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Research Article

Integrating project, as a generator of competencies and learning outcomes

Proyecto integrador, como generador de competencias y resultados de aprendizaje

Projecto integrativo, como gerador de competências e resultados de aprendizagem

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Abstract

Introduction: The integrating project (I.P) has been positioning itself in Higher Education Institutions as a high-quality pedagogical tool that allows the establishment on the one hand of the formative research process, applied in both disciplinary and transversal subjects; this directly impacts the community of students, teachers, and companies, which leads to constant dialogues that enrich the construction and apprehension of knowledge of the community that is part of it, analyzing the most relevant and applied methodology to achieve the learning results that this project evidences. **Materials and/or Methods:** as qualitative descriptive research, the work was carried out with the programs of business administration and systems engineering, through teachers participating in a pedagogical network of professional support interested in sharing significant experiences, therefore different programs were taken into account, the purpose is to establish the methodology to carry out the application of the IP and the subsequent learning result with left-to-right thinking, up to the micro curriculum integrated into a project, which in this case is derived from the programs mentioned. **Results:** an analysis of concepts and the location in the operability within the project, development matrices for implementation, follow-up, and control were established, some of them consistent with those that Higher Education Institutions in Colombia have been generating, however, the corresponding variables apply to each program. **Conclusions:** It is vital to recognize the need to take into account the transversal and disciplinary subjects as an articulator of learning, this requires two-way communication processes which in turn allows integral formation.

Keywords: Integrating project; Learning results; Research; Pedagogical tool; Learning competencies.

Resumen

Introducción: El proyecto integrador (P.I.) se viene posicionando en las Instituciones de Educación Superior como la herramienta pedagógica de alta calidad que permite establecer por un lado el proceso de investigación formativa, aplicado en asignaturas tanto disciplinares como transversales; este impacta directamente a la comunidad de estudiantes, docentes y empresas, lo cual conlleva a diálogos constantes que enriquecen la construcción y aprehensión del conocimiento de la comunidad que hace parte, analizando la metodología más pertinente y aplicada para así lograr evidenciar los resultados de aprendizaje que este proyecto. **Materiales y/o Métodos:** como investigación descriptiva cualitativa, se realizó el trabajo con los programas de administración de empresas y de ingeniería en sistemas, a través de docentes participantes de una red pedagógica de apoyo profesional interesados en compartir experiencias significativas, por ello se tuvieron en cuenta diferentes programas, el propósito es establecer la metodología para realizar la aplicación del P.I y el posterior resultado de aprendizaje con un pensamiento de izquierda a derecha, hasta el micro currículo integrado en un proyecto, que para este caso es derivado de los programa en mención. **Resultados:** se estableció un análisis de conceptos y la ubicación en la operatividad dentro del proyecto, matrices de desarrollo para la implementación, seguimiento y control, algunas de ellas consecuentes con las que las Instituciones de Educación Superior de Colombia vienen generando, sin embargo, las variables correspondientes aplicables a cada programa. **Conclusiones:** Es de vital reconocimiento la necesidad de tener en cuenta las asignaturas transversales y disciplinares como articulador del aprendizaje, esto requiere procesos de comunicación de doble vía que a su vez permite la formación integral.

Palabras clave: Proyecto integrador; Resultados de aprendizaje; Investigación; Herramienta pedagógica; Competencias para el aprendizaje.

Resumo

Introdução: Introdução: O projecto integrativo (PI) tem vindo a posicionar-se nas Instituições de Ensino Superior como a ferramenta pedagógica de alta qualidade que permite estabelecer, por um lado, o processo formativo de investigação, aplicado tanto em disciplinas disciplinares como transversais; isto tem um impacto directo na comunidade de estudantes, professores e empresas, o que conduz a diálogos constantes que enriquecem a construção e apreensão do conhecimento da comunidade que faz parte, analisando a metodologia mais relevante e aplicada para assim obter provas dos resultados de aprendizagem que este projecto permite. **Materiais e/ou Métodos:** como investigação descritiva qualitativa, o trabalho foi realizado com os programas de administração de empresas e engenharia de sistemas, através de professores participantes numa rede pedagógica de apoio profissional interessados em partilhar experiências significativas, pelo que foram tidos em conta diferentes programas, o objectivo é estabelecer a metodologia para levar a cabo a aplicação da PI e o subsequente resultado da aprendizagem com um pensamento da esquerda para a direita, até o micro-currículo integrado num projecto, que neste caso é derivado do programa em questão. **Resultados:** foi estabelecida uma análise de conceitos e a localização na operacionalidade dentro do projecto, matrizes de desenvolvimento para implementação, monitorização e controlo, algumas delas consistentes com as que as Instituições de Ensino Superior na Colômbia têm vindo a gerar, no entanto, as variáveis correspondentes aplicáveis a cada programa. **Conclusões:** É de reconhecimento vital a necessidade de ter em conta as disciplinas transversais e disciplinares como articulador da aprendizagem, o que requer processos de comunicação bidireccionais que, por sua vez, permitem uma formação abrangente.

Palavras-chave: Projecto integrativo; Resultados da aprendizagem; Investigação; Ferramenta pedagógica; Competências para a aprendizagem.

INTRODUCTION

This process begins with the conceptualization of the IP for different instances in order to establish the unanimity of the process.For the University of San Buenaventura in Colombia, it is established as an alternative to develop an alternative curricular model, which was used to achieve greater collective participation of teachers, students and administrative bodies, Since the creation of this alternative model based on the cognitive theories of social-historical evolution and the theory of learning would allow the application of previous knowledge and those acquired by the community that is part of it, encouraging the development of competencies from the (Conceptual, Attitudinal and Procedural) which will allow greater autonomy and ability to develop a semester by semester research throughout the career with the accompaniment of teachers whose subjects belong to the P.I, and thus forging a better professional (Hewitt, 2007).

According to García and López (2012), the integrating project is defined as:

> A didactic strategy that consists of carrying out a set of activities articulated among them... with the purpose of identifying, interpreting, arguing and solving a problem of the context, and thus contributing to form one or several competences of the graduate profile, taking into account the approach of a significant problem of the disciplinary, research, social and professional context (p. 9).

The integrative project becomes a tool of great importance as an evident strategy for the problem-based approach within the educational institutions, by virtue of the students' participation in it, it is established in itself as a process of application and reinforcement of disciplinary and soft skills in a progressive manner, given from the development of the academic period and the promotion of continuity in the following complementary cycle.

According to Parra and Pinzón (2013):

> It is conceived as a training strategy that integrates people, knowledge (theory and practice), areas, active learning methodologies and interdisciplinary research, framed in the lines of the faculty to generate solutions that contribute to social development through the university-enterprise relationship, (p.3).

As a developer of critical thinking, teamwork, and leadership, it allows progress in the application of values and principles for a good professional performance of the student, in this sense, the competencies given from the curriculum in permanent updating are taken into account, as a result of the interaction with the productive sector and society in general, which allow to put them into practice in work environments and contribute to the resolution of community problems.

Being an active methodology in the development of competencies, López Noguero (2005) quoted by Fer- nández (2006), in his document Participatory methodologies in *university teaching*, defines it as the transition from traditional methodologies to participatory methodologies, thus the activation of the two-way communication process, the inclusion of experiences and knowledge among the different participants, and the use of didactic material leads to the satisfaction of the community.

Typical examples of this type of methodologies include: the teacher has a role of

The learning process is accompanied and guided by the learning process, therefore, it is actively participatory, it becomes the center of teaching and learning, it is supported by the active collaboration process among participants, it includes the experience of the social and productive environment.

Now then, the IP as a tool allows the integrality of different subjects belonging to the curriculum of the programs making the active methodology integral for the viability of the competences and evidences of the students' learning.

On the other hand, from the declaration of Decree 1330 of 2019 in Colombia which regulates the processes of qualified registration and academic quality of HEIs, directing these entities to evidence the effective management of the resources declared by the educational entity, among which are the effectiveness of teaching in the learning outcomes imparted by each program which is found in the declaration of effectiveness of its curriculum and the educational promise found in the graduation profiles (Decree 1330, 2019).

In this sense, there is a total change in the way in which HEIs show the learning results developed by the programs through their curricula, in which their competencies are established and before the decree these results were implicit, now, as part of the process, not only the evidence must be given in the graduate's profile but there must be progressive results that allow establishing the state of development of the competencies in their corresponding academic periods.

Situation that constitutes an interesting challenge, to the extent that the form of evaluation stipulated within the institution measures the end of the apprehension of knowledge, but not the progressive result in time, scenario that is established as a necessity since this would allow to follow up students with evident difficulties, therefore it is stipulated to fulfill a process of analysis and evaluation of the learning results within the integrating project of the Business Administration and systems engineering program, but going further here is how to build a P.I that evidences the learning results (R.A) of the application of this in each subject.

A project-based learning activity is visualized within the institution, where the development of competencies under the experiential model allows this, the semester integrating project, to constitute a dynamic process that period by period demands the effort of the team in its function of guidance and accompaniment, and has required adjustments as a result of the permanent evaluation of the process; in the learning activity and visible in its results as such.

Therefore, this document focuses on evidencing the construction process of the IP oriented to demonstrate the learning outcomes derived from the business administration and systems engineering programs, given answer to the question what would be the route and relevant tools for the development of the IP as a process developed in a right-to-left thinking. as a process developed in a right-to-left thinking, since it stipulates in an initial way which is really the intentionality, the tangible product of good or service generated within the learning of the students and the lessons given by the teacher, derived from the application of the micro curricula, as structure is found: in the second part the concepts that were taken into account to carry out the analysis, in the third part the methodology used and in its final part the results obtained.

OBJECTIVES

Establish the structure of the IP with the participation of the different subjects and the learning results derived from the Business Administration and Systems Engineering programs in order to demonstrate the importance of the participation of different subjects.

- Identify the subjects that are part of the integrative project of the Business Administration and Systems Engineering program, their competencies and expected learning outcomes.
- Describe the necessary aspects that allow the development path through the P.I. plus the R.A. of each of the subjects.
- Generate an initial tool to visualize the I.P. and the A.R.

As a methodological process, the research is of a qualitative descriptive nature, in which support work was carried out with the participating teachers of the business administration programs and the systems engineering program, where initially a documentary review was carried out that allowed establishing the conceptualization of the topics and the necessary aspects to give route to this, followed by a proposal for building a relationship between the participating subjects and a standardization of the matrices to be used between the integrating project of the participating programs, their competencies and the learning results.

Since the process is self-constructed, it is established that the methodology developed is based on participatory research, since it is carried out from the joint work with the teachers of the two areas, 8 from the administration program and 6 corresponding to the Systems Engineering program, where a triangulation of the concepts, the subjects of the study plan and the experience of the teachers is established, ending with the presentation of the matrix to be used for the evaluation of the integrating project.

Focus groups were used as tools for gathering information, which made it possible to exploit the experiences, needs and strengths of the application of the integrating project.

BACKGROUND

For Rodríguez et al. (2019), *El Proyecto Integrador de Saberes una Oportunidad para Aprender a Aprender,* as a methodological proposal that articulates the problematic core and the learning outcomes of the career of Pedagogy of Physical Activity, its central purpose whose central purpose was to analyze the socio-educational ne- cesities in the field of physical activity and sport, the research was based on establishing how the integrative project was based on interdisciplinary work to guide the training process of the professional, generating knowledge and skills development for this professional.

These aspects are of utmost importance, since they definitely provide a view of the integrality of the curriculum, and on the other hand, the need for joint work from each of the participating cross-cutting areas.

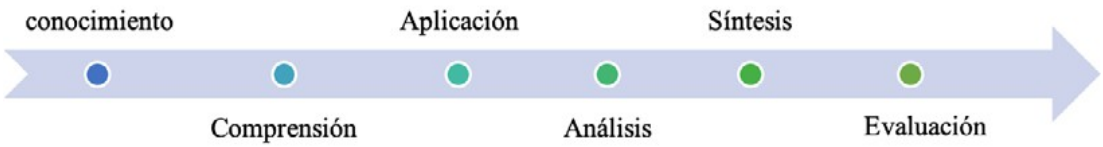
Niño et al. (2020) from *Strengthening the Integral Formation of Systems Engineers through an Integrating Project, a* research carried out with the purpose of strengthening the formation of transversal and disciplinary competences of Systems Engineering, as a methodology, the competences to be developed within such project are established as competences in communication, adoption of healthy habits and formation of values, the evaluation system to these, as a conclusion, the integration of the referent aspects and that allow generating self-evaluation. In this sense, the IP is definitely applied significantly for the generation and strengthening of competencies with visible results.

Fong et al. (2016) in their paper *Formative research strategy in technological education: the case of the Integrating Project*, on which they sought to demonstrate the formative processes of students and the application of acquired knowledge directed towards society and productivity, as part of the objectives is to demonstrate the learning outcomes from the implementation of the integrating project, and how it is implemented in the context. In this sense, the article is developed with the different components such as the integrating project, formative research as the central axis and learning results in order to articulate the knowledge processes.

For Pereira et al. (2019), in *Proyecto integrador de saberes en la formación de profesionales en educación básica,* whose purpose was the evaluation of the strategy of the integrative project as a pedagogical proposal in teaching-learning, of quali-quantitative order established the importance of the application of this and its impact on the development of students' skills, as a result the importance of collaborative and interdisciplinary work was obtained.

Taxonomy of learning development: oriented towards the categorization or classification of learning, it is necessary for the process because it does not identify the scope that is desired to obtain both with the competence and with the learning outcome, one of its creators is Bloom 1956 quoted by Declan Kennedy (2007) in his Guide for writing and using learning outcomes, which brings to education levels of behavior in thinking, from remembering facts, the bottom and the evaluation process. Related aspects in his maximum work.

Figura 1: Taxonomía de Objetivos de Educación.



Fuente: Construcción propia a partir de la Taxonomía de Bloom.

The following definitions were taken as the main definitions that are part of the IP:

- **Micro curricula**

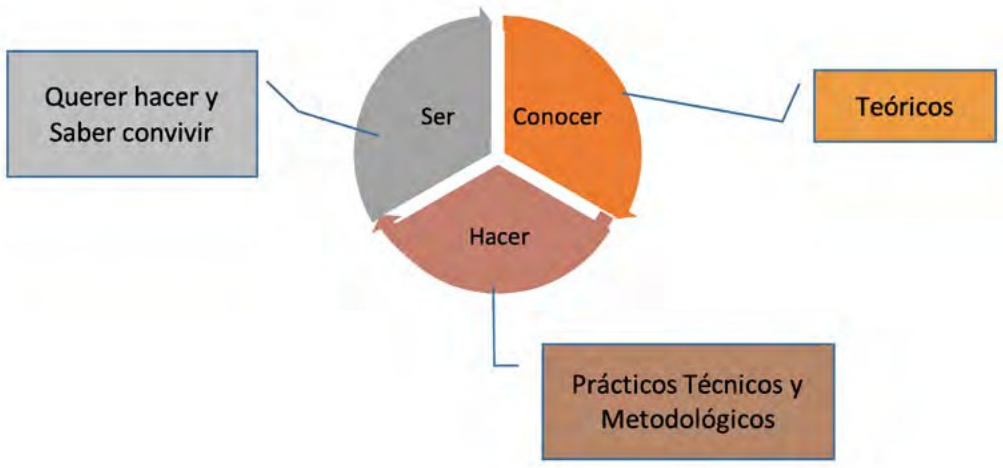
The General Education Law (1994) defines it as:

set of criteria, curricula, programs, methodologies, and processes that contribute to the integral formation and construction of identity... also including the human, academic and physical resources to put policies into practice and carry out the institutional educational project (art. 76, Law 115 of 1994).

- **Competencies**

Paraphrasing Tobón (2006), these generate complex processes that people put into action-action-creation, to solve problems and carry out activities (of daily life and of the professional work context), contributing to the construction and transformation of reality, complementing each other from three aspects: knowing how to be, knowing how to know and knowing how to do, based on the requirements of the immediate context, personal problems.

Figura 2: Construcción y transformación de la realidad



Fuente: A partir de Tobón (2006).

In this context, according to Tobón (2006), the curricular units establish what it is determined that students should know, how they should act in the face of knowledge and how their behavior and attitude should be in their learning exercise; therefore, it is assumed that these correspond to a result of the teaching-learning process, in units as shown in Table 1.

Tabla 1.
Componente del aprendizaje

	Saberes mínimos por desarrollar		***Saberes mínimos por medir como resultados de cada uno de estos***		
Saberes prácticos	*Saberes Teóricos*	*Saberes valorativos*	*Cómo es su Desempeño*	*Que debe conocer*	*Cuál es la actitud que posee*

Nota: se revisa los componentes didácticos pedagógicos y se cruza con los atributos del aprendizaje

- **Learning outcomes**

Being a written statement about what a student or learner is expected to be able to do at the end of a unit of a module/course or degree, conceptualization assumed by the Ministry of National Education of Colombia from the decree 1330 of 2019 of the quality evaluation system for Higher Education Institutions, likewise from the European System, the objectives of the subject are subscribed (preferably expressed in terms of expected learning outcomes and competencies to be acquired) (European Commission, 2004).

As expressed in Table 1. The results would be oriented to the student's performance, what he/she knows, and attitude towards the action. It is taken into account that these will be described in concrete actions in active verb for good understanding.

- **Subjects**

Known as the subjects that impart the corresponding knowledge in each of the programs from the curriculum, these are given in disciplinary or transversal order as well as some that are definitely the center of education and others that complement its execution.

- **Project-based learning**

Active methodology for educational development where teaching is centered on the student with the support and accompaniment of teachers, they respond to the resolution of situations through their knowledge supported by resources such as research and social action and teamwork.

After the development of the conceptualization and focus of the need, we proceed to develop each of the objectives starting with the first one 1. Identify the subjects and their contribution to the project integrator of the Business Administration and Systems Engineering program, their competencies and expected learning outcomes.

Initially, focus groups of teachers participating in the integrative project were established, made up of representatives of the disciplinary units, units such as research and humanistic areas as a component of each of the programs, in this sense, an exploration focused on the subject matter was carried out, which allowed building the tools and participating subjects.

From the analysis of the learning outcomes, the disciplinary and transversal competencies are obtained, required for the generation of a good or service product that accounts for the curricular contents and the apprehension of the knowledge acquired in the academic period by the students resulting in the learning outcomes to be evaluated.

In this sense, it is observed how the micro curriculum of the subject becomes the center of the process, however, the proposal to take into account is based on the product expected from the students as the final result, in this sense it was observed in the programs the initial selection of the subjects that will be part of the IP and the importance of these.

For the purposes of this analysis, a business plan is established as the final product, which will be given for a

The company is attached to the institutions, and likewise, as part of the privilege of secrecy before the institutions, so many competitions are kept in reserve since it is part of the internal process. Table 2 shows the participation and organization of the participating subjects. The participation and organization of the participating subjects.

For the business administration program in its technologist cycle, the following subjects conceived within its curriculum were established, taking into account the participation of subjects of transversal components, in both cases meetings were held with the teachers of the programs to allow a dialogue of collaboration and joint construction.

Tabla 2.
Asignaturas pertenecientes al P.I

PROGRAMA ADMINISTRACIÓN DE EMPRESAS	PROGRAMA DE INGENIERÍA DE SISTEMAS
I+D+I Empresarial	Administración de redes y servicios telemáticos
Gerencia de inversiones	Arquitectura y diseño de software
Gerencia de la producción	Desarrollo de industria tic
Gerencia de Mercado	Innovación tecnológica
Investigación de mercados.	Teorías organizativas
Matemática financiera	
Ética y responsabilidad social corporativa	

Fuente: Elaboración propia.

2. Specific objective result.

Describe the necessary aspects that allow the development path through the P.I. plus the R.A. of each of the subjects.

Initially, the conceptualization of each of the components that are part of the Integrating Project is established, therefore, the following is a description of what is proposed.

- **Subject Disciplinary Axis:** defined as the subject on which the integrating subjects contribute to the development of this subject. Referred to as A.E.

- **Integrative subject:** Being those whose main function is to participate in an articulated way with the activities that are carried out and thus contribute from their knowledge to the construction of the solution called IA.

- **Articulating subject:** Being the support subject, it serves as a backbone during the semester by providing methodological and research tools that contribute to the achievement of the objectives set by the integrating subject. Called A.A.

- **Project manager teacher:** Being the teacher responsible for the integrating project, he/she has the assignment of the integrating subject, is characterized by his/her disciplinary and research knowledge, and must promote creativity and innovation.

- **Articulating teacher:** These are the teachers in charge of the articulating subjects; their function is to coordinate, support and consolidate the integrating project of the semester from their subjects and the corresponding competencies of said subject in accordance with the document delivered by the project manager teacher.

- **Content of the integrative project:** The papers are presented according to the guidelines established by the APA Norms. They must respond to each of the components of the project.

In this way the subjects that integrate this project will impart the knowledge required for the development of the capacities, skills and abilities of the students providing the competencies that integrate the disciplinary training starting with this type of thinking from right to left, having as a result of a collaborative work, in which students continuously develop their skills and abilities, making possible the interaction and contribution of work teams in search of practical solutions to the different problems of cases presented by society and teachers establish achievable and measurable learning done by their students and the generation of interactive knowledge.

The integrating project is conceived for this research as a semester process of results, not of processes per cycle nor of career completion, aspects of great importance since this generates a scope with respect to the semester in which they are.

As a result of the organization, the following organizations of the subjects of the two programs and their position in the integrating project were stipulated.

Tabla 3.
Asignaturas Administración de Empresa

PROGRAMA ACADÉMICO ADMINISTRACIÓN DE EMPRESAS		
Ciclo	TECNÓLOGO	
Semestre	VIII	
Pregunta orientadora: cuáles son los aspectos metodológicos y teóricos necesarios para la generación de un plan de negocios con el fin de ser aplicado en la MiPymes n3		
Línea componente curricular	Asignatura	Área de Competencias
A-E. Asignatura Eje	I+D+I EMPRESARIAL	Área disciplinar
A.I. Asignaturas área Disciplinar	Gerencia de inversiones Gerencia de la producción gerencia de Mercado	Competencias disciplinares
A.A. Asignaturas área Investigación	Investigación de mercados.	Competencias de investigación
A.I. Asignaturas área Básicas	Matemática financiera	Competencias de Lógica matemática
A.A Asignaturas área Humanidades	Ética y responsabilidad social corporativa	Competencias ciudadanas

Fuente: Elaboración propia.

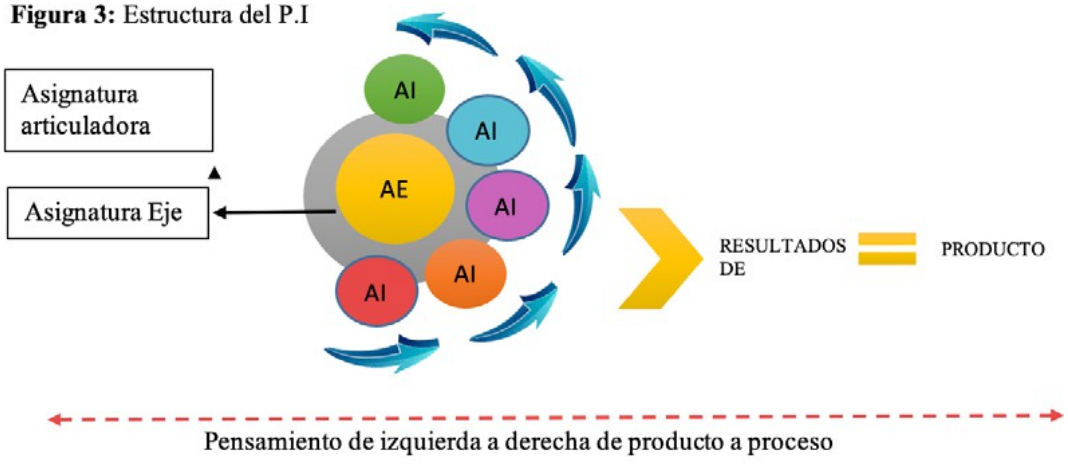
Tabla 4.
Asignaturas Programa Ingeniería de Sistemas

PROGRAMA ACADÉMICO INGENIERÍA DE SISTEMAS		
Ciclo	TECNÓLOGO	
Semestre	VII	
Pregunta Orientadora: cuáles son los aspectos necesarios para la instalación de un sistema de seguridad informática en la empresa CSCM		
Línea componente curricular	Asignatura	Área de Competencias
A-E. Asignatura Eje	Seguridad informática	Área disciplinar
A.I. Asignaturas área Disciplinar	Administración de redes y servicios telemáticos Arquitectura y diseño de software Desarrollo de industria tic	Competencias disciplinares
A.A. Asignaturas área Investigación	Innovación tecnológica	Competencias de investigación
A.I. Asignaturas área Básicas	Teorías organizativas	Competencias organizacionales
A.A Asignaturas área Humanidades	No asignación	No asignación

Fuente: Elaboración propia.

In both cases, an answer must be given to a guiding question conceived in the core of the program, which aims to seek solutions to the needs and problems that arise in the student's personal, work and social environment, and also articulates with the scenarios that allow generating critical thinking about the discipline and the impact after its application, as specified in Figure 3.

Figura 3: Estructura del P.I



Fuente: Elaboración propia.

3. Objective Result Generate.

An initial tool to visualize the I.P. and the R.A.

Once the route has been determined, a tool is to be generated that will make it possible to keep track of the

The progress of the Integrating Project process must be monitored and controlled, since it is necessary to track the development process and itseffects on a weekly basis.

Therefore, the following elements were taken into account:

a. The final product that, according to the semester, the students should present, this consultative exercise is done in conjunction with the teachers who are part of the integrative project, this allows establishing the goals, specifications and deliverables.
b. The themes of each of the participating subjects and the contribution of each one of them.
c. The learning results of each of the subjects corresponding to the cycle from monthly results, and the progressive development of these.
d. The contribution and the joint methodology of the articulating subjects.
e. The definition of the academic and business deliverable to be developed
f. The responsibilities and roles that each participant establishes within the project.
g. The system for measuring and evaluating the progress of the project and the progress made as a working group.

Under these aspects, the following tool is built to follow up and monitor the IP, providing learning results.

Tabla 5.

Matriz propuesta para la implementación del P.I

PROGRAMA ACADÉMICO												
Ciclo												
Semestre												
Pregunta Orientadora: que guie el proceso.												
Línea componente curricular	Asignatura	Competencias	Aporte de la asignatura	Tematica	Resultado de competencia			1 entregable	2 entregable	3 entregable	4 entregable	Producto final
					CONOC	ACTIT	DESEMPEÑO	producto/ evaluación de avance	producto/ evaluación de avance	producto/ evaluación de avance	producto/ evaluación de avance	
Línea Disciplinar	AE	Ser /hacer/conocer		1 semana								
				2 semana								
				3 semana								
	AI	Ser /hacer/conocer		1 semana								
				2 semana								
				3 semana								
	AI	Ser /hacer/conocer		1 semana								
				2 semana								
				3 semana								
Línea Investigación	AA	Ser /hacer/conocer										
Línea Básicas	AI	Ser /hacer/conocer										
Línea Humanidades	AA	Ser /hacer/conocer										

DISCUSSION

One of the major difficulties present in the teaching-learning process developed by teachers in the different higher education institutions is the fact that the pedagogical and didactic management of the subjects is not so usual for teachers since in some areas these components are unknown, a situation that should be considered when proposing leadership in the development of these components.

The educational system is evolving in Colombia, there is talk of new ways of conceiving pedagogy and evaluative structures, it is not about knowledge or memory, it is about the apprehension of knowledge in professionals in training, the structuring of tools becomes of vital importance that goes beyond the format, but is analyzed by the need to generate a teaching for a better country.

For an integrated project to be truly integrated, it must contain subjects from different areas of knowledge and units such as research and relations with the business sector.

In this sense, the application of new training strategies that aim to deliver and enter the student in learning environments specific to the discipline requires a relationship with the company, a conflictive situation since in Colombia most of them are categorized as mypymes and due to the same productive and competitive dynamics of these organizations they do not have time aligned with the academy.

It is not a matter of teaching content by the teacher, nor of memorizing it by the student, but of advancing in the teaching-learning process in order to appropriate knowledge in such a way as to have professionals prepared for today's problems.

CONCLUSIONS

The community, students, teachers and academic programs of the San Mateo University Foundation benefit from the integrative project since it favors formative research and the development of individuals at a cognitive (knowledge), evaluative (being) and practical (serving) level, making the student visible in a model of progress through their academic journey. For this purpose, they require a team of qualified teachers to guide, accompany and evaluate on a permanent basis so that, by means of self-evaluation, co-evaluation and heteroevaluation, improvement plans are made aiming at the institutional quality process.

By carrying out the process with two programs from different areas, it was possible to determine the need, as an example, to place the ICT management component within the integrating project as a technological mediation process, and in the area of engineering sciences, definitely a short managerial subject that allows obtaining organizational competencies aimed at the company.

At certain times, the projects simulated for the development of the project do not leave the same teaching as the participation in the real context in which the students are immersed.

On the other hand, it is not always the teacher leading the process who organizes the project; the different skills and experiences position each participant in the project, thus allowing for continuous improvement and learning, because in the collaborative process the students themselves reinforce knowledge and accompany the development of skills.

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