

## BUSINESS EDUCATION, INNOVATION SKILLS AS PREDICTORS OF ENTREPRENEURIAL SELF-EFFICACY IN UNIVERSITY STUDENTS

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### Article History:

- received 19 June 2023
- accepted 5 May 2024

**Abstract.** Considering the importance of entrepreneurship education in the social and economic sphere, the objective of this study was to examine how entrepreneurship education influences the development of innovative skills and entrepreneurial confidence of university students. To do this, it was necessary to adopt a quantitative methodological perspective to understand the relationship between the study variables. Through the application of confirmatory factor analysis (CFA) and the development of the structural equation model (SEM), it was possible to know and confirm the effect and statistical relationship between the variables. The participants of this research were made up of a total of 701 students under quota sampling selection. Entrepreneurship education has been found to significantly influence the promotion of innovative skills and the development of entrepreneurial self-efficacy. Furthermore, the study reveals that the acquisition of innovation competencies is a prerequisite for students to perform well in the business environment. These competencies not only enable them to adapt to changing environments but also foster creativity, systems thinking, and effective problem-solving. This study provides empirical evidence that entrepreneurship education is a relevant factor in strengthening and developing students' innovation competencies and entrepreneurial self-efficacy.

**Keywords:** education, entrepreneurship, innovation, entrepreneurial self-efficacy, entrepreneurial capacity, entrepreneurial skills.

**JEL Classification:** O31, I23, I25, L26

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## 1. Introduction

Entrepreneurship has been receiving considerable attention from many economists, businessmen, educators, and even society itself, as it is an alternative for improvement and economic impulse; This virtue positioned itself as a powerful economic force in recent decades (Handayati et al., 2020). The World Economic Forum instituted that *business education* (BE) becomes essential for economic development. From a social perspective, it can generate employment opportunities and reduce poverty (El Boury & Qafas, 2022). In recent years, there has been an increasing interest in developing educational planning that promotes entrepreneurship, innovation, and the collaboration of university students in the economy, since entrepreneurship training offered by higher education institutions is essential to equip

students with the skills they need to successfully start and grow businesses (Amani et al., 2024). Both developed and emerging countries have recognized the benefits of this strategy, convinced that it can generate positive results; Faced with this situation, the importance of creating educational policies that promote safety and the conviction of people to carry out successful ventures is underlined (Liguori et al., 2019).

Within this framework, in Latin America, educational institutions have also recognized the importance of including business education as part of economic, social, cultural, and personal development; in fact, their contribution is significant. In addition, each year, it seeks to improve the educational curriculum by including activities that stimulate students' entrepreneurial and innovative spirits (Kakouris et al., 2024) and not only prepare students to look for a job (Adeniyi, 2023). Because entrepreneurship is a complex and multifaceted field, these changes are necessary to foster the development of the required skills (Liu et al., 2019). In Peru, although in an incipient manner and at a slow pace, improvements are being implemented in the educational field to promote transcendental values. These changes are leading to new methodologies and pedagogical approaches that allow students to develop their capacities, abilities, personality, competencies, identity, and skills, seeking to promote social and professional integration to face the challenges of today's world.

The results of the most crucial research and entrepreneurship network globally, Global Entrepreneurship Monitor (GEM, 2020), in the report presented for 2018/2019, revealed that Peru ranks third with the most startups in their initial stage or early phase globally. However, there is a lack of long-term business sustainability, which means that many startups do not survive after 3.5 years; as a result, Peru ranks 45 out of 54 countries in business consolidation. The lack of business advice, access to financing, and programs to develop business skills and innovation are difficulties that young entrepreneurs face. Given this reality, it is important to understand the main objective of business education and how it can help foster entrepreneurship in Peru despite the obstacles.

Consequently, authors like Moreno-Barragan et al. (2022) emphasized that the concept of BE is ambiguous, and there are different positions to define it. Some authors maintain that their objective is to encourage the creation of new businesses among students, while others emphasize developing business skills. However, both positions agree that the purpose of BE is to promote the development of skills and traits necessary to succeed in a business. In addition, it is understood that entrepreneurial self-efficacy is closely linked to business education since it can influence business decisions and projects, increasing the ability to take risks and pursue opportunities to generate entrepreneurial resilience impacts (Valencia et al., 2015).

In this context, we seek to determine the effect that business education has on innovation skills and entrepreneurial self-efficacy through this research work at a private university in Peru whose curriculum inculcates entrepreneurship issues and implements learning workshops for all professionals' careers, calling it education for life. In addition, it encourages the participation of its students in programs that promote cooperation between students and companies, which influences the judgment of starting their businesses and being competitive in the labor market.

In this way, establishing the connection between the variables involved in the object of study will direct new ways of instilling its benefits in the student. Thus, approaches or perspectives that shape their entrepreneurial mentality will be reinforced, examining the effect of BE and the intention to become entrepreneurs or run a company, as well as evidencing the preference for innovation skills in students.

So, this study presents the following structure. Part 1 presents the theoretical review, in Part 2, the methodology used is detailed, and the collected data are described. The obtained

results are presented and analyzed in Part 3, and in Part 4, the discussion and conclusions are presented.

## **2. Theoretical review**

There are various topics on business education (BE), some bilateral such as those that refer to whether entrepreneurship is a matter of teaching or not, and others that are oriented towards finding ways to instruct to start one (Borjas & Xena, 2012; Kirby, 2004). Given this, concepts indicate that business education focuses on training business leaders with the necessary skills to develop their organizations (Varela et al., 2006). Other authors mention that the primary goal of BE is to prepare future entrepreneurs for the challenges of launching a new company (Gundry et al., 2014). For other authors, BE is seen as a tool to attract and retain people with business ideas because it promotes the creation of new companies with expansion capacity and cooperates with the improvement of the well-being of the population, combating poverty and promoting job creation (Dong et al., 2022).

Regarding the theoretical foundations related to BE, these give great responsibility to the academic training provided in this regard. Over time, the limited concept of business education has evolved thanks to the following aspects: (a) innovation, (b) market changes, and (c) job opportunities (Guzman Cuevas & Liñán Alcalde, 2005; Kantis et al., 2004; Kuratko, 2004; Huang, 2017). Currently, BE is not limited to training entrepreneurs but can also be used to develop personal and social skills. This has led to a new concept that defines BE as a fundamental part of the training of many university students; it provides them with abilities, skills, and knowledge that can be applied in work and business to guarantee their success (Wei et al., 2019).

However, BE provides comprehensive learning management; in the same sense, it contributes to the innovative capacity and personality of the students (Zhang et al., 2013). Through this process, they acquire the concepts and skills necessary to identify and take advantage of unnoticed opportunities. It is important to highlight that BE does not focus solely on creating companies immediately, but its main objective is to promote entrepreneurial attitudes and skills through educational programs that develop personal qualities and increase self-confidence (Fayolle et al., 2016).

## **3. Business education and entrepreneurial self-efficacy**

We can highlight entrepreneurial self-efficacy in BE research since they are closely related. BE provides the essential skills and knowledge to start and manage a business successfully, while entrepreneurial self-efficacy is related to the security and conviction that a person has in himself and in the ability to carry out a business project (Kickul & D'Intino, 2005; Noreña-Chavez & Guevara, 2020). Self-efficacy is a motivating construct, perception, or personal belief of personal capacity in each situation, allowing one to act voluntarily or involuntarily on thoughts, feelings, and behaviors (Bandura, 1995). Therefore, the theoretical foundations related to EE grant significant responsibility to the academic training provided in this regard, which is why we rely on Bandura's theory (1995) this theory describes self-efficacy as an essential part within the context of entrepreneurial education, particularly addressing innovation competencies and entrepreneurial mindset. Bandura posited that self-efficacy, or the belief in one's ability to perform a specific task, plays a crucial role in human behavior and goal achievement.

In the realm of entrepreneurial education, entrepreneurial self-efficacy refers to individuals' confidence in their abilities to undertake, innovate, and succeed in the business sphere. Bandura argued that this self-confidence is not innate but can be developed and strengthened through experience, observation, and positive feedback.

Applying Bandura's theory to entrepreneurial education focuses on how educational programs can influence entrepreneurial self-efficacy. This is where emphasis on innovation and the development of specific skills comes into play. Exposure to business situations, problem-solving, collaboration with other entrepreneurs, and constructive feedback are crucial in bolstering entrepreneurial self-efficacy. Entrepreneurial education programs, by providing practical experiences, can enhance individuals' confidence to identify opportunities, tackle challenges, and make effective decisions in business environments. Additionally, the focus on developing soft skills such as communication, conflict resolution, and creative thinking also contributes to entrepreneurial self-efficacy by giving students a solid foundation to confidently face entrepreneurial challenges (Otache et al., 2024).

Imparting BE knowledge in universities will enable training future professionals focused on developing and strengthening their self-efficacy, which will be achieved thanks to the collective support they receive (San-Martín et al., 2020). If the student is involved in all modalities of learning or training, it will become a fundamental factor in improving their entrepreneurial attitude (Hindle, 2007).

Likewise, the elements related to BE, observed from various perspectives, increase the presence and importance of the entrepreneurial attitude (Hernández Herrera et al., 2017). The entrepreneurial resilience impacts generated by the induction of entrepreneurial self-efficacy give people the will and predisposition to recover quickly from failures and persist on the path to success (Renart Vicens et al., 2022). By bridging these two areas, students can strengthen the skills and confidence needed to start and grow a successful business and apply it in their field of study or work environment.

#### **4. Innovation and self-efficacy skills**

Consequently, a connection is established between entrepreneurial self-efficacy and innovative skills; because when a person is confident in their ability to set up and run a successful business, they are also more likely to have the confidence and skills to innovate. In addition, innovation is essential to ensure the prosperity of a business in the future, so strong entrepreneurial self-efficacy can help an individual to seek and take advantage of innovation opportunities (J. Wei et al., 2020). Self-efficacy acts on innovative behavior as a driving force to obtain competitive advantages by coping with external dynamic changes for survival (Huang & Ribeiro, 2014).

Authors like Gao et al. (2020) considered innovation skills as a type of innovative thinking, arduously pursued by people and promoted by companies to guarantee long-term business performance, adding to this the significant contribution made by the entrepreneurial attitude. For Doanh and Bernat (2019), entrepreneurial self-efficacy is a creative and innovative process in creating added value in both products and services, which increases productivity and creates new employment opportunities, revitalizing and diversifying markets as well as improving social well-being and the development of the economy.

Previously, the relationship between establishing new markets and orientation towards profits and investment has redirected the responsibility for promoting the economy and education, strengthening entrepreneurial self-efficacy. In this scenario, the role of entrepreneurs

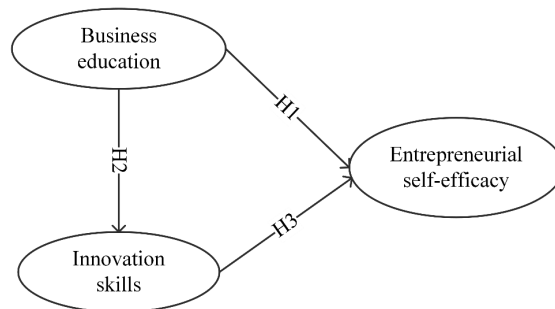
is crucial in economic growth, development, and innovation; in this way, they contribute to creating employment for the population (Saptono et al., 2021).

## 5. Business education and innovation skills

The development of innovative skills is also an indispensable part of business education. According to Covin and Slevin (1989), innovation is related to an entrepreneurial mentality; it acts as an internal engine to generate and apply solutions and ideas that allow students to create an innovative organization or be competitive in the current market. Therefore, innovation competencies encompass the opportunities students from multiple disciplines have to become creative, enabling them to develop the skills, knowledge, and attitudes necessary to create and apply new ideas and innovations (Abushakra et al., 2019).

These competencies are essential to optimize efficiency and effectiveness in companies, as well as the standard of products and services; This leads to an increase in performance, competitiveness, and the ability to adapt and evolve in a constantly changing environment. The competencies are taught through innovation pedagogy, combining knowledge, abilities, actions, and attitudes to develop work excellently (Keinänen & Kairisto-Mertanen, 2019). It is because of that Margalef García (2014) considered that innovation competencies should be stipulated generically or collaterally in the student's academic records, given that their presence is in the different fields of knowledge and all people regardless of their educational level. In addition, they can develop them on a larger or smaller scale, since they are essential for their academic, professional and work performance.

In this way, the connection of BE with the development of innovative skills allows students to develop leadership skills, analytical thinking, decision-making, problem-solving, and teamwork. Nielsen (2015) gives these aspects the ability to adapt to constant changes in the labor market and the business environment, allowing them to think outside the box and go beyond conventional standards. Forming innovative thinking linked to BE requires high adaptability, an open, flexible mindset, self-control, and personal confidence to develop exploratory activities that focus on discovering something new and exploration activities that make it possible to improve what already exists (Arzubiaga et al., 2018). Innovation skills, being of great importance, require for their development an arduous promotion in training provided by universities; They must be linked to the integrity of the person, theoretical and practical knowledge based on competencies that allow the student or future graduate to seek the practical application of interdisciplinary knowledge to a specific problem according to the needs demanded by their environment (Urbano, 2017).



**Figure 1.** Conceptual description of the research study framework

Within this framework, in theory, Figure 1 highlights the synchronous relationship between BE, innovation competencies, and entrepreneurial self-efficacy. BE can help develop entrepreneurial self-efficacy by providing the knowledge and skills necessary to start and manage a business, including financial courses, *marketing*, strategic planning, and leadership (Sidratulmunthah et al., 2018; Costa et al., 2022). As students learn these skills, they may feel more capable of starting or making business decisions and initiatives; therefore, people with higher entrepreneurial self-efficacy tend to be more willing to take risks and pursue opportunities (Engel et al., 2014).

Regarding innovation competencies, for Alves and Yang (2022), BE can also be a tool for developing fundamental skills such as inventiveness, critical analysis, and problem-solving, which are essential to foster innovation. By learning about new trends and market technologies, students can be better prepared to identify business opportunities and create innovative products or services (Broccia et al., 2022). All these theories reinforce the following hypotheses.

*H<sub>1</sub>: Business education has a significant effect on the entrepreneurial self-efficacy of university students.*

*H<sub>2</sub>: Business education significantly influences the skills of university students.*

*H<sub>3</sub>: Innovation skills significantly influence the entrepreneurial self-efficacy of university students.*

## 6. Methodology

The proposed methodology corresponds to a non-experimental design, in which no alteration of variables was made since it was analyzed in its natural environment to recognize the effects of BE and innovation skills on the entrepreneurial self-efficacy of the students at a private university in Peru through a quantitative approach that allowed solving the hypotheses raised, cross-sectional and an explanatory scope (Creswell, 2014). The Structural Equation Modeling (SEM) approach was employed, an advanced statistical technique that allowed for an in-depth examination and evaluation of the causal relationships between the variables under study. This method allows a thorough analysis not only of direct relationships, but also of indirect and mediated effects, providing a deeper understanding of the underlying mechanisms driving the observed phenomena. This has contributed to a more robust interpretation of the research results.

The people involved in this study were students of the *Universidad Peruana Unión* (UPeU) Tarapoto headquarters. Their 7 professional careers were considered since they all offer courses and workshops aimed at developing activities that allow them to acquire new skills, such as business consulting, sewing, card making, and new product development. Quota sampling was adopted to measure the number of people to be surveyed. This type of sampling facilitates obtaining data according to the investigator's judgment and corresponds to a non-probabilistic sampling method (Lastra, 2000). Data collection was conducted in November and December 2022, through physical surveys and online forms. Participants were asked to collaborate on a completely voluntary basis and the confidentiality of their answers was guaranteed. The data collected were treated anonymously and used only for academic and scientific purposes, in accordance with the laws of the country. In accordance with the principles set forth in the 1964 Declaration of Helsinki and its subsequent revisions, all

research procedures will be conducted ethically and transparently. The data collected were anonymized and processed in an aggregated manner, always respecting the informed consent of the participants for the specific purposes of this research. In addition, the consent of the ethics committee of the Universidad Peruana Unión was obtained. Thus, 713 responses were received through data cleaning through Mahalanobis distance analysis. To detect outliers, 12 records were removed that had a  $p$ -value less than 0.001; therefore, 701 records were considered for the analysis. The subjects of this research responded voluntarily, and their anonymity was respected.

The instrument used in the first variable, business education (BE), was designed by Hasan et al. (2017), and It consists of 16 items and three dimensions. The second variable, innovation skills (IS), the instrument was designed by Keinänen et al. (2018). It has 22 items and is structured according to 5 dimensions. The third instrument, entrepreneurial self-efficacy (ESE), was designed by Moriano et al. (2006). It has 19 items and is structured according to 5 dimensions. The constructs of each variable were evaluated using the 5-level Likert Scale, in which level 1 represents complete lack of agreement and level 5 indicates complete agreement, for the variables BE and IE. Regarding ES, the response criterion was considered in which 1 is entirely incapable and 5 perfectly capable. The instruments that have been selected for this research have a Cronbach's alpha coefficient greater than 0.8, so it can be affirmed that they have adequate internal coherence, allowing the study variables to be measured truthfully and objectively, achieving satisfactory results (Tupanta et al., 2017).

Therefore, the data was processed using an Excel spreadsheet, while the data analysis and exploration were carried out with the R program in version 4.2.0, using the RStudio settings in its version 2.3. For this purpose, the "psych" libraries were used for reliability analysis and computation of response rates, "lavaan" to perform confirmatory factor analysis, and "sem-Paths" to create the final figure. Since the observed variables were ordinal, a preliminary exploration of the items was carried out using the response rate of each choice alternative. Then, the robust maximum likelihood estimation (RML) method was used to run a confirmatory factor analysis (CFA) and examine the scale's internal structure. The goodness-of-fit measures used were chi-square ( $\chi^2$ ), Tucker-Lewis Index (TLI > 0.90), Root Mean Square Error of Approximation (RMSEA < 0.08), comparative Fit Index (CFI > 0.90), Standardized Root Mean Square Residual (SRMR < 0.06). Finally, reliability was calculated using the Alpha ( $\alpha$ ) coefficient.

## 7. Empirical data and results

### 7.1. Sociodemographic profile of the participants

In Table 1, the sociodemographic data of the 701 respondents are externalized; women and 45.8% men represent 54.2%. The majority of participation occurred between the ages of 18–25 years, with 80.7%, and only 0.6% of participation occurred in the ages of 46–55 years; this was because the sample also included students participating in an adult education program. Regarding the professional career, the percentage of high participation is from Psychology with 25.4%; This is due to the existence of a higher share of students, as opposed to 7.1% corresponding to Systems Engineering. In this aspect of professional careers, greater participation in careers oriented to business sciences can be seen as a whole; the cycles with the highest participation were II (24.5%) and IV (21.1%).

**Table 1.** Sociodemographic profile (N = 701)

Variables	Categories	Frequency	Percentage
Sex	Female	380	54.2%
	Male	321	45.8%
Age	18–25	566	80.7%
	26–35	106	15.1%
	36–45	25	3.6%
	46–55	4	0.6%
Professional career	Administration	73	10.4%
	Architecture	88	12.6%
	Accounting and Tax Management	114	16.3%
	Environmental Engineering	74	10.6%
	Systems Engineering	50	7.1%
	Marketing and International Business	54	7.7%
	Psychology	178	25.4%
Academic cycle	II	172	24.5%
	IV	148	21.1%
	VI	118	16.8%
	VIII	134	19.1%
	X	129	18.4%

When asking the participants their interest in creating a business, 71.9% indicated that they did have an interest, 19.4% indicated that they had no interest, and 8.7% indicated that they had a business. The ideal way to start a business is the online channel, with 91.4% participation, and 8.6% corresponds to traditional sales channels or offline.

## 7.2. Confirmatory factor analysis

When applying confirmatory factor analysis (CFA) to analyze the factorial structures of the model, it was observed that, in the first instance, the goodness-of-fit indices could not be adjusted, so it was necessary to use the index modification technique. In a second instance, satisfactory indices were obtained by performing a structural equation analysis (SEM) with an  $X^2 = 299.39$ ,  $gl = 61$ , and a  $p$ -value  $< 0.001$ . Additionally, acceptable values were reflected with a CFI = 0.97; GFI = 0.97; TLI = 0.96; RMSEA = 0.07; NFI = 0.97; SRMR = 0.02, and AGFI = 0.82, which suggested that the theoretical model of the research is satisfactory (see Figure 2).

**Table 2.** Fit indices of the model under study (N = 701)

Goodness of fit index	Value	Goodness of fit index	Value
SRMR	0.020	TLI	0.965
GFI	0.885	NFI	0.970
AGFI	0.828	IFI	0.973
CFI	0.976	RMSEA	0.075



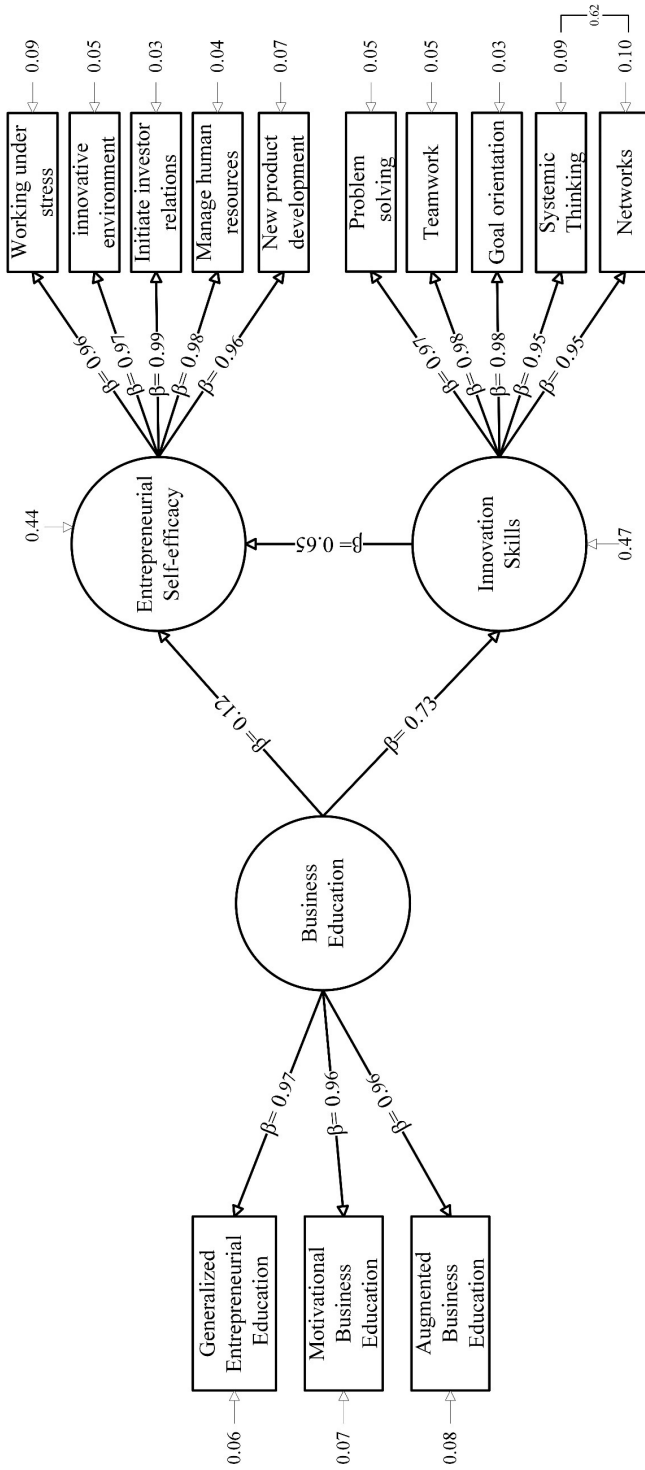


Figure 2. Confirmatory research model

These results allow us to affirm that the theoretical model used in the research is suitable for explaining factorial structures and the relationship between the analyzed variables, providing a reliable basis for interpreting the obtained results.

### 7.3. Research hypothesis

When evaluating the causal relationship between business education, innovation skills, and entrepreneurial self-efficacy by applying the structural equations method (SEM), the results presented in Table 3 indicate that all the hypotheses raised were accepted. It was confirmed that business education positively and significantly affects entrepreneurial self-efficacy (H1) with  $\beta = 0.119$  and  $p < 0.05$ . Likewise, it was shown that business education positively influences innovation skills (H2) with  $\beta = 0.725$  and  $p < 0.001$ . In addition, the influence between innovation skills and entrepreneurial self-efficacy was found to be positive (H3), with  $\beta = 0.655$  and  $p < 0.001$ .

**Table 3.** Verification of the hypotheses under study (N = 701)

Research hypothesis				Path Coefficient	p-value	Decision
H1	Business education	---	Entrepreneurial self-efficacy	0.119	0.017	Accepted
H2	Business education	---	Innovation skills	0.725	***	Accepted
H3	Innovation skills	---	Entrepreneurial self-efficacy	0.655	***	Accepted

Note: \*\* p-value < 0.01, \*\*\* p-value < 0.001.

These findings support the need to promote entrepreneurship education programs that foster the development of innovation skills and entrepreneurial self-efficacy, with the aim of promoting and strengthening the entrepreneurial spirit among university students.

## 8. Discussion

The main intention of this study was to determine the effect of business education on innovation skills and entrepreneurial self-efficacy. For this, three hypotheses were proposed, which are intended to analyze the relationship between the variables in detail. From the statistical analysis, it was possible to observe that the first hypothesis has a  $p < 0.05$  value, which indicates the positive effect of BE on entrepreneurial self-efficacy, which provides the ability to carry out a venture. This finding is due to the courses, workshops, and activities on entrepreneurship that the university develops and encourage inspiration, knowledge transfer, and resources in students.

Likewise, this educational model, in which the student learns through sewing workshops, design, robotics, computer maintenance, university extension programs, conferences, and product development, provides them with knowledge and experience on how to start and carry out a business company. Thus, specific questions about motivations, skills, and marketing strategies are answered, providing them with valuable experience that will help them become professionals with entrepreneurial vision. Previous studies of (Westhead & Solesvik, 2016; Barba-Sanchez & Atienza-Sahuquillo, 2018; Maresch et al. 2016) reinforced the finding

on how important it is to foster a business education in students and increase the level of confidence in their ability to address challenges or obstacles that may arise during the entrepreneurship process.

When analyzing business education and its effect on innovation skills,  $p < 0.001$  was obtained. This indicates that the formulated hypothesis ratifies the theory since innovation skills are relevant to the success of any company. For this reason, the business education provided by the university, which incorporates courses and workshops focused on promoting creative capacity, the improvement of new ideas, and the ability to implement innovative solutions, allows students to discover business opportunities, in turn, develop products and/or services that satisfy the demands and requirements of the market.

This dynamic is supported by studies such as that of Shi et al. (2020), Chen et al. (2013), which endorse the result and give a reason that university students are the main axis for future innovations. In addition, Lee et al. (2019) research on ESE show that the more involved they are in entrepreneurship or business development workshops or activities, the greater their interest in innovating and increasing their entrepreneurial self-efficacy. Along the same lines, this corroborates the third hypothesis proposed in the study. With a value of  $p < 0.001$ , it was found that innovation skills positively impact entrepreneurial self-efficacy since entrepreneurship implies the need for students to demonstrate skills to innovate and adjust to changes in the business environment and commercial rivalry.

## 9. Conclusions

Based on the results and the literature, we conclude that business education positively affects the development of innovation skills and increases students' confidence to undertake. Likewise, it has been verified that there is a positive and synchronous relationship between innovation skills and the entrepreneurial self-efficacy of students. In addition, it is important to highlight that business education can provide fundamental tools and skills to start or lead a business, as well as to identify innovative opportunities in the market and, in this way, promote the growth of innovative skills and entrepreneurial confidence in the students.

Consequently, the implication of the results of business education in the competencies of innovation and entrepreneurial self-efficacy is very relevant both at the individual and collective levels. At the individual level, business education enables entrepreneurs to develop skills and competencies to create and manage businesses effectively and successfully. This can translate into greater job opportunities, an increase in income, and an improvement in the quality of life of people. Likewise, the development of entrepreneurial self-efficacy can enhance the security and abilities of individuals to face challenges and make effective choices in the business and personal context. In this context, business education, in global terms, can have a beneficial effect on the economy as well as on society as a whole. Entrepreneurs who have developed innovation skills and entrepreneurial self-efficacy can create innovative and sustainable companies that generate employment and contribute to the economic and social progress of the nation. Consequently, business education can foster an entrepreneurial culture in society, promoting creativity, initiative, and entrepreneurship as tools for progress and well-being.

However, this research has some limitations that we mention below: Sample. It is mostly composed of university students between 18 and 25 years of age with no professional experience. This may limit the generalizability of the findings to different populations and contexts. Moreover, the lack of representation of broader age groups and people with different levels of professional experience may limit the applicability of the results to broader contexts. It is

important to keep in mind that the responses and behaviors of other demographic groups may vary and could influence the results obtained.

In this sense, it is necessary to address future lines of research to continue strengthening this very important aspect: The study needs to include not only university students but also people of different age groups who have diverse professional experiences. This would allow solid conclusions to be drawn and the results to be generalized. In addition, a comparative analysis between demographic groups would be adequate to identify possible variations in their behavior. Also, to obtain more conclusive results, it is necessary to carry out longitudinal studies and evaluate their entrepreneurial behavior throughout their university life.

## Acronyms

BE: business education.

IC: innovation competencies.

ESE: entrepreneurial self-efficacy.

## Acknowledgements

Gratitude to the authorities of the Universidad Peruana Unión, Tarapoto branch, for opening its doors to us to conduct research. Each of the students for their voluntary participation in the study.

## Funding

This work was financed by the Universidad Peruana Union.

## Author contributions

Conceptualization: M. Laydes, Mery Vásquez Bueno, Jose Joel Cruz-Tarrillo. Data curation: Jose Joel Cruz-Tarrillo, M. Laydes, Mery Vásquez Bueno. Formal analysis: M. Laydes, Mery Vásquez Bueno, Jose Joel Cruz-Tarrillo. Investigation: M. Laydes, Mery Vásquez Bueno. Methodology: Jose Joel Cruz-Tarrillo, M. Laydes, Mery Vásquez Bueno.

Project administration: Jose Joel Cruz-Tarrillo. Resources: Jose Joel Cruz-Tarrillo, Robin Alexander Diaz. Software: Jose Joel Cruz-Tarrillo. Supervision: Jose Joel Cruz-Tarrillo.

Validation: M. Laydes, Mery Vásquez Bueno. Writing – original draft: M. Laydes, Mery Vásquez Bueno. Writing – review and editing: Jose Joel Cruz-Tarrillo, M. Laydes, Mery Vásquez Bueno.

## Disclosure statement

The authors declare that they have no conflicts of interest.

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