## IMPACT OF BLENDED LEARNING USE ON AGRICULTURAL ENTREPRENEURSHIP DEVELOPMENT

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#### Abstract:

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**Background:** The combination of traditional in-person instruction with online learning components is known as blended learning. The higher education system benefits from blended learning. Mentoring blended learning can help undergraduate students improve their entrepreneurial skills. However, research on the specific benefits of blended learning on the growth of entrepreneurship remains limited in agriculture enterprises, particularly in regions such as Sri Lanka.

**Purpose:** The purpose of this study is to fill this research gap by investigating how undergraduate agricultural entrepreneurs use blended learning to develop their entrepreneurship.

**Design/methodology/approach:** This research was conducted at the University of Colombo Institute for Agrotechnology and Rural Sciences in Hambantota, Sri Lanka. The university is well-known for its innovative approach to blended learning. The target population consists of agricultural entrepreneurs seeking a bachelor's degree in Agro Technology. The entire population was responsible for data collection (204). The variables for the study were blended learning usage, entrepreneurship development, financial and non-financial aspects, innovativeness, achievement motivation, risk-taking ability, time management, and resourcefulness. Correlation and regression analysis were performed to test the hypothesis of the study.

**Findings/Result:** Blended learning has a strong positive associate with entrepreneurial development among undergraduate entrepreneurs. When analyzing the key influences on entrepreneurial development in this population via blended learning, time management emerges as the most important predictor. After time management, the ranking from highest to lowest is as follows, risk-taking ability, achievement motivation, resourcefulness, financial elements, non-financial aspects, and finally innovativeness.

**Conclusion:** Undergraduate entrepreneurs grow their entrepreneurship through blended learning. Time management is the most important one among them all.

**Originality/value (State of the art):** Understanding these characteristics is critical to entrepreneurial development in Sri Lanka, particularly in the field of agriculture.

Keywords: agriculture, blended learning, entrepreneurship development, time management, undergraduate entrepreneurs

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## INTRODUCTION

Blended learning is the integration of online learning with traditional in-person elements education (Clark and Post, 2021). It has been demonstrated that blended learning, which mixes traditional inperson instruction with online learning components, improves student autonomy, motivation, and learning effectiveness in higher education (Castro-Rodríguez et al. 2021). According to Čiutienė and Čiarnienė (2022) undergraduate students can strengthen their entrepreneurship abilities through blended learning mentorship, which is especially essential in the context of young entrepreneurship development. Overall, blended learning offers a flexible, engaging, and effective approach to education that can benefit students, teachers, and institutions alike. Blended learning has the ability to help people reach their full potential and equip them to thrive in the fast-paced, competitive world of entrepreneurship by utilizing technology and innovation in the classroom (Maureira-Cabrera et al. 2020; Turner and Gianiodis, 2018).

According to data from 2022, only 1,648 students in Sri Lanka were enrolled in agriculture and related fields through external, open, and distance learning programs at universities and higher education institutions (UGC-SL, 2024). It means that there is a potential to use existing resources to enroll more students in this field. The primary reason for conducting this study is to investigate the potential benefits of blended learning in fostering entrepreneurial skills and knowledge among agriculture students. By examining the relationship between blended learning usage and entrepreneurial intentions, self-efficacy, and specific skills, the study aims to provide insights into how blended learning can contribute to the development of a more entrepreneurial-minded agricultural sector. While there has been significant research on the effectiveness of blended learning in various educational settings, its application to the field of agriculture is a relatively understudied area.

Research on the precise benefits of blended learning on the growth of entrepreneurship specially in the field of agriculture is still lacking particularly in areas like Sri Lanka. Since entrepreneurship development includes a broad range of skills and competences important to entrepreneurial success, it can be measured in a variety of fields, including agriculture. It's especially crucial to comprehend how blended learning affects the growth of undergraduate entrepreneurs in the agriculture sector in Sri Lanka, because the country is heavily reliant on agriculture. The purpose of this research is to fill this research gap by investigating how undergraduate agricultural entrepreneurs use blended learning to develop their entrepreneurship. By identifying this research gap, we can determine areas that require further investigation. This will enable the development and testing of a hypothetical conceptual framework. This study aims to provide valuable insights to educators, policymakers, and stakeholders involved in entrepreneurship education and agricultural development in Sri Lanka by investigating how blended learning methods, such as online courses, virtual mentorship, and interactive learning platforms, contribute to the development of entrepreneurship skills and capabilities in the agriculture profession.

#### **METHODS**

The primary location of this study was the University of Colombo Institute for Agro Technology and Rural Sciences in Hambantota, Sri Lanka. The institution is renowned for its innovative approach to blended learning, specially in the way it enrolls entrepreneurs in the Bachelor of Agro Technology degree program. This educational paradigm allows entrepreneurs to pursue their studies while actively participating in their entrepreneurial efforts. One of its important features at University of Colombo Institute for Agro-Technology and Rural Sciences is the blending of online learning with in-person instruction to undergraduate entrepreneurs. The curriculum has been thoughtfully designed to support this blended learning methodology.

Comprehensive coverage of entrepreneurial viewpoints was ensured by including the complete population of undergraduate entrepreneurs at the institute in the study. With the use of a pre-tested, structured questionnaire, primary data were gathered via survey research methodology (204 respondents). For that the questionnaire was transformed into google form and distributed among the entrepreneurs to collect data. Inquiries intended to verify the study's hypotheses were combined with demographic data in this questionnaire.

To determine the blended learning usage by the entrepreneurs, different factors were used such as regularity of the blended program, fulfillment or happiness from blended program, use of free time in blended learning and encouragement for blended learning. A variety of criteria were used to assess the development of entrepreneurship such as financial aspects (financial outcomes, business startups, efficiency and personal performances), non-financial aspects (workplace relations, community impact, knowledge improvement and entrepreneur skills), innovative aspects (innovativeness, competency, creative thinking and idea generation), achievement motivation aspect (Attempt, participation, willingness to work, work maintaining), risk-taking ability aspect (attitudes and knowledge on risks), time management (time saving and time utilization), and resourcefulness (different type of resources and knowledge on resources). A Likert scale, with strongly agreed (+2), agreed (+1), neutral (0), disagreed (-1) and strongly disagreed (-2) as the limits, was used to assess respondent's responses to these characteristics. Impact of blended learning usage for the entrepreneurship development by undergraduate entrepreneurs in Figure 1.

# Blended learning usage by undergraduate entrepreneurs

Undergraduate entrepreneurs can use blended learning in a variety of ways to support their entrepreneurial journeys and improve their business abilities (Boldureanu et al. 2020). According to Liu et al. (2020), blended learning provides student entrepreneurs with a flexible, accessible, and dynamic way to acquire the knowledge, skills, and resources required for success in entrepreneurship. According to Čiutienė and Čiarnienė (2022), combining online learning with traditional classroom instruction and experiential learning can help undergraduate entrepreneurs build a strong foundation for business growth while pursuing academic goals. Hypothesis 1 (H1). The use of blended learning has a positive impact on the entrepreneurial growth of undergraduate entrepreneurs.

Besides the primary hypothesis, various other hypotheses have been formulated based on literature cited by other researchers regarding financial aspects, non-financial aspects (personal growth and development), innovativeness, risk-taking, achievement motivation, time management, and resourcefulness, as detailed in Table 1.

Hypothesis 2 (H2): Entrepreneurship development positively contributes to the financial elements of undergraduate entrepreneurs.

Hypothesis 3 (H3): Entrepreneurship development positively contributes to the non-financial aspect (other) of undergraduate entrepreneurs.

Hypothesis 4 (H4): Entrepreneurship development positively contributes to the innovativeness of undergraduate entrepreneurs.

Hypothesis 5 (H5): Entrepreneurship development positively contributes to the achievement motivation of undergraduate entrepreneurs.

Hypothesis 6 (H6): Entrepreneurship development positively contributes to the risk-taking abilities of undergraduate entrepreneurs.

Hypothesis 7 (H7): Entrepreneurship development positively contributes to the time management of undergraduate entrepreneurs.

Hypothesis 8 (H8): Entrepreneurship development positively contributes to the resourcefulness of undergraduate entrepreneurs.

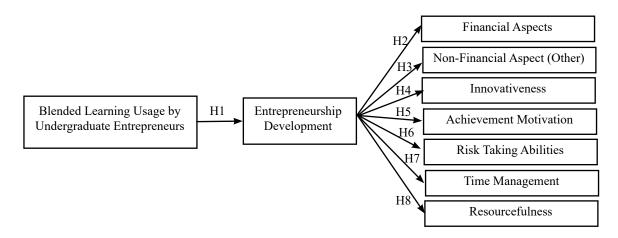


Figure 1. Impact of blended learning usage for the entrepreneurship development by undergraduate entrepreneurs

Variables		References	
Blended learning usage	Regularity	Naidoo, 2017	
	Fulfillment or happiness	Su, 2020	
	Use of free time	Prasetya et al. 2020	
	Encouragement	Spanjers et al. 2015	
Entrepreneurship development	Financial aspects	Yao and Meng, 2022	
	Non-financial aspects (personal growth and development)	Pardosi et al. 2020	
	Innovativeness	Kim et al. 2021	
	Risk taking	Zhang et al. 2020	
	Achievement motivation	Costin et al. 2021	
	Time management	Ratushnyak et al. 2022	
	Resourcefulness	Tem et al. 2020	

Preliminary analyses were conducted to assess the normality and reliability of the data. Subsequently, correlation and regression analyses were performed using SPSS version 26 to investigate the relationships between variables. Correlation analysis measures the strength and direction of the relationship between two variables (Lewis, 2020). Regression analysis is used to predict the value of one variable based on the values of one or more other variables. It can also be used to assess the strength and nature of the relationship between variables (Huang & Aldeeb, 2022).

#### RESULTS

#### **Demographic information**

The majority of entrepreneurs are between the ages of 21 and 30, with no notable gender difference, as both have identical equities. Furthermore, a significant proportion of respondents have Advanced Level (A/L) education levels. Additionally, the agricultural consultant sector has the strongest entrepreneurial focus. Mean, standard deviation and reliability analysis of selected variables. Table 2 shows that the mean and standard deviation values for the selected constructions are within acceptable ranges. Furthermore, the constructions' reliability evaluations range between 0.615 to 0.900, showing good internal consistency.

#### Hypothesis testing

Correlation and regression analysis between blended learning usage and entrepreneurship development

The use of blended learning has a significant positive correlation (r = 0.861, p < 0.05) with entrepreneurship development. Table 3 shows that the regression analysis has an R-squared ( $R^2$ ) value of 0.742 and an adjusted R-squared (Adj.  $R^2$ ) value of 0.740, indicating that the model explains a significant part of the variance, suggesting a reasonable degree of explanation. Relationship between blended learning usage and entrepreneurship development in Figure 2.

Intercept (a = 0.07): When blended learning usage is zero, entrepreneurship development is predicted to be 0.07.

Slope (b = 1.02): For every one-unit increase in blended learning usage, entrepreneurship development is predicted to increase by 1.02 units.

# Correlation analysis between the constructs in dependent variable

A correlation matrix was used to investigate the relationships between different attributes and their impact from the dependent variable of entrepreneurship development. As shown in Table 4, all parameters have statistically significant positive correlations with entrepreneurial development, demonstrating a strong association between them.

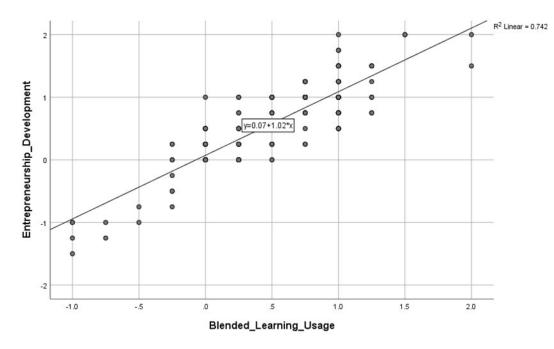


Figure 2. Relationship between blended learning usage and entrepreneurship development

Dimension	Corresponding number of items	Cronbach's alpha values	Mean	St. Deviation	
Blended learning usage	04	0.812	0.52	0.531	
Entrepreneurship development	04	0.900	0.61	0.620	
Financial aspects	04	0.851	0.67	0.523	
Non-financial aspects (personal growth and development)	04	0.899	0.83	0.537	
Innovativeness	04	0.809	0.61	0.443	
Achievement motivation	04	0.776	0.79	0.426	
Risk taking	02	0.656	0.60	0.552	
Time management	02	0.615	0.60	0.486	
Resourcefulness	02	0.801	0.66	0.526	

Table 2. Mean, standard deviation, and reliability for selected constructs in entrepreneurship development

Table 3. Model summary for the dependent variable of entrepreneurship development

Model	R	R Square	Adjusted R Square	St. Error of the Estimate	Durbin-Watson
1	0.861ª	0.742	0.740	0.319	2.021

<sup>a</sup> Predictors: (Constant), Blended Learning Usage; Dependent Variable: Entrepreneurship Development

#### Table 4. Correlation matrix for the selected constructs in entrepreneurship development

			1	1	1			
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
[1] Financial Aspects	1							
[2] Non-Financial Aspects	0.763**	1						
[3] Innovativeness	0.650**	0.774**	1					
[4] Achievement Motivation	0.680**	0.717**	0.657**	1				
[5] Risk Taking Ability	0.518**	0.544**	0.619**	0.505**	1			
[6] Time Management	0.523**	0.545**	0.512**	0.552**	0.492**	1		
[7] Resourcefulness	0.471**	0.444**	0.500**	0.537**	0.558**	0.535**	1	
[8] Entrepreneurship Development	0.175**	0.166*	0.153*	0.205**	0.217**	0.296**	0.189*	1

\*\*Correlation is significant at the 0,01 level (2-tailed); \*Correlation is significant at the 0,05 level (2-tailed)

# The Impact ofBlendedLearning onEntrepreneurshipDevelopmentAmongUndergraduateEntrepreneurs

The impact of blended learning on entrepreneurship development is emphasis with excellent standardized coefficient value ( $\beta = 0.861$ ) and significance level (P < 0.001). which indicates that blended learning is having strong positive relationship for the entrepreneurship undergraduate development by entrepreneurs (Hypothesis 1 is accepted). To enhance entrepreneurial intentions among university graduates and increase the number of entrepreneurs, we can examine various factors that influence their decision-making (Kurniawan et al. 2024). Blended learning allows entrepreneurs to use educational tools and materials at their own pace and convenience. This accessibility allows individuals to continue their studies while managing their entrepreneurial ventures, resulting in a more seamless integration of education and business operations. According to Chen et al. (2021), distributed learners require self-discipline learning skills as well as ways for determining their own learning speed. Blended learning integrates a variety of educational approaches, including online courses, video lectures, interactive simulations, and in-person interactions. According to Bruff et al. (2013), the learning process might be text-based or multimedia-based. This variety accommodates to different learning preferences and styles, allowing entrepreneurs to interact with the content in the most effective manner for them. Blended learning improves comprehension and retention of entrepreneurial concepts and skills by catering to different learning styles (Tupe, 2020). Additionally, Siriwardena et al. (2018) mentioned about a study where various practical and theoretical implications for boosting learner acceptability of E-learning, with an emphasis on student farmers.

# Understand The Most Significant Influences of Entrepreneurship Development by Undergraduate Entrepreneurs Through Blended Learning

Through entrepreneurship development via blended learning, financial aspects were significantly increased (r = 0.175; p < 0.05) by the undergraduate entrepreneurs (Hypothesis 2 is accepted). Entrepreneurship development through blended learning can have a revolutionary impact on financial aspects by providing entrepreneurs with the knowledge, skills, and tools they require to succeed in today's competitive business climate. According to Kazakova (2023), financing concerns such as indicators, development plan, and reporting are important components of entrepreneurship development. Entrepreneurs can improve their business performance, gain access to finance, cut costs, effectively manage risks, and improve their overall financial outcomes by utilizing blended learning possibilities (Fleck, 2012; Lis, 2021).

Following this, there were notable improvements in non-financial elements (r = 0.166, p < 0.05) as a result of the entrepreneurship development supported by blended learning (Hypothesis 3 is accepted). Here we have considered workplace relations, community impact, knowledge improvement and entrepreneur skills as the non-financial aspects. Workplace relationships have a crucial role in entrepreneurial development. Lis (2021) stated that blended learning, which mixes human ties with e-learning tools, considerably expands the availability of university educational offers for the corporate sector. Furthermore, Parwez (2017) stated that community-based entrepreneurship is vital for social upliftment by introducing cultural values, shared resources, linkages, and mutual trust to marginalized populations. Also, blended learning is an increasing trend in higher education and professional development, with advantages including increased student involvement and information transfer (Hilliard, 2015).

development of entrepreneurship The among undergraduate entrepreneurs has a significant impact (r = 0.153, p < 0.05) on innovativeness (Hypothesis 4 is accepted). Through the growth of entrepreneurship, people, economies, and communities can utilize the power of innovation to address challenging issues, add value, and promote sustainable development. According to Ratten and Usmanij (2020), the development of entrepreneurship fosters innovativeness by facilitating creative change and anchoring an innovative perspective within businesses. Furthermore, by spotting creative solutions and grasping chances in the business world, entrepreneurial development fosters innovation in a good way (Toma, 2020). Rivera-Kempis et al. (2021) also proposed that the growth of entrepreneurship has a favorable correlation with the development of competency. According to Kakouris (2021), teaching creativity in entrepreneurship can help with invention, but critical methods and reflective empowerment are essential for good learning and entrepreneurial development. In addition, as Ratten

and Usmanij (2020) pointed out, entrepreneurship is critical in managing firms' innovation and creative capacities, hence increasing competitiveness, and facilitating creative change.

Entrepreneurship development through blended learning has a strong impact (r = 0.205, p < 0.01) on achievement motivation (Hypothesis 5 is accepted). By embracing the potential of blended learning, entrepreneurs may create an achievement motivation and take immediate action to attain their entrepreneurial goals. Achievement motivation has a major impact on entrepreneurial leadership quality, giving useful insights for policy creation (Nasution, 2010).

Entrepreneurship development positively contributes (r = 0.217, p < 0.01) to the risk-taking abilities of undergraduate entrepreneurs (Hypothesis 6 is accepted). Entrepreneurship development programs have an important role in influencing student entrepreneurs' attitudes and awareness of risks. These programs enable students to create a more informed, confident, and proactive approach to risk-taking in entrepreneurship by providing educational content, experiential learning opportunities, mentorship and advice, innovation encouragement, networking, and peer learning. Bergner et al. (2021) found that those who are more open, thoughtful, unconventional, and stable are more likely to recognize business opportunities and take risks.

A positive correlation (r = 0.296, p < 0.01) has been found between student entrepreneur's time management skills and their entrepreneurial development (Hypothesis 7 is accepted). Entrepreneurs may better manage their time and accomplish their goals by offering organized learning experiences, project-based learning opportunities, mentorship and coaching, time management tools and strategies, and encouragement of work-life balance. According to Sharkova (2023), the advancement of entrepreneurship enhances the ability of entrepreneurs to manage their time effectively by improving their ability to operate in a variety of economic sectors. Next, by fostering entrepreneurial variables and eco-systems and integrating entrepreneurial learning across several disciplines, entrepreneurship development favorably affects how entrepreneurs use their time effectively (Junejo et al. 2022).

There is a positive correlation (r = 0.189, p < 0.05) between the resourcefulness of undergraduate entrepreneurs and the development of entrepreneurship (Hypothesis 8 is accepted). Entrepreneurs with problemsolving skills are more resourceful because they can respond to opportunities and challenges by using critical thinking and adaptive thinking. By empowering them to take advantage of the relationships, expertise, and knowledge of their peers and mentors to solve issues and grab opportunities, networking helps entrepreneurs become more resourceful. Fisher et al. (2023) proposed that entrepreneurs' resourcefulness is influenced by preparing, learning, and dissemination in demanding environments, which influences their ability to overcome limits in value-creation situations.

#### **Managerial Implications**

There are some managerial implications such as prioritize blended learning in entrepreneurship education, tailor blended learning to entrepreneurship needs, measure and evaluate blended learning effectiveness, foster a culture of innovation and entrepreneurship.

#### **CONCLUSIONS AND RECOMMENDATIONS**

#### Conclusions

For undergraduate entrepreneurs, blended learning is essential to the development of their entrepreneurial skills significantly. This suggests that combining traditional and online learning techniques helps this population develop an entrepreneurial mentality and set of abilities. Several aspects stand out as important determinants of how undergraduate entrepreneurs grow their entrepreneurship through blended learning. Time management is the most important one among them all. Following time management, the ability to take calculated risks emerges as an important aspect. Furthermore, achievement motivation is essential for entrepreneurship development. Another important component influencing the development of entrepreneurship is resourcefulness. Financial considerations are also important in entrepreneurship development, as access to capital and financial management skills are required for starting and maintaining entrepreneurial companies. Non-financial aspects of entrepreneurship development include networking, mentorship, and access to support networks, which provide students with vital resources, guidance, and collaboration opportunities.

#### Recommendations

When considering the limitations of the study, there are some highlighted limitations such as sample size and generalizability, self-reported data, definition and measurement of entrepreneurship development, temporal factors and contextual factors. Addressing these limitations could strengthen the study's findings and provide a more comprehensive understanding of the relationship between blended learning and entrepreneurship development. Finally, innovation is an important aspect in entrepreneurship development. These characteristics highlight the varied nature of entrepreneurship development and the need of addressing many elements to promote entrepreneurial success among undergraduate entrepreneurs using blended learning approaches. Following our study, we recommend several areas for further research, including a longitudinal study to assess the long-term impact of blended learning, an analysis of student persistence in entrepreneurship, and the inclusion of a control group for stronger causal inference.

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