



Applications of Structural Equation Modeling (SEM) for entrepreneurial intention at the Manabí Technical University (UTM)

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Abstract

This research addresses the entrepreneurial landscape in Ecuador, specifically focusing on the students of the Faculty of Administration and Economics at the Technical University of Manabí (FCAE-UTM). The Technical University of Manabí (UTM) recognizes the importance of understanding the entrepreneurial intentions of its students. To address the uncertainties surrounding the university's role in entrepreneurship, this research aims to explore the entrepreneurial intentions of current UTM students. The primary objective is to examine the components influencing these intentions and construct a Structural Equation Model (SEM) that aids UTM authorities in understanding and measuring entrepreneurship learning needs. Drawing on a literature review, the study integrates insights from various models, including the Theory of Planned Behavior (TPB) and the Entrepreneurial Self-Efficacy (ESE) scale. It adapts and validates the ESE scale, identifying six dimensions crucial for entrepreneurial success. Methodologically, a structured questionnaire, based on a prior study, was administered to 1105 virtual education students at FCAE-UTM. Principal component analysis and SEM techniques were employed for data analysis. Results reveal six main components: Entrepreneurial Intention, Entrepreneurial Self-Efficacy, Entrepreneurial Attitude, Information from Relevant Others, Support for Entrepreneurial Training, and Structural Support. The SEM model demonstrates a robust fit, indicating two pathways influencing entrepreneurial intentions: one through entrepreneurial attitude, supported by training and information, and the other through increased entrepreneurial self-efficacy, primarily influenced by structural support.

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Introduction

Background

According to the Global Entrepreneurship Monitor (GEM) report of 2019, regarding Early-Stage Entrepreneurial Activity (TEA), Ecuador recorded a percentage of 36.2 percent, slightly lower than Chile's 36.7 percent. This implies that approximately 3.6 million inhabitants were involved in starting businesses. On the other hand, concerning business dissolution, Ecuador also presents a significant rate of 9.3 percent, the highest in the region, which recorded an 8.2 percent rate. The main reasons for dissolution in 2019 were personal issues, lack of profitability, and financial difficulties.

According to the study on the development and survival of businesses in Ecuador that have lasted more than 3 years, conducted with data obtained by the scientific journal GEM in 2020, it is revealed that only 20 percent of these businesses have a solid foundation. The remaining 80 percent face failure, primarily due to the lack of effective transition from the business idea to its implementation or execution. Many entrepreneurs in Ecuador have relied on intuition to understand the market and its behavior, which has contributed to the closure of their activities, since 80 percent of businesses ignore fundamental processes such as building a business idea, defining the business profile, conducting pre-feasibility analysis, feasibility studies, and evaluating the viability of projects or businesses.

The Technical University of Manabí (UTM) is located in Portoviejo province of Manabí, a city close to Manta the main city in the area. In the city of Manta, according to data provided by the Internal Revenue Service in 2022, 4859 individuals started activities, while 3570 individuals reported the cessation of their activities in the same year. As for companies, 386 began operations, but 150 companies ceased their activities (Bravo Esmeraldas, 2023).

In light of the entrepreneurial landscape in Ecuador, it is imperative to undertake thorough research into the underlying factors driving the emergence of these ventures and to explore strategies for enhancing their sustainability. One promising avenue for intervention is the examination of entrepreneurial intention. Enhanced comprehension of students' and universities' capacities in this regard can significantly augment their preparedness for entrepreneurship endeavors.

In this matter, UTM, through its entrepreneurship unit, conducted a study to assess the entrepreneurial

intention of its students. Following an investigation into the employment status of its graduates, presented at the October convention IVENTO 2022, results revealed a negative regression for the perception variable: "My University contributed to my Entrepreneurial Capacity" concerning the level of employment of its graduates. The study concluded that individuals without employment tended to perceive a higher degree of contribution from their university to their entrepreneurial capacity compared to those who were employed. Conversely, individuals who were employed tended to perceive a lower degree of contribution from their university. This suggests that individuals in employment may be more inclined towards a comfort zone and prioritize their current job over entrepreneurial pursuits. As it is unclear, how the university is contributing to entrepreneurship in their surroundings, the above background reveals the need to continuing exploring the entrepreneurial intention of their current students.

The Problem

Purpose, relevance, general and specific objectives

Given that the problem to be explored is the preferences of UTM students regarding the level of employment and their degree of assessment of entrepreneurial ability, this research work is relevant for society because it improves their knowledge about the needs in shaping entrepreneurship, because they will be able to increase the level of understanding about the entrepreneurial spirit of their students, what they think and feel aligned with the interests of training new entrepreneurs

The main objective is to explore the components of the entrepreneurial intentions of the students and to build an explanatory SEM model that can be used by the UTM authorities in order for measurement and to comprehend the entrepreneurship learning needs.

Literature review

Delgado (2019) analyzes the factors that trigger the interest to create a business in the students from the strategic direction of human resources specialization program in the Buenos Aires university. In his model, he focuses on the effects that family and friendship networks have on student's entrepreneurship intentions.

The theory of planned behavior (TPB) is one of the most used theories to measure entrepreneurship intentions (Ajzen, 1991). Maluk (2018) followed this theoretical model in order to find the variables that are

more relevant in this matter for Ecuadorian students. In this case it will be used to measure virtual education student's intentions in the FCAE-UTM not only to expand the research but also to compare it with another country. This allows the educators to have some insights about the variables and factors that are related with entrepreneurship attitude from different perspective and with a proven statistical questionnaire that is comparable with other authors.

Some of these authors are Álvarez and Zúñiga (2022), who carried out a similar investigation in Costa Rica., where the authors investigated the influence of the entrepreneurship education formation in the development of entrepreneurial intentions for the students of business administration with a structural equation model, shown in Figure 1, backed up by a cognitive theoretical framework about entrepreneurial intention.

Traditionally, the entrepreneur has been considered as an “individual”, Some authors consider that their behaviors are predetermined by intrinsic characteristics from their self-personality before external factors. This is how the study of entrepreneurship conduct from the self-efficacy theory, after the social psychology questioning, has emerged like a solution dilemma of the approximation to better explain entrepreneurship behavior (Moriano et al, 2006).

The self-efficacy concept constitutes a key element of the social cognitive theory, and makes reference to the “beliefs in our own capacity to organize and execute course of action in order to produce certain achievements” (Bandura, 1997). The self-efficacy construct highlights the importance that entrepreneur believes about their own

capacity as predictor of success for new entrepreneurship (Krueger JR & Dickson, 1994).

For the review in entrepreneurship conduit, like it always happened in other areas of this self-efficacy application, there are two different approximations according to the suggestion measure of the self-efficacy conception, and these are according to Moriano et al. (2006) as the following: self-efficacy from a general and wide sense, this means the general belief on the self-capacity to perform successfully (Boyd & Vozikis, 1994).

While other authors focus on the entrepreneurship self-efficacy, and from this perspective, individuals might be more inclined to work on their own if they perceive they possess the abilities necessary to achieve successful business (De Noble et al., 1999).

Bandura (1997) considers that it is necessary to use personal self-efficiency measures in specific domains, taking into account that believing in your own efficacy it is not a global trait, but a group of self-beliefs linked to the differentiated domains or areas of operation. Also, Bandura (1999) considers that the same measure for everything has little predictive and explanatory value, so it states that a measure of self-efficacy applied to a specific domain such as entrepreneurial behavior is more effective for personal change than measures of global trait.

Taking this into account, this article focuses on the adaptation and validation of the Entrepreneurial Self-Efficacy (ESE) scale developed by De Noble et al. (1999a) and raised in their study by Moriano et al. (2006) in which six dimensions were identified that included the main activities that an entrepreneur must develop to successfully create their own company.

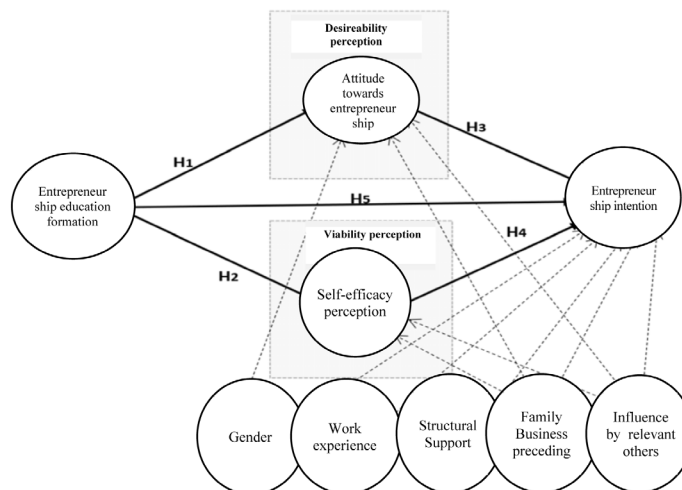


Figure 1 Hypothetical model for entrepreneurial intention according to Sandoval, C. (Impact of entrepreneurial training on entrepreneurial intentions: A cognitive approach, 2022)

These dimensions are as follows as mentioned by Moriano et al. (2006).

1. Develop new products and market opportunities. It refers to a set of skills related to the recognition of opportunities.

2. Build an innovative environment. This dimension focuses on the individual's ability to stimulate the creativity, initiative and responsibility of the people who work with him.

3. Initiate investor relations. Entrepreneurs must use their social networks and establish contacts that allow them to capture the necessary resources to create their own company.

4. Define the central objective of the business. Consider that if a person believes himself capable of establishing the main purpose of his business, then it is very likely that he will feel motivated to start his own company.

5. Face unexpected changes. It refers to the perception about their ability to work under uncertainty.

6. Develop key human resources. It is the perception about their ability to attract and retain individuals who are key in the creation of a new company.

DeNoble et al. (1999) conducted several investigations to study the validity of the ESE scale. In a first study in university students, they found that the total score of the scale correlated positively and significantly with the intention of the participants and their current preparation to start their own business.

In a subsequent study, De Noble et al. (1999) compared scores on the ESE scale among a group of students who were pursuing a master's degree in business administration (MBA), that is, they had already

graduated from university, and those students who showed themselves to be entrepreneurs obtained higher scores in all dimensions of the ESE scale.

However, these scores were only statistically significant in the following two dimensions: 1. developing new products or opportunities, and 2. facing unexpected changes (De Noble et al., 1999b; Moriano et al., 2006).

About TPB model

Liñán's (2008) work on "Skills and value of perception: How do they affect business intentions?", was based on the model of planned behavior (TPB). Ajzen (1991) frequently used to explain the mental process of commercial creations, his main objective was to demonstrate whether the perceived social valuation on entrepreneurship and perceived personal skills had a significant impact on business action, directly or through a determining motivational factor (personal attraction, control over perceived behavior and subjective norm) (Maluk, 2018).

The variables used in the model illustrated in Figure 2 are personal attraction (PA) or perceived attitude towards behavior, individual subjective norms (SN), which is perceived social pressure, and perceived behavioral control (PBC).

In reference to the model of planned behaviour for the entrepreneurial action carried out by Maluk (2018), Figure 3 shows us that the final entrepreneurial action is preceded by the decision, which is a total mediator variable between intention and action, and the reason why to make the effort to enhance the decision during the final process of a new entrepreneurial model.

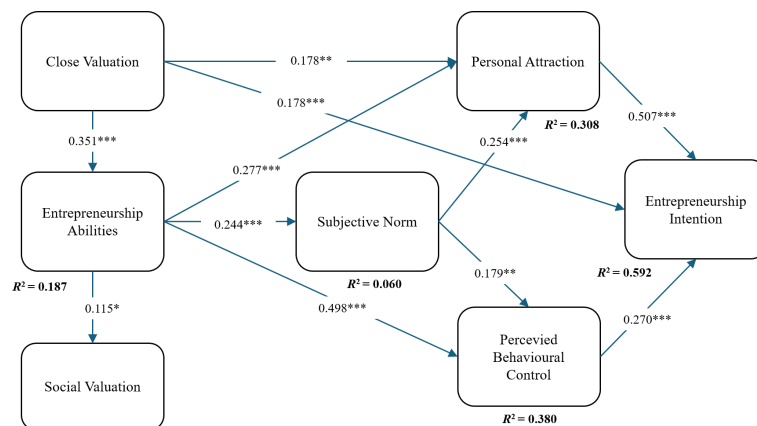


Figure 2 Skills and values perception model (Liñán, 2008)

Source: Figure built on 2022 from the Author's original

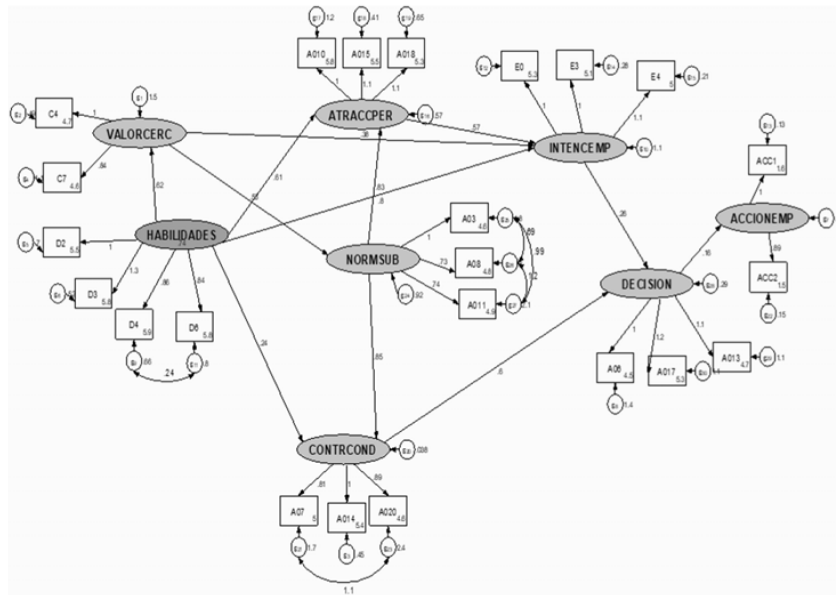


Figure 3 Model of planned behaviour for entrepreneurial action as the final dependent variable and decision as the total mediator variable between intention and action (Maluk, 2018)

Hence, the models presented above have demonstrated robustness in assessing the establishment of new ventures. They begin by analyzing the variables that impact students' learning intentions, guiding them through the resultant model to make informed decisions regarding sustainable entrepreneurship. By comprehending how the values and skills of UTM students influence their entrepreneurial intentions and subsequent venture initiation decisions, there exists a theoretical proposition that the probability of success and sustainability of ventures initiated by these students can be enhanced. This can be achieved by reinforcing the continuum between intention and decision-making through targeted training provided by the university. In doing so, universities provide students with the opportunity to recognize their strengths and weaknesses, thereby enabling the development of competencies necessary for the creation of stronger and more sustainable ventures driven by informed decision-making rather than impulsive reactions to necessity.

Research Design

The present investigation takes the items of the research questionnaire carried out by Álvarez and Zúñiga (2022) backed up by a cognitive theoretical framework about intention, where they conclude that the entrepreneurship education formation positively impacts entrepreneurship intentions for these students. This is made indirectly by favourably influencing attitudes towards entrepreneurship and the perception of self-efficacy variables.

Conceptual Framework

The variables of the conceptual model and the hypothesis raised based on the research design are as Table 1.

Table 1 Hypothesis and variable's definition

H1: INTENCEMP	It is the final dependent variable that explains the entrepreneurial intention
H2: AUTEFEMP	Is entrepreneurial self-efficacy that has an impact on entrepreneurial intention
H3: ACTEMP	Is entrepreneurial attitude that has an impact on entrepreneurial intention
H4: INFOTRREL	Is Information from relevant others that has an impact on entrepreneurial attitude and impact on entrepreneurial self-efficacy
H5: APOYFOREMP	Is Support for entrepreneurial training that has an impact on entrepreneurial attitude and on entrepreneurial self-efficacy
H6: SOPESTR	Is Structural support from university that has an impact on entrepreneurial self-efficacy and on entrepreneurial attitude.

Methodology

Before the conclusion of the first semester of 2022, a structured questionnaire was administered to students enrolled in virtual education programs at FCAE-UTM. The questionnaire was conducted online and involved 1,105 students from various levels and courses, selected through a random sampling process.

The items in the structured questionnaire according to Álvarez and Zúñiga (2022) were measured on a Likert scale from one to five, where one is “totally disagree” and five “totally agree”.

Analysis Techniques

With the items of the research questionnaire, 6 main components were found by reduction of dimensions and varimax rotation. A univariate analysis was performed for the dependent variable. A multiple regression was performed for the level of likeability as a dependent

variable, and the reduction of dimensions to obtain the main components was with a varimax rotation.

The constructs and the dependent variable with its items passed Cronbach's Alpha reliability test, and then a model was built in systems of SEM. Convergent validity and discriminant validity were tested for the model, and a confirmatory structural equation was achieved.

Data Analysis

Principal component analysis

A process of analysis of main components with reduction of dimensions by varimax rotation was carried out. Having captured 68.9 percent of the variance explained, the results shown in Table 2 were as the following: The first rotated component was called *Entrepreneurial Intention (INTENCEMP)*, with 6 items with load factors greater than 0.60. Cronbach's Alpha for this construct was 0.908, so it was decided to keep item nine. The second component

Table 2 Significant rotated components matrix

	VARIMAX ROTATED COMPONENTS					
	1 INTENCEMP (IE) Entrepreneurial intention	2 AUTEFEMP Entrepreneurial self efficacy	3 ACTEMP Entrepreneurial attitude	4 INFOTRREL Information from relevant others	5 APOYFOREMP Support for entrepreneurial training	6 SOPESTR Structural support
IE1	.760					
IE2	.759					
IE3	.757					
IE4	.730					
IE5	.722					
IE6	.695					
ACTE1			.633			
ACTE2			.756			
ACTE3			.734			
ACTE4			.757			
ACTE5			.716			
AE2		.630				
AE3		.697				
AE4		.759				
AE5		.760				
AE6		.742				
AE7		.668				
AE8		.654				
APFE1					.808	
APFE2					.829	
APFE3					.830	
IOR1				.718		
IOR2				.702		
IOR3				.722		
SOPES1						.716
SOPES2						.545

was called *Entrepreneurial Self-Efficacy (AUTEFEMP)* with 7 items and with a Cronbach Alpha of 0.913. The third component was called *Entrepreneurial Attitude (ACTEMP)* with 5 items and a Cronbach Alpha of 0.868. The fourth component was called *Information from relevant others (INFOTRREL)* with 3 items and a Cronbach Alpha of 0.866. The fifth component was called *Support for entrepreneurial training (APOYFOEMP)* with 3 items and Cronbach Alpha of 0.776 and the sixth component was called *Structural support (SOPESTR)* with 2 items and Cronbach Alpha of 0.722. All Cronbach Alpha's were greater than 0.70 being confirmatory for internal consistency (Hair et al., 1998).

SEM Analysis

The measurement model was built and the convergence was tested and was satisfactory. Then the structural model was built and there was also satisfactory convergence.

The variables were measured on the Likert scale from 1 to 5. The significance of the coefficients was assessed with 95 percent confidence. The reduction of dimensions to obtain the main components was with varimax rotation. The following results were obtained: The KMO and Bartlett sample adequacy test significant with ($p < .001$). The 6 constructs with their items passed the Cronbach's Alpha reliability test greater than .70

being confirmatory and reliable scale for entrepreneurial intention for students.

A model in SEM was obtained with an entrepreneurial intention (INTENCEMP) as a dependent variable, the measurement model was adjusted with Chi square of 2811 and 293 gl. The structural model converged: Impact Coef. = 0.86 for entrepreneurial attitude (ACTEMP) and 0.19 for entrepreneurial self-efficacy (AUTEFEMP), and exogenous variables: Support for entrepreneurial training (APOYFOEMP), information from others relevant parties (INFOTRREL) and structural support for entrepreneurial intention (SOPESTR), as in the following Table 3.

The goodness of fit indicators shown in Figure 4 has an adequate RMSEA = 0.088 higher than 0.05, the comparative adjustment indices CFI = 0.880 and TLI = 0.867 near to 0.90. The adjustment value SRMR = 0.223 higher than 0.08. CD = 0.998 with a chi square of 2812 and 293 gl. Convergent validity and divergent validity were tested for the model. A confirmatory structural equation of cause and effect relationships was achieved, so it was obtained that the level of pleasure is:

Table 3 Linear equations for entrepreneurial intention and impact coefficients

$$\begin{aligned} \text{INTENCEMP} &= 0.86 * \text{ACTEMP} + 0.19 * \text{AUTEFEMP} + \text{E1} \\ \text{ACTEMP} &= 0.32 * \text{APOYFOEMP} + 0.27 * \text{INFOTRREL} \\ \text{AUTEFEMP} &= 0.46 * \text{INFOTRREL} + 0.30 * \text{SOPESTR} \end{aligned}$$

LR test of model vs. saturated: chi2(293) = 2811.94, Prob > chi2 = 0.0000

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Fit statistic	Value	Description
Likelihood ratio		
chi2_ms(293)	2811.942	model vs. saturated
p > chi2	0.000	
chi2_bs(325)	21357.590	baseline vs. saturated
p > chi2	0.000	
Population error		
RMSEA	0.088	Root mean squared error of approximation
90% CI, lower bound	0.000	
upper bound	-	
pclose	-	Probability RMSEA <= 0.05
Information criteria		
AIC	58806.969	Akaike's information criterion
BIC	59227.531	Bayesian information criterion
Baseline comparison		
CFI	0.880	Comparative fit index
TLI	0.867	Tucker-Lewis index
Size of residuals		
SRMR	0.223	Standardized root mean squared residual
CD	0.998	Coefficient of determination

Figure 4 Goodness-of-fit coefficients of the structural model in SEM

Results and Discussion

Finally, the confirmatory and causal structural equations allow for an interesting applicability on the measurement impacts of EI. In Figure 5 it can be observed, as a primary result, the model of entrepreneurial intentions for UTM students show two pathways. The first one, on top, through the variable Entrepreneurial attitude (ACTEMP) by supporting students along their training (APOYFOREMP) and providing information about relevant others in the field (INFOTRREL). And the second way to enhance entrepreneurial intentions is by increasing Entrepreneurial self-efficacy (AUTEFEMP), which is primarily given by the adequate Structural entrepreneurial formation support from university (SOPESTR).

The findings allow us to defend a new and different model than the one proposed by Álvarez and Zúñiga (2022), partially validating the hypotheses as follows:

H1: INTENCEMP It is the final dependent variable that explains the entrepreneurial intention

H2: AUTEFEMP Entrepreneurial self-efficacy has an impact on entrepreneurial intention.

H3: ACTEMP Entrepreneurial attitude has an impact on entrepreneurial intention.

H4: INFOTRREL Information from relevant others has an impact on entrepreneurial attitude and entrepreneurial self-efficacy.

H5: APOYFOREMP Support for entrepreneurial training has an impact on entrepreneurial attitude and does not have on entrepreneurial self-efficacy.

H6: SOPESTR Structural support from university has an impact only on entrepreneurial self-efficacy.

The model obtained will be an initial guide for the UTM to make decisions regarding strengthening support for entrepreneurial training and strengthening the structural support that the Institution gives to the academic units that promote the teaching and development of the entrepreneurial spirit. In addition, the model obtained is easy to apply, achieving an original scale, being an instrument that measures the entrepreneurial intention of UTM students, which constitutes strong support for institutional evaluation and the training of entrepreneurs.

Nonetheless, it is worth noting that there are still latent factors that could impact entrepreneurial intention, underscoring a research gap ripe for future investigation and exploration. Enhanced understanding of these factors and variables will contribute to more effective entrepreneurial training provided by the university, consequently leading to a higher percentage of successful and sustainable ventures initiated by students. The model presented as a result in this study should undergo significance testing in other Ecuadorian universities. This is essential for public policy to adjust its incentives to enhance structural entrepreneurial support, improve training, and involve relevant stakeholders in university programs. Currently, the connection with experts in the field is weak and poorly structured. It would be worthwhile to explore the potential of incorporating these findings into the Ecuadorian entrepreneurship formation model, sparking discussion on potential changes.

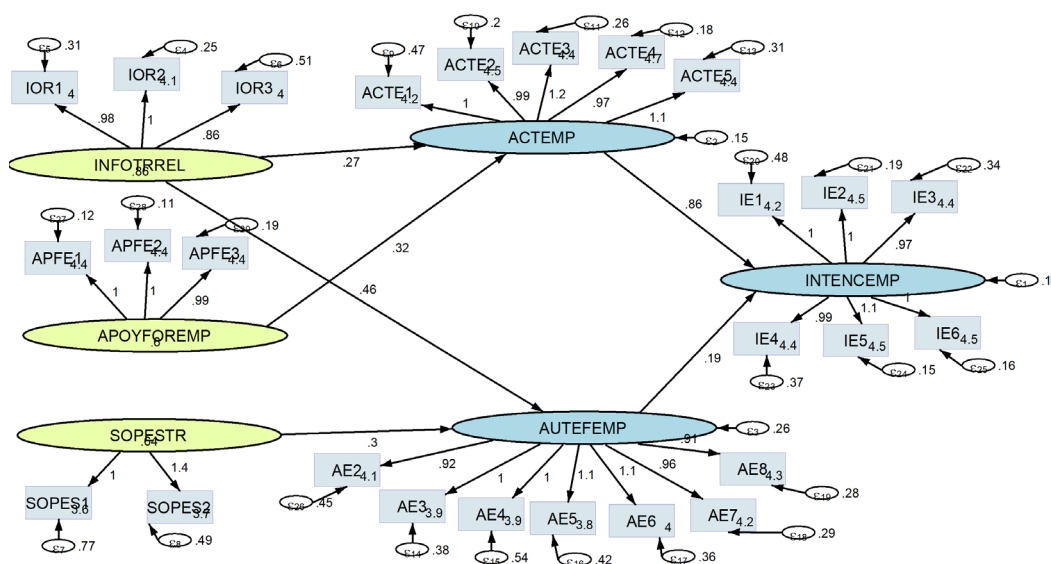


Figure 5 Structural model in SEM for entrepreneurial intention of UTM students

The structural model for the UTM case suggests that to promote the intention of starting more robust businesses, the university should support the increase in entrepreneurial self-efficacy perceptions among its students. It is crucial to enhance entrepreneurial self-efficacy, making students feel capable of undertaking entrepreneurial ventures, especially concerning business structure. This involves having more access to equipment and providing spaces to interact with successful entrepreneur groups so that the training has a more significant impact on self-efficacy. Although entrepreneurial self-efficacy has a 19 percent impact on entrepreneurial intention, structural support can increase it by 30 percent. Currently, the existing entrepreneurship unit offers limited support to students, lacking the necessary economic and logistical resources to improve their performance.

On the other hand, entrepreneurial attitude will be enhanced by additional variables, such as relevant training and support for entrepreneurial education. Despite the existence of an entrepreneurship center, the provided training is limited to entrepreneurship projects. In this context, the university should strengthen the process to increase support for entrepreneurial education by sending students to the field to gain experience as entrepreneurs. In other words, there is a need to increase students' connection to the business environment, possibly focusing on the agricultural sector, which is one of the most developed in the province. This would improve the development of entrepreneurial skills established in Liñan's (2008) model, thereby increasing the intention to undertake such. It is suggested to bring students closer to companies through more technical and training-oriented contracts, rather than simple internships to meet the minimum hours required by the academic curriculum.

Conflict of Interest

The authors declare that there is no conflict of interest.

References

- Ajzen, I. (1991). The theory of planned behavior. *Organizational behavior and human decision processes*, 50, 179–211.
- Alfonzo, Z., Fermin, J. S., & Long, V. (2009). Nivel de agrado y confort de los estudiante usando la calculadora gráfica en la clase de álgebra en secundaria. *Paradigma*, 30, 143–158.
- Álvarez, C. S., & Zúñiga, G. B. (2022). Impacto de la formación educativa emprendedora en la intención emprendedora: un enfoque cognitivo. *Contaduría y administración*, 67, 1.
- Bandura, A. (1997). *Self-efficacy: The exercise of control*. W. H. Freeman.
- Bandura, A. (1999). Moral Disengagement in the Perpetration of Inhumanities. *Personality and Social Psychology Review*, 3, 193–209.
- Boyd, N. G., & Vozikis, G. S. (1994). The influence of self-efficacy on the development of entrepreneurial intentions and actions. *Entrepreneurship Theory and Practice*, 18, 63–77.
- Bravo Esmeraldas, J. A. (2023, August). Escenarios Financieros Y Su Incidencia En La Sostenibilidad De Los Proyectos De Emprendimiento, En La Ciudad De Manta. *Rev. Revista Electrónica de Formación y Calidad Educativa*, 11, 105–122. <https://refcale.uleam.edu.ec/index.php/refcale/article/view/3740>
- Campuzano, M. F. (2022). Educación virtual. Una revisión a la estructura pedagógica a la Universidad Técnica de Manabí (Ecuador). *EDMETIC*, 11, 1–18.
- De Noble, A. F., Jung, D., & Ehrlich, B. (1999). Entrepreneurial self-efficacy: The development of a measure and its relationship to entrepreneurial intentions and actions. *Entrepreneurship theory and practice*, 18, 63–77.
- De Noble, A. F., Jung, W., & Ehrlich, S. B. (1999). Entrepreneurial intention: Antecedents and outcomes. *Entrepreneurship Theory and Practice*, 23, 3–22.
- Delgado Medina, C. E., & others. (2019). *Aula virtual de física para mejorar el proceso de enseñanza aprendizaje utilizando herramientas tecnológicas* [Unpublished master's thesis]. Universidad Tecnológica Israel.
- Foust, M. (2022). Enseñanza en modalidad virtual y actitudes hacia el aprendizaje desde la perspectiva docente en una universidad de música, Lima–2021.
- Hair Jr, J. F., Anderson, R. E., Tatham, R. L., & Black, W. C. (1998). *Multivariate Data Analysis*. Prentice-Hall.
- Herrera Simon, V. R. (2022). Educación virtual y motivación en el rendimiento académico en una institución educativa inicial en épocas de COVID-19, Lima 2021.
- Krueger, J., & Dickson, P. (1994). How believing in ourselves increases risk taking: Self-efficacy and perceptions of opportunity and threat. *Decision Sciences*, 25, 385–400.
- Lasio, V., Amaya, A., Zambrano, J., & Ordeñana, X. (2020). *Global Entrepreneurship Monitor Ecuador 2019–2020* (ESPOL ed.). ESPOL: ESPAE, Escuela de Negocios de la ESPOL.
- Liñán, F. (2008). Skill and value perceptions: How do they affect entrepreneurial intentions? *International Entrepreneurship and Management Journal*, 4, 257–272.
- Maluk, O. (2018). Variables de percepción como factores explicativos para la actitud emprendedora de los graduados universitarios: Un análisis confirmatorio. *Revista Espacios*, 39, 15.
- Maluk, O., & Maluk, S. (2020, March). Modelo de comportamiento planificado (TPB) en conexión con la autoeficacia emprendedora (ESE) para determinar la acción de emprender. *Revista Espacios*, 41, 5.
- Maluk, O., & others. (2018). *Variables y factores que explican desde de la intención hasta la acción de emprender de los graduados universitarios* [Unpublished doctoral dissertation]. Universitat Ramon Llull.
- Martelo, R., Franco, D., & Oyola, P. (2020). Factores que influyen en la calidad de la educación virtual. *Revista Espacios*, 41, 352–361.
- Medina Alvarado, I. L. (2019). Economía y educación, dos conceptos determinantes en el desarrollo de la sociedad latinoamericana. *Contribuciones a las Ciencias Sociales*.
- Moriano León, J. A., Palací Descals, F. J., & Morales Domínguez, J. F. (2006). El perfil psicosocial del emprendedor universitario. *Revista de Psicología del Trabajo y de las Organizaciones*, 22.
- Pareja Chau, F. M., & Paz Flores, C. A. (2020). La satisfacción de la educación virtual, en la modalidad pregrado de una universidad privada, en la ciudad de Lima, durante el 2019.

- Pelayo, M. G. (1987). *Las transformaciones del Estado contemporáneo*. Alianza.
- Piña, M. I., Martínez, L. G., Martínez, A. M., & Inchausti, E. V. (2008). Determinantes sociales y cognitivos en el espíritu emprendedor: Un estudio exploratorio entre estudiantes argentinos. *Cuadernos de Gestión*, 8, 11–24.
- Ramírez-Montoya, M. S. (2020). Transformación digital e innovación educativa en Latinoamérica en el marco del COVID-19. *Campus virtuales*, 9, 123–139.
- Rodríguez Pulido, J., Artiles Rodríguez, J., & others. (2017). Aprendizajes y buenas prácticas para la gestión de la institución superior. *REICE. Revista Iberoamericana sobre Calidad, Eficacia y Cambio en Educación*.
- Sandoval, C. A. (2022, August). Impact of entrepreneurial training on entrepreneurial intentions: A cognitive approach. *Contaduría y Administración*. <https://doi.org/10.22201/fca.24488410e.2022.3269>