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Artículos científicos

Apoyos educativos para impulsar emprendimientos relevantes e innovadores: lecciones de las empresas latinoamericanas premiadas internacionalmente

Educational support to promote relevant and innovative entrepreneurship: lessons from internationally awarded Latin American companies

Apoio educacional para promover empreendimentos relevantes e inovadores: lições de empresas latino-americanas premiadas internacionalmente

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Resumen

Los apoyos educativos preparan a los alumnos para trabajar o emprender. Esta investigación se realizó por la necesidad de reforzar la educación universitaria para promover emprendimientos por oportunidad durante el proceso de enseñanza-aprendizaje en una universidad mexicana, donde los alumnos tienen intención emprendedora, pero contemplan empresas tradicionales. El objetivo de la investigación fue identificar los apoyos educativos con posibilidades de integración en la universidad para el impulso de emprendimientos relevantes e innovadores, a partir de las lecciones extraídas del análisis de las empresas latinoamericanas incluidas entre las 100 Empresas Tecnológicas Innovadoras reconocidas por el Foro Económico Mundial (WEF por sus siglas en inglés) en 2022. El método de investigación fue cualitativo, transversal, exploratorio y descriptivo. El marco conceptual se basó en la Teoría del Comportamiento Planificado. Se aplicó una encuesta para conocer la intención emprendedora de los alumnos de la universidad sujeta de estudio y se analizaron las empresas latinoamericanas antes mencionadas para obtener lecciones. **Resultados:** Se encontró que el 85% de los alumnos quiere emprender, pero el 82% se siente inseguro de poder realizar actividades innovadoras, por lo que contempla únicamente emprendimientos por



necesidad. En el análisis de las empresas latinoamericanas, se encontró que se fundaron con trabajo conjunto de personas con experiencia tanto laboral como empresarial. Sus objetivos se relacionan con problemáticas globales, utilizan tecnología, innovación y son rentables. A partir de tales lecciones, se identifican algunos apoyos educativos consistentes en el desarrollo de actividades co-curriculares para impulsar emprendimientos por oportunidad. **Conclusiones:** Los apoyos educativos propuestos pueden impulsar a los alumnos para que consideren emprendimientos con mayor relevancia e innovación.

Palabras clave: apoyos educativos, comportamiento innovador, educación y desarrollo.

Abstract

Educational supports prepare students to work or undertake. This research was carried out due to the need to reinforce university education to promote opportunity ventures during the teaching-learning process in a Mexican university where students have entrepreneurial intentions but contemplate traditional companies. The **objective** of the research was to identify educational supports with possibilities of integration into the university for the promotion of relevant and innovative ventures, based on the lessons drawn from the analysis of Latin American companies included among the 100 Innovative Technology Companies recognized by the World Economic Forum (WEF) in 2022. The research **method** was qualitative, cross-sectional, exploratory and descriptive. The conceptual framework was based on the Theory of Planned Behavior. A survey was applied to find out the entrepreneurial intention of the students of the university under study and the Latin American companies mentioned before were analyzed to obtain lessons. **Results:** It was found that 85% of the students want to undertake, but 82% feel insecure about being able to carry out innovative activities, so they only consider ventures out of necessity. In the analysis of Latin American companies, it was found that they were founded with the joint work of people with both work and business experience. Their objectives are related to global problems, they use technology, innovation and are profitable. Based on these lessons, some educational supports are identified, consisting of the development of co-curricular activities to promote ventures by opportunity. **Conclusions:** The proposed educational supports can encourage students to consider more relevant and innovative ventures.

Keywords: educational supports, innovative behavior, education and development.

Resumo

Os apoios educacionais preparam os alunos para trabalhar ou empreender. Esta pesquisa foi realizada devido à necessidade de reforçar a educação universitária para promover o empreendedorismo por oportunidade durante o processo de ensino-aprendizagem em uma universidade mexicana, onde os alunos têm intenções empreendedoras, mas contemplam empresas tradicionais. O objetivo da pesquisa foi identificar suportes educacionais com possibilidades de integração na universidade para a promoção de empreendimentos relevantes e inovadores, a partir das lições extraídas da análise de empresas latino-americanas incluídas entre as 100 Empresas Inovadoras de Tecnologia reconhecidas pelo Fórum Econômico (WEF) em 2022. O método de pesquisa foi qualitativo, transversal, exploratório e descritivo. O referencial conceitual foi baseado na Teoria do Comportamento Planejado. Uma pesquisa foi aplicada para descobrir a intenção empreendedora dos alunos da universidade em estudo e as empresas latino-americanas mencionadas foram analisadas para obter lições. Resultados: Verificou-se que 85% dos alunos desejam empreender, mas 82% se sentem inseguros em poder realizar atividades inovadoras, motivo pelo qual só contemplam empreendimentos por necessidade. Na análise das empresas latino-americanas, constatou-se que elas foram fundadas com o trabalho conjunto de pessoas com experiência profissional e empresarial. Seus objetivos estão relacionados a problemas globais, utilizam tecnologia, inovação e são rentáveis. Com base nestas aulas, são identificados alguns suportes pedagógicos, que consistem no desenvolvimento de atividades co-curriculares para a promoção de empreendimentos por oportunidade. Conclusões: Os suportes educacionais propostos podem estimular os alunos a considerar empreendimentos mais relevantes e inovadores.

Palavras-chave: auxílio educacional, comportamento inovador, educação e desenvolvimento.

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Introduction

Multiple authors (Souitaris et al., 2007; Boldureanu et al., 2020) have verified that the educational supports for entrepreneurship are positively related to the entrepreneurial intentions of students. Gelaidan and Abdullateef (2017) point out that educational supports are the set of initiatives that are designed in an institution to train students and include formal education and learning and support tools. Kadir et al. (2013) include curricula, pedagogy, and co-curricular activities.

Regarding the activity of undertaking, Amorós and Bosma (2014) define entrepreneurship as "any attempt to create new businesses or new companies, such as self-employment, a new business organization, or the expansion of an existing business" (p. 17). However, the type of



entrepreneurship that is carried out is important, because not all of them generate effects on growth (Díaz de León and Cancino, 2014). In this regard, Reynolds et al. (2002) point out that people carry out entrepreneurial activities for two main reasons: a) because they perceive that a business is an opportunity and choose it as one of several possible career options, or b) because they see entrepreneurship as a last resort, since the other options for the job are absent or unsatisfactory, so they do it out of necessity.

Similarly, González (2012) argues that, although it is necessary to strengthen and expand the productive base of the business fabric, it should not be done in any way, "but through competitive companies that develop differentiated, innovative and endowed with significant technological value" (p. 71). In addition, entrepreneurship is not an activity that is carried out solely to satisfy an individual interest, it is also "a social and economic generator, since it promotes innovation, improves industrial competitiveness, increases productivity through the use of technologies and Consequently, it allows reaching higher levels of well-being and development at the regional or national level" (Ferreto et al., 2019, p. 44). Nor is it a simple activity, since when undertaking it, risk must be managed and both failure and ambiguity must be faced (Ali et al., 2012).

This research is carried out in a Mexican university where, in previous research, it was detected that the educational support provided so far has worked to promote the entrepreneurial intention of its students, since eight out of ten students do want to start a business (Espinosa, 2021), but 60% of the proposed projects are traditional, with little relevance and innovation (Sánchez et al., 2021).

To ensure that ventures out of necessity are out of opportunity, various investigations have been proposed in which alternatives are proposed from different perspectives. For example, Díaz de León and Cancino (2014) highlight the importance of generating public policies to strengthen the business ecosystem and the delivery of intelligent capital for productive development, so that ventures out of necessity become ventures out of opportunity due to the low impact that the former generate in economic development.

On the other hand, Lascano et al. (2017), although they agree on the need to promote ventures with innovation as a transversal axis of development, they focus on strengthening academic training and the development of policies to achieve balance and economic stability.

Likewise, it is possible to identify approaches that seek alternatives related to what can be done from the university, highlighting that if universities do not provide the necessary education to students, given the lack of employment, they will only be able to develop ventures out of necessity, that is, very small companies, not very innovative, very focused on trade and with little generation of added value (Rovayo, 2009).

Boldureanu et al. (2020) state that, in entrepreneurship education programs, "exposure to successful entrepreneurial models could be a significant factor for stimulating students' confidence in their ability to start a business and for improving their attitudes towards entrepreneurship" (p. 1). Likewise, other authors (Kassean et al., 2015; Lent et al., 1994) agree that, by showing successful experiences, students' expectations can be influenced and their confidence to carry out similar actions can be increased, in this case, to create companies with a higher degree of innovation, relevance and relationship with the SDGs.

In other research, it is also recognized that positive role models have an impact on entrepreneurial intentions because individuals are motivated, considering obtaining results as those of a successful model (Chang, 2014). In addition, Herruzo-Gomez et al. (2019) point out that "role models can be considered a possible source of learning for entrepreneurship and stimulate students to become successful entrepreneurs" (p. 56). As can be seen, successful entrepreneurship models constitute educational supports that the university can use, along with other co-curricular activities, to prosecute students' interest in entrepreneurship.

Co-curricular activities are characterized by being separated from academic courses. "They have no grades, do not allow students to earn academic credit, can take place outside of school or after regular school hours" (Great School Partnership, 2013, para.1), and can be arranged through integrated instructional supports in a co-curricular entrepreneurship education program (De Hoyos-Ruperto et al., 2017).

In the university analyzed here, there is no proposal that identifies the type of educational support that the university can use to strengthen the teaching-learning process in order to promote opportunity ventures. For this reason, given the need to channel the entrepreneurial intention of students, this research analyzes some Latin American companies that have been awarded internationally and, therefore, can be considered models of successful entrepreneurship. From this analysis, it is intended to obtain lessons that allow the identification of educational supports that the university can use to promote ventures with greater relevance and innovation.

Based on such reasoning, the following questions arose: what proportion of students from the analyzed university currently intend to start a business and what kind of ventures are they considering? What lessons regarding entrepreneurship can be obtained from the analysis of award-winning Latin American companies? Internationally? What educational support can the university incorporate into its teaching-learning process to promote relevant and innovative ventures based on the lessons learned from the companies analyzed? Based on these questions, the objective of this research was to identify educational supports with possibilities of integration in the university

for the promotion of relevant and innovative ventures based on the lessons extracted from the analysis of Latin American companies included among the 100 Innovative Technology Companies. recognized by the World Economic Forum (WEF) in 2022 (from here ELA).

The method used in this research was qualitative with a cross-sectional, exploratory and descriptive design, since the research is being carried out at the present time and no precedents of similar research were found. The conceptual framework was based on Ajzen's (1991) Theory of Planned Behavior (TPB) and Bird's (1988) model on the three determinants of intentions and entrepreneurial behavior: the attitude or attitudes a person has toward entrepreneurship, subjective norm, and perceived control or self-efficacy.

The investigation was divided into two parts. The first part consisted of the application of a survey carried out in May 2022 to a sample of 178 students from the Technological University of La Mixteca to find out their entrepreneurial intention and analyze the aspects that the TPB marks, in order to know how prepared the students feel to undertake, the type of entrepreneurship they wish to carry out and its main characteristics. The second part of the investigation was documentary, to analyze the main characteristics of the ELA in order to obtain lessons regarding the educational supports that can be used from the university to promote entrepreneurship by opportunity.

Methodology

This research focuses on the importance of entrepreneurship in the educational stage, since the university has an important role in promoting the entrepreneurial intention of students. In addition to the above, the education of students is not only focused on the formative subjects that constitute their study plan, but, as mentioned above, it is also found in the additional activities that are integrated into the educational process.

This research was of a qualitative type, since it tries to identify the educational supports that the university can use to channel the entrepreneurial intention of the students so that they consider the implementation of relevant and innovative projects. It was a cross-sectional investigation, since the subject was analyzed at the present moment from primary and secondary sources.

The conceptual framework for this study was built based on Ajzen's (1991) TPB and Bird's (1988) model of the determinants of entrepreneurial intentions and behavior. Based on these approaches, three independent conceptual determinants of intention are considered. The first is the attitude towards the behavior and refers to the degree to which a person has a favorable or unfavorable evaluation of a certain behavior. The second is a social factor, called subjective norm, which refers to the perceived social pressure to perform or not perform a certain behavior. The third is perceived

behavioral control, which refers to the perceived ease or difficulty of performing a behavior. The more favorable the attitude and subjective norm toward a behavior, and the greater the perceived behavioral control, the stronger an individual's intention to perform the behavior under consideration tends to be (Ajzen, 1991), which in this case refers to the activity of starting a business.

In stage 1 of the research, the methodology consisted of applying a survey to a sample of students from the analyzed university, to review the three aspects of intention (Ajzen, 1991; Bird, 1988), the characteristics of the projects they have contemplated, their technology content, innovation, relevance and their relationship with the SDGs.

A judgment sample was designed which, according to Malhotra (2008), is used to select items "considered to be representative of the population of interest" (p. 343). In this case, students from the sixth, eighth, and tenth semesters were considered, because they have already passed more than 50% of their study plan, and students from the areas of knowledge in which bachelor's degree programs are offered at this university were included. Following the proportion of students in each of them, they were distributed as follows: Social Sciences and Humanities (34%), Basic Sciences and Health (5%) and Basic Sciences and Engineering (61%). It should be noted that at this university subjects are taught that include administration, management, entrepreneurship and/or economics contents in all careers, in order to provide the bases for students to decide if they want to work in an organization or want to start a business on their own. Subsequently, the information was analyzed with the support of descriptive statistics.

In stage 2 of the investigation, the methodology was documentary, in which the information provided by the WEF was reviewed, in addition to various journalistic notes, podcasts, websites, and multiple interviews conducted with the founders of each of the ELAs. The objective was to identify the main characteristics of these companies, such as whether their founders had partners, if they had undertaken or worked before, if they obtained external financing, the relationship of these companies with the SDGs and if innovation, use of technology, profitability and scalability are identified in them. These elements are taken up later for considerations on how to reinforce the teaching-learning process in the Mexican university analyzed, which is the main intention of this research.

Review of Latin American companies recognized by the World Economic Forum (WEF) among the 100 Innovative Technology Companies of 2022 (ELA)

The WEF recognized 100 innovative technology companies in 2022, focused on solving global problems (World Economic Forum [WEF], 2022a). Among them are the ELAs, which are five Latin American companies: two Argentine, two Chilean and one Mexican. Its main characteristics are identified below, such as the actions taken to found the company, its previous trajectory, its relationship with the SDGs, its experience in obtaining financing, the inclusion of technology and innovation, as well as some recommendations for future entrepreneurs.

1. Pomelo, is an Argentinian startup¹ created in April 2021 by Gastón Irigoyen, Juan Fantoni and Hernán Corral. The company creates financial services infrastructure for all of Latin America, using current technological means (Pomelo, 2022). Its founders were already well-known executives in the Fintech industry² in Latin America, because Gastón Irigoyen, CEO of Pomelo, had already dabbled as an entrepreneur, had worked at Google Argentina and had served as CEO of Naranja X³. Hernán Corral, CPO of Pomelo, was also CPO of Naranja X and previously led virtual accounts and Mercado Pago cards, where he worked for 12 years. Lastly, Juan Fantoni, CCO of Pomelo, has an MBA from the Kellogg School of Administration and was director of Fintech at Mastercard, where he negotiated alliances with Mercado Pago, Despegar and Carrefour, among other companies (Endeavor Argentina, 2021). The founders of Pomelo had already worked together directly and indirectly, they had contact with people in similar activities and they knew that in Latin America it is very difficult to build a Fintech. For this reason, Pomelo decided to provide other companies with the necessary technology so that "they could digitize their means of payment to be able to offer their customers alternatives such as virtual accounts, prepaid cards and financial services" (Saavedra, 2021, para. 2-3).

After a month of operation, the company announced a round of seed capital of 9 million dollars, led by two investment funds: one from Brazil (Monashees) and another from the United

¹ Una startup es una empresa nueva que, con un modelo de negocio escalable, utiliza las nuevas tecnologías y tiene grandes posibilidades de crecimiento. "Esta tipología empresarial está ganando fuerza en los últimos años. Por ejemplo, aquellas que se dedican a las finanzas, conocidas como startups Fintech, en América pasaron de casi 5.700, en 2018, a más de 10.700 a finales de 2021" (Santander, 2022, párr. 3).

² FinTech is a nascent industry in which companies use technology to provide financial services in an efficient, agile, convenient and reliable manner. The word is formed from the contraction of the terms *finance* and *technology* in English (Fintech México, 2022).

³ Naranja X is today a digital bank that offered in Argentina the credit card with the most plastics in the country and became a massive platform for access to goods and services through a free application to transfer or receive money, buy or sell dollars between other services (iProUP, 2021).

States (Index) (Endeavor Argentina, 2021). This round of investment included renowned entrepreneurs and investors such as Max Levchin (founder of Paypal and Affirm), Biz Stone (founder of Twitter), Angela Strange, Harry Stebbings, Martin Varsavsky and the founders of large companies such as Rappi, Auth0, Kavak, Loft, Peixe URbano and Recarga Pay, among others (Endeavor Argentina, 2021, para. 2).

Pomelo offers services such as the issuance and processing of debit and credit cards, creation of digital accounts, user verification, among others (Venegas, 2022). Several months after its creation, this company carried out another round of investment, raising 35 million dollars from different investment funds (Saavedra, 2021). At the end of 2021, it already had a team of more than 300 people and had offices in Buenos Aires, San Pablo and Mexico City (Saavedra, 2021, para. 4).

2. The Mamotest company was started by Guillermo Pepe, an Economics graduate who, after talking with his father, a radiologist specializing in the diagnosis of mammographic studies and Roentgen Award winner from the University of Buenos Aires; he shared that many women get mammograms when it is too late and cannot save their lives (Santander, 2021), since many hospitals lack both the technology and the specialists in the area to carry out these studies (World Economic Forum [WEF], 2022b).

For this reason, he created Mamotest in 2013 with a telemammography network in Latin America. With this network, a doctor can diagnose any patient who goes to diagnostic centers located in areas with few services, democratizing access to health services and eliminating geographical, technological and economic barriers (Santander, 2021).

Guillermo Pepe points out that this project was possible thanks to his academic preparation and the experience acquired at Singularity University, at the NASA Ames Research Center in Mountain View, California (Inter-American Development Bank [IDB], 2022). Its beginning was not easy, as its founder pointed out: "We had to appeal to soft loans, we obtained some subsidies and many resources of all kinds that we were achieving along the way with alliances, NGOs, governments and companies related to the health of the woman" (Ferreyra, 2020, para. 7).

After persevering, he has received funding from various public, private and social organizations. One of the latest investments was from MSD, which invested 1.6 million dollars in the company to support the expansion of its services throughout Latin America (EnFarma, 2021). Thanks to the support of technology, the diagnosis time has been reduced from one to three months to less than 24 hours (Santander, 2021). Early detection allows the patient to have a 98% survival rate. Unfortunately, 80% of breast cancer cases are detected in late stages, which means that only 27% of patients manage to survive (Santander, 2021).

In addition, this company saves governments resources by providing the necessary equipment to detect breast cancer in remote communities. This allows treatments to be simpler, more effective and less expensive. According to the Swiss consultancy Le Fil, for every dollar a government invests in supporting the work of Mamotest, 10 dollars are saved (Santander, 2021).

3. MicroTerra is a Mexican AgTech startup, that is, agricultural technology or agrotechnology, which refers to a set of tools and technological solutions to revolutionize the agricultural sector and includes food, machinery and agricultural inputs (San José, 2021). MicroTerra works to solve problems in the agriculture industry by implementing on-site water treatment systems with microalgae that transform wastewater into a sustainable source of protein and also clean water (World Economic Forum [WEF], 2022c). It was founded in 2018 by Marissa Cuevas, who studied Energy Engineering and Process Techniques at the Technical University of Berlin, in 2014. She also founded a circular economy company, then worked for the German Cooperation Agency as an energy advisor and external consultant. (National Geographic, 2019). She subsequently completed a master's degree in Sustainability Management at Columbia University.

Marissa was inspired to start her company when she participated in the 2017 Global Solutions Program at Singularity University at the NASA Ames Research Center in Mountain View, California (National Geographic, 2019). There it was explained to them that the next world crisis would be about water, and Marissa was interested in reflecting on the issue (Fu, 2021) to help solve one of the great challenges of humanity (Nolet, 2022). Marissa did research and found that agriculture is one of the leading causes of water pollution. Therefore, he focused his research on finding solutions to stop the pollution caused by agriculture in rivers, lakes and oceans, due to excess nutrients that cause excessive growth of algae and a negative impact on the environment, people and the economy (Reymundo, 2022).

The company's crops are called lemma, also known as duckweed or water lentils, and they use nitrogen and phosphorous from fish waste as fertilizer, preventing these nutrients from growing to toxic concentrations. The product resulting from this process has no color or flavor, but contains great nutritional value, with up to 40% protein and up to 25% pectin (Fu, 2021). MicroTerra has worked with farmers in Mexico and other Latin American countries to farm lemma using a scalable, sustainable, and affordable method. In addition, these crops help clean the water (MicroTerra, 2020), which provides a double benefit.

Marissa has indicated that she really liked working in Mexico because everything is very easy, there are not so many obstacles when you want to develop a project. "If one wants to work with a

fish farmer, it is enough to reach an agreement with him and one starts working" (Nolet, 2022). To raise funds during the COVID-19 pandemic, she scheduled meetings with different investors via Zoom and secured more than \$500,000 in funding from funds like IndieBio and SOSV. This has been facilitated due to the growing presence of Agtech and Foodtech companies that have become relevant due to concerns about future feeding (Nolet, 2022).

4. Houm began in 2014 in the United States, when Benjamín Labra and Nicolás Knockaert "met in a real estate development master's degree at Columbia University" (Navas, 2021, para. 6) and upon returning to their country, they started the company Secured lease (Navas, 2021). The WEF describes Houm as "a one-stop shop that allows customers to rent, sell and/or manage properties in one place" (World Economic Forum [WEF], 2022e). Other analysts describe it as a PropTech, that is, "any company that uses technology to refine, improve or reinvent any service within the real estate sector" (PropTech, 2022, párr. 1).

Benjamín Labra, CEO of Houm, had previously worked in the real estate sector and knew that this industry was outdated, bureaucratic, and lacked transparency and technology in its processes. He identified that the most inefficient parts were between brokering and closing deals (Thomson, 2022). This is how the company began, which in its first stage was dedicated to leasing and later added other services, changing its name from Arrendo Asegurado to Houm (Houm blog, 2021). Currently, Houm performs all real estate processes completely online, providing ease, speed, security, and expert advice throughout the process. To achieve this, it has developed a series of technological tools and has the support of houmers, who are a growing force of freelancers (Nieves-Ruíz, 2021). Benjamín Labra points out that it is a "PropTech that uses artificial intelligence to correctly predict the optimal price for which a property should be rented and sold" (Navas, 2021, para. 1) and manages around 50 million dollars in properties real estate (Medina, 2020).

The founders of Houm mention that, as a result of the COVID-19 pandemic, to seek financing, they have generated meetings "between companies and you end up meeting many people that were difficult to contact before" (Navas, 2021, para. 5). In 2019, Houm won the Finance Forward Latin America call, which allowed them to obtain a pre-seed investment round of 1.3 million dollars, thus promoting their expansion project (Nieves-Ruíz, 2021). In its Series A funding round, it raised \$35 million, led by Fifth Wall, "the world's largest real estate technology investment firm," and Goodwater Capital, a Silicon Valley-based consumer technology firm. (Nieves-Ruíz, 2021, para. 6). At the beginning of 2020, Houm began operations in Colombia and later in Mexico. Regarding

this, its founder pointed out that growth in Mexico "was even faster than in Colombia. It took only a few days to have our first property published" (Houm blog, 2021, para. 14).

5. Global66 is a Chilean Fintech founded in 2018 by Tomás Bercovich and his co-founder Cristóbal Forno, both for individuals and for small and medium-sized companies (World Economic Forum [WEF], 2022d). Its name is related to "its intention to become present throughout the world" (Carrizo, 2020, para. 5). Tomás, with more than 10 years of experience in the world of e-commerce and technology, previously founded startups such as Cuponatic.com and Izytech (Marconi, 2021). He studied Industrial Engineering and enrolled in an Entrepreneurship and Competitiveness for Latin America (ECLA) course at Columbia University (Carrizo, 2020). Cristóbal Forno, a Business Engineer with a Master's Degree in Finance and Business Law, also previously started with Capitaria in 2006 (Endeavor, s/f).

In 2013, Cristóbal attended the ECLA Program for Entrepreneurs at Columbia University, where he met Tomás Bercovich. Bercovich describes it by saying, "Cristóbal and I met at Columbia University in 2013 at a program for high-impact entrepreneurs...and we agreed that we wanted to do something that would really make an impact on a large scale and improve people's lives." (Olarde, 2021, para. 5). They decided to go to the UK to learn about Fintech and later developed Global66 (Carrizo, 2020). They realized that when a person or a company wanted to send money or carry out financial transactions from one Latin American country to another, they found different regulations and an obsolete and insufficient infrastructure. In addition, they noted that in the region there were "600 million inhabitants and of those, 300 million are underbanked or unbanked, and there are only 150 banks in the region; while the United States has 300 million inhabitants and more than 5,000 banks" (Olarde, 2021, párr. 22).

They decided to focus on sending money between countries and in 2019 they moved 30 million dollars (Carrizo, 2020). They saw the opportunity for growth, since more than 10 million small and medium-sized companies in the region have to face the financial system of each country to make transfers (World Economic Forum [WEF], 2022d).

In December 2021, they launched several operating routes and signed a first partnership in the United Kingdom, which allowed them to access other routes in the world (Olarde, 2021). By 2022, the company could already make payments from 8 countries of origin to more than 65 countries, in a simple, transparent, 100% digital way and with lower exchange rates than those of traditional banking institutions (Global66, 2022; Olarde, 2021). The company has experienced significant growth, going from having 40 employees before the pandemic to 300 in 2022. The founders point out that, in the face of a crisis, there are always companies that can spot opportunities to grow.

They recommend that those who want to start a Fintech know their entrepreneurial ecosystem well and highlight that companies in this area are receiving financial support (Pedraza y Salmerón, 2022).

Results

Results of the survey applied to the students. The results that are presented below were obtained from the survey applied to a sample of students that is detailed below and are of the utmost importance, since they allow us to identify a marked interest of the majority of the students in starting a business on their own. It is also possible to note that some students are still not clear about where they want to direct their efforts, therefore, they are in a moment in which they can be channeled through the teaching-learning process so that they contemplate different undertakings to those carried out by their relatives or those they know in their closest environment.

The survey was applied in May 2022 to a sample of 178 students from the Mixteca Technological University, located in the City of Huajuapán de León, Oaxaca, Mexico. This university offers 9 engineering programs and three bachelor's degrees, it is full-time and has an educational model in which 80% of the careers teach subjects related to administration, management, entrepreneurship or marketing as part of their study plan, so that students have the foundations to work or undertake. The analysis began by taking up the dimensions indicated by Ajzen (1991) and Bird (1988) on the elements that are prior to the entrepreneurial intention. In relation to the attitudes that students have regarding starting their own business at the end of their degree, 90% recognize that being an entrepreneur implies sacrificing hours of leisure and rest, but it provides great satisfaction. 72% associate entrepreneurship with directing people and motivating them, and 85% consider that in this activity they face difficulties, but still want to undertake. Therefore, students have a positive attitude towards entrepreneurship.

In relation to the subjective norm, 90% of the students have received positive comments in relation to the activity of undertaking, both from their family and from their teachers. In addition, 68% of the students have business relatives and want to continue family activities. This, despite the fact that 82% of these businesses are dedicated to carrying out traditional activities, because at the time they were started by their parents or grandparents, who had basic education and little capital, so they had to start a business to be self-employed. This has led to the generation of the type of ventures that Díaz de León and Cancino (2014) call ventures out of necessity or subsistence. Although they constitute an employment option, they do not really generate effects on regional growth and development.



Regarding perceived control or self-efficacy, 97% are confident that they will do well in their career. 72% of students consider that they have the facility to assign tasks and direct others, although 82% feel insecure when asked to carry out innovative activities. As for the companies that are contemplated to undertake, these also correspond to the characteristics of ventures out of necessity, despite the fact that 95% indicated that they have economic stability and support from their parents or guardians.

As an example of the type of ventures they wish to develop, 32% of the students consider starting a service company by designing graphic materials, offering entertainment services or organizing events. On the other hand, 26% want to start a commercial company to sell various products such as food, beauty items or clothing. 20% of students intend to start a business, but they are still not clear in which area they would like to do it.

Results of the analysis of the 100 Innovative Technology Companies recognized by the WEF in 2022 (ELA). Table 1 summarizes the most important aspects identified from the review carried out on each of these companies.

Tabla 1. Summary of the characteristics of the Latin American companies analyzed

	Pomelo	Mamotest	MicroTerra	Houm	Global 66
More than one founding partner	Yes	Yes	No	Yes	Yes
Previous experience in entrepreneurship	Yes	Yes	Yes	Yes	Yes
Previous work experience in the area	Yes	Yes	No	Yes	Yes
They met other successful entrepreneurs	Yes	Yes	Yes	Yes	Yes
They obtained external financing	Yes	Yes	Yes	Yes	Yes
SDG	SDG 9	SDG 3, 5 y 9	SDG 2, SDG 6 y SDG14	SDG 9	SDG 9
Innovative solution	Yes	Yes	Yes	Yes	Yes
Use of technology	Yes	Yes	Yes	Yes	Yes
Profitability and Scalability	Yes	Yes	Yes	Yes	Yes
Continuing education	Yes	Yes	Yes	Yes	Yes

Source: Own elaboration based on the results of the companies analyzed.

80% of ELA founders had partners to create their companies and established networks with people related to the ecosystem to which they belong. There is also a coincidence between them in the sense that they continued preparing themselves, either with courses related to the area of their company or by carrying out postgraduate studies. In addition, all of them learned about successful ventures that had been carried out in the ecosystem in which they wanted to undertake, either through the university, from their work experience or by having interaction with those who have financed them, who are generally successful entrepreneurs promoting new projects. This increased their level of confidence to venture with innovation in their respective fields. In addition, all had work experience and worked as entrepreneurs before founding the companies analyzed that have been successful. It was also found that all projects contribute to the achievement of the SDGs. On the other hand, Table 2 shows some recommendations from the founders of ELAs for future entrepreneurs.

Tabla 2. ELA recommendations for future entrepreneurs

Company	Recommendations
Pomelo	Multidisciplinary work. Use technology to streamline processes. Continuously innovate.
Mamotest	Develop tolerance for frustration. Develop perseverance. Value multidisciplinary work.
MicroTerra	Appreciate that Mexico is a great country to undertake. Select an area of interest and specialize in it. Understand the problem well and then think about undertaking. In complicated situations, change the model, the solution, but not the mission.
Houm	Appreciate that Mexico is a great country to undertake. Use technology to streamline processes. Not only think about profit but about the CSR of the company.
Global66	Use technology to streamline processes. Know the ecosystem of the sector in which they will undertake.

Source: Own elaboration based on the results of the companies analyzed.

It should be noted that the businessmen analyzed insist on the ease that there is in Mexico to start a business, an aspect that may be difficult for students to appreciate. They also emphasize that an entrepreneur must be persevering and know as much as possible the ecosystem to which he will belong and the problem his company will focus on. This necessarily implies continuous learning. Table 3 shows the lessons obtained from analyzing ELA and the educational supports that the university can incorporate into its teaching-learning process, integrated into a program of co-curricular activities, to encourage the realization of projects by opportunity.

Tabla 3. Educational supports to promote relevant and innovative ventures.

Lessons learned from ELAs	Educational supports that the university can incorporate to promote relevant and innovative ventures
1. Take up global problems with the support of partners and educational institutions.	<p><i>1. Entrepreneurship Ideas Generation Workshop with a global systemic vision.</i></p> <p>Activity 1.1 Analysis of the problems facing humanity based on the SDGs.</p> <p>Activity 1.2. Selection of a problem to undertake and determination of the SDG with which it is related. Search for like-minded colleagues, promote multidisciplinary work.</p>
2. Incorporate innovation and technology into your projects.	<p><i>2. Entrepreneurial Vision Workshop supported by the use of cutting-edge technologies.</i></p> <p>Activity 2.1 Review of scientific and technological advances.</p> <p>Activity 2.2 Analysis of its application to entrepreneurship.</p>
3. Have security and assertiveness to venture into new businesses or innovate in existing ones.	<p><i>3. Workshop Strengthening perceived control and the importance of perseverance.</i></p> <p>Activity 3.1. Review of successful companies recognized and financed internationally.</p> <p>Activity 3.2. Selection of some useful lessons, strategies and actors for your undertaking.</p>
4. Have education and continuous updating.	<p><i>4. Workshop Strengthening continuous learning.</i></p> <p>Activity 4.1. Review materials to understand the importance of what Santos (2019) has called "an unlimited willingness to learn" (p. 10). Continue learning about issues related to your business and the development of digital skills that are increasingly decisive.</p>
5. Undertake, even if the business does not last and work to gain experience.	<p><i>5. Annual entrepreneurship contest.</i></p> <p>Hold an event to reward the best entrepreneurial projects in which their relevance, innovation, use of technology, CSR and development of skills to integrate multidisciplinary work networks are recognized..</p>

Source: Own elaboration based on the results of the companies analyzed.

Discussion

The results of this research coincide with what was found by other authors in that educational supports are related to the entrepreneurial intention of students. However, other investigations have been carried out with different approaches, such as that of Souitaris et al. (2007), who demonstrated that the implementation of an entrepreneurship program can cause changes in the attitudes and intentions of engineering and science students. On the other hand, Boldureanu et al. (2020) demonstrated that entrepreneurship education, based on successful models, can positively influence both the attitudes and the intentions of students to undertake. In this research, it was found that the educational supports used by the analyzed university, such as the teaching of courses

related to the start, management or direction of companies, together with the positive opinion of professors about entrepreneurship, have promoted the entrepreneurial intention.

Similarly, the results of this research coincide with those of Sánchez et al. (2021), who describe a pilot project implemented in the analyzed university and point out that most of the projects that students want to undertake are traditional, with little relevance and innovation. However, this research is different, since it evaluates the dimensions proposed by Ajzen (1991) and Bird (1988), and the results demonstrate the need to work on the perceived control of the students, since they do not feel safe to carry out activities innovative and their entrepreneurial ideas come mainly from their family or local environment.

On the other hand, this research coincides with various authors on the need to promote ventures with a higher degree of innovation and impact on regional development. However, it differs by focusing on actions that the university can take, as opposed to other approaches that emphasize government action. For example, Lascano et al. (2017) agree on the need to promote opportunity ventures and propose the design of public policies that address the economic and social instability of the environment to encourage more opportunity ventures. Other investigations, such as that of Díaz de León and Cancino (2014), focus on businesses created by inhabitants of rural areas and propose public policies for their transformation, providing them with financial support.

This study confirms what was stated by Boldureanu et al. (2020), Kassean et al. (2015) and Lent et al. (1994), since in the review of internationally awarded Latin American companies it was shown that the founders faced difficulties at various times, but they also had examples of successful entrepreneurs that they met during their training, experience or network of contacts, which influenced their decision. their expectations and increased their confidence to generate disruptive changes in the area to which each one belongs.

Another advance obtained with this research are the lessons learned from the Latin American companies analyzed, which show the efforts made by various entrepreneurs to carry out important changes in different areas to contribute to the solution of global problems, incorporating innovation and generating employment and improvement opportunities. These results were not found in other similar research papers. In addition, these companies constitute models of successful entrepreneurship that can be integrated into the educational support that the university can use.

Other educational supports are also identified that the analyzed university can integrate into a program of co-curricular activities with the support of the university authorities and the teaching staff, to strengthen university education.

This research differs from other studies in which it is analyzed how to convert ventures out of necessity into ventures out of opportunity, since it focuses on a resource that universities can use in a short time to show a perspective from which university students should approach the entrepreneurship, promoting greater knowledge, self-confidence and security that allows them to direct their efforts and entrepreneurial intention towards the creation of relevant and innovative ventures.

A limitation of the study is that the survey was carried out only in a Mexican university. Although the identified problem is present in different universities internationally, it would be convenient to carry out similar investigations considering more higher education institutions.

Conclusions

It is concluded that the university can use some educational supports included in a program of co-curricular activities recognized for their usefulness to reinforce both the attitudes and the perceived control of students towards the activity of starting a business. These activities were based on the main results obtained from the survey applied to the students and on the analysis of the ELA, and are directed towards the generation of entrepreneurial ideas with a global vision. The intention is to develop an entrepreneurial vision supported by the use of cutting-edge technologies, the strengthening of perceived control, the importance of perseverance and continuous learning.

This proposal will have a great impact on the students of the analyzed university, as it will take them step by step to contemplate their alternatives as entrepreneurs from a perspective that, according to the results of the survey, is currently completely new to them. Instead of focusing only on technical training aspects, other skills are developed, such as the unlimited willingness to learn or the freedom from fear of failure, because making a mistake can constitute new learning.

Therefore, these activities can be of great support to enrich the teaching-learning process in the university environment and, at the same time, promote more relevant and innovative ventures, which can generate a positive impact to promote regional development due to the multiplying effect they generate. Finally, it is worth mentioning that, although this research was carried out based on the results of a Mexican university, the proposed activities may be useful in other higher education institutions that share the identified problem.

Future lines of research

Based on this research, the foundations are laid to develop the following lines of research:

1. The analysis of the educational training that has promoted the development of some examples of successful entrepreneurship that can serve as a basis to later promote disruptive, relevant and innovative ventures.

2. The implementation of the proposal presented here and the report of its results and its contribution to the generation of relevant and innovative ventures.

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