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## Entrepreneurship and entrepreneurial innovation of university students, Amazonas, Peru

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### Abstract

This study aims to investigate the influence of entrepreneurship on innovation competencies in students. Using a descriptive, non-experimental research design with a quantitative relational approach, the research involved a participant pool of students from the Universidad Nacional Toribio Rodríguez de Mendoza de Amazonas, totaling 310 individuals. To stimulate entrepreneurship that contributes to economic growth, it is essential to nurture entrepreneurship competencies among university students. Data collection utilized a Likert scale questionnaire, and the analysis employed SPSS and PLS statistical software. Results revealed that 60.7% of students fell within the 21 to 25 age range, with 50% receiving an income between S/. 500 to S/. 1500 soles from their parents and 48.8% obtaining income from the Cuna Más program. The PLS findings reveal a substantial impact of entrepreneurship on university students' innovation competencies, with correlations of 0.756 for knowledge generation, 0.736 for knowledge assimilation, 0.699 for knowledge partnership, and 0.756 for reorganization of knowledge. This highlights the critical importance of emphasizing entrepreneurial skills in university education. The research addresses a global literature gap on the impact of entrepreneurial competencies in establishing innovative businesses, aiming to provide empirical evidence linking open innovation dynamics and entrepreneurship. Anticipated outcomes underscore how pedagogical approaches can enhance students' capacity to generate new value for organizations or society through fostering innovative thinking and behavior.

**Keywords:** Entrepreneurship, Entrepreneurial innovation, Innovation competencies, Knowledge generation, Knowledge partnership, Reorganization of knowledge, University students.

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**Transparency:** The authors confirm that the manuscript is an honest, accurate, and transparent account of the study; that no vital features of the study have been omitted; and that any discrepancies from the study as planned have been explained. This study followed all ethical practices during writing.

**Institutional Review Board Statement:** The Ethical Committee of the Economics and Development Research Institute of the Toribio Rodríguez National University of Mendoza, Peru has granted approval for this study on 10 May 2023 (Ref. No. 29-2023/UNTRM/FACEA/IDED).

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## 1. Introduction

The concept of entrepreneurship originated in 1755, when the crucial role of entrepreneurship in the economy was highlighted [1, 2]. Later, the concept of an entrepreneur was defined as someone who innovates [3]. In the contemporary landscape, the notion of entrepreneurship has gained extensive recognition across diverse fields of study, including history, psychology, anthropology, economics, sociology, and political science [4]. Entrepreneurship manifests itself in diverse forms, incorporating interdisciplinary theories and approaches [5]. Additionally, it holds a crucial position in shaping the future of society, contributing to its sustainability [6]. Entrepreneurs are always looking for opportunities and seeking the development of innovations [7, 8]. They gather production factors at the time of developing the product or service in which they face risks to obtain their profits in the future [9]. An entrepreneur can be characterized as an individual with a superior ability to discern customer needs in comparison to competitors, proficiently creating value to meet those needs [8]. Entrepreneurs are also individuals who, through effective communication skills, generate creative ideas to address customer issues, innovate solutions, establish trust through social capital, and utilize communication skills adeptly [10]. Entrepreneurship training at the university is vital in shaping students' tendencies to create their own businesses [11]. Within the university setting, students are presented with a range of resources that can impact their entrepreneurial conduct by providing access to knowledge and resources [12]. Students can use these resources to find or create business opportunities and subsequently establish workable new ventures [13]. Entrepreneurship education has been acknowledged as a pivotal factor in shaping students' inclination to initiate a business [14]. Integrating entrepreneurship education into universities, coupled with content on innovation and knowledge management, is essential to fostering an entrepreneurial mindset that positively contributes to local economic growth [15]. In national and regional entrepreneurship programs, enhancing innovative and entrepreneurial capabilities is closely tied to educational initiatives and training efforts. The observation that well-prepared individuals who have a solid knowledge base and essential skills typically produce projects of superior quality, thereby boosting their innovative capabilities, emphasizes the significance of educating and training entrepreneurs. As a result, these well-prepared entrepreneurs often have a more significant impact on both the market and the region [16]. Entrepreneurship programs and courses furnish students with the practical context and real-world content necessary for acquiring and applying skills and behaviors aimed at generating value through entrepreneurship. Creative skills empower students to explore novel ideas and opportunities, fostering contributions to social innovation. The majority of training programs are crafted to offer students positive experiences, facilitating learning and the enhancement of their entrepreneurial skills [17]. The significance of defining and assessing business models, along with their innovation processes, has increased substantially within the realms of entrepreneurship and innovation. This shift is attributed to a growing consensus among academics and practitioners that companies, whether well-established or startups, should move beyond focusing solely on innovations in products, services, or processes within their existing frameworks. Instead, they should channel their efforts toward innovating their entire business model. This novel approach has emerged as the new focal point for analyzing innovation endeavors.

Interest in innovation and entrepreneurship is rapidly increasing among academic, business, and government circles [18-20]. The importance of value creation and innovation is widely acknowledged in the realm of entrepreneurship [21-23]. In essence, entrepreneurship involves the ability to conceive and establish ventures of varying scales, efficiently translating ideas and innovations into sustainable and prosperous initiatives [24]. Innovation and entrepreneurship are important for Peru economic growth, the welfare of society and the generation of employment. Innovation is crucial due to the current very low level of income, despite growth in recent years [25]. However, the main danger is that a lag in innovation achievements may lead to a wider gap with the global economy, with declining competitiveness and deteriorating economic conditions [26-29]. Considering this perspective, the university advocates for cultivating innovation competencies that contribute to entrepreneurship, fostering both local and national development. With this in mind, the objective is to investigate the impact of entrepreneurship on innovation competencies in university students. Building upon the aforementioned context, the study formulates the following hypothesis:

*H<sub>1</sub>: Entrepreneurship influences knowledge generation.*

*H<sub>2</sub>: Entrepreneurship influences knowledge assimilation.*

*H<sub>3</sub>: Entrepreneurship influences knowledge partnership.*

*H<sub>4</sub>: Entrepreneurship influences reorganization of knowledge.*

The partnership between universities and private enterprises is gaining recognition as a strategy to enhance innovation by facilitating the exchange of knowledge and the transfer of technology [30, 31]. Institutions should prioritize educational initiatives that promote sustainability and create wider prospects for innovation [32]. The integration of entrepreneurship education into academic offerings is often praised for its potential to enhance entrepreneurial intent [33]. Learning environments in education can exert a substantial influence on students' creativity, entrepreneurial skills, and entrepreneurial aspirations [34]. As Peru's economic and social development enters a new stage, the role of innovation and entrepreneurship becomes more and more prominent and its importance is also emphasized [35, 36]. As the main force for future employment and national economic construction, university students naturally become the new force for innovation and entrepreneurship [37]. Therefore, it is imperative for universities to carry out in-depth education on innovation and entrepreneurship for college students [38]. Then, with the continuous development of social development needs and professional growth needs of college students, "innovation and entrepreneurship" education for college students should also be adjusted in a timely manner in terms of educational concepts, models and methods [38-41].

This is demonstrated by numerous entrepreneurship courses emphasizing skills typically associated with management and business planning [42-44]. However, it is suggested that these courses should encompass creative skills, such as receptiveness to change, problem-solving approaches, risk-taking, and particularly teamwork [45, 46]. The present study

makes a notable contribution to this domain by offering a theoretically grounded foundation, supported by evidence, for a more comprehensive approach to skills development in entrepreneurship for university students. Inclusion of entrepreneurship courses in the curriculum is essential, and if already present, their content should be expanded to enhance both theoretical and practical knowledge, incorporating successful case studies to strengthen students' communication skills. University education systems that emphasize research and practical application will offer an innovative and entrepreneurial training approach, aligning better with graduates' expectations. It is advisable to review government policies on entrepreneurship in collaboration with the education system and the private sector. This collaborative effort can enhance curricula, thereby refining the profile of graduates to meet the demands of today's highly competitive society.

## **2. Theoretical Foundations**

### *2.1. Innovation*

Innovation among university students pertains to their capacity for cultivating fresh ideas, imaginative methodologies, and groundbreaking solutions within the sphere of their higher education [47]. This encompasses the adept application of their acquired knowledge in distinctive manners and the proficient resolution of complex issues [48]. Exceptional university students who demonstrate innovativeness typically shine in their ability to not only conceive but also apply novel perspectives across their academic studies, projects, and various scholastic undertakings [49, 50]. Their prowess lies in the capacity to push boundaries and transcend conventional thinking, thereby contributing to the advancement of knowledge and the enrichment of their academic community [51-53]. From this perspective, more recent studies on innovativeness [54-57] have focused on the impact that university researchers can have on business innovation. Bianchini, et al. [58] provide quantitative evidence on the impact of university demand on the innovative performance of their instrumentation suppliers by showing that university students have a higher propensity to introduce new products to the market to provide solutions to societal problems. Innovation mechanisms, as a space for creation within a university ecosystem, provide fundamental support for student innovation [59]. Therefore, the concept of innovation presents a great opportunity for the development of an innovative knowledge-based economy [60]. The choice of specific dimensions of innovation, namely "Knowledge Assimilation," "Knowledge Generation," "Knowledge Partnership," and "Reorganization of Knowledge," [61-63], is based on various theoretical and conceptual approaches that support their importance in the innovation process [64]. According to the theory of the innovation process, innovation is a multi-stage process [65], from idea generation to successful implementation, and these dimensions reflect critical points in this process [66]. Furthermore, in the context of organizational learning theory, knowledge assimilation relates to the acquisition and absorption of organizational knowledge [67], while knowledge generation represents an organization's ability to create new knowledge [68]. Knowledge management is also reflected in these dimensions, involving the acquisition, creation, distribution, and application of knowledge [69]. Additionally, the theory of open innovation underscores the importance of seeking external sources and collaborating with them, which relates to the dimension of Knowledge Partnership [70]. Lastly, theories of creativity support the generation of new ideas and solutions, and the dimension of Knowledge Generation is linked to the creative combination and reorganization of prior knowledge [71]. These dimensions intertwine to provide a robust framework for understanding and promoting innovation across various contexts. The implications of trends for innovation and entrepreneurship, including challenges and opportunities such as keeping pace with technological advances, balancing the benefits and drawbacks, and improving innovativeness over time [72, 73]. Innovation can help entrepreneurs identify and seize business opportunities by visualizing risky ideas and implementing innovation in business models through innovation partner management [74]. Innovation has become vital to address social problems and improve community well-being [75]. Positively pursuing valuable innovation and creativity is globally important for national economic development and the creation of job opportunities for students [38, 76].

### *2.2. Entrepreneurship*

Entrepreneurship encompasses the process of identifying, establishing, and overseeing a new business or venture with the objective of fostering innovation, fostering growth, and ultimately, ensuring profitability [77]. This dynamic journey stands out for its willingness to take calculated risks, ability to adjust to changing circumstances, and unwavering enthusiasm and steadfast determination in the pursuit of opportunities [78]. Furthermore, entrepreneurship is intrinsically interwoven with several pivotal traits and characteristics that are indispensable for triumphing in the entrepreneurial realm, making it an exciting and multifaceted endeavor [79]. Despite the wealth of information related to the benefits of experiential learning in entrepreneurship, reviews point to a paucity of experiential learning in entrepreneurship programs in university education [80]. In particular, many educational practices focus on fundamental knowledge and processes of innovation and new venture creation, neglecting soft skills [34]. Previous studies have used entrepreneurial competence as a reference to design curricula or as a tool to assess the development of personal skills among university students [81]. Despite its importance, the literature on entrepreneurial competence is sparse and lacks an integrated and structured analysis of the effects that different characteristics of entrepreneurship programs may have on students' entrepreneurial competence development [82]. In addition, the potential mechanism through which the characteristics of entrepreneurship programs may have a positive impact on the generation of new business ideas [83, 84].

The choice of these dimensions in the context of entrepreneurship is based on established theories and approaches that support the significance of these qualities and skills in the successful creation and management of ventures [85]. Conflict resolution theory underscores the need to address disputes constructively in a business environment that often faces challenges [86]. Achievement orientation, which has support from motivation and goal-setting theories, refers to the relentless pursuit of difficult goals that are essential for fostering business growth [87]. The capacity to take risks,

supported by decision-making and risk-reward theories, is fundamental to entrepreneurial decision-making [88]. Teamwork, networking, and creativity, supported by group dynamics, collaboration, social networks, and creativity theories, are essential for effective collaboration, relationship-building, and fostering innovation [89]. Independent decision-making is possible with autonomy thanks to intrinsic motivation and autonomy in work theories, whereas initiative based on motivation and initiative theories and entails taking initiative and looking for opportunities [90, 91]. Collectively, these dimensions are grounded in a variety of theories related to psychology, management, motivation, and entrepreneurial behavior, and have been established as fundamental for success in entrepreneurship, according to literature and research. The entrepreneurship perspective suggests that new ideas from people with intentions innovate to position success [92]. Regarding entrepreneurship programs, it will be necessary to follow up on the long-term impact; it is essential to incorporate entrepreneurship training into the curricula of undergraduate students [93]. Entrepreneurship has increasingly become a crucial research field, attracting academics and policymakers in recent decades, as it plays a key role in accelerating economic growth and addressing innovations for certain intractable social problems [94].

Entrepreneurship fosters innovation and creates employment opportunities, making the creation of student enterprises a crucial factor in economic development and sustainability [95]. For university educators and administrators, understanding how to improve entrepreneurial intentions among students is essential to designing a learning environment that facilitates the creation of new ventures as a result of higher education [96].

### 3. Materials and Methods

The study employed a descriptive approach with a non-experimental correlational design, adopting a quantitative methodology. The target population consisted of students from the Universidad Nacional Toribio Rodríguez de Mendoza de Amazonas, selected due to being the university with the highest student enrollment in the Amazonas region.

In order to obtain data, a technique known as convenience sampling was used. That is to say, students from the IV cycle onwards were selected; this choice was made because these students are familiar with the entrepreneurship courses within the university. The information was collected using the survey. As part of the survey, we used questions that respondents could answer individually. The survey is structured into two sections. The initial segment collects socioeconomic data from the students, while the subsequent part comprises a series of scale items intended for gauging the variables. Each item within the scale was evaluated using a five-point Likert scale. The construction of these scale items for assessing the variables was derived from prior research that underwent validation within the community.

The questionnaire method was used to collect the data. The respondents were university students, who answered about their entrepreneurship and business innovation competencies. The research collected information from 310 students.

The outcomes derived from this study underwent assessment utilizing statistical software, specifically SPSS version 26.0 and PLS. The socioeconomic analysis, deemed a crucial component, was conducted using SPSS. Subsequently, the measurement model and structural model were scrutinized through PLS. The measurement model was looked at to make sure the constructs were reliable and valid, and the structural model was used to find out how the variables were related and affected each other. The model was designed according to the following design:

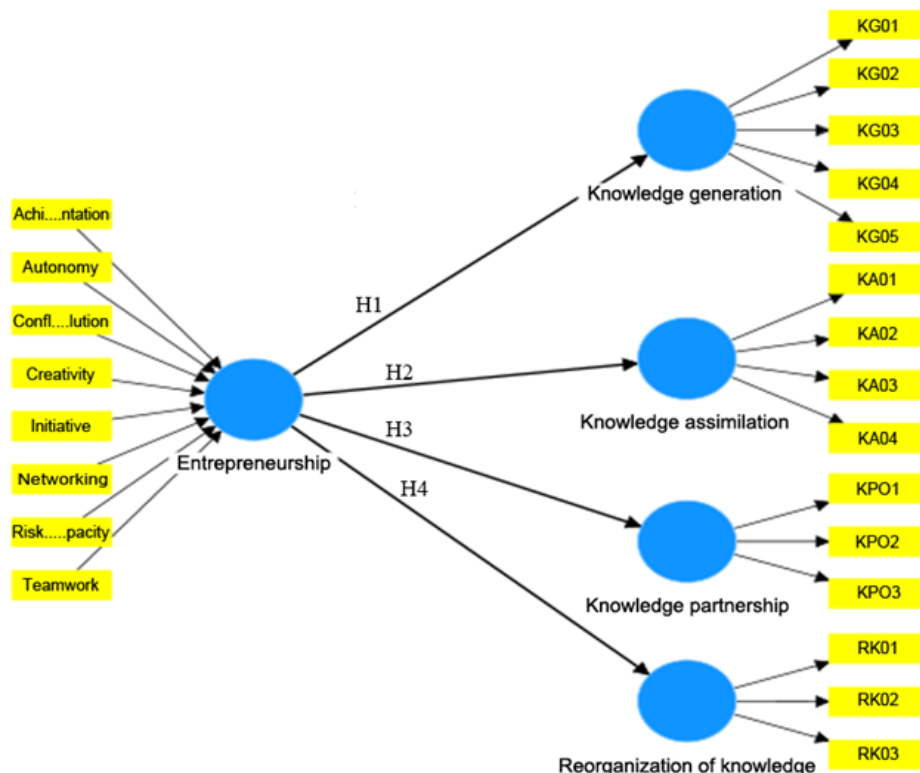


Figure 1. Research design to specify the relationships between the observed variables.

Figure 1 illustrates the design of the structural model of the research, according to the hypothesis statement. To analyze the relationships between the latent variables that allow explaining the observed data and the predictive analysis as a relevant element in the research on how entrepreneurship influences innovation competencies, the following hypotheses were used:

Table 1 presents the results of the socioeconomic analysis of the surveyed students. It shows the students' age, average income, and the social program of which they are beneficiaries. The study included undergraduate university students.

**Table 1.**  
Socioeconomic analysis.  
(N=310)

Variables	Categories	Frequency	Percentage
Age	[15-20]	107	34.5
	[21-25]	188	60.7
	[26-30]	15	4.8
Parental income rate	Less than S/. 500	59	19.0
	From S/. 500 up to S/. 1500	155	50.0
	From S/. 1501 to S/. 2500	55	17.9
	From S/. 2501 upto S/. 3500	33	10.7
	More than S/. 3500	7	2.4
Social program	Juntos	140	45.2
	Cuna Mas	151	48.8
	Pensión 65	4	1.2
	Contigo	15	4.8

#### 4. Results

In this study, the participation of university students as respondents was essential. The results of the study showed that the majority of the students, 60.7%, were between the ages of 21 and 25. In terms of income, 50% of the students received S/. 500 to S/. 1500 from their parents, while 17.9% had an income of up to S/. 2500. Interestingly, 48.8% of the students received income from the Cuna Más program, which is a government program that provides financial support to families with young children.

Additionally, 45.2% of the students received income from the Juntos program, which is another government program that provides financial support to low-income families.

Overall, the study found that a significant proportion of university students receive income from their parents or from government programs. This finding suggests that financial assistance is essential for many students to be able to pursue higher education.

##### 4.1. Model Results

For the analysis of the structural model, convergent validity, discriminant validity and reliability corresponding to the components were evaluated. The assessment of convergent validity involved consideration of the loading, Cronbach's alpha, and composite reliability (CR) values. Discriminant validity, on the other hand, was determined by assessing the average variance extracted (AVE).

The recommended thresholds for the loading value, CR value, and AVE are 0.50, 0.70, and 0.50, respectively, as suggested by Karimi and Walter [97] and Mtani, et al. [98]. The results of the measurement model, as depicted in Figure 2, Tables 2, and 4, affirm that these parameters meet the acceptable criteria.

Convergent validity pertains to how well the indicators of a construct gauge the same concept. Discriminant validity, on the other hand, concerns the extent to which indicators of one construct can be distinguished from those of other constructs.

Reliability is the extent to which a measurement instrument exhibits consistency and yields comparable results over time.

Loading, Cronbach's alpha, CR, and AVE values serve as indicators of convergent validity and reliability. Loading values should exceed 0.50, Cronbach's alpha should surpass 0.70, and AVE should be higher than 0.50. The evaluation outcomes for convergent validity, discriminant validity, and reliability demonstrated that the measurement models were deemed acceptable. Consequently, the measurement instruments employed in the study proved to accurately and reliably measure the constructs of interest.

The external loading value of all items is above the threshold of 0.6. Items with a loading below 0.6 are removed from the model (see Table 2).

**Table 2.**  
Load elements.

Study variables	Entrepreneurship	Knowledge assimilation (KA)	Knowledge generation (KG)	Knowledge partnership (KP)	Reorganization of knowledge (RK)
Achievement orientation	0.786				
Autonomy	0.847				
Conflict resolution	0.780				
Creativity	0.740				
Initiative	0.846				
Risk-taking capacity	0.820				
KA01		0.894			
KA02		0.815			
KA03		0.840			
KA04		0.807			
KG01			0.753		
KG02			0.801		
KG03			0.851		
KG04			0.768		
KG05			0.790		
KP01				0.900	
KP02				0.819	
KP03				0.857	
RK01					0.850
RK02					0.775
RK03					0.907

**Table 3.**  
Reliability.

Study variables	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	Average variance extracted (AVE)
Knowledge assimilation	0.860	0.865	0.905	0.705
Knowledge generation	0.852	0.856	0.894	0.629
Knowledge partnership	0.823	0.837	0.894	0.738
Reorganization of knowledge	0.802	0.829	0.883	0.716

In assessing the measurement model, the research examined the internal consistency reliability, discriminant validity, and convergent validity of each latent concept. Employing the Partial Least Squares (PLS) method in this analytical approach confirmed the reliability of individual items and conducted further assessments of the measurement model. Study meets established standards for reliability and convergent validity, as shown in Tables 3 and 4. All of the values for loading, Cronbach's alpha, and Average Variance Extracted (AVE) are within the acceptable range. These tables affirm that the research fulfills both reliability and convergent validity criteria.

The reliability of the formative constructs was evaluated by analyzing the path coefficients from the predictor constructs to the dependent construct [97]. Discriminant validity, which signifies a more robust association between a reflective construct and its respective indicators, was evaluated using cross-loadings [99]. The indicator loadings within the measurement models show a satisfactory level of quality, satisfying all the criteria for indicator reliability. The model showcases strong internal consistency, accurately capturing each construct through its corresponding indicators. Furthermore, the AVE values in the measurement models are deemed acceptable, thereby affirming the model's convergent validity.

**Table 4.**  
Discriminant validity.

Study variables	Knowledge assimilation	Knowledge generation	Knowledge partnership	Reorganization of knowledge
Knowledge assimilation	0.839			
Knowledge generation	0.692	0.793		
Knowledge partnership	0.739	0.716	0.859	
Reorganization of knowledge	0.719	0.715	0.674	0.846

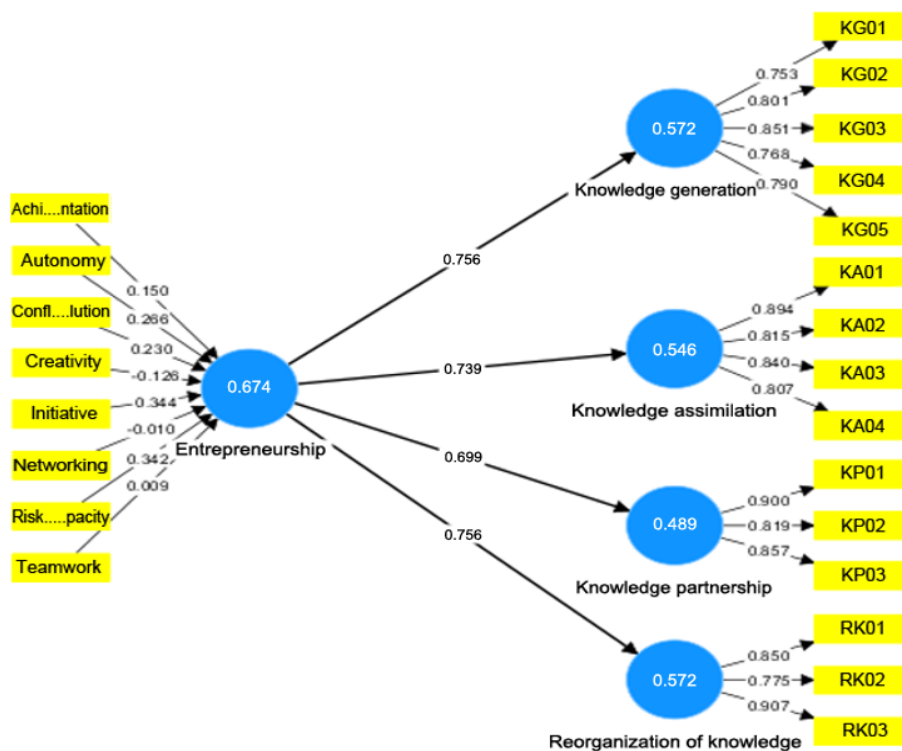
According to Sellitto, et al. [100] suggest that the R<sup>2</sup> values should be equal to or greater than 0.10 to determine whether the explanation of the variance of a model is adequate or not. According to the research results of Boubker, et al. [101]; Elhasbi, et al. [102]; Le, et al. [103] and Liu, et al. [104], the R<sup>2</sup>-values of endogenous latent variables that can be classified as at values of 0.26 (considerable), 0.13 (moderate) and 0.02 (weak). The R-squared value of model is given in Table 5, where the results are considerable.

**Table 5.**

R-squared.

Study variables	R-Squared
Knowledge assimilation	0.546
Knowledge generation	0.572
Knowledge partnership	0.489
Reorganization of knowledge	0.572

This portion provides an explanation of the structural equation model utilized in the subsequent data analysis. For this study's model analysis, the PLS-SEM approach was employed. To validate both direct and indirect hypotheses, the bootstrapping method was utilized. The outcomes are succinctly presented in the table below (Figure 2).



**Figure 2.**  
Structural model of PLS research - SEM.

The results of the study are shown in Table 6. The results shown in the table indicate that all hypotheses are accepted.

**Table 6.**

Direct relationship.

Hypothesis	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics ( O/STDEV )	P values
Entrepreneurship → Knowledge assimilation	0.803	0.724	0.062	14.793	0.000
Entrepreneurship → Knowledge generation	0.787	0.788	0.068	19.938	0.000
Entrepreneurship → Knowledge partnership	0.808	0.908	0.034	54.315	0.000
Entrepreneurship → Reorganization of knowledge	0.799	0.889	0.029	46.863	0.000

## 5. Discussion

Entrepreneurship competencies influence innovation competencies, demonstrating that for new ventures to exist, they go through a process of innovation, such that new knowledge has to emerge as part of a business idea. It gives support to the findings [105], where it indicates that entrepreneurship influences the innovative business growth, facing the problems of scarcity of resources and development of deficient strategies. Likewise, there is concordance with the approaches of Dana, et al. [106]; De Lucas Ancillo and Gavrilá [107]; González-Serrano, et al. [108] and Zhang, et al. [109] where they show that innovation and creativity are positively related to business performance, generating new innovative ventures.

Similarly, Chaturvedi [110] demonstrates that entrepreneurship competencies exert a clear positive influence and serve as a catalyst for fostering innovation within the business environment. Conversely, Audretsch, et al. [111] highlight the sustained significance of entrepreneurship, as entrepreneurs emerge as potential agents for addressing societal issues. Moreover, research [112-115] on innovation systems emphasizes the pivotal role of intermediary organizations as essential contributors to innovation.

The courses and knowledge gained at the university play a crucial role in enhancing entrepreneurship and innovation by fostering the development of novel business concepts. This aligns with the perspective presented by those who argue that entrepreneurship courses equip students with the ability to be more attuned to new ideas and opportunities. Similarly, as highlighted by Iyiola, et al. [116] and Smith and Paton [117], entrepreneurship programs and courses furnish students with the necessary context and content to learn and apply skills and behaviors essential for creating value in entrepreneurial ventures. The cultivation of creative skills within these programs enables students to uncover new ideas and opportunities, thereby contributing to the overall landscape of innovation.

Entrepreneurial activity influences innovation and economic vitality of the country, generating new opportunities for university graduates [118]. Hence, universities are actively exploring innovative approaches to encourage and facilitate their students' entrepreneurial career paths [119]. Innovation and entrepreneurship stand as critical catalysts for the advancement of growth, productivity, and the development of well-being [120]. This is why education in entrepreneurship is viewed as a significant contribution to the goals mentioned earlier. Engaging in active and experiential learning has proven to offer a multitude of advantages in entrepreneurship education, particularly with increased guidance [121]. Mentoring among students is considered an effective intervention to establish goal-oriented success and retention among students. Which develop and strengthen entrepreneurship and innovation competencies in the institutions, more so in strengthening new innovative ventures to serve society.

## 6. Conclusions

Entrepreneurship competencies are very significant when it comes to doing innovative business, especially for college students [122]. In addition, the socioeconomic level has an influence when thinking about new innovative ventures [123]. But it is very important that the university helps to strengthen such competencies in students for this, it is necessary to insert in their curricula courses on innovative entrepreneurship as a strategy to encourage entrepreneurship in students. Educational methods significantly influence the creative thinking and behavior of students, effectively stimulating and enhancing their capacity to generate novel value for their organizations.

Hence, this research adds to our comprehension of the significance of entrepreneurship education in shaping innovative behavior among students. It represents a crucial step in exploring the transfer and application of skills acquired in the classroom to their individual businesses or organizations. Utilizing PLS approaches, the study analyzed survey data from 310 students, revealing a substantial impact of entrepreneurship on innovation. The findings suggest that when students are provided with appropriate tools and methods for idea generation and value creation, it leads to the manifestation of innovative behaviors.

The limited number of studies demonstrating the impact of entrepreneurship competencies on the creation of new innovative businesses in various countries has left a gap in the literature, which this research aims to fill. Moreover, it aims to provide empirical evidence supporting the connection between open innovation dynamics and entrepreneurship, an area with relatively few existing studies. Despite the progress made, there is still much work to be done. The anticipated results are expected to demonstrate how pedagogical approaches centered on fostering innovative thinking and behavior can actively enhance students' capacity to generate fresh value for their organizations or society.

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