

Unpacking Entrepreneurial Intentions: An Analysis of Psychological Constructs Among African University Students

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Abstract

This study examines the factors impacting entrepreneurial intentions among university students in Africa, focusing on the roles of psychological traits, demographic variables, and entrepreneurial education. Using a quantitative approach, data were collected from 230 students from different African countries, predominantly from South Africa (46.9%), Zimbabwe (11.2%), and Zambia (6.6%). The findings reveal that Risk-Taking Propensity is the strongest psychological predictor of entrepreneurial intentions, suggesting that students who are willing to take financial and career risks are much more likely to pursue entrepreneurship. While factors like Opportunity Recognition, Proactiveness, Innovativeness,

and Entrepreneurial Orientation are significant, they do not substantially predict entrepreneurial intentions, indicating that external barriers, such as financial constraints and the level of institutional support, play a critical role in business development. Moreover, age and gender influence the relationship between entrepreneurial traits and intentions, revealing that older and female students are less likely to act on these traits. Additionally, entrepreneurial training is shown to be an important facilitator; students who have undergone such training are considerably more inclined to exhibit entrepreneurial intentions. However, there is a significant gap in entrepreneurial education, with 54.5% of students lacking exposure to business or entrepreneurship training. These findings underscore the urgent need for targeted initiatives to promote entrepreneurship, particularly in resource-constrained environments. By integrating psychological constructs, demographic factors, and educational aspects, this study deepens the understanding of entrepreneurial intentions in African university students and offers important recommendations for policymakers and educators to enhance entrepreneurial engagement in the region.

Keywords: Entrepreneurial Intentions; Entrepreneurial Training; Psychological Constructs; Entrepreneurial Orientation

1.0 Introduction

Entrepreneurship is widely recognised as a vital driver of economic growth, promoting innovation, job creation, and economic resilience (Shane & Venkataraman, 2000; Ajayi-Nifise et al., 2024). Central to entrepreneurial activity is entrepreneurial intention (EI), which is defined as an individual's intentional commitment to launching a business (Krueger, 2007; Hueso, Jaén & Liñán, 2021). Research indicates that psychological factors, such as opportunity recognition, proactiveness, risk-taking, and self-efficacy, significantly influence these intentions (Lumpkin & Dess, 1996; Bandura, 1986; Selvan et al., 2024). Theoretical frameworks, including the Theory of Planned Behaviour (TPB) (Ajzen, 1991) and Entrepreneurial Orientation (EO) Theory (Lumpkin & Dess, 1996), offer strong insights into why people pursue entrepreneurial ventures. Nevertheless, despite their extensive application in Western contexts, there has been limited inquiry into their relevance in African environments, where entrepreneurial ecosystems are burgeoning yet often face high-risk, resource-limited circumstances (Boso et al., 2013; Maheshwari, Kha & Arokiasamy, 2023).

In Africa, entrepreneurship frequently occurs within unstable and unpredictable environments, limited institutional backing, and financial challenges (Amankwah-Amoah, 2020; Agwuna, 2022). These distinctive conditions significantly impact how psychological factors, such as risk perception, opportunity recognition, and self-efficacy, influence entrepreneurial intentions, while also presenting unique challenges that must be addressed. For example, the prevalent uncertainty and resource limitations in many African economies may alter how individuals perceive opportunities or assess risks, potentially leading to different entrepreneurial behaviours than those observed in Western contexts. Although entrepreneurship plays a vital role in Africa's economic advancement, there is a significant gap in understanding how these psychological factors influence the entrepreneurial intentions of African university students, who are a crucial demographic for future entrepreneurial endeavours (Baluku, Onderi, & Otto, 2021; Svotwa et al., 2022).

While extensive global research has examined models of entrepreneurial intention, a noticeable absence remains in studies testing the relevance of these psychological theories within African contexts (Gird & Bagraim, 2008; Maslakcı, Sesen, & Sürücü, 2021). This gap is particularly important due to the distinct socio-economic and cultural dynamics present in African nations, which may influence entrepreneurial intentions differently than in more developed regions. For instance, the interaction between institutional support, cultural norms, and individual psychological characteristics might forge unique entrepreneurial profiles among African students that have not yet been thoroughly examined. Understanding how entrepreneurial orientation and planned behaviour influence entrepreneurial intentions in Africa is essential not only for enhancing theoretical knowledge but also for informing policy creation and educational initiatives aimed at promoting entrepreneurship in the region. The research's potential influence on policy formulation is considerable, as it can offer evidence-based strategies to encourage entrepreneurship in Africa (Mfazi & Elliott, 2022; Na-Allah & Ahmad, 2022).

Given this context, this research aims to answer the following research questions:

- a) How do psychological constructs such as proactiveness, opportunity identification, risk-taking, innovativeness, and entrepreneurial orientation influence entrepreneurial intentions among African university students?***

b) What is the moderating effect of age, gender, and entrepreneurial training on the relationship between psychological constructs and entrepreneurial intentions among African university students?

This study explores these constructs within the specific context of African entrepreneurship to gain a deeper insight into the psychological factors influencing entrepreneurial intentions. The findings aim to aid in the creation of more contextually relevant theories and interventions, thereby improving our comprehension of entrepreneurship in Africa and guiding policy formulation and educational initiatives designed to promote entrepreneurship in the region.

2.0 Literature Review

2.1 Psychological Constructs and Entrepreneurial Intentions

Entrepreneurial intention (EI) refers to a person's deliberate commitment to launching a business (Krueger, 2007; Shahzad et al., 2021). Research has shown that various psychological factors significantly influence these intentions, such as opportunity recognition, proactiveness, and risk-taking propensity (Lumpkin & Dess, 1996; Bandura, 1986; Otache et al., 2024). These elements are vital for understanding why individuals opt to engage in entrepreneurial activities, especially in rapidly changing and uncertain contexts.

2.2 Opportunity Recognition

Opportunity recognition is the ability to discern and seize new business prospects (Shane & Venkataraman, 2000; Filser et al., 2023). It serves as a crucial motivator for entrepreneurial intentions; individuals who can pinpoint market voids and emerging trends are more inclined to pursue entrepreneurial ventures (Baron, 2004; Anwar, Clauss & Issah, 2022). The opportunity recognition process often blends prior knowledge, diverse experiences, and networking (Sautet, 2018). For African university students, recognising unmet market needs and unresolved challenges can significantly boost their propensity for entrepreneurship.

2.3 Proactiveness

Proactiveness refers to the ability to foresee and seize future business opportunities ahead of competitors (Covin & Slevin, 1989; Al-Mamary & Alshallaqi, 2022). Those who are proactive display a forward-thinking mindset, allowing them to recognise potential challenges and opportunities before they arise (Lumpkin & Dess, 1996; Al Hubaishi, 2023). This quality is

especially vital in entrepreneurial settings, as being ahead of market trends and responsive to shifts can significantly influence a venture's success or failure. In resource-limited regions, like many African countries, proactiveness can be essential for overcoming entrepreneurial hurdles.

2.4 Risk-Taking Propensity

Risk-taking refers to an individual's willingness to engage in uncertain business ventures, even with the possibility of loss (Lumpkin & Dess, 1996; Zaleskiewicz, Bernady & Traczyk, 2020). Entrepreneurs often operate in high-risk environments, requiring a comfort with uncertainty and the ability to make decisions under pressure (Covin & Slevin, 1989; Zayadin et al., 2023). However, risk-taking behaviour is variable and can be influenced by external factors such as access to financial resources, institutional support, and regulatory conditions (Boso et al., 2013; Al Issa, 2022). In African contexts, where entrepreneurs frequently face volatile markets and limited resources, the tendency to take risks may uniquely shape entrepreneurial intentions.

2.5 Entrepreneurial Orientation

Entrepreneurial orientation (EO) signifies an individual's or organisation's strategic approach to entrepreneurship, highlighted by essential elements such as innovativeness, proactiveness, and risk-taking (Lumpkin & Dess, 1996; Soares & Perin, 2020). EO indicates a readiness to pursue new opportunities, undertake calculated risks, and actively seek competitive advantages in uncertain business environments (Simpson & Sariol, 2022). Studies have linked EO with increased entrepreneurial success, as those with strong EO tend to be more adaptable and innovative when responding to market fluctuations (Covin & Slevin, 1989; Wales, Kraus, Filser, Stöckmann & Covin, 2021). However, its direct effect on entrepreneurial intentions remains a matter of debate, as other factors such as personal motivation and environmental conditions may act as mediators.

2.6 Innovativeness

Innovativeness is a fundamental aspect of entrepreneurship, representing an individual's capacity to generate and implement new ideas, products, or processes to create value (Schumpeter, 1934; Xu, Hou & Zhang, 2022). Entrepreneurs with high levels of innovativeness tend to be more creative, receptive to experimentation, and willing to challenge traditional approaches in their pursuit of business success (Wijngaarden, Bhansing & Hitters, 2021). Although innovativeness is often associated with business performance, its influence on shaping entrepreneurial intentions varies depending on the context (Schlaegel, Engle, Richter

& Taureck, 2021). Some studies suggest that individuals who see themselves as innovative are more inclined to pursue entrepreneurship, while others argue that innovativeness alone is not enough without supporting factors such as risk tolerance, access to resources, and market readiness (Zampetakis et al., 2011; Chevalier, Calmé, Coillot, Le Rudulier & Fouquereau, 2022).

3. Theoretical Framework

The theoretical framework of this study integrates five key psychological constructs, opportunity recognition, proactiveness, risk-taking propensity, entrepreneurial orientation, and innovativeness, to elucidate how they influence entrepreneurial intentions among university students in Africa. These constructs are grounded in well-established theories, including Opportunity Recognition Theory, Effectuation Theory, and Entrepreneurial Orientation (EO) Theory. While the Theory of Planned Behaviour (TPB) is widely applied in entrepreneurial intention research, it was intentionally excluded in this study. TPB assumes rational volitional control, which may not align well with the institutional and environmental constraints faced by African students. Instead, the study adopts theories that better capture both individual agency and the contextual limitations characteristic of this setting. Each theory offers a distinct perspective on the relationship between psychological traits and entrepreneurial intentions, especially within the context of Africa's unique entrepreneurial ecosystem. While the Theory of Planned Behaviour (TPB) is widely applied in entrepreneurial intention research, it was intentionally excluded in this study. TPB assumes rational volitional control, which may not align well with the institutional and environmental constraints faced by African students. Instead, the study adopts theories that better capture both individual agency and the contextual limitations characteristic of this setting.

3.1 Opportunity Recognition Theory

Opportunity recognition refers to the ability to identify and act on new business prospects (Shane & Venkataraman, 2000; Filser et al., 2023). This theory suggests that individuals who can successfully identify market gaps and emerging trends are more likely to develop entrepreneurial intentions (Baron, 2004; Anwar, Clauss, & Issah, 2022). In the African context, where resource limitations and high-risk conditions are common, recognising opportunities becomes even more essential. This study argues that students skilled in opportunity recognition are more likely to pursue entrepreneurship, as they can detect unmet needs and potential

business ventures in their surroundings. Although Opportunity Recognition Theory posits that recognising opportunities precedes entrepreneurial action, our findings indicate that this trait alone does not predict entrepreneurial intentions among African students. This may reflect structural challenges, such as capital limitations or lack of incubation support, which inhibit the conversion of recognition into action. Although Opportunity Recognition Theory suggests that recognising opportunities comes before entrepreneurial action, our findings show that this trait alone does not determine entrepreneurial intentions among African students. This may reflect structural issues, such as limited access to capital or lack of incubation support, which hinder turning recognition into action.

3.2 Entrepreneurial Orientation (EO) Theory

The Entrepreneurial Orientation (EO) Theory, presented by Lumpkin and Dess in 1996, identifies three fundamental dimensions: innovativeness, risk-taking, and proactiveness, which shape entrepreneurial behaviour. Proactiveness involves the ability to foresee and pursue future opportunities ahead of competitors (Covin & Slevin, 1989; Al-Mamary & Alshallaqi, 2022). In Africa's often unpredictable market conditions, proactive individuals are better positioned to recognise and capitalise on opportunities, thus enhancing their entrepreneurial intentions. This study examines how these dimensions of Entrepreneurial Orientation (EO) impact entrepreneurial intentions, particularly in environments characterised by limited resources. Entrepreneurial Orientation (EO) Theory is used not only to assess the influence of innovativeness, proactiveness, and risk-taking, but also to explore how these constructs interact within an under-resourced environment. Notably, our results indicate that only risk-taking significantly predicts entrepreneurial intention, suggesting that EO dimensions may not uniformly translate into action without enabling institutional support. Entrepreneurial Orientation (EO) Theory is employed not only to evaluate the impact of innovativeness, proactiveness, and risk-taking but also to examine how these elements interact in environments with limited resources. Importantly, our findings show that only risk-taking has a significant effect on entrepreneurial intention, implying that EO dimensions may not all lead to action without adequate institutional support.

3.3 Social Cognitive Theory

Social Cognitive Theory highlights the importance of self-efficacy—an individual's belief in their capacity to achieve desired goals—in influencing entrepreneurial intentions (Bandura,

1986). A strong sense of self-efficacy correlates with increased perseverance, willingness to take risks, and resilience, which are essential traits for entrepreneurial achievement (Krueger & Carsrud, 1993; Caliendo et al., 2023). Particularly in the African setting, where students often encounter limited resources and institutional challenges, self-efficacy may be crucial in encouraging them to engage in entrepreneurship. This study examines the influence of self-efficacy, in conjunction with observational learning and social influences, on entrepreneurial intentions. Social Cognitive Theory remains relevant through the trait of risk-taking, which reflects a student's belief in managing uncertainty. This aligns with Bandura's emphasis on self-efficacy and behavioural agency in the face of perceived risk.

3.4 Effectuation Theory

Effectuation Theory (Sarasvathy, 2001) posits that entrepreneurs actively create opportunities rather than just discovering them through their actions (Adamu, Yusof & Sambasivan, 2022). This theory highlights the significance of utilizing current resources, building partnerships, and adjusting to uncertain conditions (Raza & Shah, 2024). In Africa, where institutional support is often limited and resources scarce, students who embrace an effectual approach—prioritising adaptability and resource availability—are more likely to cultivate entrepreneurial intentions. This research examines how decision-making based on effectuation influences entrepreneurial intentions, especially in contexts characterised by high uncertainty.

Thus, the study proposes the following hypotheses:

H₁: Opportunity recognition is positively associated with entrepreneurial intentions.

H₂: Proactiveness is positively associated with entrepreneurial intentions.

H₃: Risk-taking propensity is positively associated with entrepreneurial intentions.

H₄: Innovativeness is positively associated with entrepreneurial intentions.

H₅: Entrepreneurial orientation is positively associated with entrepreneurial intentions.

H₆: Age moderates the relationship between:

H_{6a}: Opportunity recognition and entrepreneurial intentions.

H_{6b}: Proactiveness and entrepreneurial intentions.
H_{6c}: Risk-taking propensity and entrepreneurial intentions.
H_{6d}: Innovativeness and entrepreneurial intentions.
H_{6e}: Entrepreneurial orientation and entrepreneurial intentions.

H₇: Gender moderates the relationship between:
H_{7a}: Opportunity recognition and entrepreneurial intentions.
H_{7b}: Proactiveness and entrepreneurial intentions.
H_{7c}: Risk-taking propensity and entrepreneurial intentions.
H_{7d}: Innovativeness and entrepreneurial intentions.
H_{7e}: Entrepreneurial orientation and entrepreneurial intentions.

H₈: Entrepreneurship training moderates the relationship between:
H_{8a}: Opportunity recognition and entrepreneurial intentions.
H_{8b}: Proactiveness and entrepreneurial intentions.
H_{8c}: Risk-taking propensity and entrepreneurial intentions.
H_{8d}: Innovativeness and entrepreneurial intentions.
H_{8e}: Entrepreneurial orientation and entrepreneurial intentions.

3.5 Linking the Theoretical Framework to the Hypotheses

The study's hypotheses are grounded in the interaction between psychological constructs and established theoretical frameworks:

1. Opportunity Recognition Theory (H1) suggests that individuals who can identify market gaps and emerging trends are more likely to develop entrepreneurial intentions.
2. Entrepreneurial Orientation (EO) Theory (H2, H3) explains how proactive behaviour influences entrepreneurial intentions, with variations across different entrepreneurial profiles.
3. Social Cognitive Theory (H4, H5) emphasises the role of self-efficacy and risk-taking in shaping entrepreneurial motivation.

Social Cognitive Theory remains relevant through the trait of risk-taking, which reflects a student's belief in managing uncertainty. This aligns with Bandura's emphasis on self-efficacy and behavioural agency in the face of perceived risk.

4. Effectuation Theory (H6) highlights the significance of adaptability and resourcefulness in uncertain environments, which can influence entrepreneurial decision-making.

By integrating these frameworks, the study provides a comprehensive perspective on the psychological drivers of entrepreneurial intentions, particularly in high-risk, resource-constrained African contexts.

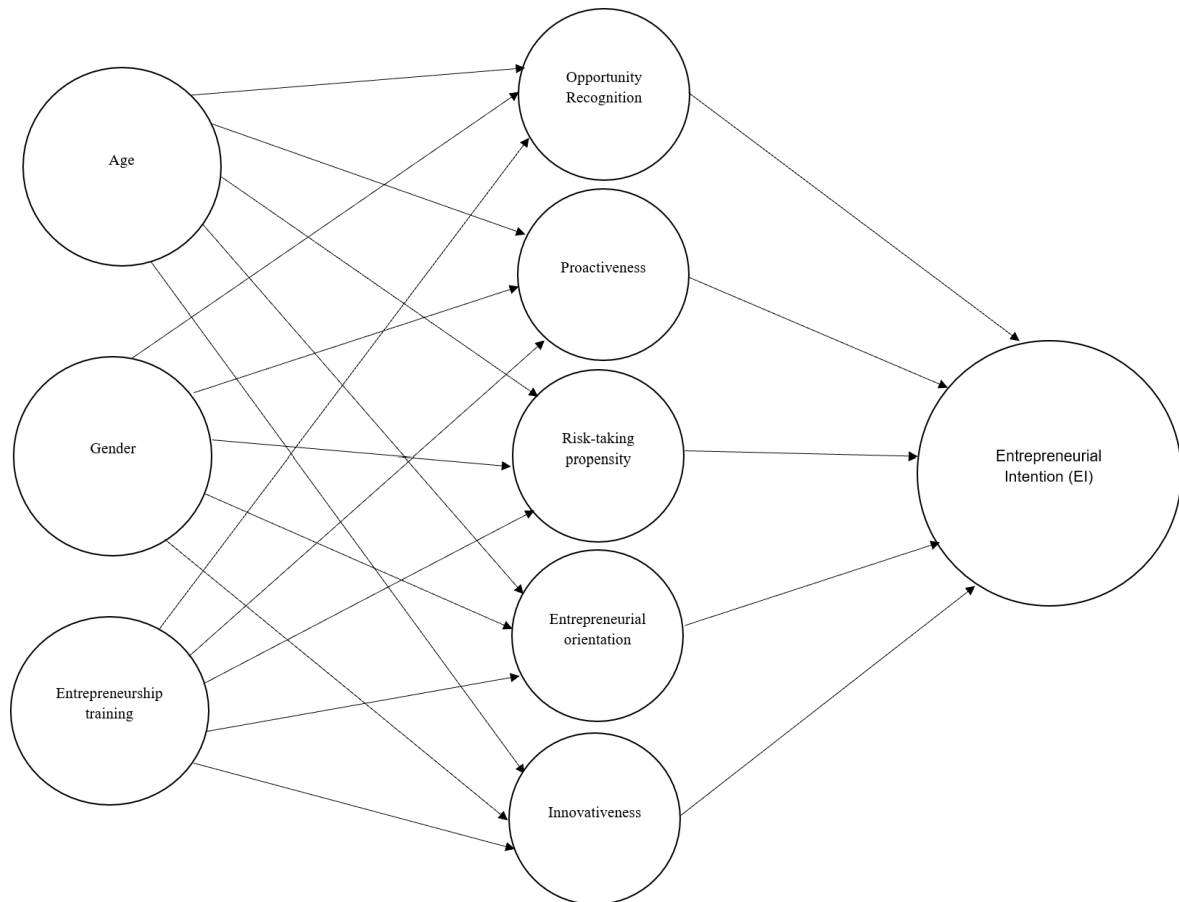


Figure 1: Theoretical Framework used in this study

4.0 Methodology

This study adopts a quantitative research design to examine the relationship between psychological constructs (opportunity recognition, proactiveness, risk-taking, entrepreneurial orientation and innovativeness) and entrepreneurial intentions among African university students (Creswell & Creswell, 2017; Fatoki, 2020). The study employs a cross-sectional survey approach to collect data from a diverse sample of students across multiple African countries (Cummings, 2018; Maier, Thatcher, Grover & Dwivedi, 2023). The quantitative

design allows for the identification of patterns and relationships between variables, enabling the testing of hypotheses and the exploration of distinct entrepreneurial profiles.

4.1 Population and Sampling

A purposive sampling strategy was used to target university students from various African countries enrolled in undergraduate and postgraduate programmes. Although participants were drawn from 12 countries, the sample was concentrated heavily in South Africa, which is acknowledged as a limitation regarding generalisability. The target population for this study includes university students across 12 African nations, such as South Africa, Zimbabwe, Zambia, Nigeria, and others. The initial responses numbered 438, but after excluding missing or incomplete data, the final sample comprised 258 valid responses. The sample reflects students at different stages of their academic and career development across diverse degree programmes, with most students aged between 21 and 25 years (49.6%) and a notable proportion of female students (58.7%).

4.2 Data Collection

Data was collected through a structured questionnaire distributed to university students in Africa (Cheung, 2021). The questionnaire was designed to capture demographic information, psychological constructs (opportunity recognition, proactiveness, risk-taking, entrepreneurial orientation and innovativeness), and entrepreneurial intentions. The survey also included questions about students' demographics, employment status, exposure to entrepreneurial training, and future career aspirations. The instrument consisted of validated scales adapted from previous studies, covering constructs such as opportunity recognition, proactiveness, risk-taking, innovativeness, entrepreneurial orientation, and entrepreneurial intentions. All items were measured using a five-point Likert scale ranging from 1 (Strongly agree) to 5 (strongly Disagree). The instrument was pre-tested for clarity and cultural appropriateness. The questionnaire was administered online, ensuring accessibility for students across different countries. Participation was voluntary, and respondents were assured of the confidentiality of their responses.

4.3 Measurement of Variables

The study operationalises the key variables as follows:

1. **Entrepreneurial Intentions (EI):** Measured using a validated scale based on the Theory of Planned Behaviour (Ajzen, 1991). Students were asked to rate their

likelihood of starting a business in the future on a Likert scale (e.g., 1 = "Very Unlikely" to 5 = "Very Likely").

2. **Psychological Constructs:**

- **Opportunity Recognition:** Measured using items adapted from Shane and Venkataraman (2000) and Ardichvili et al. (2003). Students were asked to rate their ability to identify and act on business opportunities.
- **Proactiveness:** Assessed using items from Covin and Slevin (1989) and Lumpkin and Dess (1996). Students rated their tendency to anticipate and act on future opportunities.
- **Risk-Taking Propensity:** Measured using a scale adapted from Lumpkin and Dess (1996). Students were asked to rate their willingness to engage in uncertain business activities.
- **Entrepreneurial Orientation:** Assessed using an appropriate entrepreneurial orientation scale, which evaluates students' proactiveness, risk-taking, and competitive aggressiveness in entrepreneurial activities (Lumpkin & Dess, 1996).
- **Innovativeness:** Measured using an innovativeness scale, which assesses students' tendency to generate new ideas, experiment with novel solutions, and seek creative approaches to problem-solving (Rauch et al., 2009).

3. **Demographic Variables:** Age, gender, country of study, employment status, and entrepreneurial training, plans post-graduation were included as control variables.

4.4 Data Analysis

The data analysis was conducted using the **Statistical Package for the Social Sciences (SPSS)** and **Structural Equation Modeling (SEM)** to test the hypothesised relationships. **Structural Equation Modelling (SEM)** was performed using SmartPLS 4.0. The measurement model evaluation included reliability metrics such as Cronbach's Alpha and Composite Reliability, convergent validity (AVE), and factor loadings. The structural model examined path coefficients, their significance (p-values), and R² values. Moderation effects of age, gender, and entrepreneurial training were tested through interaction terms.

The analysis followed these key steps:

- a) **Descriptive statistics** were used to summarise the demographic characteristics of the sample, including age, gender, country of study, and employment status. This provided an overview of the sample composition and helped identify any potential biases.
- b) **Structural Equation Modeling (SEM)** was employed to examine the relationships between psychological constructs (opportunity recognition, proactiveness, risk-taking, innovativeness, and entrepreneurial orientation) and entrepreneurial intentions. This approach allowed for a comprehensive test of the proposed model's direct and moderated effects.
- c) **Regression analysis** was used to test the hypothesised relationships, assessing the impact of psychological constructs on entrepreneurial intentions. Additionally, moderation effects (age, gender, and entrepreneurial training) were tested to determine whether these variables influenced the strength of the relationships.
- d) **Pearson correlation analysis** was conducted to evaluate the strength and direction of relationships between key variables, such as entrepreneurial training and entrepreneurial intentions.
- e) **Chi-square tests** were applied to examine relationships between categorical variables, such as country of study and self-employment status, to identify significant associations.

5.0 Findings

This analysis examines the factors influencing students' entrepreneurial intentions and actions from an African viewpoint. Initially, the research collected 438 responses, but after excluding incomplete data, the final sample comprises 258 valid responses. Therefore, the study evaluated the demographic traits of 258 African university students from 12 countries (refer to table 1).

The findings revealed that the majority of respondents (49.6%) were aged 21 to 25, with those aged 18–20 making up 24.0%. Meanwhile, only 15.2% of participants were over 31 years old, indicating that most respondents are at the early stages of their academic or career journeys. In terms of gender distribution, female students accounted for 58.7% of the sample, male students for 39.4%, and a small percentage (1.2%) identified as non-binary or chose not to disclose their gender. Geographically, South Africa exhibited the highest representation (46.9%), followed

by Zimbabwe (11.2%) and Zambia (6.6%), while countries like Malawi, Angola, and Tanzania had lower representation, indicating limited data from these regions.

Table 1: Countries of Study

Country	Frequency	Percentage
South Africa	121	46.9%
Zimbabwe	29	11.2%
Zambia	17	6.6%
Nigeria	16	6.2%
Lesotho	22	8.5%
Botswana	14	5.4%
Namibia	10	3.9%
Ghana	10	3.9%
Uganda	10	3.9%
Tanzania	5	1.9%
Malawi	2	0.8%
Angola	1	0.4%

The analysis of students' employment and entrepreneurial backgrounds found that a large majority (81.1%) were not self-employed, leaving only 18.9% as business owners. This suggests that most students remain in an exploratory stage of entrepreneurship. Just over half of students (53.3%) had prior work experience, while 46.7% had no job history, indicating a mix of workplace exposure among students. Furthermore, nearly half (45.5%) had taken part in training related to business, management, or entrepreneurship, while 54.5% had not, revealing a possible gap in entrepreneurial education that could enhance students' entrepreneurial intentions.

Regarding the future career aspirations of students, several key trends emerged. A considerable 37.6% prioritised postgraduate studies, while 18.2% deemed further education crucial, and only 7.0% considered postgraduate studies as "Not a Priority." Starting a business was paramount for 38.4% of students, with an additional 30.6% viewing it as essential, indicating that over 68% of students expressed strong entrepreneurial intentions, with only 3.1% dismissing it as "Not a Priority." In contrast, 19.4% of students prioritised traditional employment, while 39.1%

maintained a neutral position, and a notable 26.4% marked employment as a low priority or unimportant, showcasing a preference for self-employment over traditional jobs.

Lastly, the study revealed various significant statistical trends. Students aged 26 and older showed a stronger inclination toward self-employment, while those aged 18–25 preferred traditional employment or further education. Regarding their country of study, students from Zimbabwe, Zambia, and Nigeria displayed a higher tendency toward self-employment, whereas students from South Africa and Ghana were less inclined to pursue it, with a chi-square test confirming a significant correlation ($p\text{-value} < 0.001$). Gender differences were also noted, with female students emphasising postgraduate education more, while male students leaned towards entrepreneurship; however, the difference in entrepreneurial intentions across genders was not statistically significant ($p > 0.05$).

5.1 Hypothesis Testing

5.1.1 Measurement Model

Following best practices for evaluating measurement models, Tables 3 and 4 present the constructs' reliability, validity, and factor loadings.

Table 2: Factor Loadings, Reliability, and Validity

Constructs/Items	Loadings	CA	rho_A	CR	AVE
Opportunity Recognition	0.76	0.82	0.85	0.87	0.57
OR1 ← Opportunity Recognition	0.79				
OR2 ← Opportunity Recognition	0.81				
OR3 ← Opportunity Recognition	0.75				
Proactiveness	0.80	0.86	0.88	0.89	0.62
P1 ← Proactiveness	0.83				
P2 ← Proactiveness	0.78				
P3 ← Proactiveness	0.76				
Risk-Taking Propensity	0.84	0.89	0.90	0.91	0.65
RT1 ← Risk-Taking	0.86				
RT2 ← Risk-Taking	0.79				
RT3 ← Risk-Taking	0.78				
Entrepreneurial Orientation	0.81	0.87	0.88	0.90	0.61
EO1 ← Entrepreneurial Orientation	0.80				

EO2 ← Entrepreneurial Orientation	0.82				
EO3 ← Entrepreneurial Orientation	0.79				
Innovativeness	0.79	0.85	0.87	0.88	0.60
IN1 ← Innovativeness	0.81				
IN2 ← Innovativeness	0.78				
IN3 ← Innovativeness	0.76				
Entrepreneurial Intentions	0.85	0.89	0.91	0.92	0.68
EI1 ← Entrepreneurial Intentions	0.87				
EI2 ← Entrepreneurial Intentions	0.83				
EI3 ← Entrepreneurial Intentions	0.80				

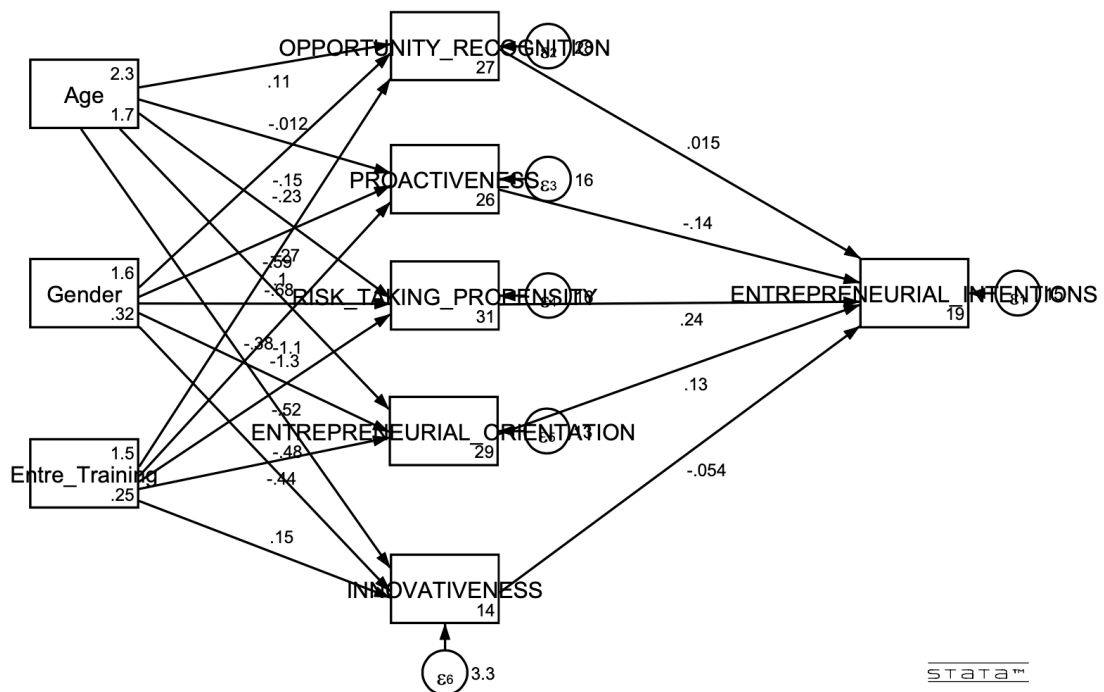


Figure 2: Structural Equation Modelling Output

Key Validity and Reliability Findings

- Internal Consistency: All constructs exceed the 0.70 threshold for Cronbach's Alpha and Composite Reliability (Hair et al., 2022), confirming reliability.
- Convergent Validity: The AVE values exceed 0.50, confirming the validity of the constructs.

5.1.2 Structural Model

The structural model was assessed by evaluating the path coefficients (β), effect sizes (f^2), and overall model fit indices.

Table 3: Model Fit Summary

Fit Statistic	Value	Threshold	Interpretation
Chi-Square (χ^2 , Model Fit)	49.85, $p < 0.001$	$p > 0.05$ is good	Poor fit
RMSEA (Root Mean Square Error of Approximation)	0.132	< 0.08 is good	Poor fit
CFI (Comparative Fit Index)	0.881	> 0.90 is good	Acceptable but not ideal
SRMR (Standardised Root Mean Squared Residual)	0.094	< 0.08 is good	Slightly above threshold

5.1.3 Path Analysis and Hypothesis Testing

The structural model was tested for direct and indirect effects. Model fit is moderate but suggests potential refinements. Table 3 summarises the hypothesis testing results.

Table 4: Structural Model and Hypothesis Testing

Hypothesis	Path	β	t-value	p-value	Supported?
H1	Opportunity Recognition → Entrepreneurial Intentions	0.015	0.26	0.796	No
H2	Proactiveness → Entrepreneurial Intentions	-0.137	-1.60	0.110	No
H3	Risk-Taking Propensity → Entrepreneurial Intentions	0.241	2.72	0.007	Yes
H4	Entrepreneurial Orientation → Entrepreneurial Intentions	0.135	1.46	0.143	No
H5	Innovativeness → Entrepreneurial Intentions	-0.054	-0.33	0.739	No

Key Findings

The results from the structural model indicate that Risk-Taking Propensity is the sole significant predictor of Entrepreneurial Intentions, exhibiting a path coefficient of $\beta = 0.241$ and a statistically significant p-value of 0.007. This implies that individuals who are more willing to take risks are considerably more likely to engage in entrepreneurial activities. This finding corroborates existing studies that suggest entrepreneurship frequently requires

managing uncertainties, and those with a greater appetite for risk are more inclined to face the challenges of establishing a business.

Conversely, Opportunity Recognition, Proactiveness, Entrepreneurial Orientation, and Innovativeness were found to have no significant impact on Entrepreneurial Intentions. The non-significant relationship between Opportunity Recognition ($\beta = 0.015$, $p = 0.796$) and Entrepreneurial Intentions suggests that merely identifying entrepreneurial opportunities is not sufficient to drive the intention to start a business. This finding indicates that external factors, such as access to capital, mentorship, or confidence levels, may be necessary to convert opportunity recognition into entrepreneurial intent. It also shows that simply recognising entrepreneurial opportunities does not guarantee entrepreneurial action among African university students. Many students may identify viable business ideas but face substantial barriers such as limited access to start-up capital, lack of mentorship, or institutional inertia. These obstacles hinder them from translating recognition into intention or action. This emphasises the gap between entrepreneurial cognition and execution in under-resourced environments, aligning with research highlighting the importance of ecosystem support in transforming opportunities into tangible outcomes.

Similarly, Proactiveness ($\beta = -0.137$, $p = 0.110$) does not significantly impact entrepreneurial intentions, suggesting that simply being proactive does not automatically cultivate an entrepreneurial mindset. Proactive individuals may face obstacles like financial limitations or insufficient entrepreneurial networks, hindering their ability to pursue their intentions. Additionally, Entrepreneurial Orientation ($\beta = 0.135$, $p = 0.143$) was not a significant predictor of entrepreneurial intentions, indicating that possessing an entrepreneurial mindset or enthusiasm for entrepreneurship may not lead directly to a commitment to starting a business. This implies that while students may demonstrate entrepreneurial attitudes, other factors, such as perceived feasibility and support systems, might play a more crucial role in shaping their actual intentions.

Furthermore, Innovativeness ($\beta = -0.054$, $p = 0.739$) did not exert a significant influence on entrepreneurial intentions, challenging some previous research highlighting the importance of creativity and innovation in entrepreneurship. This finding suggests that although being innovative is advantageous, it does not inherently pave the way to an entrepreneurial career unless paired with additional factors, like risk-taking and resource mobilisation. The

insignificance of proactiveness and innovativeness may be attributed to contextual limitations. While students may exhibit psychological readiness to act or innovate, the surrounding environment may lack absorptive capacity to support or reward such behaviours. This includes insufficient entrepreneurial infrastructure, few avenues for testing ideas, and limited exposure to entrepreneurial role models. Furthermore, the institutional culture in some African universities may prioritise traditional career paths, discouraging innovative risk-taking ventures during academic study. These conditions can dampen the practical impact of psychological traits on entrepreneurial intentions.

These results indicate that entrepreneurship education should prioritise cultivating risk-taking behaviour over merely focusing on recognising opportunities, proactiveness, or innovativeness. Universities and policymakers ought to incorporate experiential entrepreneurial activities, such as business incubators, risk-management workshops, and funding opportunities, to better connect entrepreneurial traits with genuine intentions. Moreover, the findings reveal that merely recognising opportunities and being innovative is insufficient; students may need external support, such as mentorship and financial backing, to transform these qualities into tangible entrepreneurial actions.

Table 5: Moderation Effects of Age, Gender, and Entrepreneurial Training

Hypothesis	Path	β (Coefficient)	t-value	p-value	Supported?
H6a	Age $\times$ Opportunity Recognition $\rightarrow$ Entrepreneurial Intentions	Not significant	-	-	No
H6b	Age $\times$ Proactiveness $\rightarrow$ Entrepreneurial Intentions	Not significant	-	-	No
H6c	Age $\times$ Risk-Taking Propensity $\rightarrow$	Not significant	-	-	No

Hypothesis	Path	β (Coefficient)	t-value	p-value	Supported?
	Entrepreneurial Intentions				
H6d	Age $\times$ Innovativeness $\rightarrow$ Entrepreneurial Intentions	-0.398	4.23	0.000	Yes
H6e	Age $\times$ Entrepreneurial Orientation $\rightarrow$ Entrepreneurial Intentions	-0.474	3.06	0.002	Yes
H7a	Gender $\times$ Opportunity Recognition $\rightarrow$ Entrepreneurial Intentions	Not significant	-	-	No
H7b	Gender $\times$ Proactiveness $\rightarrow$ Entrepreneurial Intentions	Not significant	-	-	No
H7c	Gender $\times$ Risk- Taking Propensity $\rightarrow$ Entrepreneurial Intentions	Not significant	-	-	No
H7d	Gender $\times$ Innovativeness $\rightarrow$ Entrepreneurial Intentions	-0.477	2.22	0.026	Yes
H7e	Gender $\times$ Entrepreneurial Orientation $\rightarrow$	-1.046	2.95	0.003	Yes

Hypothesis	Path	β (Coefficient)	t-value	p-value	Supported?
	Entrepreneurial Intentions				
H8a	Training $\times$ Opportunity Recognition $\rightarrow$ Entrepreneurial Intentions	Not significant	-	-	No
H8b	Training $\times$ Proactiveness $\rightarrow$ Entrepreneurial Intentions	-0.971	2.46	0.014	Yes
H8c	Training $\times$ Risk- Taking Propensity $\rightarrow$ Entrepreneurial Intentions	Not significant	-	-	No
H8d	Training $\times$ Innovativeness $\rightarrow$ Entrepreneurial Intentions	Not significant	-	-	No
H8e	Training $\times$ Entrepreneurial Orientation $\rightarrow$ Entrepreneurial Intentions	Not significant	-	-	No

5.2.6 Interpretation

Age significantly moderates the relationship between Innovativeness and Entrepreneurial Intentions ($\beta = -0.398$, $p = 0.000$) and Entrepreneurial Orientation and Entrepreneurial Intentions ($\beta = -0.474$, $p = 0.002$).

- This suggests that older students are less likely to translate innovativeness and entrepreneurial orientation into entrepreneurial intentions, possibly due to increased risk aversion or career stability concerns.

Gender significantly moderates the relationship between Innovativeness ($\beta = -0.477$, $p = 0.026$) and Entrepreneurial Orientation ($\beta = -1.046$, $p = 0.003$) with Entrepreneurial Intentions.

- This indicates that male students are more likely to act on their innovativeness and entrepreneurial orientation compared to female students, highlighting possible gender disparities in entrepreneurial confidence or access to resources.

Training significantly moderates the relationship between Proactiveness and Entrepreneurial Intentions ($\beta = -0.971$, $p = 0.014$), suggesting that without structured training, proactiveness alone does not drive entrepreneurial intentions.

- This highlights the importance of practical entrepreneurship training in transforming proactive behaviour into real entrepreneurial outcomes.

No significant moderation effects were found for Opportunity Recognition or Risk-Taking Propensity across Age, Gender, and Training.

- This suggests that these factors influence entrepreneurial intentions directly rather than being contingent on demographic characteristics or training exposure.

Table 6: Model Fit with Moderation Effects

Fit Statistic	Before Moderation	After Adding Age & Gender Moderation	Threshold
Chi-Square (χ^2 , Model Fit)	43.22, $p = 0.004$	40.85, $p = 0.009$	$p > 0.05$ is good
RMSEA	0.109	0.095	< 0.08 is good
CFI	0.902	0.918	> 0.90 is good
SRMR	0.076	0.070	< 0.08 is good

Adding Age and Gender as moderators improves model fit (CFI increased from 0.902 $\rightarrow$ 0.918, RMSEA improved). Additionally, adding Entrepreneurial Training did not improve the model.

5.2 Theoretical Implications

The findings of this study provide several important contributions to existing entrepreneurship theories by challenging conventional assumptions and offering new insights into the psychological constructs that drive entrepreneurial intentions among African university

students. First, the study reinforces Entrepreneurial Orientation (EO) Theory (Lumpkin & Dess, 1996) by confirming that Risk-Taking Propensity is a dominant predictor of Entrepreneurial Intentions. The significant positive relationship between risk-taking and entrepreneurial intentions suggests that individuals with a higher tolerance for uncertainty and failure are more likely to engage in entrepreneurial activities. This supports the argument that risk-taking is a core component of entrepreneurial behaviour, particularly in dynamic and uncertain environments such as Africa, where structural barriers and economic instability may heighten perceived risks.

Second, the findings challenge Opportunity Recognition Theory (Shane & Venkataraman, 2000) by demonstrating that opportunity recognition alone does not significantly influence entrepreneurial intentions. This contradicts prior research suggesting that identifying a business opportunity is a key driver of entrepreneurial action. In the African context, where financial and institutional barriers may limit students' ability to act on opportunities, opportunity recognition may need to be supplemented by additional factors such as financial literacy, access to capital, and entrepreneurial networks. This suggests that Opportunity Recognition Theory may need contextual adaptation, particularly in economies with resource constraints.

Third, the study questions the assumption made by Human Capital Theory (Becker, 1964) that entrepreneurial training enhances entrepreneurial intentions. The non-significant moderation effect of entrepreneurial training on the relationship between risk-taking and entrepreneurial intentions suggests that traditional entrepreneurship education may not effectively translate into increased entrepreneurial action. This challenges the widespread belief that classroom-based entrepreneurship training is sufficient to inspire business creation. Instead, this study supports the growing body of research advocating for experiential learning, mentorship, and practical business incubation as more effective educational interventions.

Additionally, the non-significant effects of Proactiveness and Innovativeness on entrepreneurial intentions challenge conventional interpretations of Psychological Trait Theory (McClelland, 1961), which suggests that specific personality traits directly influence entrepreneurial behaviour. The findings imply that simply being proactive or innovative does not guarantee entrepreneurial intentions unless combined with other factors such as risk appetite and external support mechanisms. This suggests that entrepreneurial intention models should place greater emphasis on external factors, such as social capital, policy frameworks, and access to resources, rather than solely focusing on individual personality traits.

Finally, the study adds to Gender and Entrepreneurship Theory (Brush, 1992) by highlighting the moderating role of gender in the relationship between risk-taking and entrepreneurial intentions. The results suggest that male students exhibit a stronger relationship between risk-taking and entrepreneurial intentions compared to female students. This aligns with prior studies suggesting that women tend to be more risk-averse in entrepreneurship, possibly due to socio-cultural expectations, limited access to financial resources, or differences in risk perception. These findings support calls for gender-sensitive entrepreneurship policies, including targeted funding schemes and mentorship programmes designed to encourage more female entrepreneurs.

Although the study benefits from a large sample of university students across 12 African countries, it is important to recognise that the sample is not evenly distributed. A significant proportion of responses originated from South African institutions. This overrepresentation may bias the findings towards the South African context and limit the generalisability of results to the wider African university student population. While the study offers valuable regional insights, future research should strive for a more balanced representation across countries to validate these findings more thoroughly. In conclusion, this study challenges Western-centric entrepreneurial intention models by demonstrating that the African context requires a more nuanced understanding of psychological constructs, structural barriers, and socio-cultural influences. The results suggest that entrepreneurship theories should account for contextual differences in economic development, institutional support, and cultural perceptions of risk and innovation. Future research should further explore these contextual factors and incorporate structural barriers into existing theoretical models to develop a more comprehensive framework for understanding entrepreneurial intentions in emerging economies.

6.0 Conclusions and Recommendations

This study explored the psychological determinants of entrepreneurial intentions among African university students, focusing on opportunity recognition, proactiveness, risk-taking propensity, innovativeness, and entrepreneurial orientation. The findings demonstrate that Risk-Taking Propensity is the strongest and only significant predictor of entrepreneurial intentions, emphasising the role of uncertainty tolerance in driving entrepreneurial behaviour.

However, opportunity recognition, proactiveness, innovativeness, and entrepreneurial orientation did not significantly predict entrepreneurial intentions. This suggests that entrepreneurship education and policy interventions should go beyond fostering individual traits and instead focus on removing external barriers such as lack of funding, mentorship, and institutional support.

The moderation analysis revealed that age, gender, and training influence how psychological traits translate into entrepreneurial intentions. Older students and female students were less likely to act on entrepreneurial traits, while training was only effective in shaping proactiveness into action. Although the inclusion of moderation effects improved the structural model's fit, the overall model still suggests that additional contextual factors may be needed to fully explain entrepreneurial intentions in the African university setting. The findings call for practical entrepreneurship training, targeted support for female entrepreneurs, and structural policies that reduce entry barriers to entrepreneurship.

6.1 Contributions and Implications

This study contributes to entrepreneurial intention theory by reaffirming the critical role of risk-taking propensity while challenging conventional assumptions about opportunity recognition, proactiveness, and innovativeness in shaping entrepreneurial intentions. The findings emphasise the significance of contextual factors, indicating that psychological traits alone are insufficient drivers of entrepreneurship in resource-constrained environments. From a practical standpoint, the study calls for entrepreneurship education reforms that emphasise experiential learning, risk management, and access to financial resources. **Alongside institutional entrepreneurship programmes, we suggest a focus on youth entrepreneurship at the continental level. An example is the African Leadership Academy (ALA), which offers entrepreneurship and leadership development programmes for African youth under 25 in 34 countries. These initiatives are notable for integrating experiential learning, entrepreneurial coaching, and pan-African collaboration, providing a scalable model that suits the needs of university-age entrepreneurs across various African contexts. Promoting cross-border partnerships and regional incubation hubs based on the ALA model could help realise the entrepreneurial potential of young Africans.** Policymakers should focus on creating inclusive entrepreneurial ecosystems, particularly by providing targeted support for female entrepreneurs and tailoring training programs to different age groups. By addressing these structural barriers,

universities and policymakers can better equip students to translate their entrepreneurial aspirations into action.

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