

## Innovation and Entrepreneurship Skills in University Students, Amazonas, Peru, 2023

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### Abstract

*The development of innovative competencies is fundamental for the creation of entrepreneurship, and it is here where the university plays a fundamental role in the formation and development of its students. In view of this, the objective of the research was to determine how innovation competencies influence the entrepreneurship of university students. The research was descriptive, with a non-probabilistic sample of 310 students from the fourth to the tenth cycle of the Faculty of Economics and Administrative Sciences. The structural equation model was used to determine the relationship using the software SmartPLS 3.37. The results show that 53.2% of the students demonstrate high levels of innovation competencies and 56.9% show high levels of entrepreneurship competencies. Concluding that the university should improve its curriculum and insert topics on the development of entrepreneurship and innovation in students, since the university is a fundamental factor in the training and development of students in entrepreneurship.*

**Keywords:** *Quality education, entrepreneurship, innovation, competencies, student training.*

### Introduction

Universities are organizations that generate human capital and knowledge and disseminate them by establishing interactions with multiple actors that promote regional development (Gupta & Rubalcaba, 2022; Schaeffer et al., 2021). The engagement of universities in knowledge transfer activities and in enhancing the entrepreneurial capital of society becomes more prominent and is placed alongside the traditional missions of teaching and research; in the face of this,

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the enthusiasm for the entrepreneurial university can be seen as an evolution of a more enduring promotion of universities (Qiu et al., 2023).

Entrepreneurship has become a highly relevant tool to promote economic development (Hasanah et al., 2020; Shahzad et al., 2021). It helps to reduce unemployment, creates job opportunities for people and helps the government to increase economic growth (Galindo- Martin et al., 2016); through its financial contribution it leads to social and human welfare, which creates value in society, creates opportunities for the development and growth of the country (Hatthakijphong & Ting, 2019; Jiang & Sohail, 2023; Škare et al., 2022). This trend is not only fueled by the recognition of entrepreneurship as an important generator of economic growth, innovation and employment; but also by the various sources that claim that both general and specific education in entrepreneurship can play a fundamental role in the development of entrepreneurs (as it allows students to strengthen their entrepreneurial skills and abilities), as well as increase the rate of entrepreneurial activity (Lechuga et al., 2021).

Globalization has led to a constant evolution of the skills required for personal and professional development in entrepreneurship (Seuneke et al., 2013). Public organizations, particularly universities, are becoming increasingly entrepreneurial, focusing on realizing the commercial value of research and seeking new organizational arrangements that produce closer alignment between scientific research and innovation (Deste et al., 2012). It is therefore clear that higher education institutions have a very important formative role in the process of fostering interest in entrepreneurship, in particular through their knowledge transfer mission to enhance entrepreneurial skills and attitudes among their students (da Costa et al., 2023; Wihlenda et al., 2023).

Academic entrepreneurship has become more important as universities and research institutions have increasingly recognized the need to transfer knowledge and technology from academia to the commercial world (Sieg et al., 2023). This has led to the emergence of technology transfer offices and incubators that provide support and resources to academic entrepreneurs to help them turn their ideas into successful businesses (Wang & Fu, 2023).

It is essential that higher education institutions provide incentives for entrepreneurship, specifically through educational programs focused on this field (da Costa et al., 2023). University education is crucial for the development of graduates' competencies that influence their choice of entrepreneurship as a career (Alakaleek et al., 2023). Considering that knowledge is fundamentally created and transferred in universities (Lechuga et al., 2021). Specific training in entrepreneurship is one of the most deeply analyzed conditioning factors within the field of entrepreneurship (Tiberius et al., 2021).

Innovation can be seen as the ability to generate new methods, ideas, products or technologies (Ozen & Ozturk-Kose, 2023); the ability of some people to innovate in useful ways is evident in many cases (Fernandez Rivas & Husein, 2022). Entrepreneurial activities are key drivers of innovation that, in turn, transform a country's economy and lead to economic growth and development (Ntow et al., 2023). Innovation is the main driving force for economic development and business growth (Cappelli et al., 2023; Xia & Xiao, 2023). For the economy, it is a major source of technological improvement and social progress (Garcia-Cabrera et al., 2023; Huang, 2023). Innovation and entrepreneurship initiatives drive the economic viability of a region (Sun & You, 2023). On the one hand, they encourage more people to launch new businesses,

create new goods, and expand into new markets, which more effectively drives consumption and economic growth (Murmman et al., 2023).

Innovation has become a driving force behind business success in today's competitive markets (Kreiterling, 2023). Innovation is considered a key capability for maintaining competitive advantage, creating value for customers, and capturing greater market share; however, empirical evidence on the impact of innovation on firm performance is mixed (Baláž et al., 2023). Innovation can be crucial in stimulating economic growth and venture development by reducing costs and improving services (AlAstal, 2023).

In Europe, the conclusion on the relevance of universities teaching entrepreneurship could be considered positive and includes active methods, such as project-based learning or attitude-based active learning (Rosado-Cubero et al., 2021). Education promotes an entrepreneurial culture and mindset through education and learning (Di Paola et al., 2023). Today, there is a consistent body of knowledge about education, such as the goals and outcomes of pedagogical approaches, the role of extracurricular activities, or the level of capability exhibited by students (Li & Huang, 2023).

Entrepreneurial culture is a key factor for the economy and individuals within a country to develop; youth entrepreneurship in university students is necessary; since this can influence in terms of meeting the needs of a given market and in turn generate jobs (Falla et al., 2020); likewise, students have entrepreneurial personal characteristics, since they have a greater desire to excel and progress, as well as greater innovative skills and the ability to seize and identify opportunities (Ruiz, 2022). On the other hand, Molina (2020) mentions that there are options that can favor entrepreneurial education, such as leadership, creativity and innovation, proactive attitude, personal visions, and the use of ICTs, among other options.

Therefore, the research focuses on determining how innovation competencies influence entrepreneurship among university students.

## **Theoretical framework**

Fostering entrepreneurial skills in university students is not only essential for their own personal and professional development but also plays a crucial role in driving economic growth, innovation, and job creation in society (Chahal et al., 2023; Liu et al., 2023). Entrepreneurship is increasingly recognized as a key driver of economic prosperity, and universities are ideally positioned to nurture and harness the entrepreneurial potential of their students (Ouragini & Lakhal, 2023; Simovic et al., 2023).

By developing entrepreneurial competencies, such as creativity, critical thinking, and effective communication, students are not only better prepared for the challenges of starting and managing their own businesses, but they also become more adaptable and valuable contributors to existing organizations (Nová, 2015; van Dam et al., 2010). These skills are transferable and can be applied in various career paths, making graduates more resilient in the ever-changing job market (Karaca-Atik et al., 2023).

Moreover, a heightened market awareness, solid financial skills, and the ability to make informed decisions are instrumental in ensuring that startups and entrepreneurial ventures are sustainable and successful (Gebremichael et al., 2023; Zhuang & Sun, 2023). Additionally, fostering empathy and interpersonal skills contributes to more ethical and socially responsible business practices,

which are increasingly valued by consumers and investors alike (Bonfanti et al., 2024; Hayward et al., 2023).

In a rapidly evolving business landscape, adaptability and resilience are perhaps among the most critical competencies (Hussain & Papastathopoulos, 2022). Entrepreneurship often involves facing setbacks, uncertainties, and challenges, and students who have been exposed to the entrepreneurial mindset are better equipped to navigate these hurdles and bounce back from failures with a renewed sense of determination (Erdiaw-Kwasie et al., 2023; Garcia-Perez et al., 2023).

As universities continue to evolve, they must emphasize not only academic knowledge but also the cultivation of these entrepreneurial competencies (Letzter, 2023). This can be achieved through a combination of traditional coursework, experiential learning opportunities like internships and startup incubators, and by fostering a campus culture that encourages innovation, risk-taking, and collaboration (Del Franco et al., 2023; Lo, 2023). In doing so, universities not only contribute to the development of successful entrepreneurs but also help create a workforce that can drive economic growth and societal improvement (Malik et al., 2023).

Entrepreneurship and the mentioned competencies, such as conflict resolution, achievement orientation, risk-taking, teamwork, networking, creativity, autonomy, and initiative, are significantly interconnected in the business context (Ballesteros-Sola & Magomedova, 2023; Cruz-Sandoval et al., 2023; Silveyra et al., 2021). Conflict resolution is essential for overcoming challenges and obstacles within an entrepreneurial team, as differences in opinions and approaches can arise at any time (Martin-Rojas et al., 2019). Achievement orientation drives entrepreneurs to set clear goals and persevere in their pursuit of success, often involving calculated risk-taking (Howard, 2023). Teamwork becomes a fundamental pillar for an entrepreneur, as effective collaboration is crucial for growth and innovation (Fernandez & Husein, 2022). Networking is vital for establishing connections that can facilitate business and learning opportunities (Pedraza-Rodríguez et al., 2023). Creativity plays a critical role in generating innovative ideas and problem-solving (Gámez & Garzón, 2017). Autonomy and initiative are necessary for leading the way and making bold decisions in creating and managing a business (Ambos et al., 2023). Together, these competencies are essential for success in the world of entrepreneurship, where the ability to resolve conflicts, take risks, work as a team, build networks, foster creativity, and take initiative are vital to achieving goals and effectively addressing the challenges of entrepreneurship.

Fostering innovation competencies in university students is essential for preparing them to thrive in a rapidly changing world and encouraging creativity and problem-solving (Kruger et al., 2023; Xu et al., 2023). These key competencies include creativity, critical thinking, effective communication, teamwork, empathy, time management, resilience, tech-savviness, market awareness, a continuous learning mindset, and an understanding of the value of cross-disciplinary collaboration (Xu et al., 2023). Developing these skills through formal education, hands-on experiences, research projects, and exposure to innovation-promoting environments equips university students to be change-makers, innovative leaders, and valuable contributors across a variety of fields and sectors, helping to drive progress and adaptation in an evolving global landscape (Adams et al., 2023; Ibarra-Vazquez et al., 2023).

Innovation is intricately related to the generation, assimilation, association, and reorganization of knowledge (Ghazinoory et al., 2023). Knowledge generation

involves the creation of new ideas, technologies, or approaches, which forms the foundation of innovation (Arthur-Holmes et al., 2023). Knowledge assimilation entails the ability to absorb and learn from existing sources of information and experience, enabling innovators to leverage accumulated knowledge (Smith et al., 2023; Xie et al., 2018). Knowledge association involves connecting seemingly unrelated ideas or concepts to generate novel solutions and apply interdisciplinary approaches (Chaithanapat et al., 2022). Finally, knowledge reorganization involves the ability to adapt and transform existing knowledge to creatively address current challenges (Colombo & Rabbiosi, 2014; Wang et al., 2023). Collectively, these processes of knowledge generation, assimilation, association, and reorganization drive innovation by enabling individuals and organizations to create unique and advanced solutions that propel progress in various fields.

## **Methodology**

The deductive method was used, because we sought to analyze and evaluate innovation and entrepreneurship competencies in university students. The type of research was descriptive applied with a quantitative approach of non-experimental design.

The population consisted of 674 students of the Faculty of Economics and Administrative Sciences (FACEA). A non-probabilistic convenience sample of 310 students from the IV cycle to the X cycle of the FACEA of the Universidad Nacional Toribio Rodríguez de Mendoza was used for the sample.

For the collection of information, the survey was used as a technique and as an instrument two questionnaires elaborated on a Likert scale where: (1) I never have this behavior/way of proceeding; (2) I have never had this behavior/way of proceeding; (3) Sometimes I have this behavior/way of proceeding; (4) This behavior/way of proceeding is frequent in me; and (5) This behavior/way of proceeding is always my behavior/way of proceeding.

To group the descriptive data into levels, a barometer was used to obtain three levels (low, medium and high) for both innovation and entrepreneurship competencies.

Once the information was collected, the data matrices were prepared and processed with MS Excel and SPSS version V.29.0 applications for descriptive analysis and SmartPLS 3.37 software, using structural equation modeling. The PLS-SEM, which is being applied in several investigations, allows the evaluation of complex theoretical relationships between multiple variables (J. Hair & Alamer, 2022; J. F. Hair et al., 2021; Mustofa et al., 2022; Roni et al., 2015).

The structural model is also called the internal model. Once the evaluation of the measurement model is satisfactory, researchers can proceed with this phase. The standard evaluation criteria to be considered start with the coefficient of determination  $R^2$  and can be calculated along with the impact of the predictor construct on  $R^2$  (Hair et al., 2021; Wang et al., 2020; Yin & Huang, 2021). Data analysis methods are essential in any scientific research. To conduct rigorous and replicable work, researchers seek standardized methods and reporting techniques (Kante & Michel, 2023).

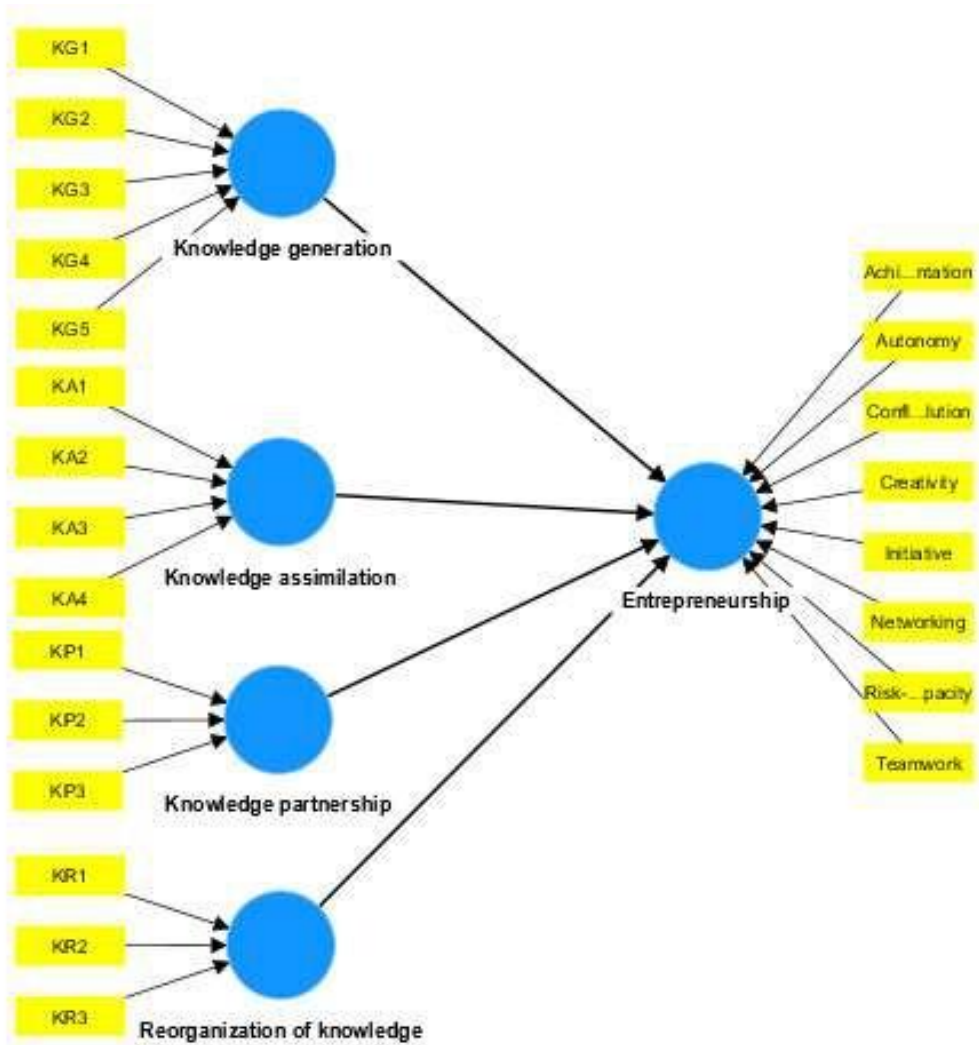


Figure 1 Research design

Based on the model described above, the following specific hypotheses were formulated:

Specific Hypothesis 1 (H1) There is a significant relationship between Knowledge generation (KG) and entrepreneurship competencies (E) in university students.

Specific Hypothesis 2 (H2) There is a significant relationship between Knowledge assimilation (KA) and entrepreneurship competencies (E) in university students.

Specific Hypothesis 3 (H3) There is a significant relationship between Knowledge partnership (KP) and entrepreneurship competencies (E) in university students.

Specific Hypothesis 4 (H4) There is a significant relationship between reorganization of Knowledge (KR) and entrepreneurship competencies (E) in university students.

#### Results and discussion

The results of the entrepreneurship and innovation competencies by dimension are shown.

Table 1 Innovation competency level

Indicators	Under		Medium		High	
	F	%	F	%	F	%
Knowledge generation	15	4.8	130	41.9	165	53.2
Knowledge assimilation	9	2.9	138	44.5	163	52.6
Knowledge partnership	16	5.2	114	36.8	180	58.1
Reorganization of knowledge	22	7.1	136	43.9	152	49
<b>Innovation competence</b>	<b>16</b>	<b>5.0</b>	<b>130</b>	<b>41.8</b>	<b>165</b>	<b>53.2</b>

Note: Data taken from the innovation competencies questionnaire.

A result of 41.9% of students showing an average level of knowledge generation suggests that a considerable proportion of students have an average ability to generate new ideas and concepts. This indicates that students may be willing to explore and generate ideas, but may face challenges in generating original ideas on a consistent basis. A competence in knowledge generation is important for innovation, as new ideas are the basis for any process of improving or creating new products, services or solutions.

52.6% of students show a high level of knowledge assimilation, which indicates that most students have the ability to understand and absorb existing information effectively. Knowledge assimilation competence is essential for innovation, as it allows students to identify trends, discoveries and developments that could serve as a starting point for new ideas.

For knowledge association, a high level is observed with 52.6%, demonstrating that a considerable majority of students have the ability and willingness to connect seemingly unrelated concepts and knowledge to create innovative solutions. Knowledge association competency is fundamental to innovation, as it allows students to combine elements from different areas to create unique and effective solutions.

Knowledge reorganization has a high level of 49%, which shows that a significant proportion of students possess the ability to reorganize and adapt existing knowledge to create new and effective solutions. Competence in knowledge reorganization is essential for innovation, as it allows students to adapt existing ideas and approaches to solve problems in an original way.

In summary, innovation competence in students presents a high level with 53.2%, which is a positive indicator as most students have solid skills and attitudes related to innovation.

A high level in innovation suggests that these students may have the ability to creatively address challenges, identify opportunities for improvement, and propose unique solutions in a variety of contexts.

Having agreement with (Elnadi & Gheith, 2023) where they mention that both creativity and innovation are fundamental to entrepreneurship and are considered among the significant traits of successful entrepreneurs.

Likewise, (Valdez-Juárez & García, 2023) conducted an analysis where they show that creativity and self-efficacy are part of entrepreneurial behavior and conduct, consequently, the study has shown that creativity is a key factor that motivates people. Similarly (Y. Huang & Bu, 2023) mention that having entrepreneurial will is the core of entrepreneurial behavior, and university

students are the main source of innovation and entrepreneurship, therefore, it is necessary to understand how to promote entrepreneurial will among them.

Building an entrepreneurial orientation of a student who is proactive, innovative and willing to take risks requires a strong entrepreneurial intention (Bagis, 2022). This is where the university plays a fundamental role in the training and personal development of its students, and can also be an engine of job creation if it manages to coordinate and develop projects linked to the entrepreneurial training of its students and graduates (Lara- Bocanegra et al., 2022).

Table 2 Entrepreneurship competition

Indicators	Under		Medium		High	
	F	%	F	%	F	%
Conflict Resolution	5	1.6	144	46.5	161	51.9
Achievement orientation	11	3.5	118	38.1	181	58.4
Ability to assume risk	8	2.6	195	62.9	107	34.5
Teamwork	10	3.2	68	21.9	232	74.8
Networking	18	5.8	130	41.9	162	52.3
Creativity	12	3.9	142	45.8	156	50.3
Autonomy	8	2.6	60	19.4	242	78.1
Initiative	11	3.5	129	41.6	170	54.8
<b>Entrepreneurship competition</b>	<b>10</b>	<b>3.3</b>	<b>123</b>	<b>39.8</b>	<b>176</b>	<b>56.9</b>

Note. Data taken from the entrepreneurship competencies questionnaire.

51.9% of the students show a high level of conflict resolution, indicating that a significant proportion of students possess strong skills and competencies in the ability to resolve conflicts effectively. This result suggests that these students are able to identify, understand and address conflicts proactively, seeking solutions that are beneficial to all parties involved. They may be able to communicate effectively, listen actively, and negotiate fairly to resolve disagreements and reach mutually acceptable compromises.

Achievement orientation is high at 58.4%, indicating that a considerable majority of students have a strong motivation and disposition towards setting and achieving goals and objectives. Students with a high achievement orientation tend to be ambitious and persistent in their pursuit of success. They are willing to take on challenges and overcome obstacles on their way to achieving their goals. They also tend to be self-demanding and constantly seeking to improve.

In the risk-taking ability it is observed that students show a medium level with 62.9%, suggesting that a considerable majority of students are at an intermediate point in terms of willingness to face risky or uncertain situations. An ability to take risks at a medium level may be a sign that students are willing to step out of their comfort zone and explore new opportunities, but they may also be aware of the need to carefully assess the risks involved before making important decisions.

For teamwork, a high level is observed with 74.8%, suggesting that more than three-quarters of the students have the ability to work collaboratively, communicate efficiently and contribute constructively to team objectives. A high level of teamwork is crucial in a variety of contexts, as many work situations and projects require the ability to interact and cooperate with teammates to achieve



common goals. Effective teams benefit from diversity of ideas and skills, and can produce stronger and more creative results than individuals working alone.

In the networking capacity, students show a high level with 52.3%, indicating that more than half of the students possess solid skills and attitudes to establish and maintain connections and relationships with other people. The ability to network is crucial in both academic and professional settings. Establishing relationships with peers, professors, industry professionals, and other stakeholders can provide opportunities for learning, collaboration, mentoring, and personal and professional growth.

Regarding creativity skills as part of entrepreneurship, it is observed that students have a high level with 50.3%, indicating that approximately half of the students possess solid skills and attitudes in the area of creativity. Creativity is a crucial competency in entrepreneurship, as it enables entrepreneurs to find unique solutions to challenges, develop innovative products or services, and differentiate themselves in a competitive market.

Students as part of the autonomy competency shows a high level with 78.1%, showing that the vast majority of students possess the ability to make decisions and act independently. Autonomy is an essential competency in entrepreneurship, as entrepreneurs often must make crucial decisions without constantly relying on the direction of others.

For the initiative competencies of entrepreneurs, the level is high at 54.8%, indicating that more than half of the students possess the ability and willingness to take initiative in various situations. Initiative is an essential competency in entrepreneurship, as entrepreneurs often must identify and seize opportunities on their own. A high level of initiative suggests that these students may be constantly looking for ways to improve, explore new ideas, and be proactive in their efforts.

In summary, 56.9% of students show a high level of entrepreneurship competencies, which is a positive indicator that a significant majority of students possess strong skills and attitudes in several key areas related to entrepreneurship.

Finding similarity with Martínez et al. (2021) who in their results obtained allow concluding that among the surveyed students there is a high level of entrepreneurial spirit which is demonstrated in concrete initiatives that are in development, while others have the intention of starting them; in this sense, it could be known that the entrepreneurship training provided by the higher education institution has contributed positively, becoming the inspiration for many to crystallize their business ideas. Similarly (del Brío et al., 2022; Nugraha et al., 2023) mentions that the university plays a fundamental role in the training and personal development of its students, and can also be an engine of job creation if it manages to coordinate and develop projects linked to the entrepreneurial training of its students and graduates.

Likewise, (Abaci, 2022) states that communicative skills are related to the perception of entrepreneurship, for this reason, the scope of entrepreneurship courses in university curricula or planned to be taken should be expanded, and the theoretical and practical contents to acquire communicative skills should be strengthened, faculties offering entrepreneurship courses. Similarly (Din et al., 2016) mentions that students' readiness for entrepreneurship training can be considered as one of the important benchmarks for the course to be included in the curriculum with strong content.

Entrepreneurship modules should be constructed in a way that considers the entrepreneurial outcomes they aim to achieve (Alakaleek et al., 2023). But it is very important to evaluate the quality of innovation and entrepreneurship education for undergraduates (Zhou & Zhou, 2022). Based on the analysis of current research on the evaluation of the quality of innovation and entrepreneurship education (Cui et al., 2021). Also, when considering the effectiveness of university entrepreneurship offerings, they suggest (Lyu et al., 2023) that students who are involved in different university entrepreneurship initiatives and activities and participate in the various entrepreneurship start-up contexts may be more likely to translate their entrepreneurial intention into actual behavior.

#### Confirmation of the model

Hipótesis	Path beta value	Student's t statistic	p value	Decisión
H1: Knowledge assimilation → Entrepreneurship	0.264	0.252	0.001	Accept
H2: Knowledge generation → Entrepreneurship	0.379	0.089	0.007	Accept
H3: Knowledge partnership → Entrepreneurship	0.016	0.326	0.000	Accept
H4: Reorganization of knowledge → Entrepreneurship	0.323	0.246	0.001	Accept

The model presents an R-squared of 0.726, which is a reliable value for the application of the model. It should be considered that the PLS-SEM technique, when used to maximize the predictive capacity of the dependent variables, demands the evaluation of the R<sup>2</sup>, which represents a measure of predictive value. This indicates the amount of variance of a construct that is explained by the predictor variables of the endogenous construct, whose values range from zero to one (Martinez & Fierro, 2018). The higher the value of R<sup>2</sup>, the more predictive capacity is presented. For (Kang & Ahn, 2021) the evaluation of a good model should be performed comprehensively depending on the size of the coefficients, the statistical significance and the coefficient of determination (R<sup>2</sup>).

#### Goodness-of-fit indexes

	Saturated model	Estimated model
SRMR	0.054	0.054
d_ULS	0.800	0.800
d_G	0.706	0.706
Chi-cuadrado	266.533	266.533
NFI	0.827	0.827

Note. SRMR = standardized root mean square residual; NFI = normalized fit index; d\_ULS = goodness-of-fit index; d\_G = goodness-of-fit index.

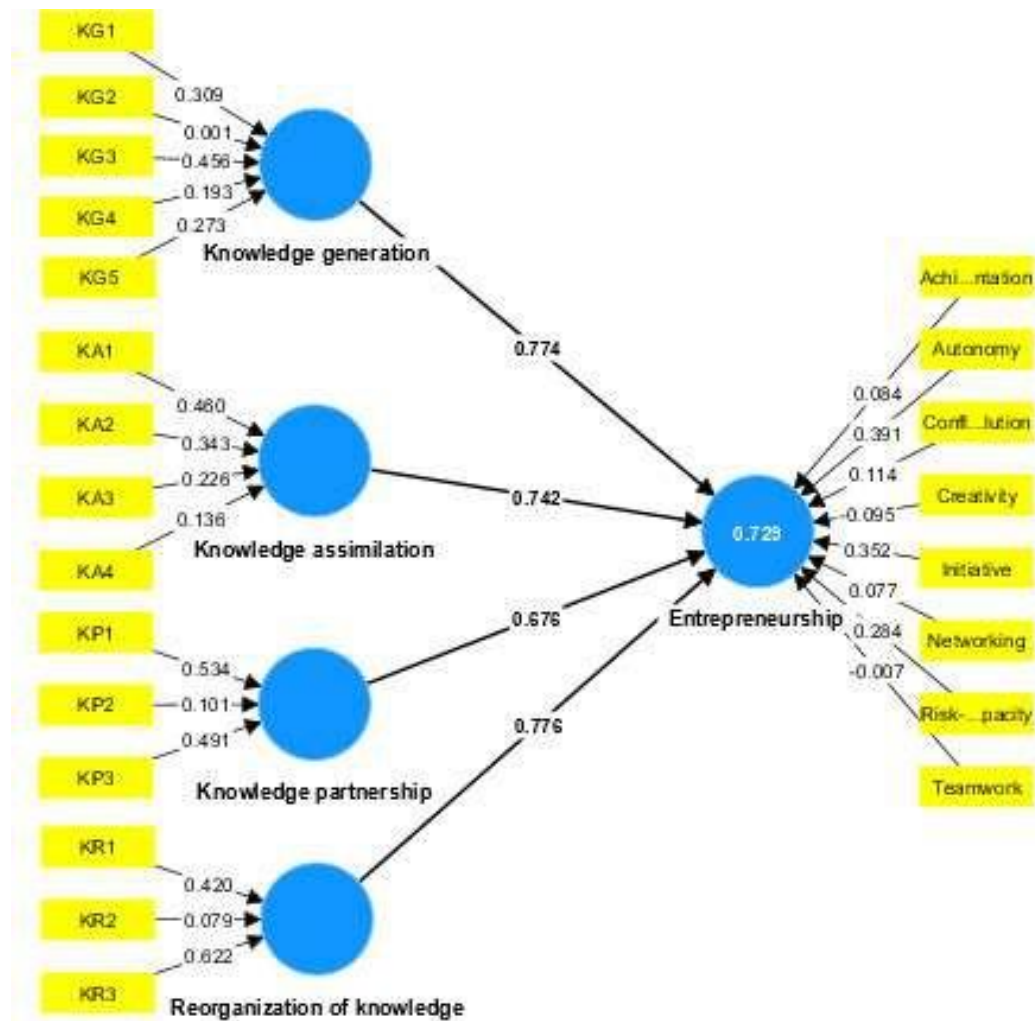


Figure 2 Structural model of the research

According to the results obtained, all the hypotheses are accepted, demonstrating that the dimensions of innovation competence (Knowledge assimilation; Knowledge generation; Knowledge partnership and Reorganization of knowledge) have a direct relationship with entrepreneurship competences in university students.

## Conclusions

The characterization of entrepreneurship competencies in university students should be aligned to achievement orientation, teamwork and creative capacity for the creation of successful new businesses.

In the generation of new entrepreneurial ventures by university students, the fundamental characterization of innovation competencies should be designed based on the assimilation, association and reorganization of knowledge.

Regarding the level of innovation, students present a high level with 53.2%, being innovation fundamental in the development of sustainable and successful ventures. Therefore, professional careers should have more importance in the development of innovation competencies, since university students are the main source of innovation and entrepreneurship.

Students showed a high level of entrepreneurship with 56.9%, but more than half of the students tend to have a medium or low level. This demonstrates that the University should improve its curriculum and insert topics on the development of entrepreneurship in students. The university is a fundamental factor in the training and development of students in entrepreneurship.

The relationship between knowledge assimilation, knowledge generation, knowledge association and knowledge reorganization is evident as an interconnected set of factors that directly influence entrepreneurship. The ability to absorb and understand new knowledge, combined with the generation of innovative ideas from research and collaboration with other actors, is fundamental to building a successful venture. In addition, the ability to reorganize and structure acquired knowledge translates into more effective strategic planning, thus highlighting the integral importance of these elements in the entrepreneurial process.

In addition, the training that the university should provide should focus on the orientation of proactive, innovative students who are willing to take risks in the development of business venture, thus contributing to employment and economic development through the consolidation of their ventures.

#### Statements

##### List of abbreviations

Faculty of Economics and Administrative Sciences (FACEA)

SRMR = standardized root mean square residual

NFI = normalized fit index

d\_ULS = goodness-of-fit index

d\_G = goodness-of-fit index.

##### Availability of data and materials

The data source is available in the text of the article

##### Conflict of interest

The authors declare that they have no conflicts of interest.

##### Funds

Not applicable

##### Authors' contributions

All authors participated in the application of the survey, elaboration and writing of the article.

Acknowledgments Not applicable

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