

Training of competences in Entrepreneurship and collaboration between students of different disciplines and degrees of the University of Guadalajara, based on their school projects. Rapporteurship of experience

Formación de competencias en Emprendimiento y de colaboración entre alumnos de diferentes disciplinas y grados de la Universidad de Guadalajara, teniendo como base sus proyectos escolares. Relatoría de experiencia

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Abstract

The results of experiences of the link in order to motivate entrepreneurship between students of two different careers are reported. Food science develops, characterizes and validates a food and marketing makes its business plan. And the Master of Law supports the working relationship with confidentiality letters, advice for product protection and collaboration contract, in case both students decide to continue together in incubation towards a company. The information used for this work was obtained from the anecdotal experiences documented during the work with the students during the 2019B, 2020A and 2020B school cycles. Students' comments were retrieved from the comments they left on their teacher evaluations at the end of the semester. The participating students valued the experience very much and learned new things that in their career they do not normally receive. Relating to other disciplines enriches and fosters new ideas, new relationships and the best results of any project. It lets them see how, their project, seen with different eyes can offer greater and better advantages. From the legal part, they live it, not only study it. And new forms of interaction-experience are proposed that add for their professional training.

Resumen

Se relatan los resultados de experiencias de la vinculación con fines de motivar emprendimiento entre alumnos de dos carreras diferentes. Ciencia de los alimentos desarrollan, caracterizan y validan un alimento y mercadotecnia hace su plan de negocios. Y la maestría de Derecho apoya en la relación de trabajo con cartas de confidencialidad, asesoría para protección de producto y contrato de colaboración, en caso de que ambos alumnos decidan continuar juntos en incubación hacia una empresa. La información utilizada para este trabajo fue obtenida de las experiencias anecdóticas documentados durante los trabajos con los alumnos durante los ciclos escolares 2019B, 2020A y 2020B. Los comentarios de los alumnos fueron recuperados de los comentarios que dejaron en sus evaluaciones docentes al final del semestre. Los alumnos participantes valoraron mucho la experiencia y aprendieron cosas nuevas que en su carrera no reciben normalmente. Relacionarse con otras disciplinas enriquece y propicia las nuevas ideas, las nuevas relaciones y los mejores resultados de cualquier proyecto. Los deja ver cómo, su proyecto, visto con otros ojos puede ofrecer mayores y mejores ventajas. De la parte legal, la viven, no solo la estudian. Y se proponen nuevas formas de interacción-experiencia que le abonan a su formación profesional.

Entrepreneurship, Collaboration, Multidisciplinary

Emprendimiento, Colaboración, Multidisciplinario

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Introduction

The University of Guadalajara, UdG as a public institution of higher education, with presence throughout the state of Jalisco, Mexico, develops teaching, research and liaison activities with the public, private and social sectors of impact; currently one of the institutional policies is the strengthening of the competencies and skills that students develop during their training, same that allow them to assume the responsibilities that as a professional acquires when joining the labor field. Teachers now have three substantive functions: teaching, research and extension (Arechavala et al, 2017).

Hence, one of the guiding axes for several educational programs is the inclusion of training in business entrepreneurship, which contributes to the disciplinary and personal training of professional students; While it is true that the approach to the professional field has been an ordinary exercise for the institution, in recent years the need for training in entrepreneurship has increased to meet the needs of employers to offer graduates with initiative, inventiveness and problem-solving skills.

The teaching of entrepreneurship today is based on the creation and application of theoretical models to explain the reasons why certain decisions are made and to promote entrepreneurship as a way of thinking and acting (Castillo, 1999). (Castillo, 1999) Added to all of the above is the fact that every semester new groups of students finish their studies and are included in the labor force for which they will have to offer more than ever before or be very necessary in the country's economy of priority interest in order to be able to access a work space.

It seeks to encourage students to contribute to the economic growth of the country, it is necessary that students have as part of their goals the development of entrepreneurial activity, which translates into the creation of companies, and that has a positive impact on the generation of new jobs and economic growth. (Camacho and Yagual, 2013) In this sense, Duarte and Ruiz (2009) mention that the development of an entrepreneurial culture is a justification to enhance creative and innovative processes, which are capable of generating productivity and development from the creation of new economic entities at local, regional and national levels.

The current economic models limit the inclusion in paid work of professionals, professionals should already be able to create their own livelihoods. In addition to the above and taking into consideration the current circumstances experienced worldwide as a result of the recent health crisis caused by the COVID-19 pandemic that occurred in 2019 has marked a new paradigm in the way economic models operate and perform, the economy suffered a hard blow when jobs fell and there were many people unemployed due to company closures in the country and the world, however this crisis presents an opportunity for improvement and strength in relation to entrepreneurship.

Professionals must be ready for changes, provide solutions and seek their place in new environments, with new challenges and applying the knowledge acquired in their respective areas of performance careers. Entrepreneurship is a good option to propitiate doing and applying knowledge in activities different from those commonly done in classes with school projects that do not offer them any experience. Public universities already involve entrepreneurship in their activities; there are few that do so, but they are becoming more and more. (Valdivia-Velazco, et al., 2019)

Since 2019 in the Network of the University of Guadalajara, actions have been strengthened for the joint work of educational programs and in a multidisciplinary way with students of the careers of Food Science Career, CALI, of the University Center of Biological and Agricultural Sciences, CUCBA and the Marketing Career, M, of the University Center of Economic and Administrative Sciences, CUCEA, has been a process of internal linkage that allows interaction, analysis and search for solutions to problems from different professional approaches, in order to later develop and participate in external linkage projects; For example. CALI students develop and characterize a food product during their career and marketing students make a business plan for them, which includes price-product-place analysis and e-commerce, as part of their 7th semester school project. Both careers are related for work and what is intended with that is:

- To link students from different careers of two university centers to promote entrepreneurship, motivating the marketing and business start-up from the linkage and work with an existing product developed by one of the parties.
- That the school work of marketing students has a formative support, when they use a real product for their study and do not go inventing products just to pass the subject and get their grade.
- That the food product developed by CALI has a business plan study of value and with real potential carried out by marketing students.
- Motivate multidisciplinary and thus encourage possible collaborative work for the start of a business in the short term. (Hernández-Tinoco, et al., 2021).

Up to this stage, the activities carried out are intended to derive in the relationship and collaborative work, but up to this point it only contemplates the creation of the product and its validation in the market, but it also needs another important element of multidisciplinary.

From the processes promoted, great strengths and some opportunities for improvement have been identified and one of the most tangible has been the need to make visible and protect the results from the legal point of view, especially for the strengthening of the actions and creations that result, it has been identified that the actors of creation and commercialization need legal support to give value to the results of their linkage, especially in relation to the handling of confidentiality, the protection of sensitive data, the organization and structure of contracts, which clearly establish the rights and obligations that the parties assume in a given process, the criteria and agreements for the distribution of benefits, profits or usufruct that are generated, among others.

A recurring situation that arose during the first two semesters when the collaborative work with the two careers was proposed, was that when CALI students were invited, they refused to share their product, alleging that M students could "steal" their idea and make use of it.

There was also the issue of the protection and patent process offered by the university, in which the university carries out the process, pays for it and promotes it in the networks for transfer and exploitation permits, which the students also refused because there was a lot of false or unclear information about what the process implied and they understood that the university would keep their product, their profits, and they would be robbed. Hence, derived from these needs, the working group determined as a strengthening strategy to seek support with an educational program of the network, which would strengthen the legal part in the activities and projects that are developed, so that in October 2020, taking advantage of the strengths that the University of Guadalajara has, it was decided to make an internal collaboration agreement between the (CUCEA), (CUCBA) and (CUSUR), which in a sense formalized and strengthened the activities that the work team was already carrying out previously.

And here, in support of the already existing CALI-M linkage, the students of the Master's Degree in Law of the, CUSUR, participate in the incorporation of the Master's Degree in Law, which, as a professionalizing postgraduate program incorporated into the National System of Quality Postgraduate Programs, formerly PNPC, adds to the collaboration by strengthening the legal and juridical accompaniment in the projects that are developed, through the assignment of advising lawyers who are currently studying their postgraduate studies in said program.

This paper presents the experience of the working relationship between two different undergraduate careers that share their school projects with the intention of fostering a relationship towards business entrepreneurship for both and the inclusion of the Master of Laws of CUSUR to support the working relationship and begin to have material to support the information related to business relationships, glossary of terms, definitions of procedures, concepts and meanings of protecting, plagiarism, rights, protection conditions and that elements of three different disciplines know each other, present their strengths and share and coexist during their training.

Materials and methods

Detection of opportunity situations

From the experience of working for two school cycles with CALI and M students, situations arose that needed to be resolved. All of them came from the experiences of working with the groups. (anecdotal data)

CALI students

- They are wary of sharing their work with students from M, as they fear plagiarism.
- They have no information on what it means to protect their product.
- Those who have been proposed to protect, patent their product with support from the university are distrustful, as they think that: the product is theirs, that the university wants to steal it, or that the university wants to take advantage of them.
- They are ill-advised by other academics who also have no information about what patenting at U de G means.

Students of M

- They feel that they are working for "free" on a business plan that has nothing in it and that no one is taking advantage of it. Or they feel that they are working and that "someone might take advantage of it" later.
- They want to know if they can take advantage of this and how to do it in case the CALI students decide not to continue with their product to the business. How to make agreement, contract, etc.
- They are wary of their work being used without their consent or permission for someone else's benefit. (collaboration teachers, CALI students, etc.).

As a group it was detected that there was a lack of informative materials regarding:

- Explanation of the collaboration, objectives, expectations and offer for continuation of the work at the end of the semester.
- Intellectual property.
- Industrial property.
- Protection implications, convenience, costs, rights, etc.

- Patents.
- Collaboration.
- Plagiarism of ideas.
- Collaboration through contracts without the need for legal associations.
- Usufruct agreements between the parties.
- Agreement of the teachers not to misuse the delivered works (school projects).

Linkage needs for master's degree students

CUSUR's master's degree in law belongs to the CONACyT standard of excellence, which means that they are students with financial scholarships, that they are committed to being full-time students, that the work they develop as a thesis must have an impact and that during their preparation they will also offer community service in correspondence (PNCP, CONACyT).

For the part of their service to the community, we saw the convenience of associating them to the CUCEA-CUCBA link so that they could contribute to the development of the work synergy between students and the results of the work.

Every semester since 2021B at least one student has been assigned to the linkage by the Master of Law coordination to provide service and support in the needs of the work.

Results

As a result of the inclusion of the master's degree in the CUCEA-CUCBA synergy, the first thing that came up was the proposal to legalize the collaboration before the attorney general and the document "CUCEA-CUCBA-CUSUR Collaboration Agreement" was generated, the first agreement of this type in the university network.

This collaboration is very important since the university has been working in a network for 25 years and something like this did not exist. Collaborative and multidisciplinary work linked to school projects is indispensable during their formation in order to face the new challenges of the country and the world in the future.

From the concerns of CALI students.

"We are afraid that our product idea will be plagiarized". It is made clear to them that an idea cannot be plagiarized. CALI students provide only a name and a brief description of the product including type of packaging, content such as net weight, and the added value written briefly. No preparation methodology or formulation. Therefore, the mere name of, for example, "nopal jelly with amaranth and cocoa" is not subject to plagiarism. Only that now it is explained and supported to the students. Everything is explained in a video conference presentation presented to the students by the leader of the synergy, who is not their teacher. All of this is supported by the regulations.

After explaining the above, we proceed to deliver letters of confidentiality, which were sent to us by the Coordination of Technology and Knowledge Transfer of the university, signed by both parties. The first intention is to make them aware of its existence, content and use. On the other hand, it serves so that there is no doubt about the collaborative work and what may arise along the way, leaving them free to collaborate freely. So much so that the CALI student knows that the M student will not commercialize his product without his permission and that the M student knows that the CALI student will not use his information to take advantage without taking them into account. In fact, CALI students never have access to the final business plan of the M students. They only know the final "Pitch" which is a kind of executive summary of 4 minutes.

"I don't patent with the university because it keeps most of the usufruct and the benefit is for the university". For this part we invited the Coordinator of Technology and Knowledge Transfer of the General Coordination of Research, Graduate and Liaison, of the University of Guadalajara, to give them an informative talk on what is patenting at the university, at the beginning of the semester. Since 2015, the University of Guadalajara has had the Invention Strengthening Program, which supports the costs of patentability analysis, drafting of invention applications, entry and maintenance costs of invention applications and costs of granting invention titles, as well as incentives for professors and students for entering invention applications (Strengthening-inventions, 2020-2021).

Objectives of the synergy

It is explained to them at the beginning of their semester for both groups the Synergy project and its objectives, and these are:

- Collaboration between two careers to promote entrepreneurship while working in a multidisciplinary way. One creates the product, characterizes and validates it and the other makes the business plan study that includes price-place-cost and e-commerce.
- That students work on real school projects and not on fictitious or invented products that do not offer the learning that the project intends.
- That they work in collaboration with legal rules in between (confidentiality letters, consulting with lawyers, etc).
- That both parties are introduced and linked to coincide in a project of entrepreneurship towards the production and commercialization of the food object of the linkage. Contracts are agreed upon and they continue in incubation at CUCEA, at the end of their semester.
- To live with students from other disciplines, learn about their strengths and that they can offer added value to their activities, in synergy, when they go out into the real world.

Dynamics to get the two students to relate and decide to continue with the project until the business in the CUCEA incubator

At the end of the semester, the best business plan projects of M are selected, those that meet all that the established rubric requires and they prepare a 4-minute "Pitch" to present to CALI students.

This reinforces them in the part of preparing to present to an audience that are not colleagues or peers their work. It would be the equivalent of having the experience of presenting to a potential client.

CALI students have the experience of witnessing a presentation from another discipline different from their own, supporting their product, another vision and that although they also make a business plan, they can compare it with a business plan of students trained in marketing, more robust and more professional.

At the end of the presentation, the CALI student, owner and creator of the food, and the M student who created the business plan and has just presented it to the group are introduced. They are given a few minutes to introduce themselves, ask questions and agree if they wish to continue with the collaboration on their own with the support of the entrepreneurship part of the university incubation.

If they choose to continue, they are referred to the support law student of the semester to begin drafting the agreement document based on their interests, what they decide to contribute to the project, scopes, etc. All of this is accompanied by the project leader teacher who follows up and verifies that the next steps are carried out. In this student to student interview, the M student can also express, if it is the case, the interest to go ahead with the project, in case the CALI student does not want to do so and CALI grants the permissions and conditions that apply to the case.

The work of the students of Social Service of the Master of Law in the linkage.

Every semester from the beginning of the collaboration, May 2020, at least one social service student, SS, was assigned to assist the CALI-M collaboration work of the CUCEA-CUCBA Collaboration Project, now CUCEA-CUCBA-CUSUR.

First semester of linkage. Calendar 2020B

A student was assigned to the project and she worked during the semester on a manual, which is a guide for the registration of projects before the IMPI (Mexican Institute of Intellectual Property) according to the LPI, Federal Law for the Protection of Industrial Property recently modified and expanded in July 2020, a 94-page document, to generate a synthetic informative document based on this law, illustrative to encourage university students to protect what they develop at the university. (Federal Law of Intellectual Protection, 2021).

The manual shows in a general way the procedures step by step to obtain a registration, showing the most important requirements established by the legislation at the time of filing the application, it also offers an overview of what to do in case of violation of any right of which they are entitled, the expiration and invalidity of the records, in addition to the above, it is worth mentioning that it is extremely important to always resort to the applicable legislation to be updated and for specific cases.

The final document is called: Industrial Property: ABC of registration before IMPI. It is an illustrated manual of 29 pages, based on the Mexican IPL, updated. It is already reference material for the students and professors of the project.

Second semester of bonding. Calendar 2021 A

Another Master of Law student was assigned to review the confidentiality letters and was ready to generate the contracts derived from the work for students who wish to continue with the collaborative work at the end of the semester to refer them to the entrepreneurship unit, to the university's incubator for support and follow-up.

As part of the education in intellectual property that is so lacking in the teaching staff to support the work in entrepreneurship of the university, a basic course-workshop on Intellectual Property was developed in collaboration with the Universidad Cooperativa de Colombia, experts in Industrial Property and who have the International Diploma in Intellectual Property, with the Universidad Libre and the Corporación Universitaria del Caribe, CECAR, both also from Colombia. The course-workshop was 40 hours long, virtual, with curricular value, with the support of CUCEA-CUCBA-CUSUR (Collaboration Project) for its achievement and execution. In addition, students of the Master's Degree in Law and graduates of the aforementioned diploma course also participated as speakers in the course-workshop.

It was held from May 4 to June 2, 2021. Composed of 9 modules. The invitation link can be accessed at: <https://m.facebook.com/ciadeys.cucea/posts/4559045424112809>

90 people participated and concluded with a Diploma.

Dynamics and development of the collaborative work.

In the first semester of the CALI-M collaboration, it was imposed that all CALI students would share the names of their products with M students so that they could make their business plan. There was annoyance on the part of the CALI students, who believed that the idea was being stolen from them and given to M. We did not realize this until the end of the semester, when the students commented on all of this during the teacher evaluations.

The following semesters we explained to the students the objectives of the collaboration, the convenience of partnering with M for those who intended to later commercialize and do business with their product. It was clarified that the mere naming of a product does not imply plagiarism. And finally, CALI students were invited to participate voluntarily, with the use of confidentiality letters for sharing. And from this CALI students participate voluntarily and their comments in the evaluations are that they are happy with the work and what stands out the most is that there are no complaints and the comments are of gratitude.

In the case of the M students, who thought they were being abused when they believed that they were working for free for the CALI students, it was also clarified that their work is not shared with anyone. Their teacher reads them, evaluates them, and keeps them safe without sharing them with anyone else, and the confidentiality letters also gave them certainty and confidence. This is reflected in the students' comments in the teacher evaluations.

To date, it has not been possible to establish the final interview between CALI and M students to present the final Pitches. This is due to setbacks due to changes in the institution's calendar that move dates without prior notice, cut school periods and do not reach the closing meeting, presentation, integration and continuation. The intention is to set the dates before the closing dates of the semester to ensure that students are still in class and that the interview is part of the program of the subject. This has happened as a result of the adjustments due to the pandemic that the university has to make each time.

From the last school year we have three CALI-M binsas interested in continuing together in incubation. The products of these binsas cannot be patented due to the nature of the products, so they will be advised on the best way to maintain the industrial secret and contracts are being worked on for the continuation of extracurricular activities at the university.

In the next school year, the law students will review the potential of registering and patenting each of the foods that the CALI students of the corresponding semester, in order to, if it is the case, the patentable products, invite them to do it through the university and accompany the student in the process.

It was also advisable to have each of the professors involved in the project sign, by school year, to give certainty and security of the good use of the work delivered by the students as their semester school projects.

With all these actions, students are taught the potential of relationships and collaborative work with other disciplines. They know the advantages and disadvantages of working alone and in teams with someone who makes them strong in another discipline different from their own. Students in collaborative work know the legal part and live the experience of signing agreements, they know the scope and implications of working relationships in a legal way. The law students offer social service with impact and teach with practice during the work relationship and CALI-M students learn by doing.

Conclusions

The involvement of the master's students in the collaboration strengthens the existing CALI-M collaboration from a product-commercialization one to one with legalized working relationships on paper, commitments, penalties and trust.

The inclusion of law in the collaboration makes working in a more pleasant and trusting way and CALI-M students learn about legal formalities during the process.

The confidentiality letters give CALI students confidence that they will not lose their products and M students confidence that no one will use their information without their permission.

Concepts related to industrial property, patent, protection, rights, obligations, contracts and confidentiality or other related concepts are reaffirmed and clarified for all those involved in the project, especially for CALI and M students who do not have this training.

It is clarified that "a nominative idea", the name of a product, is not subject to plagiarism as a product.

Materials are generated that teachers can use in the future to support collaboration and resolve doubts.

Students interact with peers from other careers, from other universities and learn the potential of the relationship for potential entrepreneurship.

CALI and M students learn legal processes while collaborating on the semester project.

The protection of products generated at the university is encouraged and promoted among students through the university's Invention Strengthening Program.

References

Arechavala Vargas, Ricardo, & Sánchez Cervantes, Claudia Fabiola. (2017). Las universidades públicas mexicanas: los retos de las transformaciones institucionales hacia la investigación y la transferencia de conocimiento. *Revista de la educación superior*, 46(184), 21-37. <https://doi.org/10.1016/j.resu.2017.09.001>

Camacho Cuji, A. M., & Yagual Cedeño, G. L. (2013). El emprendimiento como estrategia para la gestión empresarial mediante talleres de capacitación dirigidas a los alumnos de bachillerato. Tesis. (10 de septiembre de 2021) en <http://repositorio.ug.edu.ec/handle/redug/12426>

Cámara de Diputados del H. Congreso de la Unión. (2020, 01 de Julio). Ley federal de protección a la propiedad industrial. Diario Oficial de la Federación. http://www.diputados.gob.mx/LeyesBiblio/pdf/LFPPI_010720.pdf

Castillo, A. (1999) Estado del arte en la enseñanza del emprendimiento. En: *Emprendedores como creadores de riqueza y desarrollo regional*. Santiago, Chile: Intec Chile. <http://recursos.ccb.org.co/bogotaemprende/portalninos/contenido/doc2estadodelarteenlaensenanzadelemprendimiento.pdf>

CONACyT, Condiciones Padrón del Programa Nacional de Posgrados de Calidad, (2 de septiembre de 2021) PNCP, CONACyT, <http://svrtmp.main.conacyt.mx/ConsultasPNPC/inicio.php>

Duarte, Tito, & Ruiz Tibana, Myriam (2009). *Emprendimiento, una opción para el desarrollo*. Scientia Et Technica, XV(43),326-331.[fecha de Consulta 27 de Octubre de 2021]. ISSN: 0122-1701. Disponible en: <https://www.redalyc.org/articulo.oa?id=84917310058>

Fortalecimiento-invenciones 2020-2021. Universidad de Guadalajara. (2 de septiembre de 2021). En <http://cgipv.udg.mx/fortalecimiento-invenciones>

Hernandez Tinoco, Araceli, Cervantes Guzman, Jovanna Nathalie y Reyes Rodríguez, Mónica Araceli. 2021. Sistema de acciones para la implementación del Emprendimiento aprovechando los trabajos académicos y trabajando en asociación entre diferentes carreras para además propiciar la multidisciplinaridad desde la formación profesional desde el aula. Consultado en: https://www.ecorfan.org/republicofperu/research_journals/Revista_de_Ciencias_de_la_Educacion/vol4num11/Revista_Ciencias_de_la_Educacion_V4_N11_2.pdf

Valdivia-Velasco, Magali; Coronado-Guzmán, Graciela; Aguilera-Dávila, Aída *Emprendimiento en las universidades públicas mexicanas: Estudio bibliométrico* Revista Venezolana de Gerencia, vol. 2, 2019. Universidad del Zulia, Venezuela. Disponible en: <https://www.redalyc.org/articulo.oa?id=29063446024>