

EDUCATIONAL SUPPORT IN DIGITAL ENTREPRENEURSHIP FOR UNIVERSITY STUDENTS IN BUSINESS PROGRAMS: A UNIVERSITY GOVERNANCE STUDY

Wagner Vicente-Ramos ^{*}, Gladys Idone-Cordova ^{**},
Tula Mendoza-Farro ^{**}

^{*} Corresponding author, Faculty of Business Sciences, Universidad Continental, Huancayo, Peru
Contact details: Faculty of Business Sciences, Universidad Continental, Avenue San Carlos 1980, Huancayo, Peru
^{**} Faculty of Business Sciences, Universidad Continental, Huancayo, Peru



Abstract

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Universities need to develop specific programs to promote digital entrepreneurship, therefore, it is necessary to understand the factors that explain students' intentions regarding digital entrepreneurship and to have a detailed knowledge of whether and how the university promotes entrepreneurship through the campus and virtual events (Alvarez-Risco et al., 2021). The objective of the study was to determine the impact of educational support on the digital entrepreneurship of university students in business programs. The deductive method of an explanatory level was used, with a non-experimental design. As a result, it was obtained that curricular content support has a considerable positive influence ($\beta = 4.550$), extracurricular content support has a considerable positive influence ($\beta = 2.388$), technological support has a considerable positive influence ($\beta = 3.553$), governmental support of the country has no positive influence ($\beta = 0.572$), and digital entrepreneurship competencies have a very considerable positive influence ($\beta = 40.050$). In conclusion, the impact of educational support on digital entrepreneurship of university students of business programs is given by efficient curricular and extracurricular programs, with effective information and communication technology (ICT) support.

Keywords: Digital Entrepreneurship, Digital Competencies, Curricular Content, Technological Support, Governmental Support, Entrepreneurial Intention

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1. INTRODUCTION

The pervasive presence of digital technology in everyday life has substantially transformed the habits of today's society, changing everything from the way

we communicate to the way we obtain information and, of course, modifying the ways in which education is produced (Val & López-Bueno, 2024). The ever-widening boundaries of digital entrepreneurship are encompassing all areas of daily

life. Then, the use of digital technologies is paramount in the social, economic, family, and professional environment; therefore, changes in society are evident (Holmstrom & Hallgren, 2022). A digital society, such as the one we are currently living in, demands people with adequate education and training, in digital competencies (Arcentales-Montalvo et al., 2020).

Kraus et al. (2019) define digital entrepreneurship as the process of creating, establishing, and operating a key asset, service, or component of an enterprise through innovative digital technologies with its distinctive characteristic of generating new value. Digital enterprises are characterized by a high intensity of using digital technologies to improve business operations, develop new products, processes, and business models, and interact with customers and stakeholders. Likewise, digital entrepreneurs identify and exploit the various opportunities based on the use of the Internet, the World Wide Web, mobile technologies, digital media, and other information and communication technologies (ICT) (Richter et al., 2017).

The relevance of entrepreneurship education in fostering entrepreneurial culture and activity is widely recognized. Entrepreneurship education provides key skills to identify a winning business. Teaching entrepreneurship has a number of positive effects and benefits. These benefits include the development of thinking, as well as, collaboration and communication skills that are highly valued by employers. According to Dana et al. (2021), entrepreneurial education aims to provide founders or persons interested (future) in founding a company with appropriate methods to develop their professional and social skills that strengthen their motivation and awareness and thus increase their chances of successfully forming a company. Important prerequisites for this are knowledge about the personality traits and professional competencies of successful founders, comprehensive networks with trade associations and companies, exchanges with like-minded actors, and the openness and curiosity of the target group to start developing their individual personalities.

Given that many universities need to develop specific programs to promote entrepreneurship, it is necessary to know and understand the factors that explain the intentions of students regarding digital entrepreneurship and to have a detailed knowledge of whether and how the university promotes entrepreneurship through the campus and virtual events (Alvarez-Risco et al., 2021). From which the question arose:

RQ: What the impact of educational support on the digital entrepreneurship of university students in business programs is?

It also was proposed as an objective to determine the impact of educational support on the digital entrepreneurship of university students in business programs.

The article is structured in several sections, as follows. Section 2 reviews the literature on digital entrepreneurship in business programs and develops the hypotheses. Section 3 explains in detail the scientific methodology used in the development of the empirical research; Section 4 describes the results obtained through the multivariate structural equation system, from which a validated

model was generated and used to test the hypotheses. Section 5 discusses the results in contrast with those of other researchers, and finally, Section 6 contains the final conclusion of the research.

2. LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

2.1. Educational support of curricular content for the development of entrepreneurship

Entrepreneurial mindset and motivation are essential to launch a successful business enterprise, entrepreneurs must be motivated and empowered through effective learning programs (Shetty et al., 2024). This means that all parties involved must encourage actions that contribute to the development of new entrepreneurs because if a favorable context is generated, they will have various tools to be able to turn their ventures into solid companies that will last over time. Therefore, it is important to understand that the context is the "external circumstances, conditions, situations, or environments" (Ngoasong, 2018, p. 485) of an enterprise, which helps to "understand their origins, forms, functioning and diverse outcomes" (Zahra et al., 2014, p. 481) of entrepreneurial behavior. Then, if it is taken into account that one of the cradles of entrepreneurs is universities, it is essential to understand the environment they generate to support students who are inclined to digital entrepreneurship. Considering that digital entrepreneurship involves all new enterprises and the transformation of businesses that exist thanks to new digital technologies (Nambisan et al., 2019), it is important, for example, to foster solid entrepreneurial attitudes using appropriate methods in their teaching (Hegarty, 2006).

The educational support of the business programs of the different universities has to do with the curricular contents for the development of entrepreneurship because if these are properly structured and directed to strengthen the entrepreneurial skills of the students, they will be a great support to increase the entrepreneurial intention of the students, and that they even realize their new ideas. Consequently, all parties involved in the training of new entrepreneurs must fulfill their roles. Linked to this, Susilo et al. (2019) mention that learning problems in the field of entrepreneurship occur because teachers, many times, only focus on theoretical knowledge. There is a need for them to develop competencies and skills to apply them in the real world of business. Therefore, universities need to revitalize entrepreneurial learning to present better learning, adapt to the needs of the era, able to prepare students to acquire a strong entrepreneurial attitude (Susilo et al., 2019).

Entrepreneurship education provided by universities should be designed in an innovative way; the goal should be that students have the opportunity to learn new approaches to entrepreneurship and be able to execute what they have created and learned. For example, they can use reading as a learning process, since this will give them autonomy to keep up with the changes that are taking place (Xie & Wang, 2014). In this regard, Hannon (2005) stipulates that in order to train

entrepreneurs, the following should be taken into account: 1) pursuing entrepreneurship; 2) teaching through entrepreneurship; and 3) teaching for entrepreneurship. Likewise, Blair and Lacy (2000) believe that properly designing the way in which entrepreneurial learning will be generated will: 1) increase students' basic knowledge, skills, and entrepreneurial behavior in life; 2) form practical skills for entrepreneurs; 3) initiate micro-enterprise ownership through education; 4) facilitate those who want to start new product/service businesses; and 5) upgrade micro-entrepreneurial awareness skills.

2.2. Extra-curricular support for entrepreneurship development

Universities, which are responsible for generating suitable human capital, must constantly evolve in order to change and redesign themselves continuously to achieve their objectives. In this sense, they should bet on a more entrepreneurial vision, for example, linked to digital entrepreneurship. In this regard, Muraya et al. (2019) mention that it is necessary to consider education as a powerful tool for managing information processes, in other words, purely innovative educational programs (digital education) must be generated. Then, if entrepreneurs have good educational support in the technological field they will possess a great competitive advantage to position their businesses in the market. However, this is not always the case, therefore, from universities, it is necessary to ensure the formation of a more competitive human capital. Consequently, to avoid problems in the adequate training of students in the various business programs and extracurricular activities can be implemented, which, if well directed, will play a fundamental role in the formation of entrepreneurs.

Holland and Andre (1987) mentioned that many researchers and teachers have recommended that student participation in extracurricular activities can be an important strategy in their lives. They also argued that these programs can satisfy two important conditions: 1) they are not part of the regular school curriculum; and, 2) they have some structure to try to achieve an objective or goal. Extracurricular activities can be linked to culture, sports, conferences, congresses, support brigades, and tutoring, among others. This means that they can also be linked to digital entrepreneurship, for example, related to technological tools for business management.

2.3. Institutional technological support for entrepreneurship development

Recent technological advances have had a significant impact on entrepreneurship through the digitization of entrepreneurship education, offering novel training opportunities and approaches (Tóth-Pajor et al., 2023). Depending on their characteristics, the focus on digital technologies is a priority for innovative entrepreneurship development. In this regard, Hull et al. (2007) mention that digital ventures can be classified into three categories: 1) light digital venture, where digital technology intervenes only as a complement to some traditional processes; 2) moderate digital venture, where the business cannot exist without digital

infrastructure, as it requires a focus on digital products or services or other digital elements; and 3) extreme digital venture, implying that all business processes (production, services, advertising, and distribution) must be digital. This means that, in business programs, students must be provided with tools that support the ventures they wish to make. This is because knowledge of technology will give them a competitive advantage.

Ideally, digital entrepreneurs should be placed in the category of extreme digital entrepreneurs. Furthermore, Hair et al. (2012) point out that digital entrepreneurship differs from "conventional" entrepreneurship because it requires knowledge of technology, which becomes more necessary as the venture becomes more extreme; the greater the digitization of a company, the greater its comparative advantage due to the information that will be available to it about the various stakeholders. In addition, digital entrepreneurs have greater access to various markets, thanks to the Internet. For his part, Steininger (2019) emphasizes that ICT fulfill four fundamental functions in the processes of digital entrepreneurship: 1) facilitating the operations of new businesses; 2) mediating the processes of new businesses; 3) as a result of business operations; and 4) use of digital technology to generate the business model.

Likewise, Richter et al. (2017) say that for business activity to benefit from the digital culture, which is growing considerably, it is important to know the new digital trends that are generating changes in the business environment. For example, the use of technology through smart devices and sophisticated programs for data analysis and processing, for the optimization of production processes, for content marketing, etc. Likewise, Kraus et al. (2019) mention that in the era of digitalization, businesses need to make important changes in their work, because modern businesses can generate innovation by identifying strategic resources and developing competencies that help them guarantee success in the market; in other words, the innovation capacity of companies becomes a competitive advantage.

Therefore, university institutions must become more technical and stay at the forefront of technological advances in order to provide students, through business programs, with adequate support in their training; to this end, they must implement, both in their curricular and extracurricular activities, subjects related to digital technology that can support their digital ventures.

2.4. Country governmental support for entrepreneurship

Entrepreneurship plays a fundamental role in the development of innovation, the generation of jobs, and economic growth. Then, it should be taken into account that entrepreneurship has a close relationship of dependence on access to information and, most importantly, with the policies that are given to entrepreneurs (Sullivan & Meek, 2012). In this framework, Baptista (2005) mentions that the use of ICTs has become one of the fundamental objectives of European governments to offer public services through the Internet and other electronic channels. Peru is no stranger to this, as there are

specific national policies, for example, through the Law that promotes scientific research, technological development, and technological innovation (Law No. 30309) and its amendment (Law No. 31659), whose purpose is to increase private investment in innovation, research, and business development through a tax deduction.

In public administration, efforts should be made to innovate in the various ways in which important information should be imparted to entrepreneurs in the different regions, it should also be identified if potential entrepreneurs seeking to make their investments tangible through the use of ICTs (Bekkers et al., 2006). Thus, as mentioned by Moneva and Martín (2012), websites have become the most widely used form for disseminating information regarding the needs of entrepreneurs.

Entrepreneurs are constantly making decisions, and for this, they need to have all the information that will allow them to make the best choice of what they will adopt in the long term. Therefore, the main role of the State as a regulator of economic activities in each country is to promote the development of entrepreneurship. Lederman et al. (2014) mention that successful entrepreneurs thrive when the environment is prospered when the environment is favorable since it allows them to promote innovative ideas. For this reason, public policymakers should pay attention to the type of environment they are generating for entrepreneurs, for example, through various plans, programs, and projects aimed at different economic sectors. Also, it has to do with bureaucracy, fees, and taxes that favor the growth and consolidation of entrepreneurship. Or the state can, through government programs both locally, regionally, and nationally, boost new business ideas.

2.5. Digital entrepreneurship competencies

Considering that digital ventures are characterized by high use of new digital technologies, it is essential to study the competencies that the entrepreneur must have to develop this type of venture. And, considering that Industry 4.0 has become a current trend, due to industrial automation and digitization, the entrepreneurial intention is sharpened in businesses that have technologies as their main support. This means that new needs have been generated that are reflected in all fields of life, including the educational world (Hariharasudan & Kot, 2018). Then, the competencies that entrepreneurs must have must go hand in hand with the advances that occur in the field of science and technology.

2.6. Digital entrepreneurship intention

The intention of entrepreneurship is linked to the intentional act of one or more people to start a new project or business; and if it is digital, its main support, in its various processes, is technology. In this context, support should be given to people who have the initiative to undertake to reduce the risk of failure and avoid the fear of starting something new, because as mentioned by Shahzad et al. (2021) "there is a need to induce people to become entrepreneurs, but most entrepreneurial start-ups fail due to flawed initiatives" (p. 1). Then, it is important to mention that there are both internal

and external factors that influence entrepreneurial intention. In this regard, Shahzad et al. (2021) state that self-motivation, family support, peer influence, and institutional support are elements that contribute to the decision to realize an entrepreneurial intention; since they strengthen entrepreneurial skills generating more confidence, due to the decreased risk involved in entering a market as a new trader.

It is important to be clear about the factors that affect the entrepreneurial intention to start a business, that is, what are the intrinsic forces that motivate young people to undertake. Since the entrepreneurial attitude is fruitful for the business sector and, therefore, the economy. Consequently, it is essential to awaken the creative spirit of something productive in people, and what better if this is generated in the business programs of the various universities. In business programs, it is necessary to know the situation of the entrepreneurial intention of the students, specifically linked to technology.

The following conceptual constructs and their respective items were considered:

- University curricular content support (SC): "Promotes in the subjects, the development of entrepreneurship-oriented projects" (SC2); "Validates pre-professional practices with entrepreneurship" (SC3); "Offers bachelor's or master's degrees in entrepreneurship" (SC4); "Regularly organizes conferences/workshops on entrepreneurship" (SC5); "Provides networking spaces between students and entrepreneurs" (SC6).

- Support of extra-curricular university content (SE): "Provides workshops to generate ideas for a new business" (SE1); "Provides the economic means to start a new business" (SE2); "Uses its reputation to support students starting a new business" (SE3); "Provides financial and/or technical advice to university ventures" (SE4); "Promotes networking between university entrepreneurs and investors" (SE5); "Promotes digital entrepreneurial ideas through contests, fairs or competitions" (SE6); "Supports the creation of ventures (raising seed capital, entrepreneurship center, incubators, etc.)" (SE7).

- University technological support (ST): "It has the information technology infrastructure to implement ventures" (ST1); "Develops training in the use of information technologies" (ST2); "Adopts new technological trends" (ST3); "Has a laboratory for prototyping, simulation, and ventures" (ST4); "Has collaborative technological platforms" (ST5).

- The governmental support of the country (SG): "The economy of my country offers many opportunities for entrepreneurs" (SG1); "There is an entrepreneurship law in my country" (SG3); "The tax regulations of my country actively promote the development of entrepreneurship" (SG4); "There are institutions in my country that actively promote and support entrepreneurship" (SG5).

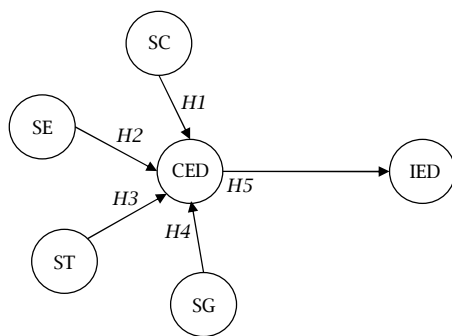
- Digital entrepreneurship competencies (CED): "I am able to use digital technologies to search for information and business opportunities" (CED1); "I consider it important to have a working team to start entrepreneurship projects" (CED2); "I know how to use digital technologies to communicate working agreements to my team" (CED3); "I am able to involve others with my innovative ideas" (CED4); "I am able to create private groups in social networks to manage innovative proposals" (CED5);

"I know the basic rules of behavior on the network (netiquette, authorship)" (CED6); "I use tools for creating digital resources and content (videos, audios, presentations, etc.)" (CED7); "I am aware of the importance of ensuring data protection" (CED8).

• The intention of digital entrepreneurship (IED): "I recommend to my peers to develop ventures that address digital needs" (IED1); "I think that my future initiatives will prioritize digital benefits more than financial ones" (IED2); "If I had the opportunity and resources, I would definitely undertake a digital venture" (IED3); "I have seriously thought about becoming a digital entrepreneur" (IED4); "I intend to undertake and act in the management of my own digital venture" (IED5).

From which the following conceptual model and hypotheses are established.

Figure 1. Conceptual model and hypotheses



H1: The support of university curricular content (SC) has a positive impact on the digital entrepreneurship competencies (CED) of university students in business programs.

H2: University extracurricular content support (SE) has a positive impact on the digital entrepreneurship competencies (CED) of university students in business programs.

H3: University technology support (ST) has a positive impact on the digital entrepreneurship competencies (CED) of university students in business programs.

H4: The governmental support of the country (SG) generates a positive impact on the digital entrepreneurship competencies (CED) of university students in business programs.

H5: Digital entrepreneurship competencies (CED) generate a positive impact on the digital entrepreneurship intention (IED) of university students in business programs.

3. RESEARCH METHODOLOGY

The present study applied the deductive inferential scientific method, for which the type and level of basic and explanatory research were used respectively, since it is intended to measure the causal link that exists between the study variables. Likewise, the research design used was the non-experimental cross-sectional design.

The population consisted of university students in business programs at Peruvian universities. The inclusion criteria were 7th, 8th, 9th, and 10th-year students of the administrative sciences faculties of seven universities accredited or in the process of accreditation by the Accreditation Council for Business Schools and Programs (ACBSP). The sample consisted of 450 participants, of whom 194 were male (43%) and 256 were female (57%), ranging from 19 years old to 35 years old. The mean age was 25 years old, with a standard deviation of 1.5 years.

A 37-item questionnaire was designed and applied. six items for university curricular content support, seven items for university extracurricular support, five items for university technological support, five for governmental support of the country, eight items for digital entrepreneurship competencies, and six items for digital entrepreneurship intention. The validation of the instrument followed the Delphi methodology, and reliability was determined through Cronbach's alpha coefficient greater than 0.70.

4. RESEARCH RESULTS

4.1. Assessment of the measurement model

Table 1 shows the measurement analysis of the model, based on the reliability and validity of the measurement scales. With respect to reliability, the internal consistency of the scales is evidenced by the Cronbach alpha value (between 0.915 to 0.947) and the composite reliability (between 0.936 to 0.956). With respect to convergent validity, all factor loadings are above 0.800. Likewise, all scales have average variance extracted (AVE) percentages greater than 70%. The discriminant validity of the construct was tested by the Fornell Larcker criteria, which verifies the independence of each of the scales, considering that the square root of the AVE is greater than the correlations with the rest of the scales. In all cases, the assumption was met.

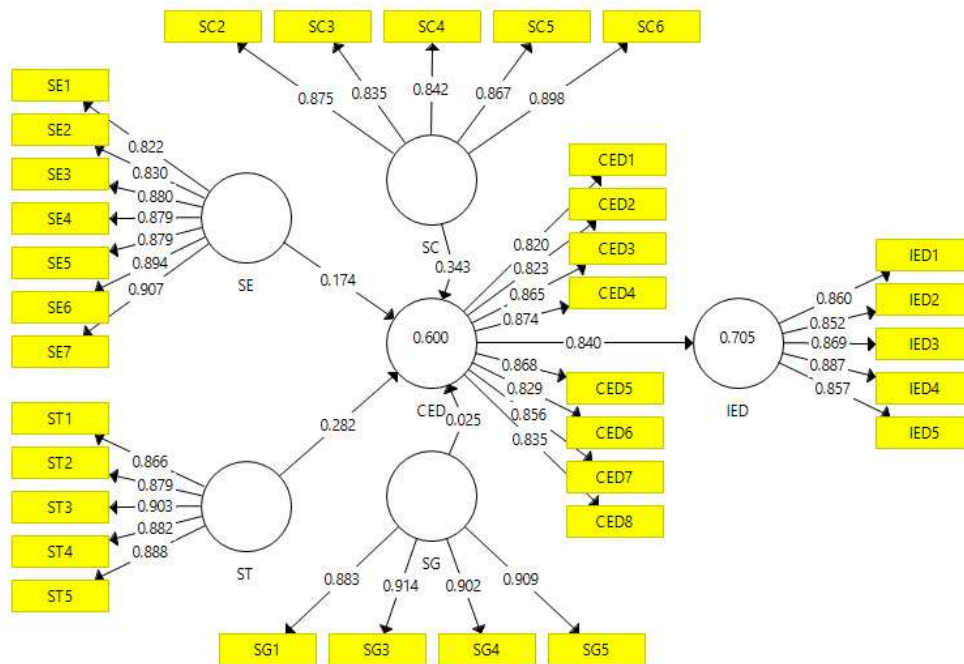
Table 1. Results of the model measurement analysis

Variables	Cronbach alpha	Composite reliability	Factor loads (range)	AVE	Discriminant validity
SC	0.915	0.936	0.835-0.898	0.746	0.864
SE	0.947	0.956	0.822-0.907	0.758	0.871
ST	0.930	0.947	0.866-0.903	0.781	0.884
SG	0.924	0.946	0.883-0.914	0.814	0.902
CED	0.943	0.953	0.820-0.874	0.717	0.846
IED	0.916	0.937	0.852-0.887	0.749	0.865

As shown in Figure 2, in all cases an R² greater than 0.600 was obtained, which is highly significant, showing that the model significantly explains

the variance of the conceptual constructs of the dependent variable.

Figure 2. Results for the hypothesized model with structural equations



4.2. Assessment of the structural model

After verifying the validity and reliability of the measurement model, the relationships of the constructs were tested. Hypotheses were tested by examining the road coefficients and their significance levels. Bootstrapping was performed with 5000 subsamples to verify the statistical significance of each of the road coefficients

(Inga-Ávila et al., 2022). Influence of people, processes, and technology on business strategy in small enterprise in a COVID-19. Figure 3 shows the estimated path of the partial least squares (PLS) analysis.

Considering that four specific relationships have $p < 0.05$, the proposed hypotheses *H1*, *H2*, *H3*, and *H5* are accepted as shown in Table 2.

Figure 3. Modeling of digital transformation and individual job performance

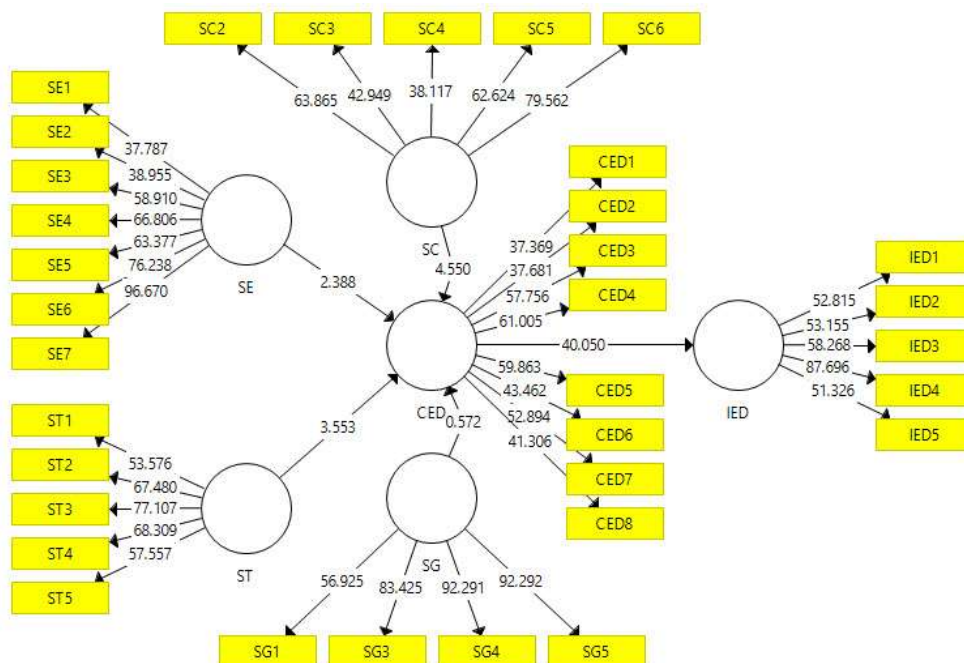


Table 2. Results of the model structure analysis

<i>Hypotheses</i>	<i>Mean sample</i>	<i>Std. dev.</i>	<i>Beta</i>	<i>p-value</i>	<i>Decision</i>
<i>SC → CED</i>	0.343	0.075	4.550	0.000	Accept <i>H1</i>
<i>SE → CED</i>	0.175	0.073	2.388	0.017	Accept <i>H2</i>
<i>ST → CED</i>	0.281	0.079	3.553	0.000	Accept <i>H3</i>
<i>SG → CED</i>	0.025	0.043	0.572	0.567	Denies <i>H4</i>
<i>CED → IED</i>	0.839	0.021	40.050	0.000	Accept <i>H5</i>

5. DISCUSSION OF THE RESULTS

Regarding the impact of university curricular content support on the digital entrepreneurship competencies of university students in business programs, a considerable positive influence $\beta = 4.550$ ($p < 0.05$) was obtained as a result. Blair and Lacy (2000), consider that if the way in which entrepreneurial learning is generated is properly designed, it will be possible to: 1) increase students' basic knowledge, skills, and entrepreneurial behavior in life; and 2) form practical knowledge. Likewise, Hannon (2005) stipulates that in order to train entrepreneurs the following should be taken into account: 1) pursuing entrepreneurship; 2) teaching through entrepreneurship; and 3) teaching for entrepreneurship. Reaffirming that university curricular content positively impacts digital entrepreneurship competencies; considering considering the external context of the organizations, since it helps to understand the entrepreneur's way of acting (Ngoasong, 2018). It is concluded that the educational support of the business programs of the different universities has to do with the curricular contents for the development of entrepreneurship because if these are properly structured and directed to strengthen the entrepreneurial skills of the students, they will be a great support to increase the entrepreneurial intention of the students and that even these will materialize their new ideas.

Regarding the impact of university extracurricular content support on digital entrepreneurship competencies of university students of business programs, a considerable positive influence $\beta = 2.388$ ($p < 0.05$) was obtained as a result. In this regard, Muraya et al. (2019) mention that it is necessary to consider education as a powerful tool of information process management, in other words, it is necessary to generate purely innovative educational programs — digital education. Likewise, according to Holland and Andre (1987), both researchers and teachers recommend that students participate in extracurricular activities during their professional training, since these programs are not part of the institution's regular curricular program; and, b) considering their structure, they focus on achieving an objective or goal. Therefore, extracurricular activities can be linked to culture, sports, conferences, congresses, support brigades, and tutoring, among others. This means that they can also be linked to digital entrepreneurship, for example, related to technological tools for business management.

Regarding the impact of university technological support on the digital entrepreneurship competencies of university students in business programs, a considerable positive influence $\beta = 3.553$ ($p < 0.05$) was obtained as a result. Steininger (2019) mentioned that ICTs are key in the process of digital entrepreneurship because they allow the implementation of new operations and processes in companies, help optimize the expected results

and contribute to generating new business models. Similarly, Kraus et al. (2019) emphasized that, in the era of digitalization, companies need to generate changes in their mode of operation, because they must innovate strategically to achieve competencies that lead them to success in a fairly competitive market, which will be an advantage. Therefore, university institutions must become more technical and stay at the forefront of technological advances to provide students, through business programs.

Regarding the impact of the country's governmental support on the digital entrepreneurship competencies of university students in business programs, it was obtained that there is no positive influence $\beta = 0.572$ ($p > 0.05$). However, Baptista (2005) mentioned ICTs as a basic resource for European governments to provide public services through the Internet, as well as other electronic means. This reality in Peru shows that the public administration strives to disseminate information in an innovative way for entrepreneurs in the various parts of its territory, and also seeks to identify potential digital entrepreneurs (Bekkers et al., 2006).

Therefore, it is evident that in Peru, public policies (plans, programs, and projects) related to digital entrepreneurship aimed at the various economic sectors are unknown.

Regarding the impact of digital entrepreneurship competencies on the digital entrepreneurship intention of university students in business programs, a very considerable positive influence $\beta = 40.050$ ($p < 0.05$) was obtained as a result. This translates into new forms of digital learning and ICT support for students, who become more independent people. (Kayimbaşoğlu et al., 2016).

And, considering that Industry 4.0 has become a current trend due to industrial automation and digitization; new needs have been generated that are reflected in all fields of life, including the educational world (Hariharasudan & Kot, 2018). Then, the competencies that entrepreneurs must have must keep pace with the advances that occur in the field of science and technology.

6. CONCLUSION

In conclusion, the impact of educational support on the digital entrepreneurship of university students in business programs is positive. It should be emphasized that, of the five dimensions, the impact of the country's governmental support did not have a positive influence ($\beta = 0.572$). While the digital entrepreneurship competencies dimension was very considerably positive ($\beta = 40.050$). In addition, the dimension university curricular content support had a considerable positive influence ($\beta = 4.550$) as did the dimensions university extracurricular content support ($\beta = 2.388$) and university technological support ($\beta = 3.553$).

One of the main limitations when carrying out research is the scarce use of theoretical and

conceptual frameworks that put the concept of digital entrepreneurship at the level of the main areas of academic research.

The current challenge for universities is to train entrepreneurial students who interrelate the opportunities of digitalization with digital strategies and technologies, to improve the positioning of companies on a national and international scale. Such a purpose requires entrepreneurs who have access to the technological tools to start a digital

business. They must also receive continuous training in programming, web development, digital marketing, data analysis and artificial intelligence, to adapt to new technologies, trends and changes in organizational behavior. Likewise, access to financing and support networks is essential to promote digital projects and scale their business. Overcoming these challenges requires a combination of ongoing training, networking, access to resources, and a strong entrepreneurial mindset.

REFERENCES

- Acs, Z. J., Szerb, L., & Autio, E. (2015). *Global Entrepreneurship and Development Index 2014*. Springer. <https://doi.org/10.1007/978-3-319-14932-5>
- Alvarez-Risco, A., Mlodzianowska, S., Garcia-Ibarra, V., Rosen, M. A. & Del-Aguila-Arcentales, S. (2021). Factors affecting green entrepreneurship intentions in business university students in COVID-19 pandemic times: Case of Ecuador. *Sustainability*, 13(11), Article 6447. <https://doi.org/10.3390/su13116447>
- Arcentales-Montalvo, A. J., Murgueyio-Montenegro, J. A., & Canchingre-Bone, L. A. (2020). Emprendimiento educativo a través de medios digitales en el contexto ecuatoriano [Educational entrepreneurship through digital media in the Ecuadorian context]. *Praxis Pedagógica*, 20(27), 338-360. <https://revistas.uniminuto.edu/index.php/praxis/article/view/2424>
- Baptista, M. (2005). E-government and state reform: Policy dilemmas for Europe. *The Electronic Journal of e-Government*, 3(4), 167-174. <https://academic-publishing.org/index.php/ejeg/article/view/439>
- Bekkers, V., van Duivenboden, H., & Thaens, M. (2006). Public innovation and information and communication technology: Relevant backgrounds and concepts. In V. J. J. M. Bekkers, M. Thaens, & H. van Duivenboden (Eds.), *ICT and public innovation: Assessing the ICT driven modernization of public administration* (pp. 3-21). IOS Press. https://www.researchgate.net/publication/285735973_Public_innovation_and_information_and_communication_technology_Relevant_background_and_concepts
- Blair, J., & Lacy, M. G. (2000). Statistics of ordinal variation. *Sociological Methods & Research*, 28(3), 251-280. <https://doi.org/10.1177/0049124100028003001>
- Congress of the Republic. (2015). Ley No. 30309 que promueve la investigación científica, desarrollo tecnológico e innovación tecnológica [Law No. 30309 that promotes scientific research, technological development and technological innovation]. <https://www.gob.pe/institucion/congreso-de-la-republica/normas-legales/886802-30309>
- Congress of the Republic. (2022). Ley No. 31659 que modifica la Ley No. 30309, ley que promueve la investigación científica, desarrollo tecnológico e innovación tecnológica [Law No. 31659 amending Law No. 30309, the law promoting scientific research, technological development and technological innovation]. <https://www.fao.org/faolex/results/details/es/c/LEX-FAOC227709>
- Dana, L.-P., Tajpour, M., Salamzadeh, A., Hosseini, E., & Zolfaghari, M. (2021). The impact of entrepreneurial education on technology-based enterprises development: The mediating role of motivation. *Administrative Sciences*, 11(4), Article 105. <https://doi.org/10.3390/admsci11040105>
- Hair, N., Wetsch, L. R., Hull, C. E., Perotti, V., & Hung, Y.-T. C. (2012). Market orientation in digital entrepreneurship: Advantages and challenges in a web 2.0 networked world. *Journal of Innovations and Technology Management*, 9(6), Article 1250045. <https://doi.org/10.1142/S0219877012500459>
- Hannon, P. D. (2005). Philosophies of enterprise and entrepreneurship education and challenges for higher education in the UK. *The International Journal of Entrepreneurship and Innovation*, 6(2), 105-114. <https://doi.org/10.5367/0000000053966876>
- Hariharasudan, A., & Kot, S. (2018). A scoping review on digital English and education 4.0 for Industry 4.0. *Social Sciences*, 7(11), Article 227. <https://doi.org/10.3390/socsci7110227>
- Hegarty, C. (2006). It's not an exact science: Teaching entrepreneurship in Northern Ireland. *Education + Training*, 48(5), 322-335. <https://doi.org/10.1108/00400910610677036>
- Holland, A., & Andre, T. (1987). Participation in extracurricular activities in secondary school: What is known, what needs to be known? *Review of Educational Research*, 57(4), 437-466. <https://doi.org/10.3102/00346543057004437>
- Holmstrom, J., & Hallgren, M. (2022). AI management beyond the hype: Exploring the co-constitution of AI and organizational context. *AI & SOCIETY*, 37, 1575-1585. <https://doi.org/10.1007/s00146-021-01249-2>
- Hull, C. E., Hung, Y.-T., Hair, N., Perotti, V., & DeMartino, R. (2007). Taking advantage of digital opportunities: A typology of digital entrepreneurship. *International Journal of Networking and Virtual Organisations*, 4(3), 290-303. <https://doi.org/10.1504/IJNVO.2007.015166>
- Inga-Ávila, M., Churampi-Cangalaya, R., Inga-Aliaga, M., Rodríguez-Giraldez, W & Vicente-Ramos, W. (2022). Influence of people, processes and technology on business strategy in small enterprise in a COVID 19 environment. *International Journal of Data and Network Science*, 6, 779-786. <https://doi.org/10.5267/j.ijdns.2022.3.003>
- Kayimbasioğlu, D., Oktekin, B., & Haci, H. (2016). Integration of gamification technology in education. *Procedia Computer Science*, 102, 668-676. <https://doi.org/10.1016/j.procs.2016.09.460>
- Kraus, S., Palmer, C., Kailer, N., Kallinger, F. L., & Spitzer, J. (2019). Digital entrepreneurship: a research agenda on new business models for the twenty-first century. *International Journal of Entrepreneurial Behavior & Research*, 25(2), 353-375. <https://doi.org/10.1108/IJEBR-06-2018-0425>
- Lederman, D., Messina, J., Pienknagura, S., & Rigolini, J. (2014). *El emprendimiento en América Latina: Muchas empresas y poca innovación* [Latin American entrepreneurs: Many firms but little innovation]. Banco Mundial. <https://doi.org/10.1596/978-1-4648-0284-3>

- Moneva, J. M., & Martín, E. (2012). Universidad y desarrollo sostenible: Análisis de la rendición de cuentas de las universidades públicas desde un enfoque de responsabilidad social [University and sustainable development: Analysis of the accountability of public universities from a social responsibility approach]. *Revista Iberoamericana de Contabilidad de Gestión*, 10(19), 1-18. http://www.observatorio-iberoamericano.org/ricg/n%C2%BA_19/Jos%C3%A9_Mariano_Moneva_y_Emilio_Mart%C3%ADn_Vallesp%C3%ADn.pdf
- Muraya, E. N., Roganov, V. R., Skiteva, E. I., Evgrafova, I. V., & Daudov, I. L. (2019). Digital entrepreneurship and education: Support for innovative projects. *International Journal of Advanced Trends in Computer Science and Engineering*, 8(6), 3304-3311. <https://doi.org/10.30534/ijatcse/2019/101862019>
- Nambisan, S., Wright, M., & Feldman, M. (2019). The digital transformation of innovation and entrepreneurship: Progress, challenges and key themes. *Research Policy*, 48(8), Article 103773. <https://doi.org/10.1016/j.respol.2019.03.018>
- Ngoasong, M. Z. (2018). Digital entrepreneurship in a resource-scarce context: A focus on entrepreneurial digital competencies. *Journal of Small Business and Enterprise Development*, 25(3), 483-500. <https://doi.org/10.1108/JSBED-01-2017-0014>
- Richter, C., Kraus, S., Brem, A., Durst, S., & Giselbrecht, C. (2017). Digital entrepreneurship: innovative business models for the sharing economy. *Creativity and Innovation Management*, 26(3), 300-310. <https://doi.org/10.1111/caim.12227>
- Shahzad, M. F., Khan, K. I., Saleem, S., & Rashid, T. (2021). What factors affect the entrepreneurial intention to start-ups? The role of entrepreneurial skills, propensity to take risks, and innovativeness in open business models. *Journal of Open Innovation Technology Market and Complexity*, 7(3), Article 173. <https://doi.org/10.3390/joitmc7030173>
- Shetty, G. S., Baliga, V., & Thomas Gil, M. (2024). Impact of entrepreneurial mindset and motivation on business performance: deciphering the effects of entrepreneurship development program (EDPs) on trainees. *Cogent Business & Management*, 11(1), Article 2314733. <https://doi.org/10.1080/23311975.2024.2314733>
- Steininger, D. M. (2019). Linking information systems and entrepreneurship: A review and agenda for IT-associated and digital entrepreneurship research. *Information Systems Journal*, 29(2), 363-407. <https://doi.org/10.1111/isj.12206>
- Sullivan, D. M., & Meek, W. R. (2012). Gender and entrepreneurship: A review and process model. *Journal of Managerial Psychology*, 27(5), 428-458. <https://doi.org/10.1108/02683941211235373>
- Susilo, A., Djatmika, E. T., Mintarti, S. U., & Wahyono, H. (2019). The entrepreneurial learning of generation Z students in industrial revolution era 4.0 (A case study in Tertiary Education of Yogyakarta and Surakarta, Indonesia). *International Journal of Learning, Teaching and Educational Research*, 18(9), 96-113. <https://doi.org/10.26803/ijlter.18.9.5>
- Tóth-Pajor, Á., Bedő, Z., & Csapi, V. (2023). Digitalization in entrepreneurship education and its effect on entrepreneurial capacity building. *Cogent Business & Management*, 10(2), Article 2210891. <https://doi.org/10.1080/23311975.2023.2210891>
- Val, S., & López-Bueno, H. (2024). Analysis of digital teacher education: Key aspects for bridging the digital divide and improving the teaching-learning process. *Education Sciences*, 14(3), Article 321. <https://doi.org/10.3390/educsci14030321>
- Xie, X., & Wang, J. (2014). Entrepreneurship education and venture creation: The role of the social context. *Journal of Entrepreneurship Education*, 17(1), 83-99. <https://www.abacademies.org/articles/jeevol1712014.pdf>
- Zahra, S. A., Wright, M., & Abdelgawad, S. G. (2014). Contextualization and the advancement of entrepreneurship research. *International Small Business Journal*, 32(5), 479-500. <https://doi.org/10.1177/0266242613519807>