HEALTHCARE CONTAMINATION LAB

GUIDING STUDENTS FROM NEED IDENTIFICATION TOWARDS ENTREPRENEURIAL OPPORTUNITY DEVELOPMENT IN A MULTIDISCIPLINARY LEARNING ENVIRONMENT

Mario Salerno³, Davide Hahn^{1, 2, 3}, Silvia Ivaldi⁴, Tommaso Minola^{2, 3}

- ¹ Corresponding author: <u>davide.hahn@unibg.it</u>
- ² Department of Management, Information and Production Engineering, University of Bergamo
- ³ Center for Young and Family Enterprise, University of Bergamo
- ⁴ Department of Human and Social Sciences, University of Bergamo

Abstract

HC.LAB ("Healthcare Contamination Lab") is an elective entrepreneurship education program, aimed at providing to its participants the knowledge and the skills required to develop entrepreneurial opportunities. The distinctive features of HC.LAB are captured by its name. It is focused on a specific industry – the *healthcare* sector – and takes the form of a *lab* where *contamination* between different views takes place. Participants are exposed to the variety of stakeholders, who populate the healthcare sector and who complement the contents taught by a multidisciplinary faculty. Its lecturers have different career trajectories and study background. Additionally, the class of HC.LAB is composed by students with different age, level and field of study.

Introduction

The aim of this document is describing the originality of HC.LAB, a six-month entrepreneurship education program, which offers students an entrepreneurial journey culminating with the development of an entrepreneurial opportunity.

Entrepreneurship is the process of identifying and acting upon entrepreneurial opportunities¹. Entrepreneurial opportunities are much more than an idea, such an invention or the spotting of an unmet market need; developing opportunities consists in matching a specific need with those means and resources that offer a marketable solutions to that need². Opportunity development requires domain-specific knowledge³ but also ability to "connect the dots" and see that knowledge from different angles⁴. Reproducing such conditions in the classroom is challenging for traditional curricular entrepreneurship education courses, because they often stay too general without focusing on specific industries or class of businesses. Moreover, they are generally attended by homogeneous classes – composed by students with the same age, level and field of study – or they are taught by a single professor. These factors might limit the contamination among different views of the

¹ Shane, S., & Venkataraman, S. (2000). The promise of entrepreneurship as a field of research. *Academy of management review*, 25(1), 217-226.

² Ardichvili, A., Cardozo, R., & Ray, S. (2003). A theory of entrepreneurial opportunity identification and development. *Journal of Business venturing*, 18(1), 105-123.

³ Shane, S. (2000). Prior knowledge and the discovery of entrepreneurial opportunities. *Organization science*, 11(4), 448-469.

⁴ Baron, R. A. (2006). Opportunity recognition as pattern recognition: How entrepreneurs "connect the dots" to identify new business opportunities. *Academy of management perspectives*, 20(1), 104-119.

world. The HC.LAB program aims at overcoming some of such limitations; it does so by focusing on a specific industry – the *healthcare* sector – and encouraging the *contamination* between different views.

Structure of the Program

The HC.LAB program is part of the Italian network of Contamination Labs ("CLabs"). The CLab network is sponsored by the Italian government and is joined by almost 20 partner universities. Its aim is to provide individuals the skills required to the development of entrepreneurial opportunities. CLabs are virtual and physical spaces that create learning opportunities through the contamination and dialogue among individuals with different disciplinary backgrounds, among university students and other people aiming at becoming more entrepreneurial. In addition to the multiple perspectives and disciplinary backgrounds, captured by the word "contamination", another peculiar feature of CLabs is the close link with the local business community and stakeholders. For this reason, each CLab is distinct and takes advantage of the strengths of the local ecosystem. For example, the HC.LAB, which is the CLab organized by the University of Bergamo, leverages on the well-developed healthcare sector of the province.

HC.LAB is structured in 60 hours, divided in 15 4-hours lessons. The program has two main modules, preceded by a roadshow to encourage participation of genuinely motivated students. During the roadshow, a mix of online channels (e.g., social networks, e-mail invitations, etc.) and in-class presentation of the course at university and high-school served to illustrate the highlights of the program⁵. By stressing the key benefits individuals would achieve by joining the program, the objective was to attract the attention of highly motivated individuals from a variety of background and ages.

In the first module – lasting from December 2018 to February 2019 – students are introduced to the fundamentals of entrepreneurship by the main professor and other lecturers⁶. In addition, they get some knowledge about the healthcare sectors thanks to invited speakers occupying different roles in this industry. This mix of lectures and keynote speeches helps participants to focus on the actual needs of the healthcare industry, which represent the starting point for the development of entrepreneurial opportunities. Solutions to those need are ideated at later stages of the program. Finally, some opportunities for contamination and crossfertilization are created by giving students the possibility to work on small tasks in provisional teams thereby knowing better each other. The module ends with an assignment: each student is individually asked to formulate at least three needs in the healthcare industry. The assignment allows students to apply and reflect on what they have learnt about the identification of needs in a specific industry. To sum up, the first module is built on the main pillars of HC.LAB: (i) contamination (through teamwork and the exposure to a multidisciplinary faculty); (ii) healthcare sector (by inviting experts of the sector); and (iii) the goal of generating entrepreneurial opportunities (by teaching the fundamentals of entrepreneurship and asking students to come up with ideas). More details about the Module can be found in Table 1 of the Appendix.

⁵ The slides used during the roadshow can be found in the attached documentation (Attachment #1).

⁶ The profile of keynote speakers and lecturers can be found in the attached documentation (Attachment #2).

The second module follows the team formation and helps students to develop the entrepreneurial opportunity from their idea. The module culminates with a pitch of students' business models in front of an audience of faculty and industry experts. In this second part of the module, students work in teams built around a specific idea that needs to be developed into an actual opportunity. Teams are formed through a process of negotiation among participants to simulate a real team-building process. In a first step, the ideas generated individually are clustered and aggregated by the professor based on their similarity to form 6 clusters⁷. In a second step, these clusters of ideas are shared with the participants so everyone could see the ideas generated by their colleagues (often with different backgrounds). At this point, based on the socialization with other participants and the personal preferences concerning the ideas to develop, participants team up with the purpose to work together on their preferred ideas. Just as it happens in real entrepreneurial team formation, the ideas generated by the individuals can precede and influence the selection of partners. In contrast to other entrepreneurship education initiatives, where teams are formed before idea generation, we ensure that the ideas are generated on an individual basis and that the team formation follows this process. By doing so, we also exploit the unique HC.Lab class composition to prompt the formation of heterogeneous teams: the sharing of ideas enables participants to see and appreciate ideas generated by individuals with different background and instills curiosity to collaborate with them. Additionally, participants are taught that to develop an entrepreneurial opportunity in the healthcare sector teams with a broad range of competences enjoy an advantage. This further encourages participants to join teams composed by individuals with different backgrounds. As shown in Table 2, the 8 teams formed benefit from a broad range of competences. The cohesion within the heterogeneous teams has been further fostered through an outdoor trip organized at the start of the second module. During this trip to a wine-maker of the region, the class has the opportunity to spend an intense day together. The day started with 1-h bus travel together to the wine-maker located in the hills in a wonderful environment. At that point, teams are asked to work on a much-unexpected entrepreneurial-related task, which is unrelated to their ideas and to the sectorial focus of the course. More specifically, teams receive a set of different types of wine bottles; they are asked to combine them creatively to create their own type of wine. At that point, they have to find a name for their wine and build a value proposition to sell the wine by answering some key questions including, among others: Who are the target customers? Which price would be charged for the wine? What is the uniqueness of the wine? The rationale behind this exercise is empowering teamwork and collaboration among team members by exposing them on challenge outside the scope of the course. This would make their relationship stronger because unrelated to a specific goal; it would also prepare them to face a broader set of challenges, even unexpected ones.

After the team-building day, in the course of the second module, participants join a set of lessons aimed at providing them the tools to develop the business models. Each lesson is composed by a frontal lecture followed by a lab, in which students work in teams and apply on their ideas the tools learnt in the lecture with the support of the faculty. This combination of lectures and applications prompt students to reflect and practically

⁷ The slides, which summarize the needs identified by the students and the clusters can be found in the attached documentation (Attachment #3).

experiment what they learn on their real case. The journey concludes with a pitch of the entrepreneurial opportunities, first in front of the faculty and subsequently in a special closing event in front of the representatives of the local healthcare sector as well as potential investors, university students and faculty⁸. The faculty also helps students to develop their presentation skills. The end of the program represents a beginning for those students wishing to further develop their business opportunity and turn it in a business plan and eventually in a venture. We encourage HC.LAB attendants to participate to the Startcup Summer School: this is an entrepreneurship education intensive program that supports aspiring entrepreneurs in developing a business plan to be presented in a business plan competition. Details of the second module can be found in Table 1 of the Appendix.

Teaching Model and Originality of the Program

In the literature the teaching model of entrepreneurship education programs is generally described through 5 dimensions⁹: (1) *For whom?* The audience of the program; (2) *Why?* The objectives of the program; (3) *What?* The contents of the program; (4) *How?* The methods and pedagogies of the program; and (5) *For which results?* The evaluation of the outcomes of the program. In this section, for each of the five dimensions, we will outline the originality of the HC.LAB journey.

Audience of HC.LAB

The contamination among different perspective is one of the central elements of originality of HC.LAB. A proper selection of the audience of the program is the key to the successful implementation of the contamination among participants. In particular, to achieve such objective we undertake two main actions. First, we promote the program in different disciplinary areas of the university and in high schools. By doing so, we have attract interest of heterogeneous participants. In fact, the final class is composed by 28 university students and 12 high school students; the minimum age is 16 years, while the maximum one is 30 years. Among university students, we have bachelor and master students as well researchers or ex-alumni. We also have participants from engineering, social sciences and business and law study areas. In this way, we make sure to have a class of heterogeneous participants where contamination among different perspectives can take place. Second, we ensure to have highly motivated participants. The commitment to the program and the intrinsic motivation to learn and challenge oneself are key prerequisites for the sharing of ideas and perspectives. Therefore, the program is elective and not compulsory. It also does not allow students to obtain credits for the graduation, thereby replacing other elective courses. Moreover, of all the applicants (more than 50) we accepted to the program only 40 participants, based on their motivation letters and interviews of the faculty. Despite the different background, study level and age, attendants share the motivation to grow their personal soft skills in terms of creativity and teamwork.

⁸ The final presentations of the teams can be found in a folder of the attached documentation (Attachment #4).

⁹ Nabi, G., Liñán, F., Fayolle, A., Krueger, N., & Walmsley, A. (2017). The impact of entrepreneurship education in higher education: A systematic review and research agenda. *Academy of Management Learning & Education*, *16*(2), 277-299.

Objectives of HC.LAB

The classroom as a laboratory for ideas and the healthcare sector are both two distinctive features of HC.LAB. Accordingly, the program is designed as a laboratory with the objective to enable students' idea generation in a specific industry: the healthcare industry. These objectives are reflected in two main elements of originality. First, the program is focused on idea generation and opportunity development, which is the starting phase of the entrepreneurial process. In contrast to other programs providing general knowledge for the entire entrepreneurial process – from spotting opportunity until creating a venture – HC.LAB has a more narrow scope. We have traded the breadth of the objective for more depth in learning how to identify and develop entrepreneurial opportunity. Without good opportunities, no successful business can be created and managed. It is the identification and development of opportunities, which makes entrepreneurship education unique with respect to management and business education. Because of the course objective, as final output and deliverable we ask students to present a business model describing the entrepreneurial opportunity (e.g., market need, solution, customers, revenue model) rather than a business plan for a potential new venture.

Second, to strengthen the quality of the opportunities developed by students, we adopt a sectorial focus, which enables students to obtain an in-depth knowledge of a specific industry and its needs. In contrast to programs with a general focus providing non-specific knowledge about business and opportunities, we employ a more contextualized approach, which allows students to take advantage of the so-called "knowledge corridors" that permit entrepreneurs to come up with unique opportunities.

At the individual level, while students work in the laboratory to generate new ideas, they have the opportunity to empower their soft skills: interpersonal skills and creativity, for example, have been greatly tested and trained in the course of the program. The program is not meant to necessarily create new entrepreneurs, but to is aimed at forming more entrepreneurial individuals. The skills students learn during the journey can be used not only to develop the entrepreneurial opportunity into an actual business, but also for whatever career students eventually decide to undertake: creativity, proactivity and interpersonal skills are crucial also for employees and consultants of all sectors.

Contents of HC.LAB

The originality in the program's objectives are reflected in the contents taught during the 15 lessons (see Table 1 of the Appendix). More specifically, the contents of the course combine specific knowledge about the healthcare sector with the tools for idea generation and opportunity development. By knowing more in depth a specific sector, students have the possibility to practically apply the tools taught in class on a focused and well-defined area of expertise. This differs with respect to many venture creation program, in which students are taught these tools but lack the in-depth knowledge of a specific market or industry, on which these tools can be applied. To further support students in the achievement of the course objectives, the program also teaches some fundamentals of the entrepreneurship phenomenon as a preparatory phase (Lesson 1): in fact, most students had never received a course in entrepreneurship before attending HC.LAB. Therefore, they need

to be introduced to the phenomenon before undertaking the core course activities. The program had also some space dedicated to skills such presentation (Lesson 13) or teamwork (Lessons 7 and 8).

Methods of HC.LAB

The keywords of the program "health", "contamination", and "lab", which make up the originality of HC.LAB, are reflected in the variety of pedagogies employed during the journey.

First, the exposure to the healthcare sector is achieved by inviting keynote speakers from the healthcare sector who share their experience as entrepreneurs, professionals, or investors. By doing so students not only gain knowledge about the industry, its functioning, and needs; they also get a sort of inspiration, which further motivates them to contribute to the sector and to learn appropriate skills for this promising industry.

Second, the contamination among the heterogeneous participants of the program is encouraged through a combination of different methods. In the lectures, the faculty explain from a theoretical standpoint the advantage of entrepreneurial teams with different types of competences and area of expertise. Moreover, the course has 1-day outdoor event in which participants experience a trip together and, working in teams, play an entrepreneurial-related game. Exposing students to unexpected challenges and having them together for a whole day, has proved as a great way to strengthen the cohesion among participants. Next to the outdoor event, the modules have several opportunities that allow students to form teams and work together. For example, the creation of a Facebook group further encourage the dialogue among students and between students and faculty. A method of great novelty, which prompts contamination and cross-fertilization, is the sharing of the three needs identified by each individual participant with all the class. By having an overview of all the needs identified by the class members, each participant has the opportunity to share his/her ideas and at the same time obtain insights about other perspectives. The contamination is further encouraged by taking advantage of a multidisciplinary faculty, complemented with keynotes with different career experiences and roles in the healthcare sectors as highlighted in Table 1 of the Appendix.

Finally, the modules have several labs in which students could experiment the tools learnt in the lectures with the assistance and support of a tutor.

Results of HC.LAB

To evaluate the results of the course and check to what extent the originality of the program has actually produced the impact it aimed for we have employed a set of tools. More specifically, at the end and at the start of the program we have administrated a questionnaire. In the first one, we have asked students about their prior exposure towards entrepreneurship and about their self-assessed predisposition towards entrepreneurship in terms of skills, motivation and career aspirations¹⁰. In the final questionnaire, we have asked student to reassess their predisposition towards entrepreneurship in order to verify the effects of the course; we have also asked student to evaluate their satisfaction with the course, their learning experience, and the criticalities they

¹⁰ The questionnaires and the answers in excel format can be found in a folder of the attached documentation (Attachment #5).

faced. Figures 1-3 of the Appendix show that students are on average satisfied from the course in terms of entrepreneurial learning (Figure 1) and that most of them perceive the program as totally or predominantly effective (Figure 2). Moreover, about more than half of the respondents consider the course as investment in the medium-long term, while almost one fifth perceive HC.LAB as an opportunity to empower their competencies (Figure 3).

Here are some key quotes that describe how HC.LAB has proved a great learning experience for the students¹¹. One student writes: "I believe there are no words to express my gratitude to those people who allowed me to participate to this project. I have been able to understand and learn things that I didn't know before this course and which seemed impossible to understand". In general, students perceive to have acquired skills in generating and developing innovative ideas, in working in teams and in communicating with others, in line with the course objectives. The reciprocal learning from other participants and the contamination, one the pillars of HC.LAB, has also been greatly appreciated, as illustrated for example by this student "I enjoyed a lot confront myself with older people. It has been challenging but I recommend it to everyone who wants to learn and is curious". Interestingly, according to the students the program is useful to empower them as people, not necessarily as entrepreneurs. This student well illustrates such impression: "The lectures often were very useful also for the private sphere, to face every-day life situations". In terms of criticalities, some students – especially the younger ones – say that they lacked knowledge to fully understand some topics of the course; on the other hand, they are grateful to the faculty, which helped them and did not take anything for granted. In the end, they feel to have been in the right place and to have learnt from other perspectives. Moreover, some students express the interest to get some more knowledge about founding a business. While this it outside the scope of the course, the program stimulates students' interest towards creating a business to realize the ideas generated during the program.

Another indicator that certifies the realization of the course objectives is the heterogeneous composition of the eight final teams. As shown in Table 2 of the Appendix, the teams are characterized by heterogeneity in terms of members' background, in line with the "contamination" goal of the program.

We also base our evaluation on the quality of the final presentations and on students' decision to further work on their entrepreneurial ideas. The audience at the final event appreciated the problems identified by the students and the proposed solutions. Moreover, through the final presentation, the faculty has realized all the progress made by the students with respect to the beginning of the course. Before starting this journey, most participants ignored entrepreneurship fundamentals and the features of the healthcare sector; they had no clue about developing entrepreneurial opportunities and working in heterogeneous teams; they had also much less confidence in talking in public and presenting in front of many people. This scenario has completely changed in 6 months. Those shy students, previously almost ignorant about spotting entrepreneurial opportunities, have been able to generate a business model in a very complex sector like the healthcare one, and present it in front

¹¹ Note that students answered the questionnaire in Italian; therefore, quotes are translated from Italian.

of an audience of industry experts. This is a great result, which is worth the efforts spent by the faculty, the students, and all the stakeholders of HC.LAB¹².

Finally, it is important stressing that for most participants the final event of HC.LAB represents the end of a journey and the start for another one. In fact, more than half of the teams are so excited about their entrepreneurial opportunity that they have decided to further develop it into a business plan by joining the business plan competition StartCup. This represents another key result of HC.LAB: the program encourages students to further grow their entrepreneurial skills and, who knows, eventually create a venture to pursue the opportunity spotted in HC.LAB.

Conclusions

The satisfactory results of HC.LAB are due to some key elements of originality, which might be of inspirations other contexts and institutions.

First, the program focuses on a specific stage of the entrepreneurial process (i.e., opportunity development): a specific definition of the objective allows to design and align properly other elements of the program in terms of audience, contents, pedagogies, and evaluation.

Second, the program offers a specific industry focus, taking advantage of the strengths of the local economy. Entrepreneurship is a socially embedded phenomenon, stimulated by the exchange of domain-specific knowledge through local ties. At the same time, to generate entrepreneurial opportunities, domain-specific knowledge must be seen from different angles. Here comes the third key element of originality that can inspire other initiatives.

The program builds on contamination as main pillar. Designing programs attended by students from different campuses is challenging from an organizational point of view, but it offers a much richer learning opportunities. Moreover, involving teachers and speakers with different backgrounds further allows students to take advantage of the cross-fertilization among multiple perspectives.

Finally the program does not work in isolation. The program is embedded strategically in the entrepreneurship education offered by the university and acts in synergy with other courses. It motivates and prepares students to better take advantage of programs dedicated to more advanced stages of the entrepreneurial process.

To conclude, offering programs such HC.LAB represents a challenge, which requires substantial efforts. It requires strong relationship with the local business community, commitment from the university to attract students and professors from different areas, synergy with other entrepreneurship education offerings. However, the resulting experience provides students a unique opportunity to develop a combination of skills, which will be useful for whatever career they decide to undertake.

¹² The formal report which describes the results achieved by HC.LAB can be found in the attached documentation (Attachment #6).

APPENDIX

Table 1: Structure of HC.LAB

Lesson Module 1	Content	Speakers
1: 1st part	Lecture: Introduction to the course. Entrepreneurship and Healthcare	Tommaso Minola: professor of entrepreneurship and strategy at the University of Bergamo and director of the entrepreneurship and family business research center CYFE (Center for Young and Family Enterprise) Mario Salerno: CYFE executive director and Project Manager of HC.LAB; experience in supporting start-ups.
1: 2nd part	Lecture: Entrepreneurship as career opportunity	Silvia Ivaldi: scholar and professor in the Department of Human and Social Sciences at the University of Bergamo; specialized in work and organizational psychology; consultant for profit and non-profit organizations
2: 1st part	Lecture: Health, habits and social impact	Stefano Tomelleri: professor and scholar in the Department of Human and Social Sciences at the University of Bergamo; specialized in social dynamics of collective
2: 2nd part	Lecture: Business models and management of health	phenomena Luca Foresti: CEO of a Medical Center since 2010; previous experience as employee and founder in the fintech sector.
3: 1st part	Lecture: Idea Generation	Daniele Radici: lecturer of entrepreneurship at the University of Bergamo and founder of Innovation Lab; consultant to foster creativity and innovation processes.
3: 2nd part	Lab: Idea generation - excercise in provisional teams	Francesco Magni: researcher at the University of Bergamo on pedagogies, formation of teachers, school systems and entrepreneurship education Niccolò Sala: medical doctor and co-founder of the healthcare start-up Quickly Pro.
4: 1st part	Keynote: Founder of "Quickly Pro" Lecture: Healthcare and digitalization Keynote: Healthcare initiatives at the University of Bergamo	Roberto Ascione: CEO of Healthware, a leading consulting company for digital health. Caterina Rizzi: scholar, professor and director of the epartment of Management, Information and Production Engineering at the University of Bergamo; she leads the research group V&K (Virtualisation&Knowledge) which develops ICT technologies supporting industrial applications.
4: 2nd part	Keynote: Technologies for improving wellbeing of individuals	Franco Molteni: medical doctor specialized in rehabilitation; he works as Division Director in the hospital, as consultant and as research coordinator for no-profit organization
5: 1st part	Keynote: From a prototype to a marketable product. The experiences from incubators (e-Novia) and start-ups (Holey)	Cristiano Spelta: co-founder of e-Novia, a consulting company which helps entrepreneurs to turn ideas borne in university research labs into businesses. Gabriel Scozzarro: entrepreneur and inventor at Holey, a start-up which uses 3D printing to produce medical devices.
5 2nd part	Keynote: Investing in the healthcare sector	Alessio Beverina: co-founder and Managing Partner at Panakes Partners, venture capital specialized in the healthcare sector.
6: 1st part	Lecture: Business Model Canvas	Daniele Radici; Fabio Donadoni: innovation consultant at Innovation Lab; specialized in strategic and project management, teamwork and business planning.
6: 2nd part	Lab: Business Model Canvas - excercise in provisional teams	Fabio Donadoni; Silvia Ivaldi
7: 1st part	Lab: Team formation and wrap-up	Mario Salerno; Andrea Potestio: scholar and professor in the Department of Human and Social Sciences at the University of Bergamo; specialized in the study of pedagogies and teaching; coordinates students' job internships for his Department
7: 2nd part	Lab: Preparation to the outdoor trip	Stefano Tomelleri
Module 2 8	OUTDOOR trip	Stefano Tomelleri
9: 1st part	Lecture: Analysis of the market need; data sources	Daniele Radici
9: 2nd part	Lab: Teamwork with tutors	Deboute Lucaudi, scholar and nucleaser in the Department of Human and Casiala
10: 1st part	Lecture: Opportunity evaluation	Roberto Lusardi: scholar and professor in the Department of Human and Social Sciences at the University of Bergamo
10: 2nd part	Lab: Teamwork with tutors	Marco Daz: professor of entrepreneurship and marketing at the Engineering Department
11: 1st part	Lecture: Market analysis	at the University of Bergamo
11: 2nd part 12: 1st part	Lab: Teamwork with tutors Lecture: Revising the Business Model	Daniele Radici
12: 2nd part 13: 1st part 13: 2nd part	Canvas Lab: Teamwork with tutors Lecture: How to present a business prject Lab: Teamwork with tutors	Mario Salerno; Silvia Ivaldi
14	Final event 1: Presentation and evaluation of the projects to the class and the faculty	
15	Final event 2: Presentation and evaluation of the projects to a mixed audience of students, faculty and industry experts	

Table 2: Teams and Proj Business Project	Need and Solution	Team
Apparecchio	IT platform that improves the efficiency of school canteens and encourages healthy food choices	University students in tourism, clinical psychology, engineering, humanities
BGenome	An integrated database that facilitates the collection, integration and management of genetic data	High school and university students in informatic
Ecate	A device that helps individuals to orient themselves in hospitals	High school and university students in healthcare engineering, foreign languages and literature
HealthVox	Podcast platform for healthcare professionals	High school, university and doctoral students in informatic engineering, psychology and economics
HigeyAPP	Digital platform for home health care	High school and university students in healthcare engineering
Remi	Smart pill organizer to remind taking pills to patients or care givers	High school and university students in management engineering, mechanical engineering, philosophy,
Superich	Smartphone application that offers a set of services to take care of Alzheimer patients	High school and university students in healthcare engineering and clinical psychology
Vicino a te	Online platform that collects, integrates and elaborates data by facilitating communication and sharing of experiences among cancer patients and	High school and university students in healthcare engineering and mechanical engineering

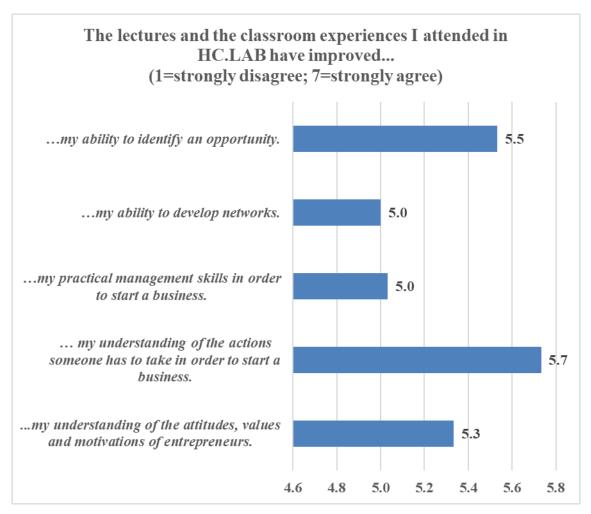


Figure 1: Perceived entrepreneurial learning from HC.LAB

care givers

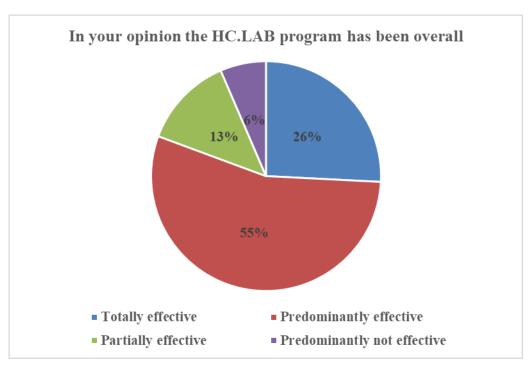


Figure 2: Overall students' assessment of HC.LAB

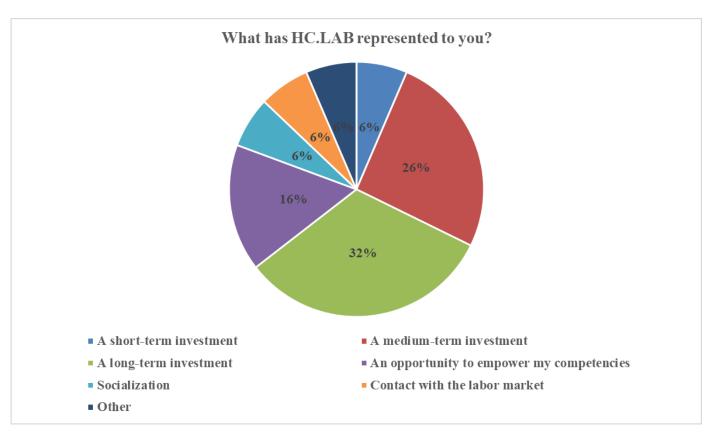


Figure 3: Meaning of HC.LAB to participants