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Artículos Científicos

Talleres de emprendimiento con Lean Startup MX en la Universidad Autónoma de Baja California Sur: Impacto de la metodología y propuestas de mejora

***Entrepreneurship Workshops with Lean Startup MX at the Autonomous
University of Baja California Sur: Impact of the Methodology and Proposals for
Improvement***

***Workshops de empreendedorismo com o Lean Startup MX na Universidade
Autônoma da Baja California Sur: Impacto da metodologia e propostas de
melhoria***

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Resumen

Con el propósito de responder a las necesidades de los sectores económicos en formación de capital humano y desarrollo empresarial, las políticas nacionales se han orientado a impulsar en las instituciones de educación superior la generación de profesionistas con capacidades que mejoren las organizaciones a través del emprendimiento/intraemprendimiento. Sin embargo, son escasas las evaluaciones de los impactos logrados en las universidades. Ante ello, el objetivo de este estudio fue identificar las fortalezas y oportunidades que influyeron en el proceso de adopción del modelo Lean Startup Mx por parte de profesores y estudiantes, así como generar propuestas de mejora para la formación de capacidades y competencias que puedan ser útiles tanto en los alumnos de la Autónoma de Baja California Sur (UABCS) como para los de otras instituciones educativas. Lo anterior se realizó a través de la aplicación y análisis de instrumentos de evaluación de salida a los participantes. Los temas incluidos en la evaluación atienden factores personales y componentes de la metodología que impactaron en el proceso de adopción del método, y fueron validados utilizando el coeficiente de alfa de Cronbach. Los resultados determinan que la metodología influyó positivamente en el espíritu emprendedor de los participantes, así mismo permitió identificar y ponderar las áreas con mayor dificultad para emprender un negocio, tales como finanzas (36 %), administración (30 %), innovación y creatividad (21 %), mercado (6 %), ventas y mercadotecnia (3 %). Una de las conclusiones es que el método Lean Startup Mx resultó adecuado para los objetivos del programa “Promoción de la cultura emprendedora de la UABCS”. Sin embargo, la evaluación también mostró que es necesario proyectar acciones que fortalezcan el currículo con las asignaturas correspondientes. Mejorar la formación de emprendedores dentro de la universidad pública es un proceso que requiere una planeación tanto administrativa como académica, en donde se deberá incidir paulatinamente en los docentes, planes de estudio, áreas administrativas de apoyo, con la finalidad de preparar a los estudiantes como futuros emprendedores.

Palabras claves: competencias de emprendimiento, educación superior, emprendimiento, formación de emprendedores, Lean Startup MX.

Abstract

With the purpose of responding to the needs of the economic sectors in human capital formation and business development, national policies have been oriented to promote in higher education institutions the generation of professionals with capacities that improve organizations through entrepreneurship or intrapreneurship. However, evaluations of the impacts achieved in universities are scarce. Given this, the objective of this study was to identify the strengths and opportunities that influenced the process of adoption of the Lean Startup Mx model by teachers and students of the Autónoma de Baja California Sur (UABCS), as well as to generate proposals for improvement for the training of skills and competencies at students, which may be useful for other institutions at higher education. That purpose was done through the application and analysis of a survey instrument to all the participants. The topics included in the evaluation address personal factors and components of the methodology that impacted in its adoption, and were validated using the Cronbach's alpha coefficient. Our results determined that the methodology had a positive influence on entrepreneurial skills of the participants, as well as identifying and weighing the areas with the greatest difficulty to start a business, such as finance (36%), administration (30%), innovation and creativity (21%), market (6%), sales and marketing (3%) in importance order. It was concluded that the Lean Startup Mx method was adequate for the objectives of the program "Promotion of entrepreneurial culture at the Autonomous University of Baja California Sur". However, the evaluation showed that will be necessary to implement actions that strengthen the curriculum skills with the corresponding subjects. Improving entrepreneurs training within the public university is a process that requires both administrative and academic planning, where teachers as well study plans and administrative support areas should be influenced, in order to prepare students as future entrepreneurs.

Keywords: entrepreneurial skills, higher education, entrepreneur, entrepreneurs training, Lean Startup MX.

Resumo

Com o objetivo de responder às necessidades dos setores econômicos na formação de capital humano e desenvolvimento de negócios, as políticas nacionais têm sido direcionadas para promover nas instituições de ensino superior a geração de profissionais com capacidades que melhorem as organizações por meio do empreendedorismo. No entanto, as avaliações dos impactos alcançados nas universidades são escassas. Diante disso, o objetivo deste estudo foi identificar os pontos fortes e oportunidades que influenciaram o processo de adoção do modelo Lean Startup Mx por professores e alunos, além de gerar propostas de aprimoramento para o treinamento de habilidades e competências que possam ser úteis tanto para estudantes da Universidade Autônoma da Baja California Sur (UABCS) quanto para os de outras instituições de ensino. O acima foi feito através da aplicação e análise dos instrumentos de avaliação de saída aos participantes. Os tópicos incluídos na avaliação abordam fatores pessoais e componentes da metodologia que impactaram o processo de adoção do método e foram validados pelo coeficiente alfa de Cronbach. Os resultados determinam que a metodologia influenciou positivamente o espírito empreendedor dos participantes, além de identificar e ponderar as áreas com maior dificuldade para iniciar um negócio, como finanças (36%), administração (30%), inovação e criatividade (21%), mercado (6%), vendas e marketing (3%). Uma das conclusões é que o método Lean Startup Mx foi adequado para os objetivos do programa "Promoção da cultura empresarial da UABCS". No entanto, a avaliação também mostrou que é necessário projetar ações que fortaleçam o currículo com as matérias correspondentes. Melhorar a formação de empreendedores na universidade pública é um processo que requer planejamento administrativo e acadêmico, onde professores, planos de estudo, áreas de apoio administrativo devem ser gradualmente influenciados, a fim de preparar os alunos como Futuros empreendedores.

Palavras-chave: habilidades empreendedoras, ensino superior, empreendedorismo, treinamento empresarial, Lean Startup MX.

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Introduction

The issue of entrepreneurship has gained importance in the economy due to its relevance in the rates of improvement of companies, growth in employment, poverty reduction and development of new technologies and innovation. The creation of companies is a viable and quickly implemented solution that several governments have adopted to overcome different economic and social problems.

Therefore, promoting an entrepreneurial culture in higher education institutions can be a key element of public policy, which promotes economic and business development in different regions of Mexico.

Entrepreneurship: Economy and education

The relationship between entrepreneurship and education has been the subject of national and international research from different perspectives. Among these, studies that seek to establish a relationship between the educational level of individuals and their likelihood to undertake (Correa, Delgado and Conde, 2011) stand out. Others take up the importance of the higher education system in the training of creative and innovative young people who can develop skills such as autonomy, self-confidence and decision-making in risk environments (Alemany, 2011). However, achieving better conditions of success for entrepreneurs requires working not only on capacity building to undertake, or increase the projects or resources necessary for them; It also implies working to improve the interactions that occur in the entrepreneurship and innovation ecosystems.

In Mexico, the development of State policies linked to these purposes has been evident; highlights the efforts developed from 2006 to 2018 by the federal government, through the Ministry of Economy and the Ministry of Public Education (SEP). The first gave rise to the National Entrepreneur Institute (Inadem); while the second led to the strengthening of the issue with the inclusion of entrepreneurial programs at all educational levels, with a special emphasis on the upper and upper middle level. In fact, entrepreneurship is a feature of the educational quality model, so having evidence of results derived from institutional programs contributes to the achievement of

extraordinary funds resources; It also serves as a desirable indicator in the evaluation-accreditation processes of the quality educational offer (Mejía, Amezcua y Arroyo, 2014; Dirección General de Educación Superior Universitaria, 2018).

Aware of this need, the Autonomous University of Baja California Sur (UABCS) started in 2016 a program called "Promotion of Entrepreneurship Culture", which seeks to promote this culture in the institution and promote the creation of companies through various strategies and actions, which include awareness conferences, implementation of methodologies, competitions, advice, management of call funds, improvement of subject contents, integration and collaboration in the improvement of the entrepreneurship and innovation ecosystem of Baja California Sur, among the most important (UABCS, 2016).

Among the successes of the UABCS program, the implementation of the Lean Startup Mx method stands out, managed through participation in the national call to implement Inadem methodologies, and whose purpose was to transfer knowledge, tools and skills in students and teachers to have competencies that allow you to transform your entrepreneurial ideas into business models and viable projects.

Incorporating entrepreneurship methodologies in an educational institution also strengthens teaching and multidisciplinary work skills; It contributes to generating conditions that allow the construction of responses and solutions to market demands, and to the problems of existing companies.

In the latter case, it is intended that students orient their potential to solve problems and accept challenges in business in which they participate through innovative ideas, committing their time and effort to research and develop, contributing to the sustained growth of organizations, in competitiveness and business productivity, and thus become an agent of change (Garzón, 2005).

It is pertinent to mention that the UABCS, aware of its social responsibility, participates as a relevant actor in the state's entrepreneurship ecosystem. Therefore, in accordance with the objectives of higher education, experiences of monitoring and evaluation of the process of implementing the methodology, it will be relevant to find improvement opportunities to institutionalize academic efforts that allow the integration of skills and competencies in the current educational model Entrepreneurs

Normative bases for the training of entrepreneurs in Mexico

The effort of the Government of Mexico (2015) in the training of entrepreneurs is reflected in strategy 4.8.4 of the National Development Plan (PND) 2013-2018. This strategy sought to “boost entrepreneurs and strengthen micro, small and medium enterprises” (p. 139).

Likewise, within strategy 3.1.3, it was established “to ensure that the study plans and programs are relevant and contribute to students being able to advance successfully in their educational trajectory, while at the same time developing significant learning and skills that serve them throughout life. ” And for this, the action line is “to promote the construction of an entrepreneurial culture through the plans and programs of upper and higher secondary education” (Government of Mexico, 2015, p. 123).

Inadem promoted the training of entrepreneurs in higher education institutions through financial resources to support national competition processes. Following that line, the month of October 2015 signed an agreement with the National Association of Universities and Institutions of Higher Education (Anuies) with the purpose of establishing the general coordination bases to promote an entrepreneurial culture in the institutions of higher education in support to entrepreneurs and micro, small and medium enterprises (MSMEs) (Ministry of Economy, 2015).

The Inadem started from the fact that 50% of the population are under 27 years old; He considered that higher education institutions are key allies of the entrepreneurial ecosystem, as they are hotbeds of talent to undertake and innovate. Consequently, he developed the Entrepreneur Support Network, and made available to him mentors, entrepreneurial tools such as the Online Incubation Program (PIL) and courses (Ministry of Economy, 2015).

The Anuies (2012), in the document Higher Education in the 21st Century, emphasizes that higher level educational establishments must train and develop high-level professionals. Within the Anuies different strategies are worked on to trigger innovation and entrepreneurial culture in the universities gathered in the association. The purpose is that at least 80% of affiliated schools have a business linking program (Secretaría de Economía, 2015).

Challenges in the training of entrepreneurs

Mexico faced great challenges in the first decades of the 21st century since the traditional way of working had to be changed. Taking this into account, the Higher Education System (SES) rethink its actions by considering culture, innovation, entrepreneurship and quality as benchmarks to raise the quality level of young university students (Ortigoza, 2014).

In fact, our country strives to participate and integrate into a complex international dynamic that requires competing in equal circumstances with powers and countries that have rapidly accelerated their growth (Hernández, Caballero and Monroy, 2014). At the same time, there are demographic and political changes, technological transformations, financial crises, bankruptcies on a personal and business level, changes in the insertion into the world economy, among others, with relevant impacts in the labor field.

Universities are criticized because the training of professionals focuses on creating employees and not on motivating self-employment through entrepreneurship. The lack of entrepreneurial culture in higher level institutions can be seen in the absence of related thematic content, and in other cases, inexperienced professors in business and companies, as transmitters, tend to move away from the content applicable to reality (Benavides, Sánchez and Luna, 2004).

Currently, Mexico is ranked 57 in a sample of 120 countries listed in the Global Entrepreneurship and Development Index (GEDI), an index that measures the entrepreneurial capacity of economies through the characteristics of the individuals and institutions that compose them (Ventura Mexico, 2015).

Despite the aforementioned government policies and programs, in 2012 only 5% of higher education institutions had a model to train entrepreneurs. However, data from Global Entrepreneurship Monitor (GEM) highlights that 85% of young Mexicans want to undertake, although few are those who achieve the goal.

Among the main obstacles are fear, lack of financing, poor links, poor business training and lack of education in the entrepreneurial culture (Secretaría de Economía, 2015; Jiménez, García y Valencia, 2012).

Framework

Taking into account the above, in Mexico it is understood as pertinent to promote entrepreneurship in young university students and the formation of skills, values and habits of what can be considered a modern entrepreneur. This to achieve greater educational relevance, and that students and graduates are participants in their destiny, lose their fear of undertaking at an early age and are able to generate jobs for themselves and for other members of the community, and thereby generate an impact on sustainable employment in the long term and in solving the challenges of its environment (Kantis, 2008; Osorio and Pereira, 2011, p. 19).

In order to strengthen the entrepreneurial ecosystem, the Multilateral Investment Fund (MIF) of the Inter-American Development Bank (IDB) and Universidad Anáhuac México signed a collaboration agreement for the launch of the “Lean Startup Mx, the entrepreneurial method for move Mexico ”, which seeks, through the successful transfer of the methodology, a multiplier effect with regional and national impact (Inadem, 2017).

The Lean Startup Mx adoption program consists of workshops with feedback from the participants, with an eminently practical approach, where students and teachers “learn by doing”, by the hand of certified mentors and by applying four principles: 1) Start with a business model; 2) Leave the building or office; 3) The opinion of the customers is what matters; 4) Test everything: product, customer segments, marketing and sales, distribution channels, pricing and relationship with business ecosystem.

The correct application of the above principles allows participants to create products and services that people want; validate in the market the hypotheses of their businesses, applying an agile, measurable and effective process; get the first customers; reduce risk and increase the probability of success, and strengthen, not replace, the vision, intuition, judgment and courage of entrepreneurs (Inadem, 2017).

After several years of its incorporation in the showcase of Inadem methodologies and its implementation in several higher schools in the country, we did not find published academic efforts that allow us to reflect on the adoption of the Lean Startup Mx method in universities and its impacts, as well as know from the perspective of the participants themselves the opportunities for

improvement, the particular training needs, and additional efforts that education institutions must take care of for an effective implementation of entrepreneurship models in our context.

Therefore, during the process of adoption of the method at UABCS, a monitoring and evaluation effort was implemented, from which this document arises, whose objective was to identify strengths and opportunities that influenced the process of adoption of the model by students and academics of the institution, and generate proposals for improvement for the training of skills and competencies in UABCS students that may be useful in the case of other professional training schools.

Materials and methods

The implementation of Lean Startup Mx at UABCS included 12 replicas distributed over eight months, including events on the main campus and the four academic extensions.

Each replica consisted of a two-day workshop (16 to 20 hours) in which interdisciplinary working groups of students and teachers were integrated, which developed the selected projects in the early hours of the workshop through a dynamic elevator pitch. The workshops were coordinated by expert mentors accredited in the methodology; After the third workshop, teachers who wanted it participated as replicators.

The sample considered in the present investigation included as subjects of study the students participating in two workshops that were developed in the city of La Paz, Baja California Sur, with the participation of 44 students of different careers and semesters in the first workshop and 33 Students for the second workshop. Information was collected through the application of two exit questionnaires, one for each workshop.

In the first workshop, the instrument was designed with the purpose of measuring the scope of the implementation of the Lean Startup Mx method in students. In this, factors related to personal aspects (sex, age, semester and career) were considered, as well as the development of business skills (motivation, creativity, ability to innovate, teamwork, ability to identify and develop business ideas, segmentation of clients, generation of value propositions towards clients, structuring of business models, creation of minimum viable products and financial analysis).

In the second workshop, the questionnaire was designed with the purpose of identifying barriers or obstacles that students consider in order to create their own business, analyzing factors related to previous experience in entrepreneurship, initiatives to be undertaken, life plans, areas with greater difficulty To start a company.

To measure the factors related to the adoption of the methodology in students, the Likert measurement scale was applied within the questionnaire, which is used as a psychometric instrument where the respondent must indicate their agreement or disagreement on an affirmation, item or reagent, through an ordered and one-dimensional scale (Bertram, 2008). These instruments are usually recognized among the most used for measurement in social sciences (Osinski and Sánchez-Bruno, 1998; Dawes, 1975).

The scale established was ordinal, namely: from 5 to 1, where 5 = Strongly agree, 4 = Agree, 3 = Neither agree nor disagree (neutral), 2 = Disagree and 1 = Strongly disagree. This scale is suggested by the author Antonio Matas (2018), in his study called “Design of the Likert type scale format: a state of the matter”, where he concludes that when using the five alternative scale a neutral option should be included.

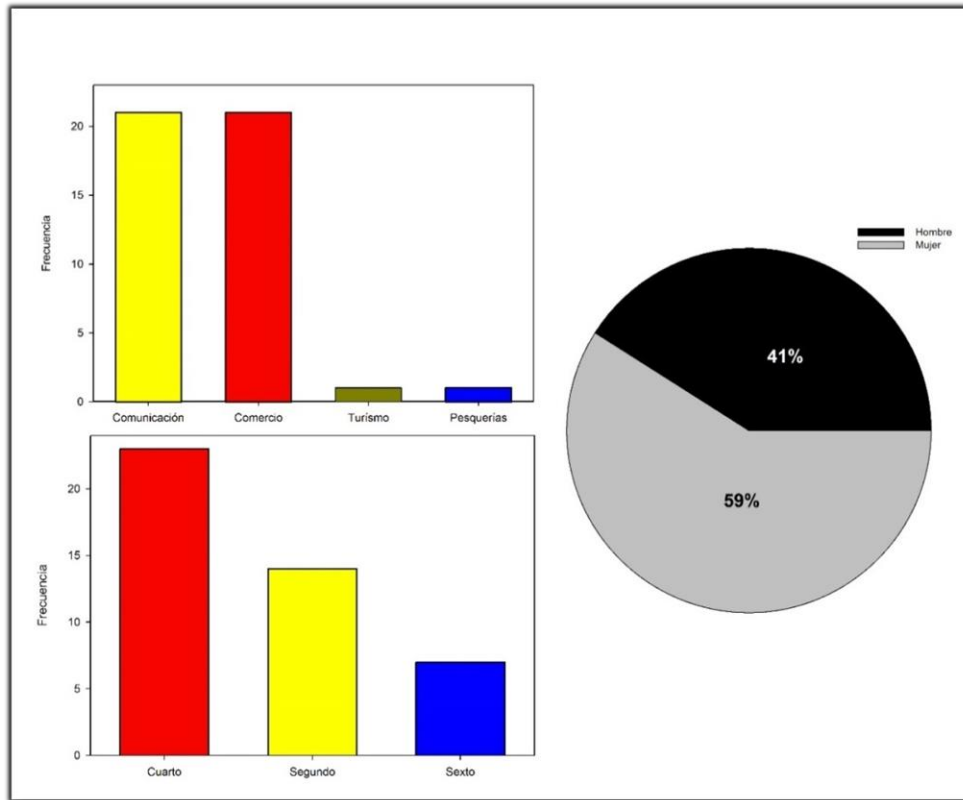
To verify the reliability or internal consistency of the questionnaires, Cronbach's alpha coefficient was used, which takes values ranging from 0 to 1, where a value of zero indicates irrelevant internal consistency and none of the items that entered the analysis they are adequate to measure what is being investigated, and a value of one informs of a perfect consistency where all the items are adequate.

In this case, Cronbach's alpha reliability analysis showed an internal consistency of 0.86 for the first questionnaire and 0.81 for the second questionnaire, so it was concluded that both instruments are reliable and acceptable.

Results

Among the main results of the first workshop, Figure 1 shows the composition and characteristics of the group of participating students, coming from 4 degree-level educational programs. It should be noted that Communication, Commerce and Tourism belong to the area of Social Sciences and Humanities; while Engineering in Fisheries to Marine and Earth Sciences. It is possible to observe transversality of careers in the workshop with the 44 participating students

Figura 1. Características de los alumnos del primer taller Lean Startup Mx, celebrado en el campus principal, ciudad de la Paz



Fuente: Elaboración propia

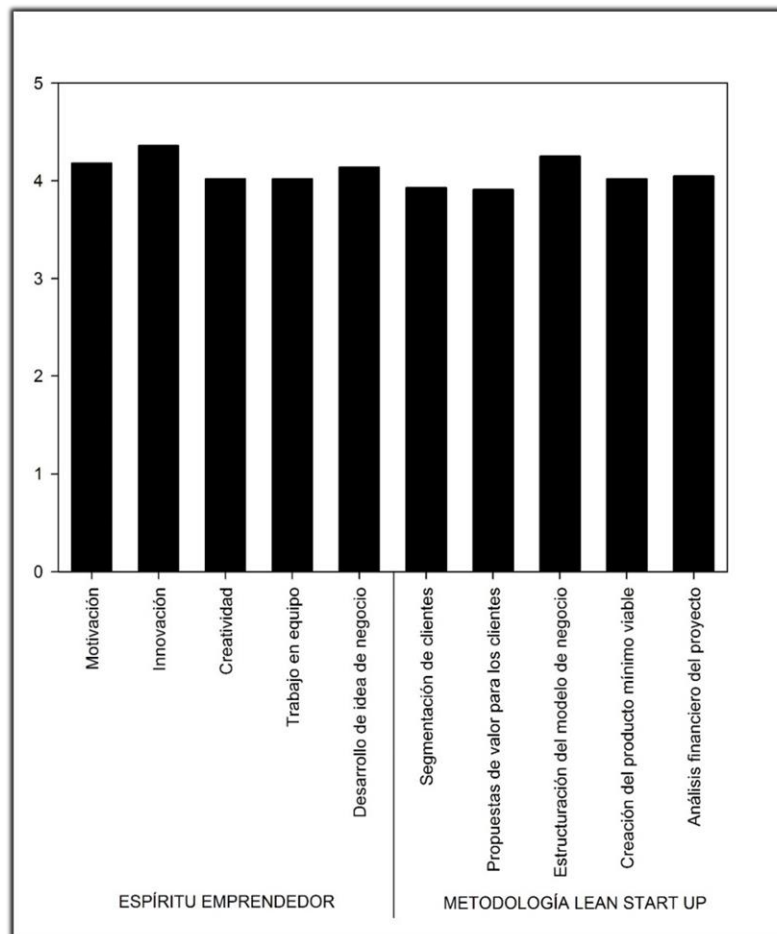
The participants were mostly from the fourth semester onwards (68%), within the second third of the race. Only 32% were students in the first third, particularly in the second semester. There were no first-year students in this workshop. Regarding participation by gender, and despite the fact that the enrollment structure for that year was equal, 59% were women and 41% men, which shows a greater interest on the part of women to prepare for entrepreneurship issues. It should be considered that the invitation to participate was general and voluntary, being the decision of the students.

The results of the evaluation carried out in the first workshop are presented in Figure 2, where it can be seen that the students expressed their agreement that the methodology positively influenced the entrepreneurial spirit, considering that it provides business skills and attitudes to generate ideas of business, and from these structure models. They also expressed common

agreement that it manages to motivate and encourage creativity in students by developing innovative projects.

Finally, they perceive that the method promotes teamwork and allows people to adapt to different areas, this in order to complement and strengthen their business idea, in multidisciplinary approaches.

Figura 2. Resultados del impacto de la metodología Lean Startup Mx



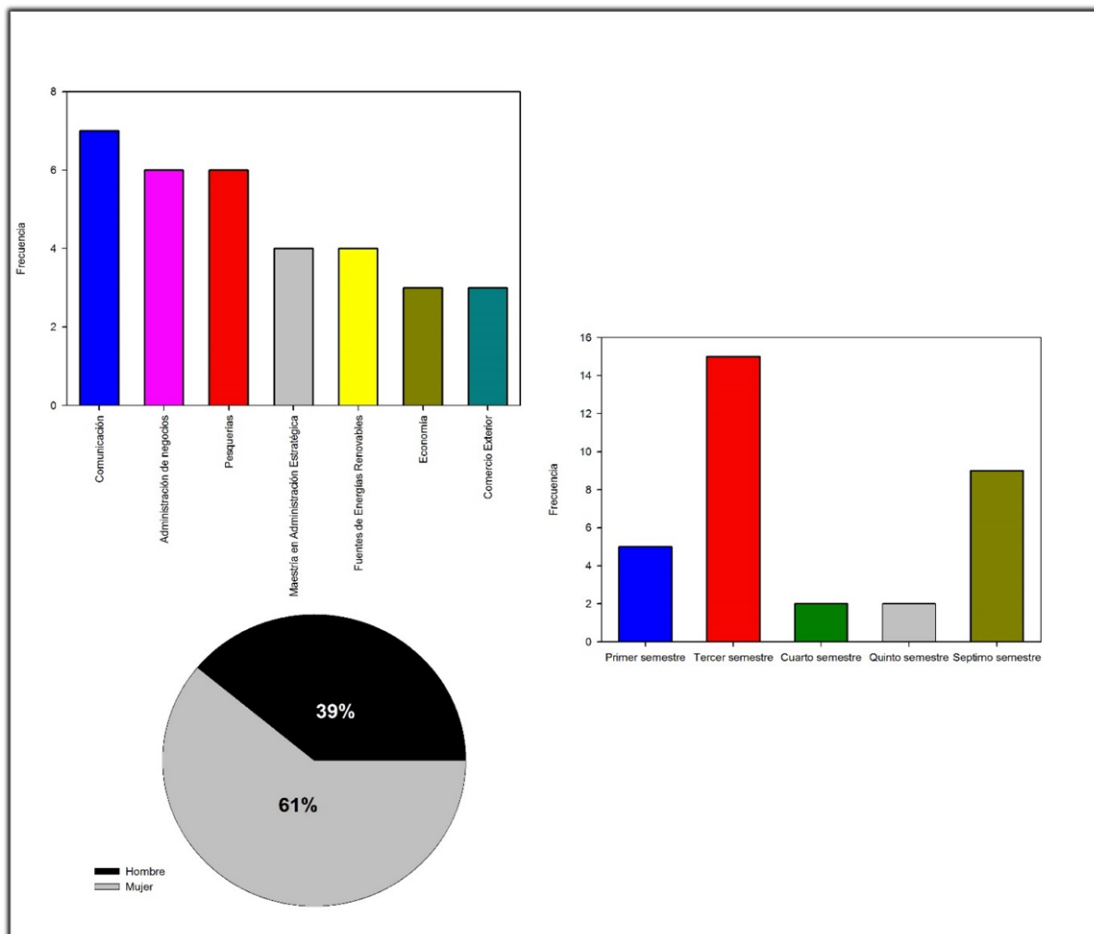
Fuente: Elaboración propia

The evaluation also shows that students agree that 1) the methodology helps generate value propositions that allow them to attract customers and quickly position themselves in the market; 2) the methodology provides the basis for adequate market segmentation, identifying the behaviors and needs of customers, and 3) provides elements for participants to be able to generate a minimum

viable product, which can be tested by customers before going to market, and make a feedback to the product.

In the second workshop a greater dispersion was achieved; there was participation of students from seven educational programs, distributed in several semesters, as shown in figure 3.

Figura 3. Características de los alumnos del segundo taller Lean Startup Mx, celebrado en el campus principal, ciudad de La Paz

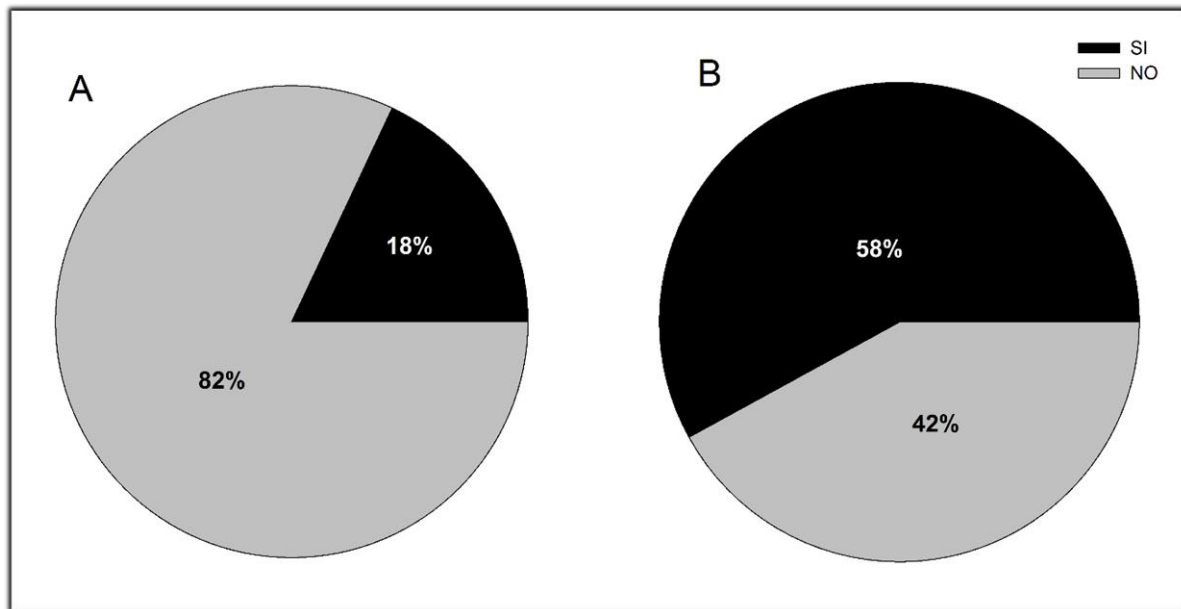


Fuente: Elaboración propia

Regarding its location within its program, 60% were in the first third of the race, 12% in the second third and 28% in the last third, already in the application stage. There were also a majority of women 61% and 39% of men, so there was a greater interest to participate in this type of activities by women.

Figure 4 shows the previous experiences of students in entrepreneurial courses (A) and in activities to promote entrepreneurship (B). In them it can be seen that a high percentage (82%) had not previously participated in an entrepreneurial course / workshop; in contrast, a majority portion of this group (58%) said they had participated in activities to undertake.

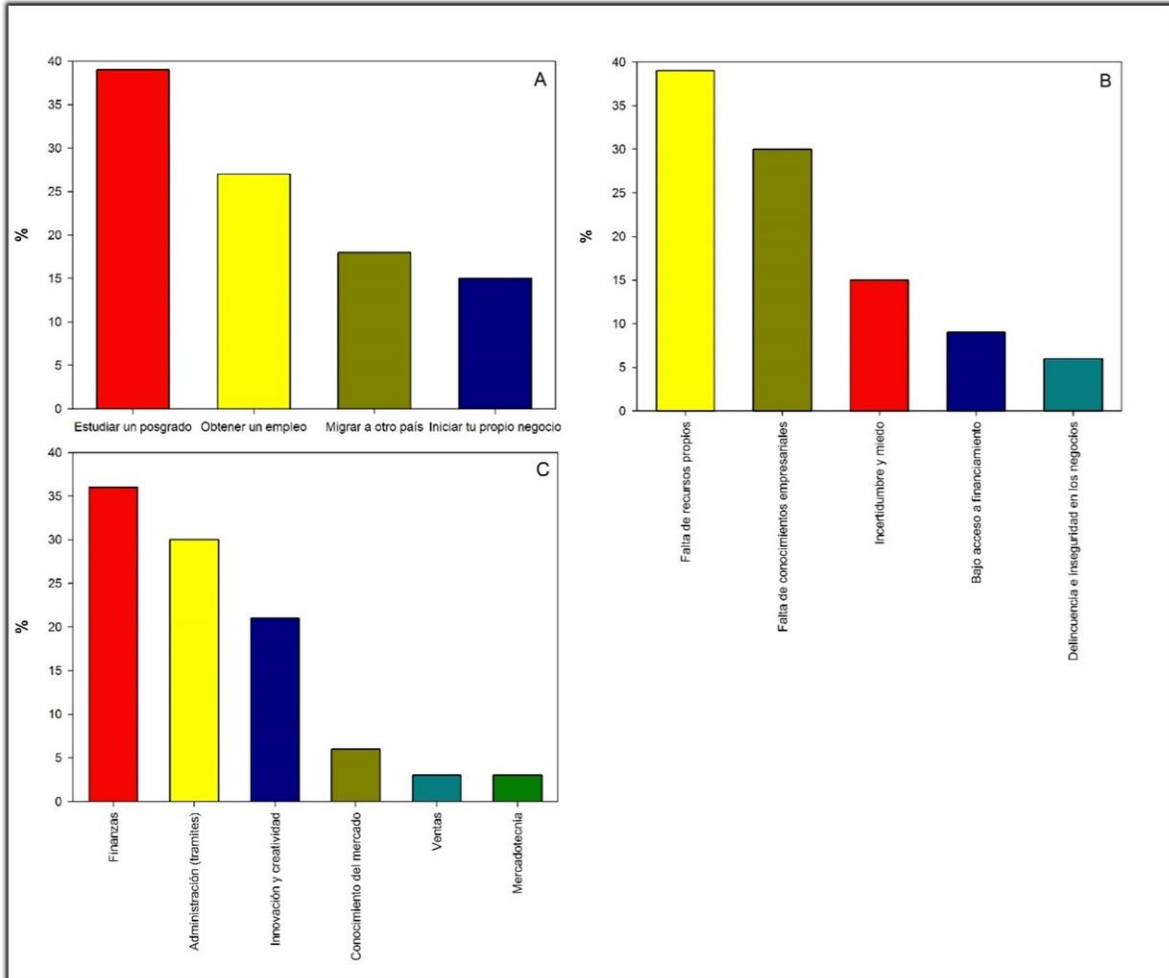
Figura 4. Participación de los alumnos que asistieron al segundo taller en cursos de emprendimiento (A) y actividades para emprender (B)



Fuente: Elaboración propia

Regarding the exit assessment, the main results are presented in Figure 5. Regarding the plans for graduation (A), it can be observed that it is not a priority for students to start a business at the end of their university studies (15%), its main options are to study a postgraduate (39%) and look for a job (27%). Regarding the barriers to creating a company (B), the lack of own financial resources (39%), lack of business knowledge (30%) and uncertainty or fear (15%) were identified as main obstacles. In relation to the areas of greatest difficulty to start a business, they located finance (36%), administration (30%), innovation and creativity (21%), market (6%), sales and marketing (3%), in order of importance.

Figura 5. Consideraciones finales de los alumnos asistentes al taller: Planes de los alumnos al finalizar sus estudios universitarios (A), Barreras u obstáculos para iniciar un negocio (B) y Áreas con mayor dificultad para crear una empresa (C)



Fuente: Elaboración propia

Discussion

Based on our results, it can be affirmed that the Lean Startup Mx methodology positively influenced the entrepreneurial spirit of the UABCS students, and contributed to the development of business skills and attitudes to create a business model.

However, students mention the need to implement follow-up strategies to their proposals and business models by the university, in order to put them into practice in the market and effectively promote entrepreneurship. This result coincides with the study conducted by Leiva

(2004), who finds that students believe that the training received in entrepreneurial programs does not enable them to be entrepreneurs, considering that the student makes a good conceptual journey on entrepreneurship and strategies of growth, but these are not implemented due to lack of time and follow-up.

It should be mentioned that within the second workshop, 58% of the participants have developed actions aimed at undertaking, but only 18% have been trained in business skills, which may indicate that students seek to create a company without knowing a method, rather than intuitively or following your own criteria, with a high probability of failure. The above is also manifested in the questioning of students to the lack of subjects in business training and the low promotion of courses in entrepreneurship.

This situation is not exclusive to the UABCS. A study from the University of Guanajuato revealed that 71% of the students have not carried out actions in order to start their own business, and argue that the answer may be influenced by the little promotion given to entrepreneurship programs within the institution (Almanza, Negrete and Ramírez, 2014).

On the other hand, the follow-up to the implementation of the methodology allowed to identify that the need / demand of the students is transversal, common to different careers and areas of knowledge, and not only the students belonging to the economic-administrative area that seek to prepare as futures entrepreneurs.

The foregoing coincides with Fletcher (1999), which proposes that there should be a mainstreaming in entrepreneurship training considering that economic science students have knowledge about the creation and structure of companies; However, in general, they do not have the necessary technical skills on which to base the idea of business, development of new products or productive processes, skills that do offer applied science careers (p. 132).

Considering the gender perspective within both workshops, there was a greater interest on the part of women in training to create their own company (first workshop 59% and second workshop 61%), unlike what was presented in Díaz's research (2007), carried out in two universities in Spain and Portugal, where there is a superiority of men with serious intentions of creating a company. In our case it would be pertinent to deepen the determinants that originate a greater participation of women, since the figures are encouraging considering the contextualization

carried out by the Economic Commission for Latin America and the Caribbean (ECLAC) in 2010 (Heller, 2010).

For its part, Quevedo, Izar and Romo (2010) analyzed the endogenous variables of the motivations and opportunities to create new companies. The scores obtained by women were higher than those of men, so there they affirm that women in Mexico are no less successful than men, contrary to what several investigations conclude (p. 62).

Despite the interest in workshops and in the development of their projects to undertake, the conviction of UABCS students for starting their own business at the end of their studies is low (15%), considering as first options to continue studying a postgraduate course and obtain a job, with the last option to create your own company.

This situation is different at the Polytechnic University of Hidalgo, where more than 76% expressed interest in undertaking at the end of the engineering degree; or of the 67% average resulting in a study of students of the Autonomous University of San Luis Potosí (García, Mendoza and Romo, 2017; Rodríguez, Acevedo, Hernández and Delgadillo, 2012). Although the difference may be related to the age of the institution's entrepreneurial programs, and their economic environment, it is necessary that UABCS strengthen strategies that motivate a mentality that is more likely to start and start businesses.

Among the main barriers to entrepreneurship that determined the students are the lack of economic resources and business knowledge, which could be fought by the university, through business training and agreements with public or private institutions that finance university projects. While Benavides et al. (2004), in an investigation carried out with the students of the University of Valencia, they mention psychological factors as the main obstacle such as fear of entrepreneurship, which generates a very pessimistic attitude towards the creation of companies. In addition, they point out the fear of bureaucracy or excessive "paperwork" that requires starting a business. The limitation of access to financing is an issue initially linked to the lack of projects, and it becomes especially difficult for recent micro companies or to start (p. 39).

According to Vera, Sánchez and Yerovi (2017), in this situation there are linked aspects of inefficient dissemination of support programs, little commitment of the private initiative in

promoting new projects, and in the use of own resources to grow, which weakens the culture of access to government loans or banking institutions (p. 940).

On the issue of barriers to entrepreneurship, the results coincide with Shambare (2013), which concludes that there is a taxonomy of two different categories of students, namely skeptical and optimistic, based on the predispositions of respondents to business barriers. The most important barrier identified is related to the lack of business support: it seems that academics, for the most part, do not live up to the expectations of promoting entrepreneurship (p. 451).

As for the areas of knowledge with greater difficulty to be able to create a company, according to the students, there are finances, administration (procedures) and innovation. This could be due to the fact that most of the curricula of the careers offered by the university do not have training in these areas, or there are few subjects, or the workload drops. Therefore, it is necessary to recognize that educating in business is different from educating in entrepreneurship, so the thematic contents should be oriented to the development of individual skills, regardless of whether their scope of performance will be economic, social or political.

The challenge is the training of individuals capable of taking moderate and calculated risks to undertake projects of various kinds, of promoting change and the growth of individual and collective benefits (Torres, 2010).

Another element that may be influencing is the maturity of the entrepreneurship and innovation ecosystem, because Baja California Sur is located in the 18th place of the 32 states belonging to the National Innovation Index, that is, it presents a strong lag in this area; and the same goes for the city of La Paz, which is in the category of small cities and is located at position 36 of 57 participants (Venture Institute, 2015).

In addition to this, as part of the procedure to start a business, the city of La Paz has a strong lag: it is located in the 28th place of 32 cities registered in the Doing Business (Banco Mundial, 2016).

Conclusions and recommendations

Education plays a fundamental role in the formation of attitudes and business skills, which in the medium term will have a positive impact on the business culture of the region. Such training should be theoretical and practical to ensure that graduates can plan, start and operate a business in three phases: 1) development of ideas, 2) organization of the foundation of a company and 3) administration of a newly created company .

Training for entrepreneurs within the public university is a process that requires both administrative and academic planning, where teachers, study plans, administrative areas should gradually be influenced in order to prepare students as future entrepreneurs.

It is essential that UABCS, like other institutions of higher education, is not limited to the transmission of content and that it understands that it can and should assume a triple role. In the first place, as a promoter of the entrepreneurial intention, awakening in the students concerns to create their own business, from the realization of talks and business motivation conferences as through the teachers themselves.

Secondly, as a promoter by establishing mechanisms for accessing all the necessary information and even receiving advice on those more complex aspects. Finally, reduce the economic cost, so a business incubator and agreements with accelerators can be a solution.

Important aspects must be resolved, some of which have been detected in this investigation. On the one hand, the absence of a solid public university policy to support the creation of companies, in general and, in particular, to the group of university students. On the other hand, the absence of an instance that integrates and coordinates the efforts of the parties involved. In fact, not knowing “where to go” often stops a first entrepreneurial impulse.

The Lean Startup Mx method was adequate for the objectives of the "UABCS Entrepreneurship Training" program. However, the results of this study identify some barriers to take full advantage of it. Therefore, it is relevant to provide educational programs with basic tools on finance, innovation and financing; so also work in the formation of so-called soft skills, particularly in efficient and informed decision making. The above will improve the impact of the acquisition of this or other models.

In the implementation processes, such as the one that the UABCS lived, the universities must take into account the environment in which it operates, as well as the barriers and opportunities, to be able to focus the implementation program in such a way that the ideas and projects have follow-up and get implemented. Each program must be designed and structured according to the resources, mentality, intentions, vision and cultural features characteristic of each university and region.

For the UABCS it will be advisable to train students in entrepreneurship as part of their academic training, in the classroom and in workshops coordinated by the management in charge of the Entrepreneurial Culture Program. Activate an internal ecosystem with actors, programs, entrepreneurship events, competitions, internal and external consultants to realize university startups, and consolidate said ecosystem with an incubator.

Finally, promote a broad discussion aimed at strengthening their social responsibility by promoting entrepreneurship and consequently improving the educational model and guidelines for the development and improvement of educational programs. This last consideration will accelerate the process and achieve a transversal effect of gradual change at the institutional level.

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