Experiences in the Training Program to Strengthen Technology-based Entrepreneurship Through Specialized Tools, during COVID-19

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Abstract- Currently, because of the global health emergency, various difficulties have arisen in education. Specifically, in the field of Innovation and Entrepreneurship, the virtualization of training and networking programs, considered as the basis of any Entrepreneurship, has been evidenced as the main problem. This article explains a virtualization proposal through the use of digital tools such as social networks, videoconferences, and virtual rooms (Habbo), achieving a great reception by students of the various professional careers of the University. Likewise, it is explained how the interaction, synergy, and development of soft skills, aroused among the participants of the different specialties, allowed outstanding achievements at the national level.

Keywords - Work groups, Social Virtual Worlds, Training Programs, creative learning, COVID-19.

I. INTRODUCTION

Currently, the new generation of university students is known as digital natives or generation Z. They are young people who easily solve their doubts using digital media as a natural tool adopted from the beginning of their life. Confronted with this, there are several subjects taught in undergraduate programs that are not motivating for students. This is basically due to professors forget this important possibility of student development in their teaching-learning processes, not consolidating the knowledge that actually serves them in their future professional life [1,2,3].

The idea of synergy must be reinforced, understanding it as the combination of interpersonal skills and personal experience as it is indicated in [4]. Therefore, it is essential that entrepreneurial processes are fed from a synergistic base, enhancing the soft skills that every entrepreneur needs as a basis for its development.

Soft skills are those that achieve true adaptation to real work environments and are largely responsible for personal success and professional satisfaction. Nonetheless, as it is mentioned in [5] universities have focused on the development of hard skills or technical competencies, forgetting in many of their curricular structures the importance of providing young people with knowledge of adaptation against change.

Added to this soft learning are added values such as learning based on real problems, correct decision-making, critical thinking capacity, psychological health, self-evaluation and self-reflection, understanding of consequences, and most notably the ability of the emotional management that every entrepreneur needs in order to link together and develop itself in the best way.

In this work, the important capacity for developing soft skills at the undergraduate level is highlighted, recognizing the possibility of developing a university with characteristics of entrepreneurial training, changing from a formative intention to an academic decision as it is pointed out in [6].

The aforementioned must be supported by an institutional regulatory framework that allows the development of innovation at the university, in this sense University Law No. 30220 becomes the educational institutional framework that promotes this type of process. This work is based on this framework showing the structuring and development of the business incubator as the aim of the university, this is specified in article 52, chapter 6. Within this regulatory framework, innovation is strengthened through research and promoting entrepreneurship, which is incorporated into the activities of INNICIA, the business incubator created at Universidad Catolica de Santa Maria in 2017, dedicated to covering the stages of incubation and acceleration of entrepreneurship.

All the aforementioned seeks to focus on innovative academic processes as a way to improve Peruvian universities. However, it is worth to be noted that the National Council of Science and Technology (CONCYTEC) indicates that Arequipa Region has 257 RENACYT researchers, that is, qualified in science and technology researchers. Comparing this data, for instance, with Universidad Mayor de San Marcos, it has 386 researchers, according to a report released by CONCYTEC [7] on December 29, 2019. This is a significant difference and we must close academic gaps and the imbalance of researchers in Peru [8].

Therefore, studies like this one are a priority for strengthening research linked to innovation. Today's society requires qualified professionals to solve problems creatively, based on real entrepreneurship, with motivation and attitudes of negotiation, dialogue, and pragmatism.

There may be young entrepreneurs willing to take that first step, with a lot of motivation and the necessary knowledge; however, without a good support network, it is likely that they will face greater difficulties in their new businesses. This support network must have specialists in the subject, trained and with the experience to guide these young future entrepreneurs. Soft skills must be developed in workshops or training by those called mentors, who are a fundamental part of business incubators. These mentors must have the necessary experience to transmit it to their mentees. Indeed, it can be said that, in the image of the entrepreneur, the mentor must also be an entrepreneur [9].

In fact, the role of the mentor is key and must be above all a facilitator, that is, a person who has enough skill to provide students with potential contacts and informational or pedagogical resources related to the creation of businesses. The possibilities of real influence on the mentee should not be exaggerated, but mentors should be able to teach young people to learn to be an entrepreneur.

We reiterate and assert that the task of training entrepreneurs by an incubator is not limited to the four walls of a classroom or a certain space. We require mentors, teachers who are entrepreneurs, that interpret the needs of young people and with creativity, boldness, and perseverance help to overcome the prevailing limitations in Peru's educational systems.

As an instrument for the development of this work, the study is shown through Habbo Hotel, which is a virtual social network focused on young people and teenagers between 10 and 21 years old. The service was launched in 2000 and has been expanded to 9 communities (or "hotels") in more than 150 countries [10]. In this platform, users have the opportunity to present themselves through avatars, design chat rooms with hotel room shapes, meet new friends, chat with other users and create role-playing situations such as parties, meetings, coffee shops, among others.

Currently, the platform has more than 2.10 million daily users, although its main boom years were between 2010-2017, which has made it highly recognized by university students [11].

Consequently, this proposal aims to use technological tools that were employed during the COVID-19 pandemic, a real situation that highlights the need of developing innovative methodologies to continue strengthening technological entrepreneurship. As well as to enhance interaction and synergy among students from different careers of the University, all in the current moment of change that we live.

II. Pre-Covid Situation In The Innovation And Entrepreneurship Ecosystem

In Peru, it exists the E-quipu Entrepreneurs Network that promotes technology-based entrepreneurship during all pre-incubation processes, generating interest groups. Since 2009, the Universidad Catolica de Santa Maria began to be part of this network with student projects that often had difficulties for their completion in basic aspects such as the formation of multidisciplinary teams.

In 2014, due to the new University Law 30220, the Peruvian state disposed of that all licensed universities must have a Research Vicerectorate, which meant a growth in the research, innovation, and entrepreneurship ecosystem [12].

Currently E-quipu Santa María works in 2 stages: Research Seedbeds and Pre-Incubation.

a) *Research Seedbeds:* Provides training to students and graduates who want to start their first research with topics related to research lines of their Professional Schools.

b) *Pre-Incubation:* Supports entrepreneurs to improve their business plan within an entrepreneurial project in order to strengthen the business idea until they have a functional prototype.

Every year, since 2018, as part of the pre-incubation stage, younger entrepreneurs that are part of the E-quipu Entrepreneurs Network are invited to participate in a program called Innovation Challenge, which aims to propose solutions to real challenges stated by national companies.

In 2019, at the Universidad Catolica de Santa Maria, this event took place with the following activities (See Fig. 2):

a) *Workshop 1: Entrepreneurs - Real Cases*
The most experienced mentors from biomedical, engineering, and social science areas show real cases of how, with a good creative idea, a sustainable business model can be generated. The objective is trying to motivate participants with some group dynamics so they can interact with participants from different professional careers.

b) *Workshop 2: The Art of Getting Started*
A workshop where the entrepreneur's motivation is developed (See Fig. 1). Participants receive the basic guidelines to follow in order to later materialize their ideas. This workshop serves as the first impulse for entrepreneurs [13].

Fig. 1. Workshop: The Art of Getting Started

c)   Workshop 3: How to land my idea?

In this workshop, entrepreneurs, supported by mentors, look for the best concept for their business idea, that is, pivoting until they find the point where their idea is useful in the market to finally carry it out.

d)   Workshop 4: The Business Model Canvas

A necessary requirement for entrepreneurs is to know how to carry out the "Business Model Canvas", which allows describing the aspects necessary for the proper functioning of the project. It is divided into 9 blocks: customer segments, value proposition, channel, relationship, income streams, key resources, alliances, costs, and income.

e)   Workshop 5: Elevator Pitch

In this workshop, the argumentative and communication skills of entrepreneurs are put to the test. They are taught how to sell their idea, as well as techniques to generate greater impact when presenting themselves against an evaluating jury.

f)   Workshop 6: Product Validation and Low Fidelity Prototyping

In this workshop our "Early Adopters" are finally recognized, we teach how to introduce a new product or service to the market and the realization of a low fidelity prototype.

Fig. 2. Innovation Challenge Program

In 2019, two of our teams were winners of the National Innovation Challenge competition [14].

III.   DEVELOPMENT OF THE PROPOSAL DURING COVID-19

When Peru began to be affected by the COVID-19 pandemic, educational institutions had to postpone their classes, to finally make the decision to start virtually [15].

In the area of research, innovation, and entrepreneurship of our university, in mid-April, activities began to be planned for an event where the community could propose solutions to help during the health emergency. This is how the Hackathon "COVID-19 Challenge" was carried out, which aimed to promote an entrepreneurial, innovative, research, and supportive culture to face the COVID-19 [16]. Students and graduates from the university, as well as professionals from all around the city, enrolled in this event. Around 120 participants were gathered who formed groups between 3 and 5 people.

Fig. 3. Hackathon COVID-19 Challenge

This Hackathon was the first event that was carried out in a totally virtual way. Thus, the problem of virtualizing the different activities that previously were face-to-face, and at the same time make them entertaining and educational for the students. As can be seen in Table 2, not only there was not a good interaction between participants from different careers, but also disinterest, shyness, and little fellowship when relating each other. All this situation demanded to come up with a new strategy to generate real networking and connection among participants. In this work, we propose to use a virtual interaction platform called Haboo.

Fig. 4. Habbo Platform

Later, at the next event of the innovation and entrepreneurship ecosystem, the Innovation Challenge 2020 edition, we had the opportunity to test the new interaction strategy with the participants.

As mentioned, this event targets to solve problems proposed by private entities. In this edition, the problem aimed at reactivating tourism was proposed by PROMPERU (Commission for the Promotion of Peru for Exports and Tourism). This program had two challenges:

- How to generate health protocols confidence to attract foreign tourists to the country?
- What can be done to make people travel avoiding crowds?

To begin with, eye-catching publications were spread on social networks to attract the attention of young university students and have a great influx of participants (See Fig. 5).
In order to train the different teams, the following workshops were planned:

a) Workshop 1: Networking
Approaching someone, public speaking, and convey ideas are fundamental principles of any activity or event carried out in universities. This is why networking is considered a fundamental part when developing projects since it allows brainstorming within the interaction of people from different specialties [17]. Therefore, it is important that all participants manage to relate optimally.

Fig. 5. Publication of networking

Because of this, we looked for the appropriate way to virtualize meetings that were commonly face-to-face without affecting the essence of the activity, which is meeting people and interacting freely. In search of the appropriate platform, the possibility of using virtual hotels commonly known as "holos" was raised. They are social networks that were part of the childhood/adolescence of many of our students and were quickly recognized (See Fig. 6).
The proposal consisted of creating rooms with a similar design to current coworking offices at the university. Rooms were divided into small spaces for engineering, social, biomedical, legal/business areas, and recreation and cafeteria rooms (See Fig. 6). Participants were able to personalize their own avatars to make themself identified in the room. As well as, they were encouraged to go around the space and meet people through activities, games, and a chat room, which allowed them to relate with other participants. At the end of the meeting, the students exchanged their contact information to finally form work teams.

b) Workshop 2: Entrepreneurs - Real Cases
Mentors from biomedical, engineering, and social areas show real cases of how a good creative idea can be considered a business model. The objective is to try to motivate the participants with group dynamics, with the aim that they can interact with other professional careers even more.

c) Workshop 3: The Art of Getting Started
This workshop allows young entrepreneurs to have a guide on how to start their business. Guy mentions in his book [13] that there are 5 things every entrepreneur should know: create something meaningful, create a mantra, get going, define your business model and establish goals, assumptions, and tasks.
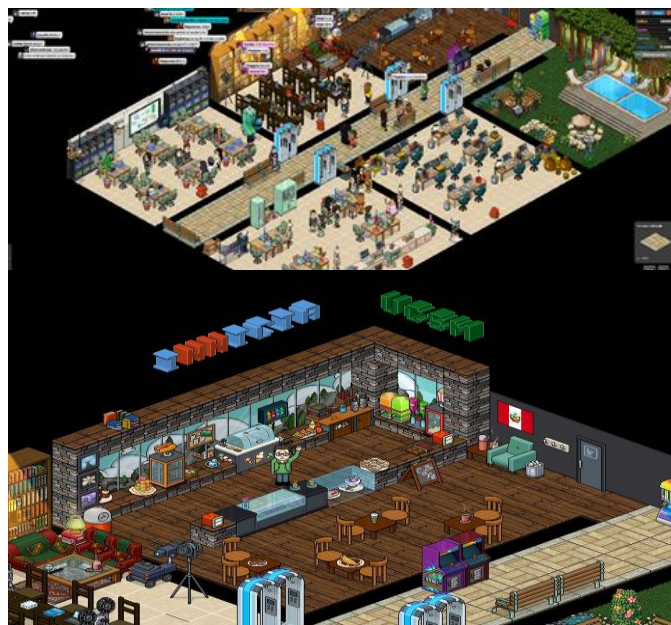

Fig. 6. Networking rooms

d) Workshop 4: Prototyping
It allows students to know basic concepts of prototyping in order to start with the first design of their product or service according to the needs of their users.

e) Workshop 5: The Business Model Canvas
A necessary requirement that every startup needs is the Business Model Canvas, which allows teams to know a little more about their project and its weaknesses. It is divided into 9 blocks: Customer Segments, Value Proposition, Channel, Relationship, Income Streams, Key Resources, Alliances, Costs, and Income.

f) Workshop 6: How to sell your idea
This workshop is oriented so that entrepreneurial teams know the techniques of how they should speak in public when they have to be in front of a stage.

In the local final of the Innovation Challenge, only teams that were present during the 6 mentioned workshops participated, and only the first two places were awarded. They continued with the training to later participate again in the interuniversity final competition. The first local winners included members from professional careers of systems engineering, commercial engineering, electronic engineering, and tourism. And the second place at the local level, but which later won the interuniversity final, were students from careers of multimedia advertising, psychology, and systems engineering; both teams with multidisciplinary members (See Fig. 7).

Fig. 7. Innovation Challenge Winners

Thanks to the strengthening of networking, it was possible to consolidate interesting proposals that allowed us to win first place among 20 educational institutions nationwide.

IV. METHODOLOGY

The proposal is based on problem-based learning [18,19] of which new stages have been included:

1. *Problem Presentation*. At the time of virtualizing the face-to-face activities in the first entrepreneurship event at the university, we highlighted the problem that exists when students try to interact and form teams.

2. *Problem Analysis.* When analyzing the problem, we decided to also give importance to know more about the participants and identify in depth their needs and tastes through a survey that collects their opinion regarding previous events.

3. *Proposal Design.* Once the problem was analyzed, we made the decision to use the Habbo platform along with technological tools such as Microsoft Teams.

4. *Proposal Implementation.* For this part, the co-working rooms were implemented within the Habbo platform, while the Mentors team established the workshops that were part of the training sessions.

5. *Proposal Presentation.* It was launched during the in-process training program until the end of the event.

6. *Proposal Verification*. The final survey and interviews confirmed the effectiveness of the proposal.

The methodology presented is a feedback loop, which allows the proposal to be improved in the future. In addition, in each stage mentioned above, the participants are trained with the collaboration of the mentors.
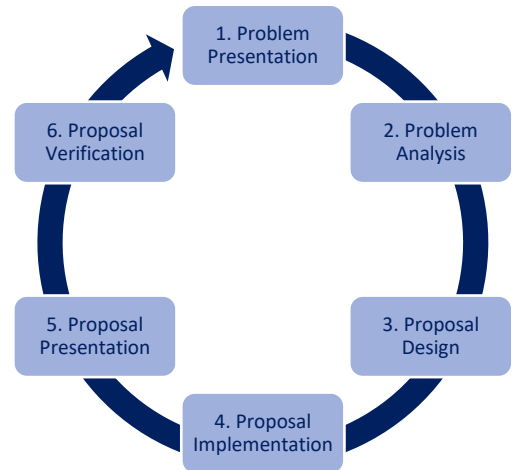

Fig. 8. Methodology of the proposal

V. RESULTS AND DISCUSSION

In 2019, before the pandemic, at the end of the development of the training program of that year, a survey was carried out among the participants, which allows verifying the performance of the development of the event.

During that year, adding new stages in problem-based learning, a very appropriate event was achieved that was quite accepted by the participants. Eventually, we won the first places in the competition (See Table I).

TABLE I
INNOVATION CHALLENGE 2019 SURVEY RESULTS

1. Did you manage to interact with participants from different professional careers?	VS	S	I	LS	NS
72 answers	34.7%	48.6%	11.1%	4.2%	1.4%
2. Did you like the development of the program?	VS	S	I	LS	NS
72 answers	20.8%	61.1%	13.9%	2.8%	1.4%

VS: Very satisfying **S:** Satisfying **I:** Intermediate
LS: Little satisfying **NS:** Not satisfying

In 2020 took place the Hackathon "COVID-19 Challenge" which was the first event that took place in the middle of a pandemic. Table II shows that only 19.6% managed to generate the necessary netwoking to have a multidisciplinary team that complements their capabilities. This was the basis for our problem.

TABLE II
HACKATHON COVID-19 CHALLENGE SURVEY RESULTS

1. Did you manage to interact with participants from different professional careers?	VS	S	I	LS	NS
46 answers	8.7%	10.9%	45.6%	17.4%	17,4%
2. Did you like the development of the Hackthon?	VS	S	I	LS	NS
46 answers	15.2%	52.2%	17.4%	8.7%	6.5%

VS: Very satisfying   **S:** Satisfying   **I:** Intermediate
LS: Little satisfying   **NS:** Not satisfying

The same year, our second event was held. In this event, our proposal was used along with the Habbo platform, aiming to improve the main problem of the lack of networking. Table III shows an increase in acceptance of the platform; however, it is worth noting that the acceptance does not reach the percentage of the face-to-face networking.

TABLE III
INNOVATION CHALLENGE 2020 SURVEY RESULTS

1. Did you like using Habbo to relating with other participants?	VS	S	I	LS	NS
51 answers	24%	28%	38,2%	5.9%	3,9%
2. Did you like the development of the program?	VS	S	I	LS	NS
51 answers	21,6%	53%	13,7%	7,8%	3,9%

VS: Very satisfying   **S:** Satisfying   **I:** Intermediate
LS: Little satisfying   **NS:** Not satisfying

Fig. 9 shows that one of the important activities in the research, innovation, and entrepreneurship programs is to interact with participants from other careers in order to generate synergy between the team members. When creative and sustainable ideas are not generated solidly, come up with a solution to the problem in concern would not be possible. According to [20, 21] the aforementioned is confirmed, a favorable combination and synergy contribute to the implementation of innovation and promote entrepreneurship, generating an inimitable competitive advantage.
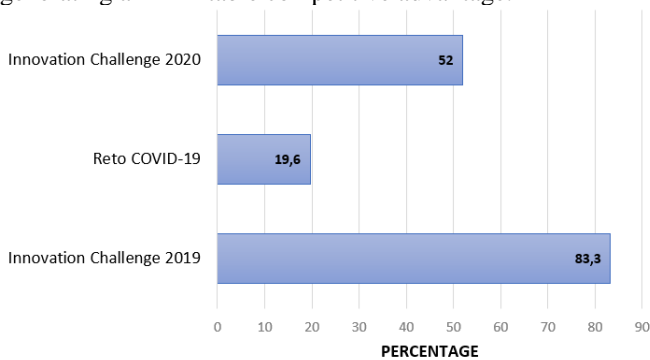

Fig. 9. Networking Workshop Satisfaction

Fig. 10 shows that compared to previous events the virtuality has not been completely attractive for students, as in [22], where they were forced to immediately adopt a strategy in business education courses. To solve the problem seen in the first event of 2020, with this proposal presented in this work, it was possible to improve the level of satisfaction among students, although it did not reach the same level compared to the face-to-face events.
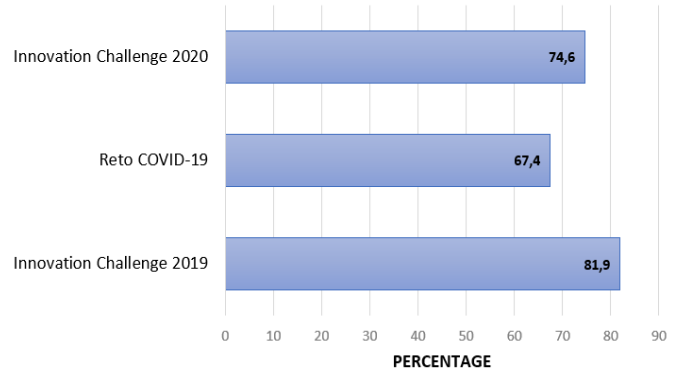

Fig. 10. Participants Satisfaction

VI. CONCLUSIONS

The global health emergency generated by COVID-19 was a real challenge for educators. Due to the distancing, it was necessary to choose the best option to continue with the daily work, opting mostly for technological video conferencing tools. This led universities around the world to select, according to their budget and needs, the appropriate videoconferencing platform. We propose to use Microsoft Teams, which allows generating private interaction channels (priority spaces for team collaboration). As well as a training session virtualization platform called Habbo, which provides a virtual world with personalized avatars similar to a video game environment. All this allowed generating the perfect synergy to cause interest in the students, who are mostly part of generation Z. The creation of a coworking scenario for the interaction of the students was essential for the training program defined and described in this article. This allowed the participants to have the necessary support to continue strengthening their business proposal; the results of this research being satisfactory in the use of these tools. The crucial role of teaching in the formation of entrepreneurial competencies must also be recognized since the fundamentals of entrepreneurial activity are apparently not only acquired in a classroom but through experience and interpersonal relationships. Finally, when we see the positive results that we have obtained in terms of the interest of the students, it is evident that its use in education is feasible even in other areas and during the current health emergency.

VIII. FUTURE WORK

Within these times of change, an update was satisfactory made that allowed to carry out a training program employing a

virtual platform which helped students interact with participants from different professional careers as well as be part of didactic workshops. We are working on a proposal to create a 3D scenario of the entire university campus that allows students to go around the place and feel excited about visiting virtually their alma mater.

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