

ENTREPRENEURIAL PERSONALITY TRAITS AND DEVELOPMENT OF ENTREPRENEURIAL SKILLS AMONG FARMERS IN KNUCKLES REGION, SRI LANKA

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Abstract

In recent years, entrepreneurship has played a critical role in adapting and innovating for the sustainable livelihoods of farming communities, particularly in developing countries like Sri Lanka. Farmers' entrepreneurial traits, including self-confidence, entrepreneurial interest, commitment, innovation ability, and leadership, influence the adoption of new practices. However, there is a lack of validated scales to assess these traits within the Sri Lankan context. This study primarily aimed to develop and validate a scale, secondarily to examine the influence of entrepreneurial traits on the skills of smallholder farmers. A cross-sectional study was conducted among 203 smallholder farmers in the Knuckles region of Matale District, Sri Lanka. Exploratory Factor Analysis (EFA) was carried out through Principal Component Analysis (PCA) followed by Confirmatory Factor Analysis (CFA) to establish the validity of the proposed measurement model. CFA indicated a satisfactory model fit with robust validity and reliability measures. Greater Cronbach alpha values for the measurements clarified that the obtained factors were reliable for measuring entrepreneurial traits. Apart from that, the convergent and discriminant validity of the scale was also established to assess its validity. The results of predictive validity revealed that personality traits like leadership and innovative ability had a significant impact on the skill levels. The findings highlight the need to strengthen these traits through targeted training and capacity-building initiatives to enhance farmers' practical skills and promote resilient, innovative-driven agricultural communities.

Keywords: Entrepreneurial skills, entrepreneurial traits, scale validation, smallholder farmers

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Introduction

Agriculture is a vital component of the rural economy in developing countries and remains a primary source of livelihood for a significant proportion of Sri Lanka's population. In regions such as the Knuckles range of the Matale district, smallholder farming is a dominant economic activity that supports both household income and local food security. However, traditional subsistence-based farming systems are increasingly challenged by limited resources, market competition, and the impacts of climate change. To ensure sustainability and resilience, farmers are required to move beyond conventional practices and adopt an entrepreneurial mindset that enables innovation, market responsiveness, and effective decision-making. Entrepreneurial behaviour among farmers has therefore emerged as a crucial strategy for improving productivity, income stability, and rural development. Accordingly, farmers exhibiting entrepreneurial traits are more likely to innovate, adapt to market changes, and make sound judgments that improve farm performance (Gunathilaka & Samarakoon, 2021; Manuja et al., 2022). However, farmers' practical skill level, which includes financial planning, marketing, communication, and customer service, is frequently influenced by entrepreneurial traits (Rosairo & Potts, 2016). The Knuckles region of Sri Lanka's agricultural sector is an excellent study location for investigating the relationship between entrepreneurial personality traits and skill development among farmers. Specifically, this study aims to identify the key entrepreneurial personality traits of smallholder farmers, to examine their influence on entrepreneurial skill development, and to validate these relationships through Confirmatory Factor Analysis (CFA) and SEM. The findings are expected to offer practical insights for policymakers, development organisations, and agricultural extension services by providing a validated tool to assess entrepreneurial traits and inform the design of training programs, leadership development initiatives, and entrepreneurship support schemes.

Literature Review

It has been demonstrated that several entrepreneurial traits, including self-confidence, entrepreneurial interest, leadership, innovativeness, and commitment, have a significant impact on farmers' practical skill levels, particularly in areas such as financial planning, marketing, communication, and customer service. Fostering a more entrepreneurial agricultural sector requires understanding how these attributes interact with their practical ability. According to recent research findings, entrepreneurs' decision-making skills and general efficacy in various agricultural operations are significantly shaped by their level of self-confidence (Dong et al., 2022). High levels of self-efficacy have been linked to improved performance in entrepreneurial endeavours and offer a solid basis for efficient resource management and financial planning (Naminse & Zhuang, 2018). Those with greater levels of commitment also typically take a more active role in creating business plans and strategies necessary for profitability (Pindado & Sánchez, 2017).

Additionally, commitment directly contributes to a greater awareness of market dynamics and the development of positive client relationships, which are critical for agricultural entrepreneurial success. Farmers who view themselves as entrepreneurs are more likely to implement proactive marketing. Plans and customer service programs enhance their overall business success (Álvarez et al., 2021).

Another crucial entrepreneurial trait influencing practical skill levels is innovation ability. Innovative farmers investigate several revenue sources and implement contemporary business strategies, such as integrating technology into farming operations (Waqingah et al., 2022). Similarly, Etriya et al. (2019), confirmed that innovative farmers perform well in both financial and operational measures.

Leadership promotes cooperation and a group approach to problem-solving in farming communities, which are critical for effective market participation and customer service (Pliakoura et al., 2020). This emphasises the importance of providing farmers with leadership skills as part of their entrepreneurial training (Sher et al., 2019).

Entrepreneurial interest has a substantial impact on practical skill development. Research shows that farmers with a strong interest in entrepreneurship are more likely to participate in training programs that increase their managerial skills, such as financial literacy and market analysis. (Li et al., 2022).

Furthermore, several studies show that instruction can improve farmers' communication skills and customer service practices, revealing a strong correlation between education, entrepreneurial qualities, and practical skill development (Tonner & Wilson, 2015). Therefore, a strong entrepreneurial attitude also improves marketing strategies and customer service methods, which are crucial for maintaining productivity improvements (Yang et al., 2022). Studies also reveal that self-confidence and commitment greatly improve financial planning skills. The importance of networking in developing entrepreneurial capabilities cannot be overstated. Networks provide access to information, resources, and collaborative opportunities required for skill enhancement (Manuja et al., 2022). Overall, previous studies highlight the importance of entrepreneurial traits for farmers, but inconsistencies in findings and the absence of a validated, context-specific scale in Sri Lanka, particularly in the Knuckles region, create a clear gap that this study addresses through scale development.

Research Methodology

The current study was conducted to validate the entrepreneurial scale and explore the impact of entrepreneurial traits on entrepreneurial skills of smallholder farmers who live in the Knuckles region, Matale, Sri Lanka. The constructs were selected referring to the existing literature and modified for the dimensions of entrepreneurial characteristics derived in the conceptual framework: Self-Confidence, Commitment, Entrepreneurial interest, Innovation Ability and Leadership. For predictive validity, a set of items for the group farmers' Skill Level was included in the questionnaire. Then, a cross-sectional survey was conducted using face-to-face interviews. The research followed an exploratory phase for scale validation and an explanatory phase to test relationships among variables. Stratified random sampling methods were used, representing 11 GN Divisions, and two hundred three samples responded to the survey, out of which 176 replies were found to be eligible and are included in the study. The majority (79.5%) of respondents were over 45. Male respondents made up 33.3% of the sample, while female respondents made up the majority (66.7%). 54.1% of the farmers were full-time farmers, and more than half (54.9%) reported earning less than 5 lakh per year. 45.4% of respondents had more than 25 years of farming experience. Informed consent was obtained from each respondent they had to rate their responses on a five-point Likert scale. Data analysis was done using IBM SPSS version 23 and IBM AMOS version 23.

Results

Validation of the entrepreneurial scale

Exploratory factor analysis (EFA)

EFA transforms a large set of variables into a smaller number of factors based on their patterns of correlations, enabling the finding of the structure of interactions between items without forcing an established model. (Olkin & Sampson, 2001). EFA was conducted on 23 items, and Kaiser-Meyer-Olkin (KMO) Measures of Sampling Adequacy and Bartlett's Test of Sphericity confirm that the dataset is appropriate for factor analysis. The KMO value should exceed 0.5, and the significance level for Bartlett's Test of Sphericity should be ($p < 0.05$) (Osborne, 2014). Principal Component Analysis (PCA) was used in conjunction with varimax rotation. All the measures have substantial communalities ranging from 0.60 to 0.95 Table. 1. According to Hair et al., the minimum cut-off criteria for item deletion were less than 0.5 factor loadings.

Table 1
Factor extraction results

	Variables and Constructs		Factor Loading
Self confidence	I am confident about my abilities	SC1	0.789
	I can handle challenges successfully	SC2	0.838
	I am confident in my decision-making ability	SC3	0.853
	I am confident I can achieve my goals	SC4	0.796
	I to lead others	SC5	0.661
Commitment	I complete what I start	CO1	0.717
	I work hard to achieve objectives	CO2	0.841
	pay attention to all details	CO3	0.800
	I persist despite obstacles	CO4	0.862
	I fulfil my responsibilities	CO5	0.784
Entrepreneurial interest	I have plans to start my own business	EI1	0.843
	I prefer being an entrepreneur to being an employee	EI2	0.754
	I actively seek business opportunities	EI3	0.898
	I have a strong determination to start a business	EI4	0.912
Innovation Ability	I prefer trying new methods over existing ones	IA1	0.873
	I seek new ways to improve processes	IA2	0.906
	I am interested in new technology and methods	IA3	0.908
	I like to try new approaches	IA4	0.916
	I seek novel solutions for problems	IA5	0.873
Leadership	Others recognise me as a leader	LD1	0.906
	I can guide others towards goals	LD2	0.885
	I take the lead in group activities	LD3	0.890
	I make important decisions confidently	LD4	0.679

(Source: Authors, based on survey results)

Confirmatory factor analysis

CFA is typically performed as part of SEM and allows testing the convergent, discriminant, and construct validity of measurement instruments. Then, CFA was conducted to confirm the data structure. No items were removed, and the threshold for factor loadings was considered >0.5 (Hair et al., 2018).

Reliability and validity analysis

All constructions were reliable according to the Cronbach’s alpha values, as their individual composite reliability (CR) values are higher than the recommended 0.7 value. (Hair et al., 2018). Furthermore, construct validity was analysed by estimating Cronbach’s alpha (CA). All the CA values are closer to 0.9, affirming that the internal consistency of constructions was achieved. (Hussey et al., 2025) (Table 2) Average Variance Extracted (AVE) is another measurement that is used to analyse the convergent validity. AVE values for all constructs exceeded the suggested threshold of 0.50 (except self-confidence), indicating that the constructs account for a significant proportion of variance rather than error (Peterson et al., 2020). AVE for self-confidence is marginally below the 0.50 threshold; the construct was retained as its composite reliability (0.87) and factor loadings (>0.66) indicate adequate convergent validity (Hair et al., 2019). Thus, the measurement model demonstrates satisfactory convergent validity across all constructs (Table 2).

Table 2
Results of the measurement model

Construct	CA	CR	AVE
Self Confidence	0.833	0.8667	0.4950
Commitment	0.856	0.8796	0.5956
Entrepreneurial interest	0.875	0.8800	0.6506
Innovation Ability	0.938	0.9390	0.7556
Leadership	0.864	0.8752	0.6438

(Source: Authors, based on survey results)

Further, the Heterotrait-Monotrait (HTMT) method was used to assess Discriminant Validity (DV). DV was assessed to determine how effectively a latent variable differed from other latent variables. It indicates that a hidden variable should account for more of the variance in its indicators than in other constructs or external factors. Since all the HTMT ratios are less than 0.9 (Table 3), no discriminant validity issues are likely present in the model (Hair et al., 2018).

Table 3
Discriminant validity matrix

	LD	IA	EI	CO	SC
Leadership (LD)					
Innovation Ability (IA)	0.4803				
Entrepreneurial interest (EI)	0.4033	0.7242			
Commitment (CO)	0.4834	0.4542	0.4363		
Self Confidence (SC)	0.5630	0.4751	0.4617	0.8866	

(Source: Authors, based on survey results)

Model fit

Goodness-of-Fit measures can be categorised into Absolute Fit Indices, Incremental Fit Indices, and Parsimonious Fit Indices. Absolute fit indices were calculated using the Root Mean Squared Approximation (RMSEA) value and the Expected Cross-Validation Index (ECVI). The following Incremental Fit Indices were used: Comparative Fit Index (CFI), Tucker Lewis Index (TLI), Normed Fit Index (NFI), and Incremental Fit Index (IFI). Parsimonious Fit Indices were calculated using the CMIN/df value and the Parsimonious Normed Fit Index (PNFI) (Khairi et al., 2021). The recommended cut-off values for the above indices are mentioned along with the values obtained in Table 3. Based on the results, all these indices collectively suggest that the

model demonstrates good construct validity with a satisfactory fit for most of the considered indices. However, only NFI shows a lower value than the acceptable cut-off. This difference could be attributed to the small sample size ($n = 176$) and model complexity; However, this tiny deficiency does not significantly weaken the overall validity of the model, as other indices are at a better fit.

Table 4
Model fit indices

Indices	Value	Acceptable limit	Reference
RMSEA	0.075	<0.08	(Hair et al., 2018)
CFI	0.926	≥ 0.90	
TLI	0.915	≥ 0.90	
NFI	0.863	≥ 0.90	
IFI	0.927	≥ 0.90	
PNFI	0.750	> 0.50	
ECVI	3.129	<Saturated model value (3.018)	
CMIN/df	1.980	1-3	(Hair et al. 2010)

(Source: Authors, based on survey results)

Discussion

SEM was utilised to assess the survey instrument's predictive validity. Skill levels were used as the dependent variable to find the predictive validity of the tool since entrepreneurial traits were predicted according to the literature. The SEM model gave an R² value of 0.20 for skill levels. This relatively low R² indicates that additional contextual factors, such as access to capital, extended support, and market exposure, etc., may influence entrepreneurial skills. The significance values and standard regression coefficients for each construction are reported in Table 5. According to the findings, leadership has the most significant influence on skill levels ($r = 0.129$, $p = 0.008$) at the 5% significance level; meanwhile, innovation ability also shows a significant impact ($r = 0.107$, $p = 0.073$) at the 10% significance level. According to Isah et al. (2019), effective leadership generates an environment of collaboration and shared learning, which is critical for advancing agricultural skills (Isah et al., 2019). Furthermore, leadership skills are highly connected with productivity among farmers, implying that motivated and effective leaders improve farmers' ability to complete various operational tasks efficiently (Olagunju et al., 2021). Baliyan et al. (2018) also found a direct correlation between leadership excellence and improved managerial and operational capacities in agricultural techniques (Baliyan et al., 2018). Gardezi and Arbuckle (2018) claim that farmers with innovative thinking are more likely to face problems and uncertainties, particularly in climate change adaptation. Their ability to innovate fuels the development of practical abilities required for effective resource management, financial planning, and marketing tactics (Gardezi & Arbuckle, 2018). Innovative farmers who participate in new technologies and approaches are likely to build a varied skill set, allowing them to negotiate multiple market settings to negotiate multiple market settings efficiently. In contrast, self-control, commitment, and entrepreneurial interest did not significantly impact skill level since they did not reach statistical significance. According to Rosairo & Potts (2016), the availability of resources and opportunities major significant influence on improving skill levels, rather than entrepreneurial interest or related personal traits (Rosairo & Potts, 2016). Moreover, the low correlation between self-control, commitment, and entrepreneurial interest and farmer skill levels can be associated with a complicated interaction of individual traits, specific limitations, and broader socioeconomic environments that do not promote the development or application of these skills in traditional farming settings (Fidelugwuowo, 2022). Some methodological limitations should be considered. The AVE for self-confidence (0.495) is slightly lower than the recommended 0.50 threshold. The model's NFI (0.863) and R² (0.20) show potential for improvement. These modest limitations highlight the need for further investigations with larger samples and additional explanatory factors to improve model fit and predictive power.

Table 5
Influence path

Influence path	Regression coefficient	p value	Decision
Self-Confidence → Skill Level	0.118	0.518	Not supported
Commitment → Skill Level	-0.135	0.476	Not supported
Entrepreneur Interest → Skill Level	-0.015	0.774	Not supported
Innovation Ability → Skill Level	0.107	0.073*	supported
Leadership → Skill Level	0.129	0.008**	supported

*Significant at 10%; **significant at 5%

(Source: Authors, based on survey results)

Conclusion

Minimal studies have been conducted in the local context to evaluate the entrepreneurial traits among farmers. Therefore, this study created and validated a five-factor scale to assess entrepreneurial attributes among smallholder farmers in Sri Lanka, including self-confidence, commitment, entrepreneurial interest, innovative ability, and leadership, and investigated how these traits influence entrepreneurial skill levels. The validated model showed high psychometric qualities, and structural analysis proved that leadership and innovation ability greatly improve farmers' entrepreneurial skills, accomplishing the study's goals. The findings contribute to advancing theory by providing a credible, context-specific instrument for assessing entrepreneurial qualities in agricultural settings, as well as practice by giving insights for policymakers, extension workers, and training organisations. Using this scale, stakeholders can identify farmers with strong leadership and inventive capabilities to design tailored training that improves decision-making and market adaptability. Although the study provides useful insights, it is limited to a single geographic location and only explains 20% of the variation in skill levels, implying that other contextual factors, such as financial availability and institutional support, may also influence outcomes. Future research could broaden this study to include different geographies and demographics, make cross-cultural comparisons, and use longitudinal designs to follow how entrepreneurial traits build abilities over time. Overall, this study fills a gap between entrepreneurial psychology and agricultural development by introducing a proven instrument and practical framework for encouraging innovation-driven, resilient, and opportunity-oriented farming communities in Sri Lanka.

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