

2018. Towards the Consolidation of the Academic Body Engineering in Processes: Case Technology University of Tlaxcala

GALAVIZ-RODRÍGUEZ, José Víctor*†, MÉNDEZ-HERNÁNDEZ, José Luis, CERVANTES-HERNÁNDEZ, Benito Armando and MARTÍNEZ-CARMONA, Romualdo

Universidad Tecnológica de Tlaxcala. A El Carmen Xalpatlahuaya s/n Huamantla, Tlaxcala

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Abstract

This article presents the progress and results obtained from the work of the Academic Body Engineering in Processes in consolidation registered with PRODEP, of the Technological University of Tlaxcala. The effort made by teachers enables the development of seven elementary indicators, 1. Desirable profile, 2. Collaboration networks, 3. Participation in congresses, 4. Publication of articles, 5. Patents, 6. Technical reports and 7. Books. It promotes positive attitudes towards work, cultivates nine important goals, which positively impacts on the strengthening of the Tlaxcala Technological University. All this effort to promote or seek the 2018 consolidation of the Academic Body Engineering in Processes, as well as the teachers who engage in their activities towards academic excellence and indisputably to their students, which enriches in a solid way their integral formation.

Consolidation, Engineering, Processes, Goal

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* Correspondencia al Autor (email: galaviz_4@hotmail.com)

† Researcher contributing as first author

1. Introducción

In Mexico, one of the most recent policies aimed at promoting new ways of stimulating the generation and application of knowledge has been the promotion of the creation of academic bodies (CAs) in public institutions of higher education, with the purpose of strengthening dynamics Based on collaborative work, manifested in the structuring of disciplinary teams. According to the official documents, these groups of academics were created mainly to strengthen the tasks of production and application of knowledge, since they are defined as: a set of professors-researchers who share one or more lines of research (study) whose objectives and Goals are destined to the generation and / or application of new knowledge, besides that through their high degree of specialization, the members of the group exercise teaching to achieve a good quality education.

Teacher Improvement Program. In 1996, the Secretariat of Public Education (SEP), together with the National Council of Science and Technology (CONACYT) and the National Association of Universities and Higher Education Institutions (ANUIES), designed the program (PROMEP) program to improve the quality of higher education by strengthening their academic bodies WHAT IS ACADEMIC BODY? A group of professors-researchers who share one or more related lines of research, whose objectives and goals are destined to the generation and / or application of new knowledge, in addition to, through their high degree of specialization, the members practice teaching to achieve a good quality education Desirable support of the Academic Bodies: Sufficient infrastructure for the good performance of the academic functions. Internal norms appropriate for the vigorous development of the academic career. Stimulates and working conditions that make the academic career attractive.

Organization and effective academic management in Higher Education Institutions (HEI). Planning the development of HEIs in the medium term taking into account the various objectives and purposes they have (Santos, 2010).

PRODEP has a regulation, previously established, where the different thematic networks are integrated so that the consolidated or consolidated academic bodies have resources that allow them to link their activities with other consolidated or consolidated national and international academic bodies. In order for Higher Education Institutions (IES) to achieve their objectives, the Secretariat of Public Education (SEP), through the Sub secretariat for Higher Education (SES), promotes, through the PRODEP framework, actions that motivate PTC to Integrate into academic bodies, thus supporting the qualification of high-quality, committed and competent professionals.

As part of these actions, HEIs have the need to develop plans for the development of their academic bodies, taking into account the frameworks of the institutional strengthening programs, in addition to the specific goals and objectives set by the educational programs and the generation lines and application of knowledge and technological development. For this, the SEP, through the SES, promotes the development of projects of the academic bodies of IES attached to PRODEP to promote their improvement and strengthening (PRODEP, 2010).

Mexican public universities have the purpose that most of their professors have postgraduate studies, preferably at doctoral level and in accordance with the nature of educational programs, as their priority strategy to improve the quality of programs and services That they offer to society (Palomares, Dimas, & Espinoza, 2012).

One of the main elements that contributes to the quality of education is the Full-time Teacher (PTC) with a level of training appropriate to the EP, but always with the interest of continuing to increase his qualification and his knowledge and encourage the student to expand his Educational level ensuring greater well-being. An example of this is the Secretary of Public Education (SEP) which has as its essential purpose to create conditions that ensure the access of all Mexicans and Mexicans to a quality education, at the level and modality that require it and in place Where they demand it (SEP, 2013).

A body attached to the SEP is the Program for Professional Teacher Development (PRODEP), formerly called PROMEP, which regulates, through better training and dedication, the research and teaching of Full Time Teachers (PTC) coordinating the different university activities, granting Economic incentives to teachers that meet the desirable profile. And so, to form working groups between PTC with said profile that contributes to the formation of quality students because the working groups are the nucleus for an educational program to be transcendent in the professional development of its students.

The structure of a working group is that those who integrate it have habilitation and implement social and ethical values as an assertive communication that allows the organizational union and shared knowledge between the same members of the IES and the link with external entities "the Training of work teams and institutional networks allows: a) To have better conditions to achieve a more solid horizontal communication between the different university units. B) To have a greater vertical integration between academic departments and offices of the central management of the institution. C) Encourage academic units to make changes as responsibilities are shared.

D) Recognize that teamwork requires greater communication and information sharing, so the results will have more legitimacy (Leyva, 2014).

The CA's are made up of groups of professors belonging to a Higher Education Institution (IES) that have a full time dedication and, together with the teaching activities, perform administrative work, tutoring and counseling in order to train students of quality Contributors to the country's economic development; And are classified into 3 categories depending on their level of development: Academic Bodies in Training (CAEF), Consolidating Academic Bodies (CAEC) and Consolidated Academic Bodies (CAC), the following are the specific characteristics of each of these. CAEF: • They have identified their members. • At least half of the members have the recognition of the desirable profile. • The generation and / or application lines of knowledge have been defined.

Some related and high-level academic bodies from other institutions in the country or abroad with whom they wish to establish relationships have been identified. CAEC: • More than half of its members have the maximum qualification and have products of generation and / or innovative application of knowledge. • A majority of its members have recognized the desirable profile. • They participate together in lines of well-defined innovative generation or application of knowledge. • More than half of its members have extensive experience in teaching and training of human resources. • Collaborate with other CAs. CAC: • Almost all of its members have the maximum academic qualification that enables them to generate and / or innovate the knowledge independently • Its members have extensive experience in teaching and in Training of human resources.

Almost all of them have the desirable profile recognition from PROMEP. • Members have a high commitment to the institution. • Its members collaborate with each other and their production is evidence of this. • Demonstrate an intense academic activity manifested in congresses, seminars, tables and workshops, among others, on a regular and frequent basis. • Intense collegial life. • They have an intense participation in academic exchange networks, with their peers at home and abroad, as well as with national and foreign organizations and institutions (DSA, 2014).

The evolution in the conceptualization and functions of cooperation networks leads to the conclusion that networks are not only an instrument for cooperation but are increasingly perceived and used as an organizational model for institutional strengthening, for the articulation of Innovation systems and for the internationalization of them. Co-operation networks can be defined as stakeholder partnerships aimed at achieving jointly agreed outcomes through participation and mutual collaboration. Networks involve the existence of partners, who are the actors or nodes, linked on the basis of joining efforts to achieve shared objectives, complementing their capacities and the synergy of their interrelationships.

The linkage is based on a horizontal structure of co-participation, collaboration and co-responsibility of each of the partners in relation to an action plan. Networks can be understood as incubators of cooperation, where interactions, collaborations and transfers between partners contribute to generate a multitude of products and results, both tangible and intangible (Sebastian, 2000). The importance of a network, especially an academic network, is enormous because it allows academics to work flexibly, cooperatively, academically, scientifically, technically, socially and culturally in a community, team, group or region.

It allows integration to solve common problems and issues, extends benefits to officials, educators, teachers, businessmen, Trade unions; Can be constituted by institutions, secretariats, research centers; Facilitates the exchange of data, information, knowledge, and encourages reflection. It is a means to create sources of financing and offers a tool to the community. Its purpose is to exchange, build, support knowledge, solve problem solving, increase the number of researchers, strengthen possibilities and as objectives to promote the priority use of the infrastructure available for the interconnection of existing networks in the region and interconnect networks of Information, libraries, thematic research centers (Reynaga & Farfán, 2004).

The maintenance and consolidation of the Thematic Networks requires the active participation of all the member groups and the perception of the existence of a mutual benefit and an improvement of the competence of each one of them. For this reason, the identification of the topics, the selection of the groups and the suitability of the Programmed activities are key elements for its success and sustainability.

The main features of the Thematic Networks are to publish and disseminate, prior to its finalization, at least one monograph on the state of the art of the topic or topics covered. They must be composed of a minimum of six participants from at least six countries members of the Program, with a positive assessment of the greatest possible geographical coverage. Public I+D centers can participate in the Thematic Networks, which are considered: public universities, legally recognized public research organizations and any other I+D center dependent on public administrations. Private, non-profit I+D centers can also be part of the network: universities and non-profit private entities with demonstrated capacity and activity in I+D actions.

Technological centers whose ownership and management are predominantly of public administrations are included (Calderón & Quiñones, 2005). A network is a communication system, whatever it may be. A university network refers to a group of teachers, students and officials representing educational institutions, whose operation is to share their activities, resources and experiences to analyze, research, design and produce collaborative efforts under themes in common agreement, seeking

The improvement of aspects of academic, educational, economic, technological and cultural life. It means understanding that the academic network involves the work of many people from different institutions and sciences to achieve the common good (Soto, 2010).

2. Methodology

Indicator 1: Profile of the members

Member	Category	Academic degree	Amount obtained
Benito Cervantes Hernández	A. Research professor T.C. Headline "C"	Master	\$30,000.00
Romualdo Martínez Carmona	Research professor T.C. Headline "B"	Master	\$30,000.00
José Víctor Galaviz Rodríguez	Research professor T.C. Headline "B"	Doctorate	\$40,000.00
Goal(s)	Maintain 100% of the members with the desirable profile before PRODEP by 2018.		
Actions	Participate in the calls issued by PRODEP, to maintain the profile desirable..		
Requested resources	N/A		

Table 1 Profile of the members

Source: Prepared by itself, PRODEP Information, 2017

Indicator 2: Collaborative Networks

Activities	Requested resource	2014	2015	2016	2017	2018	Goal
Internal collaboration of IES academic bodies.	N/A	1	0	2	0	0	3
external collaboration of academic bodies registered with the PRODEP.	\$ 7,000.00	0	1	0	2	0	3
Collaboration with international research centers.	\$ 5,000.00	1	0	0	0	0	1
Goal(s)	To maintain 3 internal collaborations of academic bodies of IES to 2018. Maintain 3 external collaborations of academic bodies registered with PRODEP.						
Actions	Be in continuous participation of collaboration between academic bodies.						

Table 2 Collaborative networks

Source: Own elaboration, 2017

Indicator 3: Participation in congresses

Activities	Requested resource	2016	2017	2018	Goal
Participate in national and international congresses	\$ 60,000.00	10	6	6	22
Goal(s)	To have 22 participations in national and international congresses in 2018.				
Actions	Be aware of the calls issued for national and international congresses.				

Table 3 Participation in congresses

Source: Own elaboration, 2017

Indicator 4: Publication of articles

Activities	Requested resource	2016	2017	2018	Goal
Publish articles in indexed journals and JCR	\$ 55,000.00	4	4	4	12
Goal(s)	Have 12 publications of articles in indexed journals and JCR in 2018.				
Actions	Participation with colleagues from academic bodies to publish articles in articles.				

Table 4 Publication of article*Source: Own elaboration, 2017***Indicator 5: Patents**

Activities	Requested resource	2016	2017	2018	Goal
Register before the IMPI	\$ 20,000.00	2	0	1	3
Goal(s)	To have 3 patents in 2018.				
Actions	Develop and innovate technological prototypes				

Table 5 Patents*Source: Own elaboration, 2017***Indicator 6: Technical Report**

Activities	Requested resource	2016	2017	2018	Goal
Perform technical reports	\$ 30,000.00	8	7	4	19
Goal(s)	Have 19 technical reports in 2018.				
Actions	Participate with SMEs in supporting the improvement of their production processes.				

Table 6 Technical report*Source: Own elaboration, 2017***Indicator 7: Books**

Activities	Requested resource	2016	2017	2018	Goal
Publish books	\$ 50,000.00	4	0	1	5
Goal(s)	Have 5 books in 2018.				
Actions	Elaborate "Experiences of the Academic Body Engineering in Processes".				

Table 7 Books*Source: Own elaboration, 2017***4. Results**

Regarding the indicator 1. Profile of the members, as goal is to maintain 100% of the members with the desirable profile before PRODEP to 2018. With the action of participating in the calls issued by PRODEP, to maintain the profile desirable. Indicator 2. Two goals of internal collaboration are established, recognized by the PRODEP, and an external one with an international research center.

Where an economic resource of \$ 12,000.00 is established. Indicator 3. It establishes from 16 to 22 participations in congresses at national and international level allowing us to budget \$ 60,000.00 for congress and per diem payments among other requirements. Indicator 4: It increases from 6 to 12 publication of articles in indexed journals and in JCR, with a budget of \$ 55,000.00 to pay for some publications at an international level. Indicator 5: Maximize from 2 to 3 patents of technological innovation, budgeted \$ 20,000.00 for paperwork and payment of the same. Indicator 6: Support the primary and secondary sector of SMEs in Tlaxcala and Puebla to strengthen 15 to 19 technical report, budgeted \$ 30,000.00 for research and travel expenses.

Indicator 7: from 4 to 5 books, budgeted \$ 50,000.00 with a minimum circulation of 500 copies describing the Experiences of the Academic Body Process Engineering.

5. Conclusions

In 2006, the academic body with the name of Engineering in Processes (UTTAX-CA-2), in the area and discipline "Engineering and Technology - INGENIERÍA" was formalized before PROMEP, now PRODEP (Program for Professional Teacher Development) IN PROCESSES "of the Technological University of Tlaxcala. In one of its lines of research called "Characterization of dehydrators to improve the efficiency of production processes, through the use of renewable energies" has been designed, manufactured and patented a solar dehydrator, in order that on a small scale Producers to take advantage of the agricultural losses they get in their production cycles.

The dehydrator is constructed of a stainless steel material 2.0 m long by 1.0 m wide, tempered clear glass 6 mm thick and with refractory material. This team has allowed us to test with small producers in the region of Puebla and Tlaxcala, obtaining products dehydrated fruits, vegetables and legumes that do not meet the quality characteristics of the fresh product.

This has allowed an innovative alternative to increase the quality of life of producers, whose benefit is reflected in the production chain of the primary sector. The members of the research team are: Dr. José Víctor Galaviz Rodríguez, Mtro. Benito Armando Cervantes Hernández and Mtro. Romualdo Martínez Carmona. Your MISSION: to attend teaching, advisory, tutorial and collaborate in the innovative lines of research to generate strategies of sustainability of research and publication to the global society.

The Vision: Innovate and optimize production processes. With its Values 1. Social Responsibility: To support the SMEs in the optimization of their productive processes, as well as of the safety and hygiene and the care of the environment. 2. Continuous Improvement: Identify areas of opportunity in manufacturing and service companies for the improvement of their processes and services.

3. Teamwork: Generate synergy between collaborators of the Academic Body Engineering in Processes carrying out joint work. 4. Creativity and Innovation: Develop and innovate technological projects of social impact. Reports www.uttaxcala.edu.mx

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