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EXAMINING FACTORS INFLUENCING ENVIRONMENTAL SUSTAINABLE ENTREPRENEURIAL INTENTIONS AMONG UNIVERSITY STUDENTS IN ZAMBIA

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Abstract

This study examines factors influencing sustainable entrepreneurial intentions (SEI) among Zambian university students using structural equation modelling (SEM) in Jamovi. Grounded in the theory of planned behaviour and regulatory focus theory, it investigates how subjective norms, perceived behavioural control, intrinsic rewards, environmental values, and temporal considerations (immediate and future consequences) shape SEI. Based on a sample of 637 respondents from public universities in Copperbelt, Zambia, results from a deductive, correlational, quantitative research design reveal that attitude towards sustainable entrepreneurship fully mediates the effects of subjective norms and perceived control (VAF=81.7%, 93.5%), while partially mediating other factors (VAF=39.3%, 72.8%). The model demonstrates a strong fit (R^2=0.627) and acceptable fit (RMSEA=0.071, SRMR=0.075).Findings highlight contextual differences from Western studies, with immediate economic concerns exerting a stronger influence than long-term sustainability in Zambia's developing context. Practical implications suggest integrating sustainability in entrepreneurship education, policy incentives for green ventures, and financial support mechanisms. The study contributes to SEI literature by validating theoretical frameworks in an under-researched African context while emphasising the need for culturally adapted approaches to sustainable entrepreneurship development.

Keywords: *Sustainable entrepreneurship, entrepreneurial intentions, theory of planned behaviour, Zambia, structural equation modelling.*

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1.0 INTRODUCTION

Sustainable development is one of the most pressing challenges of modern times, with climate change, biodiversity loss, and environmental degradation threatening ecosystems globally (Yasir *et al.*, 2023). Sustainable entrepreneurship, rooted in recognising, assessing, and

capitalising on opportunities, has emerged as a potential solution to address these challenges while generating economic and social value (Tiemann *et al.*, 2018). By integrating environmental and social considerations into business models, sustainable entrepreneurship can help mitigate the impacts of climate change, improve agricultural systems, safeguard biodiversity, and ensure long-term resource availability (Odeyemi *et al.*, 2024). Globally, entrepreneurship is recognised as a driver of innovation, competition, job creation, and inclusive economic growth (Agu *et al.*, 2021; Vuorio, 2017).

Despite its potential, sustainable entrepreneurship is unevenly embraced across contexts. In Zambia, where unemployment was recorded at 6.13% in 2022 (World Bank, 2022), entrepreneurship remains a crucial tool for economic empowerment, particularly in light of gender disparities in entrepreneurial participation. The country's economy is heavily dependent on agriculture, which increased to ZMW 3417.96 Million GDP in the first quarter of 2025 from ZMW 2261.02 Million in the fourth quarter of 2024 (CSO, 2025).

However, Zambia faces climate risks, including a projected temperature increase of 1.9°C by 2050 and reduced rainfall, which may result in a 13% decline in water availability by 2100 (Detelinova *et al.*, 2023). These environmental challenges make the pursuit of sustainable entrepreneurship not just an economic necessity but also a resilience strategy. Although sustainable entrepreneurship has gained scholarly attention globally, research in the African context, and Zambia in particular, remains limited. Most empirical studies and systematic reviews have been conducted in developed nations such as those in Europe and Asia, where enabling environments differ significantly from those in low-income countries (Banks *et al.*, 2017; Cao *et al.*, 2021). This limits the applicability of existing findings to the Zambian context, where entrepreneurs face constraints such as restricted market access, limited financing for green ventures, and potential "greenwashing" practices.

Empirical evidence shows that sustainable entrepreneurial intention (SEI) is influenced by factors such as attitudes towards sustainability, perceived behavioural control, subjective norms, intrinsic rewards, environmental values, immediate and future consequences (Vuorio, 2017; Yasir, Mahmood, Mehmood and Babar, 2021). However, little is known about how these factors interact in resource-constrained settings where institutional support is weak and market ecosystems are underdeveloped (Roundy *et al.*, 2019). Addressing this gap is critical because entrepreneurial intention is a strong predictor of entrepreneurial behaviour, meaning that understanding its determinants can directly inform policies and programmes aimed at fostering sustainable ventures.

This study, therefore, aims to examine the factors influencing sustainable entrepreneurial intention among university students in Kitwe, Zambia, using a Structural Equation Modelling (SEM) approach in Jamovi. By focusing on the Zambian higher education context, this research responds to calls for more context-specific studies in developing nations. The rest of the paper is structured as follows: First, the literature is reviewed and hypotheses are developed; then, the methods are highlighted before presentation and discussion of results. Lastly, limitations, future directions and conclusions are provided.

2.0 LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

The literature on sustainable entrepreneurial intentions (SEI) highlights diverse theoretical perspectives, including ecopreneurship, resource-based view (RBV), social entrepreneurship, and psychological frameworks. Dey, (2016) emphasises ecopreneurship's role in sustainable business models, while RBV underscores resource availability as a driver of SEI (Ismail *et al.*,

2024). Social entrepreneurship research by Kruse et al., (2021) reveals how societal impact motivations and stakeholder collaborations shape intentions, whereas psychological theories like TPB link attitudes, norms, and perceived control to SEI (Ahmed *et al.*, 2025). Despite these insights, gaps persist, particularly in developing economies like Zambia, where contextual, methodological, and theoretical studies on SEI remain scarce (Matoka, 2024). Most research focuses on Western contexts, neglecting regional variations in resource access, cultural norms, and institutional support. Additionally, longitudinal studies assessing the long-term impact of sustainability education on SEI are lacking. This review refines the research focus to explore Zambian-specific factors influencing SEI, addressing these gaps through a contextual and interdisciplinary lens.

2.1 Theoretical Background

This section focuses on the theoretical underpinnings and contexts of this study's conceptualisation, highlighting the most relevant and underpinning theories.

2.1.1 Regulatory Focus Theory

The Regulatory Focus Theory posits that individuals operate with either a promotion focus, oriented toward growth, goals, and achievements, or a prevention focus, prioritising safety, responsibility, and avoiding losses (Pham *et al.*, 2023). In entrepreneurship, a promotion focus supports idea generation and innovation, while a prevention focus aids in evaluating ideas, managing risks, and ensuring compliance, both being essential for venture success. Studies in Germany (Fischer *et al.*, 2018), the United States (Gregori *et al.*, 2019), and Colombia (Romero-Colmenares, 2022) have applied the theory to explore its influence on sustainable entrepreneurship, revealing that balancing both foci enhances participation in sustainable business practices. This study applies the theory to examine how regulatory focus shapes sustainable entrepreneurial intentions.

2.1.2 Theory of Planned Behaviour

The Theory of Planned Behaviour (TPB) is widely applied to explain entrepreneurial intentions, yet research on sustainable entrepreneurship offers limited insights into intention formation, particularly regarding environmental and social values (Yasir, Mahmood, Mehmood, Babar, *et al.*, 2021). Existing studies, such as Mwiya *et al*. (2017) in Zambia, Yasir et al., (2023) in China, and Romero-Colmenares (2022) in Colombia, have applied TPB to related contexts, but few address sustainable entrepreneurial intentions holistically. This study bridges the gap by integrating intrinsic social values with TPB dimensions, attitude toward sustainability and perceived behavioural control, to guide entrepreneurial intentions toward sustainability. It expands TPB's application by considering environmental and sustainability values, offering a more comprehensive framework for understanding and fostering sustainable entrepreneurship.

2.2 Hypotheses Development and Conceptual Framework

This section presents the development of the hypotheses beginning with subjective norms, perceived behavioural control, intrinsic reward, immediate consequences, environmental values, future consequences, and attitude towards sustainable entrepreneurship, and how they may be related to sustainable entrepreneurial intention.

2.2.1 Subjective Norms and Attitude Towards Sustainable Entrepreneurship

Subjective norms refer to the perceived social pressure to engage or not engage in specific behaviors (Ajzen, 1991). In entrepreneurship, they reflect how significant others, such as family and friends, view an individual's decision to pursue entrepreneurship. Prior studies

(Romero-Colmenares, 2022; Wach *et al.,* 2023) show that subjective norms significantly influence sustainable entrepreneurial intentions (SEI), sometimes being the most impactful factor in the Theory of Planned Behaviour. However, other studies (Hoogendoorn *et al.*, 2019; Man Seong *et al.*, 2025) found no significant effect, often due to low exposure and awareness of sustainable entrepreneurship. Accordingly, we propose the following hypothesis:
H1: Subjective norms positively influence sustainable entrepreneurial intentions.

2.2.2 Perceived Behavioural Control and Attitude Towards Sustainable Entrepreneurship

Perceived behavioural control (PBC) refers to an individual's perception of the ease or difficulty of performing a behaviour, considering past experiences and potential obstacles (Ajzen, 1991). PBC reflects one's sense of capability to execute entrepreneurial activities, including competence and control over actions (Miralles *et al.*, 2016). Empirical evidence by Sharma et al., (2024) indicates that most studies support a positive link between PBC and entrepreneurial intentions, a finding also confirmed among university students (Aloulou, 2016). Therefore, it is hypothesised as follows:
H2: Perceived behavioural control positively influences sustainable entrepreneurial intentions.

2.2.3 Intrinsic Reward and Attitude towards Sustainable Entrepreneurship

Intrinsic rewards refer to the personal satisfaction, autonomy, and innovative drive individuals gain from engaging in entrepreneurial activities that address environmental and social concerns (Malek *et al.*, 2020). Sustainable entrepreneurship often stems from an entrepreneur's intrinsic interest in restoring ecological and social balance while pursuing business opportunities. Prior studies show a positive relationship between intrinsic rewards and sustainable entrepreneurial intentions, with autonomy and creativity being key motivators (Vuorio *et al.*, 2018; Yasir, Mahmood, Mehmood and Babar, 2021). Such rewards enhance perceived behavioural control, fostering commitment to sustainable ventures. Therefore, the study posits as follows:
H3: Intrinsic rewards positively influence sustainable entrepreneurial intention.

2.2.4 Immediate Consequences and Attitude Toward Sustainable Entrepreneurship

Immediate consequences refer to the tendency to focus on short-term outcomes rather than long-term benefits (Joireman, 2016). Individuals driven by immediate rewards are less likely to adopt progressive or sustainable choices (Yaser Saleh *et al.*, 2023). Sustainable entrepreneurship, like other sustainable behaviours, often requires short-term sacrifices for long-term gains (Futre, 2025). Aspiring sustainable entrepreneurs must therefore balance immediate costs with future benefits (Muñoz, 2018). Those with lower emphasis on immediate consequences are more inclined to prioritise long-term societal and environmental well-being, fostering positive attitudes toward sustainable entrepreneurship. Based on these considerations, the study postulates as follows:
H4: Immediate consequences positively relate to sustainable entrepreneurial intentions.

2.2.5 Environmental Values and Attitude Towards Sustainable Entrepreneurship

Environmental values reflect altruistic behaviours, such as universalism and empathy, alongside a strong commitment to environmental and societal well-being (Yasir, Mahmood, Mehmood and Babar, 2021). Studies done by Vuorio et al., (2018) highlight their influence on entrepreneurial motivations, particularly in sustainable ventures. Work values, including environmental concern, shape career choices (Qasim *et al.*, 2024) and drive social entrepreneurship (Singh *et al.*, 2023). Given their role in fostering pro-environmental attitudes,

environmental values are likely to positively influence sustainable entrepreneurial intentions (SEI). We therefore postulate as follows:
H5: Environmental values have a positive influence on sustainable entrepreneurial intentions.

2.2.6 Future Consequences and Attitude Towards Sustainable Entrepreneurship

Future Consequences reflect an individual's ability to weigh long-term impacts of current actions (Srivastava *et al.*, 2024). Sustainable entrepreneurship requires a future-oriented mindset, as its social and ecological benefits often materialise over time (Thelken, 2020). Entrepreneurs prioritising long-term outcomes are more likely to align decisions with sustainability, balancing short-term gains with enduring impact. Empirical evidence suggests this forward-thinking approach fosters sustainable entrepreneurial intentions (SEI) (Al-Mamary, 2025). We therefore postulate as follows:
H6: Future consequences positively influence sustainable entrepreneurial intentions.

2.2.7 Attitude Towards Sustainable Entrepreneurship and Sustainable Entrepreneurial Intentions

Attitudes reflect the extent to which an individual holds a positive evaluation of a behaviour, shaping subsequent intentions (Ajzen, 1991). In entrepreneurship, favourable attitudes toward starting a business increase the likelihood of entrepreneurial intention (Fayolle, 2015). Reviews of the Theory of Planned Behaviour (TPB) confirm that attitudes are a key predictor of entrepreneurial intentions, a finding consistently supported in studies with university students (Aloulou, 2016; Romero-Colmenares, 2022). Specifically, attitudes toward sustainable entrepreneurship positively influence sustainable entrepreneurial intentions, as evidenced in prior research (Vuorio et al., 2018; Yasir et al., 2022). Therefore, the study suggests as follows:
H7: Attitudes toward sustainable entrepreneurship positively relate to Sustainable Entrepreneurial Intentions.

2.2.8 The Mediating Role of Attitude Towards Sustainable Entrepreneurship

Attitude towards sustainable entrepreneurship is proposed to mediate the relationship between intrinsic rewards, subjective norms, PBC, environmental values, immediate and future consequences and sustainable entrepreneurial intentions (SEI). According to the Theory of Planned Behaviour, positive attitudes towards sustainable entrepreneurial activities increase the likelihood of forming strong intentions to engage in such ventures (Ajzen, 1991). External influences, including social pressures from subjective norms and perceived behavioural control, can shape these attitudes, which then translate into intentions (Kobylińska, 2022; Nogueira *et al.*, 2023). Empirical evidence from Zambia (Mwiya *et al.*, 2017), South Africa (Agu *et al.*, 2021), and Germany (Yasir et al., 2022) supports the mediating role of attitude in linking personal and contextual factors to sustainable entrepreneurial intentions. We therefore theorise as follows:
H8: Attitude towards sustainable entrepreneurship significantly mediates the relationship between individual/contextual factors and SEI.

2.3 Conceptual Framework

Based on the foregoing hypotheses, the conceptual Model in Figure 1 below reflects the direction of influence in the relationships being explored.

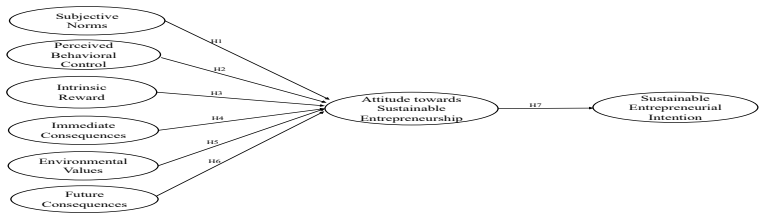

Figure 1: Sustainable Entrepreneurship Intention Conceptual Framework

3.0 METHODS AND MEASUREMENTS

3.1 Population, Unit of Analysis, and Sample

This study employed quantitative methods, focusing on objective measurement, hypothesis testing, and generalizable findings to examine causal relationships (Creswell, 2013). Using a survey method approach, it adopted an explanatory research model to analyse how one variable influence another (Creswell, 2013). Primary data were collected through a structured questionnaire designed on a five-point Likert scale. To gain deeper insights, open-ended questions were included in the survey. The target population for this study was university students in Kitwe, Zambia. There are about 20,000 university students in Kitwe. The Raosoft calculator indicates that 377 is the representative sample with a margin of error of 5%, a 95% confidence level and 50% response distribution (Raosoft Inc. 2025). A sample size of 637 respondents was selected for this research, which is sufficient for research and provides a diverse range of responses.

Table 1: **Sample Profile**

Variable	Description	Frequency	Percent	Valid percent	Cumulative percent
Gender	Male	341	53.5	53.5	53.5
	Female	296	46.5	46.5	100.0
Age-group	Below 20 years	12	1.9	1.9	1.9
	20-25 years	444	69.7	69.7	71.6
	26-30 years	167	26.2	26.2	97.8
	31-34 years	12	1.9	1.9	99.7
	35 and Above	2	0.3	0.3	100.0
Year of study	First	35	5.5	5.5	5.5
	Second	120	18.8	18.8	24.3
	Third	202	31.7	31.7	56.0
	Fourth	231	36.3	36.3	92.3
	Fifth	3	7.7	7.7	100.0
Mode of study	Full time learning	579	90.9	90.9	90.9
	Evening learning	37	5.8	5.8	96.7
	Distance learning	21	3.3	3.3	100.0
Studied or currently studying entrepreneurship	Yes	341	53.5	53.5	53.5
	No	296	46.5	46.5	100

Based on a sample of 637 respondents from public universities in Copperbelt, Zambia, results from a deductive, correlational, quantitative research design are reported. We employed Jamovi software for Structural Equation Modelling (SEM) to analyse the data and test the proposed

hypotheses (Hair and Alamer, 2022). PLS-SEM in Jamovi offers several advantages, particularly its ability to assess measurement models and structural models simultaneously, as highlighted by (Hair and Alamer, 2022) and (Arunraju Chinnaraju, 2025). Jamovi's PLS-SEM has become increasingly popular in exploratory research within management and social sciences because of its flexibility in handling unbalanced datasets and latent constructs. It often demonstrates superior composite reliability and convergent validity while maintaining strong discriminant validity (Sadenova, 2025). Moreover, unlike Covariance-Based SEM (CB-SEM), which focuses on theory confirmation using a covariance approach, PLS-SEM is optimised for causal-predictive analysis. This makes it particularly suitable for developing and testing theoretical models aimed at prediction and explanation Hair and Alamer (2022).

4.0 **RESULTS**

Preliminary Statistical Checks for Data Distribution

The measurement model explains how the endogenous and exogenous constructs are measured through observed indicators/variables. The characteristics of the survey items (observed variables) are essential because measurement variables are the basis on which the abstract hypothesis is studied. It also helps identify the errors that may occur during the survey process. The Measurement model of the study consisted of eight constructs, and all the constructs had reflective indicators. The reliability and validity of the study constructs were assessed. Factor loading for the indicators, indicator reliability, reliability for internal consistency, and both convergent and discriminant validity for the constructs were computed. To mitigate common method bias (CMB), procedural and statistical measures were implemented, including ensuring respondent anonymity, enhancing item clarity, and conceptually separating items (Podsakoff *et al.*, 2024). Additionally, Harman's single-factor test and marker variable techniques were utilised to detect bias, in accordance with Podsakoff et al. (2024). The evaluation of common method variance (CMV) using the Harman single-factor test has been carried out, and the variance value is 27.722%. If the percentage variance is below 50%, then it can be said that the measurement of the research indicators has passed the common method bias (Pangarso *et al.*, 2020).

Exploratory Factor Analysis (EFA) was performed using Principal Component Analysis (PCA) with and without Varimax rotation. Table 2 states the results of the Harman single-factor test for CMV testing with Bartlett's Sphericity at Chi-square (χ^2) = 10824, df, 561, $p<0.001$ and KMO Measure of Sample adequacy at 0.913 in the acceptable range for factor analysis. In Bartlett's Sphericity, a significant result gives confidence that the correlations within the data are meaningful and not just random chance, making the dataset suitable for factor analysis. The KMO test assesses whether the data is suitable for factor analysis by comparing observed correlations to partial correlations. A high KMO value indicates strong correlations between variables, making factor analysis appropriate (0.80 to 1 is high, 0.70 middle, below 0.50 unacceptable). Appendix A shows the survey questionnaire items.

Table 2: Harman single factor test Total Variance Explained

Initial Eigenvalues			
Component	**Eigenvalue**	**% of Variance**	**Cumulative %**
1	9.426	27.722	27.722
2	4.852	14.271	41.994
3	1.92	5.648	47.641

4	1.638	4.818	52.459
5	1.34	3.942	56.401
6	1.176	3.459	59.86
7	0.938	2.758	62.617
8	0.883	2.598	65.215
9	0.865	2.545	67.76
10	0.766	2.252	70.012
11	0.71	2.087	72.099
12	0.666	1.959	74.058
13	0.637	1.874	75.932
14	0.607	1.785	77.717
15	0.583	1.715	79.432
16	0.549	1.616	81.048
17	0.542	1.594	82.642
18	0.525	1.545	84.188
19	0.497	1.462	85.649
20	0.455	1.338	86.987
21	0.434	1.277	88.263
22	0.404	1.189	89.452
23	0.389	1.144	90.596
24	0.383	1.128	91.724
25	0.359	1.054	92.779
26	0.353	1.037	93.816
27	0.335	0.986	94.802
28	0.304	0.895	95.697
29	0.298	0.875	96.572
30	0.284	0.834	97.406
31	0.261	0.767	98.173
32	0.252	0.741	98.914
33	0.214	0.63	99.544
34	0.155	0.456	100

In Table 3, the measurement model demonstrates strong reliability and validity, with most outer loadings exceeding the recommended threshold (Fauzi, 2022).

Table 3: Loadings

Construct	Items	Loadings
Subjective Norms	SN1	0.882
	SN2	0.996
	SN3	0.675
Perceived Behavioural Control	PBC1	0.576

	PBC2	0.922
	PBC3	0.826
Intrinsic Rewards	IR1	0.721
	IR2	0.783
	IR4	0.603
Immediate Consequences	IC1	0.461
	IC2	0.802
	IC4	0.604
Environmental Values	EV1	0.568
	EV2	0.612
	EV3	0.743
	EV4	0.791
	EV5	0.576
Future Consequences	FC1	0.762
	FC2	0.557
	FC3	0.714
	FC4	0.465
	FC5	0.528
Attitude Towards Sustainable Entrepreneurship	ATSE1	0.412
	ATSE2	0.659
	ATSE3	0.571
	ATSE4	0.675
Sustainable Entrepreneurial Intentions	SEI1	0.735
	SEI2	0.895
	SEI3	0.521
	SEI4	0.499
	SEI5	0.592

Factor loadings below 0.40 do not contribute meaningfully to the model and are therefore removed, according to guidelines by Hair and Alamer (2022). In this study, one item from intrinsic rewards and two items from immediate consequences had a loading below 0.40 and were consequently excluded from the model. Although some lower loadings may indicate potential measurement issues that require further refinement (Floyd, 1995), such indicators can be re-specified to improve construct validity (Wipulanusat *et al.*, 2017). Overall, the dominance of high loading values affirms the construct validity and provides sufficient justification to proceed with hypothesis testing.

The study demonstrates strong internal consistency in Table 4, with Cronbach's alpha values surpassing the 0.70 benchmark and convergent validity is generally supported by acceptable AVE values. While AVE values slightly below 0.50 may be acceptable with high composite reliability (Henseler *et al.*, 2015), these constructs warrant refinement in future research.

Table 4: Reliability and Convergent Validity

Variable	Cronbach's alpha	Average Variance Extracted (AVE)
Subjective Norms	0.882	0.728
Perceived behavioural Control	0.833	0.629
Intrinsic Rewards	0.779	0.545
Immediate Consequences	0.753	0.436
Environmental Values	0.795	0.440
Future Consequences	0.784	0.412
Attitude towards Sustainable Entrepreneurship	0.808	0.525
Sustainable Entrepreneurial Intentions	0.801	0.438

The HTMT criterion has recently gained prominence, replacing the (Fornell and Larcker, 1981) criterion, as it provides a more comprehensive and less restrictive measure of discriminant validity. The primary objective of HTMT is to assess whether the ratio approaches 1, with values closer to 1 indicating weaker discriminant validity. According to Henseler et al. (2015) recommended threshold values are 0.85 and 0.90. The results presented in Table 5 suggest that all HTMT values are below the 0.85 threshold, thereby confirming discriminant validity.

Table 5: **Heterotrait-monotrait ratio (HTMT)**

Construct	SN	PBC	IR	IC	EV	FC	ATSE	SEI
Subjective Norms								
Perceived Behavioural Control	0.611							
Intrinsic Rewards	0.383	0.366						
Immediate Consequences	0.148	0.141	0.312					
Environmental Values	0.073	0.074	0.558	0.636				
Future Consequences	0.089	0.118	0.366	0.932	0.634			
Attitude Towards Sustainable Entrepreneurship	0.239	0.297	0.637	0.632	0.548	0.563		
Sustainable Entrepreneurial Intentions	0.194	0.231	0.482	0.743	0.630	0.650	0.792	

The mean, standard deviation (SD), and correlation coefficients for all six study constructs are presented in Table 6. The results indicate that subjective norms ($r = 0.180$, $p < 0.001$), perceived behavioural control ($r = 0.183$, $p < 0.001$), intrinsic rewards ($r = 0.416$, $p < 0.001$), environmental values ($r = 0.505$, $p < 0.001$), future consequences ($r = 0.543$, $p < 0.001$), and immediate consequences ($r = 0.598$, $p < 0.001$) all exhibit significant and positive correlations with attituded towards sustainable entrepreneurship. It is observed that attitudes towards sustainable entrepreneurship positively influence sustainable entrepreneurial intentions ($r = 0.646$, $p < 0.001$). A further notable aspect of the correlation coefficients is that all values are below 0.9, which is an acceptable threshold. This indicates the absence of multicollinearity among the six constructs, thereby supporting the robustness of the model (Thien, 2020).

Table 6: Correlations among all variables

No	Variable	Mean	Std Dev	N	SEI	ATSE	SN	PBC	IR	ENV	FC	IC
1	SEI	4.022	0.641	637	—							
2	ATSE	4.130	0.639	637	0.646***	—						
3	SN	3.459	0.754	637	0.180***	0.230***	—					
4	PBC	3.751	0.698	637	0.183***	0.266***	0.530***	—				
5	IR	4.223	0.623	637	0.416***	0.515***	0.319***	0.298***	—			
6	EV	4.215	0.639	637	0.505***	0.441***	0.039	0.038	0.446***	—		
7	FC	3.909	0.648	637	0.543***	0.461***	-0.074	-0.046	0.373***	0.507***	—	
8	IC	3.926	0.649	637	0.598***	0.508***	-0.02	-0.009	0.316***	0.497***	0.719***	—

Note. * p < .05, ** p < .01,
***p < .001

The statistical analysis presented in Table 7 provides valuable insights into the model's explanatory power and predictive relevance regarding attitudes towards sustainable entrepreneurship. The R^2 value, which represents the proportion of variance in the dependent variable explained by the independent variables, stands at 0.627. This indicates that 62.7% of the variance in the dependent variable is accounted for by the model, suggesting a substantial explanatory power. According to Chin (1998), recommended R^2 values for endogenous latent variables based on: 0.67 (substantial), 0.33 (moderate), 0.19 (weak).

Residual fit indices, such as RMSEA and SRMR, measure the discrepancy between the model and the observed data. RMSEA assesses the degree of model approximation, where values below 0.05 indicate a good fit and values below 0.08 are considered acceptable (Sadenova, 2025). SRMR reflects the average discrepancy between predicted and observed covariances, with a value below 0.05 considered excellent, while a value between 0.05 and 0.08 indicates an adequate fit. However, as noted by Nordhoff et al. (2021), fit indices such as RMSEA and SRMR can vary depending on the complexity of the model and its parameters, highlighting the importance of using multiple indices to ensure reliable conclusions. In this study, RMSEA value of 0.071 indicates an acceptable fit, while the SRMR value of 0.075 suggests that the model achieves an acceptable fit, reinforcing its validity and robustness.

Table 7: R Squared, RMSEA, and SRMR

Explanatory R^2	RMSEA	SRMR
ATSE 0.627 SEI 0.744	0.071	Contextual Factors -> ATSE -> SEI 0.075

The Mediating Role of Attitude towards Sustainable Entrepreneurship

Mediation analysis is crucial for understanding how an independent variable influences a dependent variable through a mediator. In this study, attitude towards sustainable entrepreneurship (ATSE) was examined as a mediating variable between subjective norms, perceived behavioural control, intrinsic rewards, environmental values, future consequences, immediate consequences, and sustainable entrepreneurial intention. Using bootstrapping mediation analysis in Jamovi, several significant direct and indirect effects were identified, as summarised in Table 8.

The results indicate that for subjective norms, the total effect was statistically significant (path c, i.e. SN -> SEI $\beta = 0.153$, $p = 0.001$, LLCI = 0.088, ULCI = 0.218), while indirect effect was statistically significant (path ab, i.e. SN ->ATSE -> SEI, $\beta=0.125$, $p=0.001$, LLCI= 0.082, ULCI= 0.167), with variance accounted for (VAF) at 81.7% since the direct effect was statistically insignificant (path c' i.e. SN -> SEI, $\beta= 0.029$, $p=0.280$, LLCI=-0.023, ULCI 0.080), signifying full mediation.

For perceived behavioural control, the total effect was statistically significant (path c, i.e. PBC -> SEI $\beta = 0.168$, $p = 0.001$, LLCI = 0.098, ULCI = 0.238), indirect effect was statistically significant (path ab, i.e. PBC ->ATSE -> SEI, $\beta=0.157$, $p=0.001$, LLCI= 0.110, ULCI= 0.204), with variance accounted for (VAF) at 93.5% since the direct effect was statistically insignificant (path c' i.e. PBC -> SEI, $\beta= 0.011$, $p=0.709$, LLCI= -0.046, ULCI= 0.067), signifying full mediation.

The intrinsic rewards show that the total effect was statistically significant (path c, i.e. IR -> SEI $\beta = 0.427$, $p = 0.001$, LLCI = 0.355, ULCI = 0.500), indirect effect was statistically significant (path ab, i.e. IR ->ATSE -> SEI, $\beta=0.311$, $p=0.001$, LLCI= 0.257, ULCI= 0.366), with variance accounted for (VAF) at 72.8% since the direct effect was also statistically significant (path c' i.e. IR -> SEI, $\beta=0.116$, $p=0.001$, LLCI= 0.045 ULCI= 0.186), signifying partial mediation.

The immediate consequences show that the total effect was statistically significant (path c, i.e. IC -> SEI $\beta = 0.590$, $p = 0.001$, LLCI = 0.529, ULCI = 0.652), indirect effect was statistically significant (path ab, i.e. IC ->ATSE -> SEI, $\beta=0.232$, $p=0.001$, LLCI= 0.188, ULCI= 0.276), with variance accounted for (VAF) at 39.3% since the direct effect was also statistically significant (path c' i.e. IC -> SEI, $\beta=0.359$, $p=0.001$, LLCI= 0.297, ULCI= 0.421), signifying partial mediation.

The environmental values show that the total effect was statistically significant (path c, i.e. EV-> SEI $\beta = 0.506$, $p = 0.001$, LLCI = 0.439, ULCI = 0.573), indirect effect was statistically significant (path ab, i.e. EV ->ATSE -> SEI, $\beta=0.232$, $p=0.001$, LLCI= 0.186, ULCI= 0.278), with variance accounted for (VAF) at 45.9% since the direct effect was also statistically significant (path c' i.e. EV -> SEI, $\beta=0.274$, $p=0.001$, LLCI= 0.211 ULCI= 0.336), signifying partial mediation.

Future consequences show that the total effect was statistically significant (path c, i.e. FC-> SEI $\beta = 0.537$, $p = 0.001$, LLCI = 0.473, ULCI = 0.602), indirect effect was statistically significant (path ab, i.e. FC ->ATSE -> SEI, $\beta=0.229$, $p=0.001$, LLCI= 0.185, ULCI= 0.274), the direct effect was also statistically significant (path c' i.e. FC ->SEI, $\beta=308$, $p=0.011$, LLCI= 0.246, ULCI=0.369), signifying partial mediation. The VAF entails that 42.7% of the influence of X on Y is transmitted through the indirect effect (i.e. Indirect effect divided by total effect).

These findings highlight the crucial role of attitude towards sustainable entrepreneurship (ATSE) as a mediator, demonstrating the complex interactions between key determinants influencing sustainable entrepreneurial intention both directly and indirectly.

Table 8: Mediation Results

Procedure	Path	Total effect	Direct effect	Indirect effect	P-Values	boot LLCI	boot ULCI	VAF	Hypotheses
X on Y with M present	SN -> SEI (c')		0.029		0.280	-0.023	0.080		
X on Y	SN -> SEI (c)	0.153			0.001	0.088	0.218		
X on Y via M	SN ->ATSE -> SEI (ab)			0.125	0.001	0.082	0.167	81.7%	S
X on Y with M present	PBC -> SEI (c')		0.011		0.709	-0.046	0.067		
X on Y	PBC -> SEI (c)	0.168			0.001	0.098	0.238		
X on Y via M	PBC ->ATSE-> SEI (ab)			0.157	0.001	0.110	0.204	93.5%	S
X on Y with M present	IR-> SEI (c')		0.116		0.001	0.045	0.186		
X on Y	IR -> SEI (c)	0.427			0.001	0.355	0.500		
X on Y via M	IR ->ATSE -> SEI (ab)			0.311	0.001	0.257	0.366	72.8%	S
X on Y with M present	IC -> SEI (c')		0.359		0.001	0.297	0.421		
X on Y	IC -> SEI (c)	0.590			0.001	0.529	0.652		
X on Y via M	IC ->ATSE -> SEI (ab)			0.232	0.001	0.188	0.276	39.3%	S
X on Y with M present	EV -> SEI (c')		0.274		0.001	0.211	0.336		
X on Y	EV -> SEI (c)	0.506			0.001	0.439	0.573		
X on Y via M	EV ->ATSE -> SEI (ab)			0.232	0.001	0.186	0.278	45.9%	S
X on Y with M present	FC -> SEI (c')		0.308		0.001	0.246	0.369		
X on Y	FC -> SEI (c)	0.537			0.001	0.473	0.602		
X on Y via M	FC ->ATSE-> SEI (ab)			0.229	0.001	0.185	0.274	42.7%	S

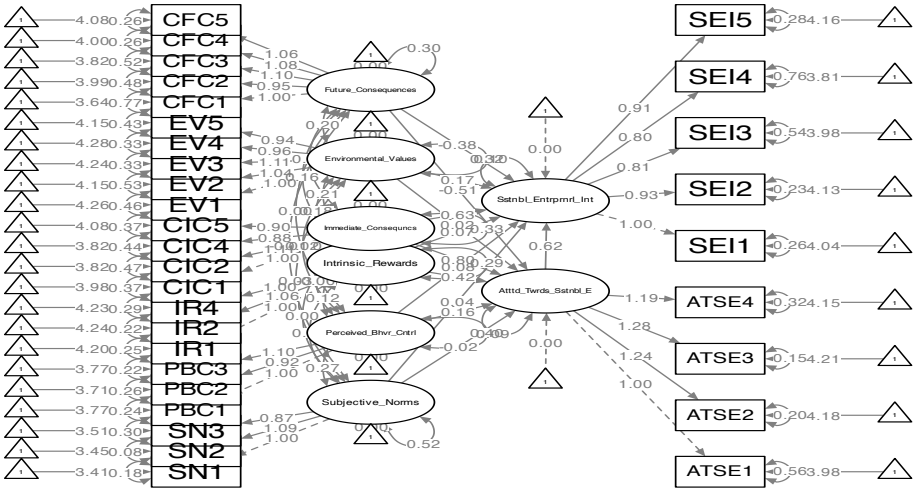

Figure 2. Results of the SEM Model using Jamovi

5.0 Discussion and Implications

The findings of this study largely align with prior research on sustainable entrepreneurial intentions (SEI) while offering important contextual insights specific to Zambia. The strong mediating role of attitude towards sustainable entrepreneurship (ATSE) between subjective norms, perceived behavioural control, and SEI supports the Theory of Planned Behaviour (TPB), consistent with studies in developed nations (Alakaleek *et al.*, 2025; Ali *et al.*, 2023). However, unlike research in Europe and Asia, where long-term environmental values dominate SEI (Thelken, 2020; Yasir *et al.*, 2023), this study found that immediate consequences had the strongest direct effect on Zambian students' intentions. This suggests that in resource-constrained settings, short-term economic benefits may be a more immediate driver of entrepreneurial behaviour than long-term sustainability goals, highlighting a key contextual difference.

The partial mediation effects of intrinsic rewards and environmental values mirror findings from South Africa (Venketsamy and Lew, 2024) and Colombia (Imran, 2024), reinforcing the universality of personal motivation and ecological concern in shaping SEI. However, the weaker influence of future consequences compared to immediate gains contrasts with studies in stable economies, suggesting that Zambian students may prioritise economic survival over long-term sustainability. This aligns with regulatory focus theory, where prevention-focused concerns may outweigh promotion-focused sustainability goals in developing contexts. These findings underscore the need to contextualise SEI models based on economic conditions and cultural priorities.

The study has critical implications for policymakers, educators, and development practitioners. Universities should integrate sustainability-focused entrepreneurship training to strengthen attitudes and perceived behavioural control. Policymakers must design incentives that balance immediate economic benefits with long-term sustainability, such as green business grants or tax breaks. Financial institutions should offer accessible funding for sustainable startups, addressing Zambia's financing gap. Finally, awareness campaigns could shift social norms to valorise sustainable ventures, leveraging the strong mediating role of ATSE. These measures

could bridge the gap between entrepreneurial intention and action in Zambia's evolving green economy.

5.0 LIMITATIONS AND FUTURE RESEARCH

This study's cross-sectional design limits causal inferences, and the focus on university students may not generalise to non-student entrepreneurs. Future research should employ longitudinal designs to track SEI evolution and expand sampling to include rural entrepreneurs and informal sectors. Comparative studies across African nations could identify regional patterns, while qualitative methods might uncover unmeasured cultural factors influencing SEI in Zambia.

6.0 CONCLUSION

This study advances understanding of SEI in Zambia, revealing the centrality of attitudes, immediate rewards, and contextual constraints. While intrinsic and environmental factors remain relevant, the dominance of short-term economic considerations calls for tailored interventions. By aligning policy, education, and financing with local realities, Zambia can nurture a generation of entrepreneurs capable of driving both economic resilience and ecological sustainability.

Appendix A: Survey Questionnaire Items

Variables	Descriptions	Sources
Subjective Norms	SN_1 My friends would approve of my decision to start a sustainable business SN_2 My colleagues would approve of my decision to start a sustainable business SN_3 My immediate family would approve of my decision to start a sustainable business	(Yasir, Mahmood, Mehmood, Babar, *et al.*, 2021)
Perceived Behaviour Control	PBC_1 If I am looking to build a sustainable business, it can be an opportunity for success PBC_2 I can handle the running systems of a sustainable new company PBC_3 If I had a wish, I might want to become a sustainable entrepreneur without any problems	(Yasir, Mahmood, Mehmood, Babar, *et al.*, 2021)
Intrinsic Rewards	IR_1 I can continue working for a job that disrespects and raises my status IR_2 I like being involved in activities that have a place for progress and advancement IR_3 I like being engaged in activities that make it possible to work independently	(Yasir, Mahmood, Mehmood, Babar, *et al.*, 2021)
Immediate Consequences	IC_1 The best way to determine my behaviour is to see the results of my immediate move IC_2 The convenient way I act is to satisfy local worries and find out that fate can handle itself IC_3 I often forget warnings of potential future problems IC_4 The most effective action to be taken on the ground is whether I will deal with fate issues that may arise at an overdue time IC_5 Among diverse alternatives, I could be a sustainable Entrepreneur	(Yasir, Mahmood, Mehmood, Babar, *et al.*, 2021)
Environmental Values	EV_1 In a balanced surrounding, I can earn money and solve problems EV_2 I like engaging in activities that lead to the outcome value for the most vulnerable members of society EV_3 I like engaging in activities or processes that allow me to help the poor in society EV_4 I like being involved in activities that respect the Surroundings EV_5 I like engaging in activities that offer me the most conceivable Compensation	(Yasir, Mahmood, Mehmood, Babar, *et al.*, 2021)

Variables	**Descriptions**	**Sources**
Future Consequences	FC_1 I think it's important to take significant risks related to bad consequences FC_2 I want to serve my immediate happiness to achieve certain future results FC_3 Often I interact in a certain behavior to get results that may not end for many years FC_4 I focus again on how things will be in the coming era to convince things with daily Behaviour FC_5 My suitability is a big thing in the decisions I make or the movements I proceed	(Yasir, Mahmood, Mehmood, Babar, *et al.*, 2021)
Attitude Towards Sustainable Entrepreneurship	ATSE_1 Being an innovative entrepreneur could give me great pride ATSE_2 If I were given a favorable environment and quality, I would prefer to start a sustainable business ATSE_3 Starting a business as a sustainable entrepreneur is attractive to me ATSE_4 Being a sustainable entrepreneur is the more advantageous field	(Yasir, Mahmood, Mehmood, Babar, *et al.*, 2021)
Sustainable Entrepreneurial Intentions	SEI_1 My focus is on starting a sustainable enterprise that will solve a sustainability disorder in the next 5 years SEI_2 If I could install my own business it would improve my sustainable development SEI_3 I will use herbal assets properly after becoming an entrepreneur SEI_4 If I could start my enterprise, I would choose social goods rather than monetary profits SEI_5 I am ready to work to be a sustainable entrepreneur	(Yasir, Mahmood, Mehmood, Babar, *et al.*, 2021)

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