmari's (2024) call for critical AI literacy in higher education, where students learn to evaluate, adapt, and contextualise AI-generated information. Ethical considerations such as plagiarism, intellectual property, and cultural relevance also emerged as areas requiring more explicit guidance.

4.6 Implications for Entrepreneurship Education

Overall, the findings suggest that AI has the potential to democratise entrepreneurship education by making high-level business planning and investor preparation accessible to a wider range of students, including those with limited prior experience. However, its benefits are maximised when AI is positioned as a collaborative partner rather than an automated solution. This requires a balanced pedagogy that combines technical proficiency in AI with human creativity, critical thinking, and entrepreneurial resilience.

5. Limitations

While this study provides valuable insights into the role of Artificial Intelligence in entrepreneurship education and its influence on students' funding readiness, several limitations should be noted. First, the research was conducted with a relatively small sample (n=95) from selected South African higher education institutions, which may limit the generalisability of the findings to other contexts or regions. Second, the reliance on self-reported data introduces the possibility of response bias, as participants may have overestimated or underestimated their skills, confidence, or AI usage. Third, although the mixed-methods design provided both quantitative and qualitative insights, the study did not include a longitudinal follow-up to assess whether the reported improvements in entrepreneurial competence and funding readiness translated into sustained real-world outcomes over time. Fourth, the focus was primarily on AI tools accessible during the training period, meaning that other emerging AI platforms and capabilities were not examined in detail. Lastly, the study concentrated on the South African context, which is shaped by specific digital access challenges and socio-economic conditions; therefore, results may differ in countries with different technological infrastructures and entrepreneurial ecosystems. Future research could address these limitations by including larger and more diverse samples, conducting longitudinal studies, and comparing multiple geographical and institutional contexts.

6. Conclusion and Recommendations

One major lesson from the study is that the integration of Artificial Intelligence into entrepreneurship education has the potential to transform how students develop business planning skills, conduct market research, and prepare for funding opportunities. AI was found to be particularly valuable in helping students with structuring professional business plans, refining pitch decks, and approaching investors with increased confidence. However, the study also revealed that AI works best when positioned as a supportive partner rather than a complete replacement for human creativity, critical thinking, and interpersonal skills.

We then examined how AI influences entrepreneurial learning outcomes in a South African higher education context. The evidence shows that while AI tools significantly enhance efficiency, quality, and strategic thinking in business planning, their effectiveness is shaped by accessibility, institutional support, and the ability of students to use them critically. Furthermore, challenges such as technical limitations, accuracy issues, and the risk of over-reliance highlight the need for guided and ethical AI use in education.

We are of the view that the sustainable integration of AI into entrepreneurship education requires a balanced approach, one that combines AI literacy with the nurturing of human skills such as creativity, adaptability, and persuasive communication. Therefore, it is recommended that higher education institutions expand AI literacy and training on prompt engineering, ethical use, and critical evaluation of AI-generated content, integrating these skills as a core competency in entrepreneurship and related courses. Institutional support should also be enhanced by providing students with access to premium AI tools during training and reducing access barriers through discounted or institutionally funded subscriptions. AI use should be localised for contextual relevance by incorporating South African market data, case studies, and cultural insights, and by developing sector-specific applications for industries such as agriculture, tourism, and manufacturing.

Furthermore, AI should be integrated across the curriculum, not limited to entrepreneurship modules, but applied in marketing, finance, and operations to encourage cross-disciplinary innovation. Practical, hands-on projects that simulate real business environments and investor interactions should be used to strengthen application skills. While doing so, the human element in entrepreneurial learning must be preserved by encouraging students to blend AI outputs with personal insights, market validation, and authentic storytelling, complemented by mentorship and peer-learning opportunities. Finally, evaluation and feedback mechanisms should be strengthened by using comprehensive assessment tools, such as the Business Plan Assessment Rubric and by providing iterative feedback to help students refine both their AI-driven and human-led entrepreneurial competencies. AI holds great promise as a catalyst for entrepreneurial skill development and funding readiness. With thoughtful integration, robust support systems, and a strong emphasis on critical and creative thinking, higher education institutions can harness AI's capabilities to produce entrepreneurs who are not only technologically competent but also adaptable, innovative, and investment-ready.

Acknowledgements: The authors would like to thank all the participants for their valuable time and insights, which contributed significantly to this research. We also extend our gratitude to the participating higher education institutions for their support in facilitating access to students and AI-based entrepreneurship training resources.

Conflict of Interest: The authors declare that there is no conflict of interest regarding the publication of this paper.

Ethical Approval: Not applicable.

Funding: None.

References

Ahmad, S. F., Han, H., Alam, M. M., Rehmat, M. K., & Irshad, M. (2023). Impact of artificial intelligence on human loss in decision making, laziness and safety in education. *Humanities and Social Sciences Communications*, *10*(1), 1-14. https://doi.org/10.1057/s41599-023-01787-8

Al-Zahrani, A. M., & Alasmari, T. M. (2024). *Exploring the impact of artificial intelligence on higher education: The dynamics of ethical, social, and educational implications*. *Humanities and Social Sciences Communications*, 11, Article 912. https://doi.org/10.1057/s41599-024-03432-4

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, *3*(2), 77–101. https://doi.org/10.1191/1478088706qp063oa

Chalmers, D., MacKenzie, N. G., & Carter, S. (2020). *Artificial intelligence and entrepreneurship: Implications for venture creation in the fourth industrial revolution*. *Entrepreneurship Theory and Practice*, 44(5), 1117–1145.

Giuggioli, G., & Pellegrini, M. M. (2023). Artificial intelligence as an enabler for entrepreneurs: A systematic literature review and an agenda for future research. *International Journal of Entrepreneurial Behavior & Research, 29*(4), 816–837. https://doi.org/10.1108/IJEBR-05-2021-0426

Gofman, M. and Jin, Z. (2024), Artificial Intelligence, Education, and Entrepreneurship. J Finance, 79: 631-667. https://doi.org/10.1111/jofi.13302

Lévesque, M., Obschonka, M., & Nambisan, S. (2022). Pursuing Impactful Entrepreneurship Research Using Artificial Intelligence. *Entrepreneurship Theory and Practice*. https://doi.org/10.1177_1042258720927369

Margaretha, W., Ariesia, K., & Yustian, O. R. (2025). Artificial intelligence and entrepreneurship education: Increasing entrepreneurial intentions among future entrepreneurs in Bandung City. *Journal of Theoretical and Applied Information Technology, 103*(7), 2813–2824.

Mu, Q., & Zhao, Y. (2024). Transforming entrepreneurship education in the age of artificial intelligence. *Resources Data Journal, 3*, 2–20. https://doi.org/10.50908/rdj.3.0_2

Park, J.H., Kim, S.J., & Lee, S.T. (2025). AI and Creativity in Entrepreneurship Education: A Systematic Review of LLM Applications. *AI*, *6*(5), 100. https://doi.org/10.3390/ai6050100

Pastarmadzhieva, D., & Angelova, M. (2025). *The impact of AI on entrepreneurship education*. *i4Journal, 2*(75), 1–12.

Patel, S., & Ragolane, M. (2024). The implementation of artificial intelligence in South African higher education institutions: Opportunities and challenges. *Technium Education and Humanities*, *9*, 51-65. https://doi.org/10.47577/teh.v9i.11452

Ruano-Borbalan, J.C. (2025). *The transformative impact of artificial intelligence on higher education: A critical reflection on current trends and futures directions*. *International Journal of Chinese Education*, 14(1), 1–16. https://doi.org/10.1177/2212585X251319364

Slimi, Z. (2023). *The impact of artificial intelligence on higher education: An empirical study*. *European Journal of Educational Sciences*, 10(1), 17–28. https://doi.org/10.19044/ejes.v10no1a17

Solórzano Solórzano, S. S., Pizarro Romero, J. M., Díaz Cueva, J. G., Arias Montero, J. E., Zamora Campoverde, M. A., Lozzelli Valarezo, M. M., Montes Ninaquispe, J. C., Acosta Enriquez, B. G., & Arbulú Ballesteros, M. A. (2024). Acceptance of artificial intelligence and its effect on entrepreneurial intention in foreign trade students: A mirror analysis. *Journal of Innovation and Entrepreneurship*, *13*(1), 1-20. https://doi.org/10.1186/s13731-024-00412-5

Somià, T., & Vecchiarini, M. (2024). Navigating the new frontier: The impact of artificial intelligence on students' entrepreneurial competencies. *International Journal of Entrepreneurial Behavior & Research, 30*(11), 236–260. https://doi.org/10.1108/IJEBR-08-2023-0788

Thottoli, M. M., Cruz, M. E., & Al Abri, S. S. S. (2025). The incubation revolution: Transforming entrepreneurial education with artificial intelligence. *Asia Pacific Journal of Innovation and Entrepreneurship, 19*(1), 2–23. https://doi.org/10.1108/APJIE-11-2023-0221

Xie, Y., & Wang, S. (2025). Generative artificial intelligence in entrepreneurship education enhances entrepreneurial intention through self-efficacy and university support. *Scientific Reports*, *15*(1), 1-20. https://doi.org/10.1038/s41598-025-09545-3

Appendix A: Business Plan Assessment Rubric

Executive Summary Assessment

Criteria	Exemplary (4)	Proficient (3)	Developing (2)	Basic (1)
Business Name & Concept	Name is distinctive, memorable, and perfectly aligned with business concept	Name is appropriate and clearly connected to business concept	Name is adequate but connection to business concept is unclear	Name is generic or misaligned with business concept
Business Goals	Goals are specific, measurable, achievable, relevant, and time-bound (SMART)	Goals are clear and mostly follow SMART criteria	Goals are stated but lack specificity or measurability	Goals are vague or unrealistic
Target Customer Definition	Target audience is precisely defined with comprehensive demographic and psychographic details	Target audience is well-defined with good demographic information	Target audience is identified but with limited demographic details	Target audience is vaguely defined or too broad
Competitive Advantages	Unique advantages are compelling, sustainable, and difficult for competitors to	Clear advantages that differentiate from competitors are identified	Some advantages identified but not strongly differentiated	Few or no clear competitive advantages identified

	replicate			
Location & Timeline	Location is strategic with thorough justification; timeline is detailed and realistic	Location is appropriate with good justification; timeline is clear	Location is stated with minimal justification; timeline is present	Location lacks justification; timeline is vague or missing
Mission Statement	Compelling mission that clearly articulates purpose, values, and unique position	Clear mission that covers purpose and values	Basic mission that states business purpose	Vague or generic mission statement
Products/Services	Products/services are thoroughly described with clear value proposition	Products/services are well-described with good value identification	Products/services are adequately described	Products/services lack detail or clear value proposition
Business Structure	Structure is optimal for business type with clear explanation of choice	Structure is appropriate with explanation of rationale	Structure is identified but with limited explanation	Structure is mentioned without explanation or inappropriate
Financial Projections	Comprehensive, realistic projections with detailed assumptions	Solid projections with reasonable assumptions	Basic projections with limited supporting details	Incomplete or unrealistic projections
Funding Requirements	Detailed funding needs with clear allocation and return expectations	Funding needs are well-articulated with allocation plan	Funding needs stated with minimal allocation details	Funding needs vague or unrealistic
Elevator Pitch	Compelling, concise pitch that generates excitement and clearly communicates value	Effective pitch that communicates key value proposition	Basic pitch that conveys main business idea	Incomplete or confusing pitch

Operational Plan Assessment

Criteria	Exemplary (4)	Proficient (3)	Developing (2)	Basic (1)
Location Selection & Analysis	Comprehensive location analysis with exceptional strategic alignment	Thorough location analysis with good strategic justification	Basic location analysis with some consideration of key factors	Minimal location analysis with little strategic consideration
Accessibility & Traffic Analysis	Detailed analysis of all access points,	Good analysis of major access points	Basic analysis of accessibility with	Minimal or no analysis of accessibility and traffic

	traffic patterns, and visibility factors	and traffic considerations	limited traffic considerations	patterns
Area Demographics Analysis	In-depth demographic analysis with clear connection to business viability	Good demographic analysis aligned with target market	Basic demographic information with limited market alignment	Little or no demographic analysis
Store Layout & Design	Comprehensive layout plan optimized for customer flow and operational efficiency	Well-designed layout with good consideration of customer experience	Basic layout that addresses fundamental store elements	Incomplete or problematic layout design
Cost Analysis	Detailed cost breakdown with comprehensive understanding of direct and hidden costs	Good cost analysis covering major direct and indirect expenses	Basic cost identification with limited consideration of hidden costs	Incomplete cost analysis missing key expense categories
Supplier Evaluation	Thorough evaluation of multiple suppliers against comprehensive criteria	Good comparison of suppliers with relevant selection criteria	Basic supplier identification with limited evaluation criteria	Minimal supplier information with no clear evaluation process
Owner Skills & Experience	Exceptional match between owner skills/experience and business requirements	Good alignment of owner skills/experience with business needs	Some relevant skills/experience but notable gaps	Limited relevant skills/experience for business success
Legal & Regulatory Compliance	Comprehensive understanding of all applicable regulations with complete documentation	Good understanding of major regulations with necessary documentation	Basic awareness of key regulations with some documentation	Limited regulatory awareness with insufficient documentation
Facilities & Equipment	Detailed analysis of all necessary facilities/equipment with quality considerations	Good overview of required facilities/equipment with adequate planning	Basic list of facilities/equipment with limited planning	Incomplete facilities/equipment identification
Quality Control	Comprehensive quality control	Good quality control procedures with key	Basic quality control measures with	Minimal or no quality

Measures	system with preventive and monitoring processes	inspection points	limited scope	control planning
Risk Management	Sophisticated risk assessment with detailed mitigation strategies	Good risk identification with appropriate contingency plans	Basic risk awareness with limited mitigation planning	Minimal risk identification or planning

Marketing Plan Assessment

Criteria	Exemplary (4)	Proficient (3)	Developing (2)	Basic (1)
Target Market Analysis	Exceptional market segmentation with deep understanding of customer needs and behaviors	Good market definition with clear understanding of customer needs	Basic market identification with limited customer insight	Vague market definition with minimal customer analysis
Competitor Analysis	Comprehensive analysis of multiple competitors across all relevant factors	Good analysis of main competitors with key differentiating factors	Basic comparison with limited competitor insights	Minimal competitor awareness or analysis
USP & Brand Positioning	Compelling, unique positioning with strong emotional connection to target audience	Clear positioning with good differentiation from competitors	Basic positioning with some differentiation	Unclear or generic positioning
Marketing Mix Development	Exceptional integration of all 7Ps with strategic alignment	Good development of marketing mix with attention to most elements	Basic marketing mix with focus on primary elements only	Incomplete marketing mix with key elements missing
Marketing Objectives & KPIs	Clear, measurable objectives with comprehensive KPIs and tracking methods	Well-defined objectives with good measurement criteria	Basic objectives with limited measurement methods	Vague objectives with no clear measurement approach
Marketing Strategy	Comprehensive, innovative strategy across multiple channels	Solid strategy with good channel integration	Basic strategy with limited channel consideration	Underdeveloped or fragmented strategy
Digital Marketing Plan	Sophisticated digital approach leveraging multiple platforms with content strategy	Good digital plan with appropriate platform selection	Basic digital presence with limited platform strategy	Minimal digital planning or platform awareness
Traditional Marketing	Strategic integration of traditional methods that	Good traditional marketing plan that	Basic traditional methods	Minimal or inappropriate

Integration	complement digital efforts	supports overall strategy	with limited integration	traditional marketing plans
Sales Strategy	Comprehensive acquisition and retention strategy with detailed implementation plan	Good sales approach with clear customer journey consideration	Basic sales process with limited customer journey mapping	Underdeveloped sales strategy lacking clear process
Marketing Budget Allocation	Detailed budget with optimal resource allocation and ROI projections	Clear budget with reasonable allocation across channels	Basic budget with limited allocation planning	Vague budget with unclear allocation

Financial Plan Assessment

Criteria	Exemplary (4)	Proficient (3)	Developing (2)	Basic (1)
Revenue Model	Innovative, sustainable revenue model with multiple streams	Clear primary revenue model with additional stream potential	Basic revenue model identified but limited in scope	Vague or unrealistic revenue model
Start-Up Costs	Comprehensive, detailed start-up costs with research-based estimates	Well-documented start-up costs covering all major categories	Basic start-up cost identification with some gaps	Incomplete or unrealistic start-up cost estimates
Fixed Costs Calculation	Detailed fixed cost breakdown with thorough research	Good fixed cost identification with reasonable estimates	Basic fixed costs with limited detail	Incomplete fixed cost identification
Sales Forecast	Realistic, data-supported sales projections with multiple scenarios	Reasonable sales forecast with good supporting rationale	Basic sales projections with limited justification	Overly optimistic or unsupported sales forecast
Break-Even Analysis	Precise break-even calculation with sensitivity analysis	Accurate break-even analysis with good supporting calculations	Basic break-even calculation with minimal explanation	Incomplete or incorrect break-even analysis
Cash Flow Statement	Comprehensive monthly cash flow projections for 12+ months	Good cash flow projections for first several months	Basic cash flow outline with limited detail	Inadequate cash flow projections
Income Statement	Detailed multi-year projections with comprehensive expense categories	Clear income projections with good expense categorization	Basic income statement with limited expense detail	Incomplete or unrealistic income projections
Balance Sheet	Complete pro forma balance sheet with all major asset/liability categories	Good balance sheet projection with key financial elements	Basic balance sheet with limited detail	Incomplete balance sheet missing key elements

Pricing Strategy	Strategic pricing based on cost, value, and market positioning	Clear pricing strategy with good cost and margin analysis	Basic pricing approach with limited strategic consideration	Inadequate pricing without clear rationale
Variable Cost Analysis	Detailed variable cost analysis with per-unit breakdown	Good variable cost identification with reasonable estimates	Basic variable costs with limited detail	Incomplete variable cost identification
Profit Projections	Comprehensive profit analysis with realistic growth projections	Clear profit projections with reasonable assumptions	Basic profit estimates with limited supporting data	Unrealistic or unsupported profit projections

Strategic Plan Assessment

Criteria	Exemplary (4)	Proficient (3)	Developing (2)	Basic (1)
Strategy Development	Comprehensive strategy with detailed action steps and contingencies	Clear strategy with well-defined action steps	Basic strategy with limited action planning	Vague or unfocused strategy
Vision Statement	Compelling, ambitious vision that inspires and provides clear direction	Clear vision that establishes future aspirations	Basic vision statement with limited inspiration	Generic or unclear vision
Mission Statement	Exceptional mission that perfectly captures purpose, values, and approach	Well-crafted mission that clearly states business purpose	Adequate mission that covers basic business purpose	Vague or generic mission statement
Competitive Advantage	Unique, sustainable advantages with clear explanation of defensibility	Clear advantages that are difficult for competitors to replicate	Some advantages identified but sustainability questionable	Few or weak competitive advantages
Key Success Factors	Comprehensive KSFs with detailed implementation and measurement plan	Well-defined KSFs with good implementation strategy	Basic KSFs with limited implementation details	Vague success factors without clear measurement

Document Presentation & Professionalism

Criteria	Exemplary (4)	Proficient (3)	Developing (2)	Basic (1)
Organization & Structure	Exceptionally well-organized with logical flow between all sections	Well-structured with good transitions between major sections	Adequate organization with some structural inconsistencies	Poor organization making document difficult to follow
Clarity & Writing	Professional-level writing with excellent	Clear writing with good business terminology	Basic business writing with occasional clarity	Poor writing with significant clarity

Quality	clarity and persuasiveness		issues	problems
Visual Elements	Professional graphics, charts, and tables that enhance understanding	Good use of visual elements that support key points	Basic visual elements with limited integration	Few or poor-quality visual elements
Completeness	All template sections thoroughly completed with exceptional detail	All major sections completed with good detail	Most sections completed with adequate detail	Significant sections incomplete or lacking detail
Research & Evidence	Extensive research with compelling evidence supporting all claims	Good research with evidence for major claims	Some research evident but limited supporting data	Little research or evidence to support claims

Overall Assessment & Scoring Guide

Overall Score	Rating	Description
90-100	Outstanding	Exceptional business plan with high potential for success
80-89	Strong	Well-developed plan with minor improvements needed
70-79	Satisfactory	Adequate plan requiring several improvements
60-69	Needs Work	Plan requires significant improvements to be viable
Below 60	Unsatisfactory	Major revision required; plan not viable in current form

Calculation:

- Executive Summary (11 criteria × 4 points max) = 44 points possible
- Operational Plan (11 criteria × 4 points max) = 44 points possible
- Marketing Plan (10 criteria × 4 points max) = 40 points possible
- Financial Plan (11 criteria × 4 points max) = 44 points possible
- Strategic Plan (5 criteria × 4 points max) = 20 points possible
- Document Presentation (5 criteria × 4 points max) = 20 points possible
- **Total Possible Points**: 212 points

Final Percentage Score = (Total Points Earned ÷ 212) × 100

Author Biography

Mahlatse Ragolane is an academic and Head of Department for the Centre of Excellence at Regent Business School. He also serves as Programme Coordinator for the MBA, supervises postgraduate research projects, and lectures in the School of Commerce and Management. He holds a Master of Arts in Public Management and Governance from the University of Johannesburg (UJ), as well as a Bachelor of Administration and BA Honours in Public Administration from the University of Limpopo (UL). He is currently a Doctor of Business Administration (DBA) candidate. As a Research Fellow at the International Council of Human Rights, Peace and Politics (ICHRPP) and a Researcher at the Institute for Community Safety and Criminal Justice (ICSCJ), Mahlatse engages in interdisciplinary projects addressing governance, social justice, and conflict resolution. His growing body of work includes peer-reviewed publications on artificial intelligence in education, hybrid governance and political stability. Mahlatse is also the co-author of the forthcoming book *Local Government Administration in Eastern and Southern Africa, 1st ed* (Van Schaik,

2026). Through scholarship and practice, he continues to shape public policy discourse and higher education innovation across Africa.

Hasan Evans is an accomplished academic and business development professional with over two decades of experience in education and entrepreneurship. He holds a Master of Business Administration (MBA) from Regent Business School (2016), a Post Graduate Certificate in Education (PGCE) from the University of Johannesburg (2011), and a BCom Accounting degree from Rand Afrikaans University (1998). Currently serving as Hub Manager at Regent Business School since January 2022, Evans manages the enterprise development hub and coordinates SMME development programs. His previous role as Lecturer at Damelin College (2018-2021) involved teaching across multiple business disciplines, including Financial Accounting, Economics, and Business Management. Evans brings extensive practical experience from his tenure as Head of Department at SANZAF (2009-2018), where he successfully trained over 1,200 individuals in entrepreneurship and facilitated funding for more than 500 candidates. He has served on national assessment panels, developed learning materials for various institutions, and participated as a judge in the African Business Heroes competition. His expertise spans business incubation, entrepreneurship development, financial management, and educational facilitation. Evans is registered with the South African Council for Educators (SACE) and holds accreditation as both an assessor and moderator with Services SETA.

Hoosen Essof is a seasoned professional with over 20 years of experience in the non-profit sector, specialising in supporting students in discovering entrepreneurship as a viable career option. Currently serving as the Head: Innovation and Students Experience at Regent Business School for the past five years, a role he assumed after an extensive tenure at RBS. Essof has been instrumental in piloting the WDL component of the HCENT programme and successfully launching the redHUB unit. He also oversees the iLeadlAB - an academic makerspace - and the Employability and Careers Services unit at Regent. Throughout his career, Essof has demonstrated a passion for empowering individuals through education and entrepreneurship. Under his leadership, he has contributed significantly to the growth of the SANZAF tertiary bursary programme to over R20-million annually and the Entrepreneurship start-up fund to R12-million annually. Hoosen Essof's educational background includes completing a Social-Entrepreneurship Certificate Programme at Gibs, further enhancing his expertise in fostering entrepreneurship among students.

Dr. Shahiem Patel holds a BCom from the University of the Witwatersrand, a BCom Honours in Business Management from UNISA, and a Master of Commerce in Leadership Studies from the University of KwaZulu-Natal, where he also completed his PhD in 2018, both on full scholarships. He is the Academic Dean at Regent Business School, where he combines academic leadership with his extensive industry experience. His career spans roles at Standard Bank, McKinsey, and as a business analyst, alongside lecturing at various institutions. A sought-after speaker and radio personality, Dr. Patel delivers lectures and keynote addresses to leading organisations and business schools on leadership, management, and organisational change. His scholarship includes book chapters and peer-reviewed journal publications. With multidisciplinary expertise and thought leadership, Dr. Patel bridges academia and industry, shaping conversations on leadership and innovation.