

# THE AGRONOMY TEACHING LEARNING. A DIDACTIC EXPERIENCE IN THE FORMATION OF AGRONOMY STUDENTS IN LAS TUNAS UNIVERSITY

## LA ENSEÑANZA APRENDIZAJE DE LA AGRONOMÍA. UNA EXPERIENCIA DIDACTICA PARA LA FORMACION DE LOS ESTUDIANTES DE AGRONOMIA EN LA UNIVERSIDAD DE LAS TUNAS

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### ABSTRACT

The present article deals with the need to socialize the experiences of an investigators collective of Las Tunas University. It related with the teaching learning of Agronomy. It has the principal relations between the components of the didactic system, on the base of the foundations of the Pedagogy of the Technical and Professional Education, and its didactics.

**KEY WORDS:** Didactic, Agronomy, Teaching, Learning.

### RESUMEN

El artículo que se presenta deviene a partir de la necesidad de socializar las experiencias de un colectivo de investigadores de la Universidad de Las Tunas, en torno a la enseñanza aprendizaje de la Agronomía. Este aborda las principales relaciones entre los componentes del sistema didáctico, sobre la base de los fundamentos de la Pedagogía de la Educación Técnica y Profesional, y su didáctica.

**PALABRAS CLAVES:** Didáctica, Agronomía, Enseñanza, Aprendizaje.

Agronomy is the science that studies, Goyes Campos y Monserrate Gómez (2017), the factors of vegetal and animal production, their interrelations, as well as the processes of conservation and transformation of these products, with the objective of obtaining, at lower costs, more and better foods that cover the needs of an ever-increasing population.

In Cuba, the Agronomist is the integral professional of the persons in charge of the Agricultural production, and the origin of the agronomic studies dates from the colonial period. Teaching learning of the Engineering in Agronomy only came true in Havana, capital of Cuba, and later at the Central University Martha Abreu of Las Villas.

Afterward, with the triumph of the Revolution Cuban of 1959, the net of university centers of Agronomy went growing at all the country. The University of Las Tunas was one of the first institutions created by The Revolution where was studied the career of

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Agronomy. At present count with over 40 years of experience in this professional's formation.

The evolution in the curricular design of the career has depended on the political and socioeconomic context of the country. The study programs it has transited for have been an expression of the changes in economy, the culture and Cuban society in response to the conditions of the national and international context. Therefore, teaching learning of Agronomy has evolved taking into account the transformations in his curricular design and his investigators' experience. The first aspect related of interest to the meaning of the word didactics, of the Greek *didaskhein*, that means teaching; and in the consulted dictionaries, defines as the art of teaching. That which is fit to teach or to instruct is didactic. Therefore, the Didactics centered on teaching and it possesses several characteristics that make easy the learning. Therefore, that it enable the adequate presentation of contents of teaching.

The current Didactics is that field of knowledge, of investigations, of theoretic proposals, methodological and practical that focus on the processes of teaching and learning. For such reason, the Didactics like science has its object of study in the process of teaching learning; and count on with its own methodology, consequence of the inherent laws of that object and then they relate its components. This object of study is dynamic, complex and multi-factorial.

Besides, the Didactics' object of study consists not only in the knowledge of the structure and functioning of the process of teaching learning, but also, of the status that it is wished to achieve in him. Thereby it inferred that this process is intentional and planned, what reveals his commitment with the social practice.

Then, in order to be able to explain the Didactics of Agronomy it is necessary to assume some theoretic and methodological basics contributed by pedagogy and general didactic. As well as the Pedagogy of the Technical and Professional Education, and it didactics, as the case comes from the conception of learning proposed by Castilians and col. (2002), that you depart from recognizing to:

- Learning is a process that happens to I deliver it of all the life, and that you extend in multiple spaces, times and forms.
- The learning crystallizes continuously in the dialectics between what is historic social and what is individual personal.
- Learning you suppose the transit of external to internal, of the dependence of the subject to the independence, of the external regulation to self-regulation.

The process of learning possesses so much an intellectual character like emotional. It implies the personality as a whole. They assume themselves besides, the contributions realized to the Didactics of the technical branches through the investigations of Cortijo ( 1996 ); Colectivo de autores ( 1998 ); León ( 2003 ); Abreu ( 2004 ); Rodríguez and col. ( 2007 ); Sotomayor ( 2010 ), Abreu and Soler ( 2014 ), they syntheses two basic ideas:

- The development of a committed personality with the interests of the society, highly competent and competitive, with flexibility and adaptability to the technological and organizational transformations.
- The conception to learn working and working learning, inside a tight and systematic relation: School company community.

These basic ideas allow explaining the didactic components of the process of teaching learning of Agronomy, and it breaks to acknowledge to the problem like necessary condition to establish its link with the objective reality. However, authors like Chávez (2007) and Méndez and León (2014) they consider like essential categories of the Didactics the following: Objective, contents, method, means, evaluation and forms of organization. In addition, they refer than category problem has been included between the systems of the most essential ones belonging to the didactics like product to add. Chávez (2007)

However, in the article the problem like a didactic component is recognized. In this case, professional problem, understood like the set of requirements and inherent situations to the object of work that require the action of the professional for his solution, Horruitinier (1994). The ones that classify according to the mode of professional acting in: Professional problems of technological projection, of economic and social projection, exploitation, and of direction. Sotomayor (2010). From there, that the professional problems in Agronomy be those ones commoner that they require to be solved to fulfill the requests of the society, in the related thing with the production of foods of vegetable and animal origin .

This idea defended because the professional problem has a transforming function that becomes evident in three directions: In the transformation of the subject that you learn, at reflecting on oneself, on his insufficiencies and potentialities in learning, in the proposal of the problem and the ways for auto transmute.

In the transformation of the group as from the interrelations of the subjects, in the search of new solutions and the selection of the best alternative. On the base of the experiences of the other ones, that contribute to its transformation and to the improvement of its interrelations; and in the transformation of the objects used in the learning for the solution of the professional problems. Which reveal changes that they make perfect his components, principles of functioning, design or others, deep changes modified and convert themselves in something different, or they lead to the creation of new objects.

Besides, the solution of the professional problems allows confronting the subjects for the purpose of the profession, causing a student's bigger prominence when trying to solve the problem and looking for scientific and technological answers in reality. Favoring the formation of a creative thought, propitiating the permanent doubt, integrating and systematizing knowledge and abilities, and waking the interest for the profession. (Colectivo de autores, 1998).

On the other hand, it identifies the professional problem in the profession's object, and its solution enables the achievement of the objective, identified like the guiding component of the process that gives sense and reflects the aspiration from the social and what is individual. Martínez, B. (2004).

The objective specifies how the process must be at concluding, in order to fulfill the social needs and to solve the professional problem, determining is presupposed the final status that to get to. Therefore, in the Didactics of Agronomy, the objectives intended in technical training for the appropriation of knowledge, professional abilities, habits and values that answer the occupational profile in a general way. While in the preparation for job the objectives point the consolidation themselves of knowledge, professional specific abilities, habits and values in a workstation, features that they distinguish it of the objectives of technical training. In addition, his contents must be determined from this particularity of the objectives.

The contents discussed in the General Didactics as in the Didactics of the Technical Branches by several investigators. Its definition like didactic category has transited from reductive positions, than were restricting it to the knowledge to teach for the teacher, to more flexible others and integrators.

In Cuban didactic exists consent between numerous authors like Álvarez (1997); Ginoris, and col. (2009); about that does this answer the questions what teaching? In addition, what learning? It shared with the cited authors that are component of it structure:

- knowledge, categorized as factual, conceptual and relational. The first refer to facts, phenomena, events, processes, data and characteristics of the objects; the seconds to the concepts and the third to principles, laws theories and models.
- abilities, indissolubly related to the knowledge psychological structures of the thought which they take possession, that they preserve, they apply by means of and that they expound the knowledge by means of presuppose . These turn into modes of acting that give solution to theoretic and practices tasks. So that he agree with Álvarez (1997) in his classification, like abilities of the thought, abilities of information processing, abilities of communication and professional abilities.
- the experience of the creative activity: This component you include the independent transference of knowledge and abilities to new situations of the contents, the location of new problems in a known situation, the independent combination of known methods to create one new, the structuring of new methods of solution of problems and the alternative thought.
- the attitudes, convictions, values and relational standards with the world in token of the affective and the comportamental integrate into knowledge. Meanwhile these happen through the personality of the subject in the act of learning they cannot subtract themselves to experience needs, interests, motivations and sentiments.

In the Didactics of Agronomy the contents reflects the social and labor aspirations of the objective, that is, technical training. From there the need to express the contents through elements that they integrate and they characterize the professional activity, by means of the relation subject object and not of particular elements separated to previously mentioned relation.

In this way, in the Didactics of Agronomy you assume this category like professional contents, that you express the part of the historic social, cultural, scientific technical and technological experience. That is important, necessary, significant and useful for the

technical bachelor that you allow him possessing a general and technician – professional preparation, making possible his successful performance in correspondence with his social and labor interests. Mena. (2008).

This definition although you refer to the formation of the technical bachelor in the Technical Education and Profesional, brings to an agreement to the formation of the agronomist given the characteristics of the aforementioned formation.

You infer the culture, the science and the correlated technology from above the knowledge, skillful actions, machines, the professional activity, the moral values and ethical codes. The essential sources come from the contents in the Didactics of Agronomy, Pérez y otros, (2016) from the position that the same occupy in the determination of the contents as from the relation between sciences, technology society like distinctive feature of the scientific contemporary activity.

Regarding the methods of the process of teaching learning, one observes his job in the Didactics of Agronomy itself a great variety of, taking into account his relation with the contents, because roads and these forms of appropriation for part of the student you prepare the diversity of modes or tuition forms by the teacher. Therefore, the selection and organization made suitable of the methods like tools that they configure the space of interaction student - professor group, it is essential to attain the solution of the professional presented problem.

They define the methods of the process of teaching as the sequence of activities of the professor. The pupils directed and to achieve the objectives of the teaching in the Didactics of Agronomy. Labarrere, and Valdivia (2001).

In this sense, you must place the method to the student in a situation of doubt, of interrogation, of investigation and discovery, of investigation in front of the object or presented phenomenon. Méndez and Leon (2014). Then, you recommended the job of active methods, that they promote the learning as from professional, exposition problem situations, of the simulation and investigation, between other ones.

Another aspect of interest in the Didactics of Agronomy is the relation of the method of the process of teaching learning with the methods of technological work of the profession. These last they presuppose a coherent system of actions that they conduct to the solution are manifested of a family or group of problems that in a profession's object, that requirements and rigor of work have like support the correspondent science's theoretic base of the same.

The method of technological work becomes contents of the process of teaching learning and his job depends on the available technology at the position; His space of learning in the process of socialization that happens between the tuition subjects has learning. This situation evidences that to for to take possession of the methods of technological work must use him teaching methods learning that the problematization, the reflection, the assessment of different points of sights, of the professional problems promote that the individual in his job environment, with the use of the means of the process of teaching solves learning.

With respect to the half González (1990) refers they were entailed on once the material objects, they serve as support to the process of teaching and they contribute decisively

to the achievement of his objectives. That is, the midway is what the subject to transform the object, utilizes could have been the real object, his model or instrument of work. The facilitator is of the process, establishing a relation of direct coordination with the methods, in the meantime the how and with what they are hand and glove almost.

The means in the Didactics of Agronomy have a contextualized character and they become part of the contents. In the meantime, the tuition means make learning the method viable out of technological work if the relation between the teaching method that they enable his execution in the solution of the professional problems and the means are examined.

The means in the aforementioned didactics, the labor entities' real objects and his positions, the ones that identify with technology ( machines and agricultural accessories, tools, instruments seeds, fertilizers and another raw materials that are used in the productive agricultural process for satisfactory production of vegetable origin and animal ). In fact, you use the subject like being social for the liquid solution of the professional problems and the satisfaction of the social needs constitute it. These means created by the subject enclose the culture that humanity has accumulated.

On the other hand, the process of teaching learning of Agronomy calls for control, so much of the process seemingly as of his results. In like manner, the evaluation, you refer to verification and periodic regulation of the development of the roundabout process of the object. Country estate with houses (1996). Learning, as from the solution of the professional problems splits which of the verification of the fulfillment of the objectives in teaching.

The evaluation evaluated responds to the questions:

- a) the level of development attained by the students in the appropriation of the contents.
- b) the quality of the process of teaching learning.
- c) the design of the process in different levels.
- d) the learning and teaching planned methods.
- e) the evaluative component, it planning
- f) the instruments elaborated and applied, as well as his processing.
- g) how and with what it is evaluated ( pertaining to the selection of the methods, procedures and the instruments of evaluation )
- h) when it is evaluated ( that it be necessary evaluates itself always, in each moment ).

Therefore, like component of the process, you develop in systemic relation with the rest of the component are based and you on the following aspects: Spanishes and Cabbage (2002).

- a) Guiding and programmatic character: Establish the need to determine the potentialities of the subjects that make difficult your learning and the overcoming of the obstacles.
- b) The dialectic relation between reality and potentiality: She is oriented to characterize the present-day status of the level of knowledge of the trained, to determine what

you can get to be according to his potential if you receive influences and opportunities made suitable by part of the labor bus.

- c) Integrality: The evaluation must enable the obtaining of an integral knowledge of the personality of the trained, that it enable understanding its interrelations.
- d) Character told apart and individualized: It implies the necessary flexibility to recognize the general needs and place mats of the trained in the process of evaluation at the position.

It is assumed besides, the way of organization like the process's component, the fact that you express the external configuration of the same as a consequence of the relation between the process like totality and I space his position temporary during his execution, as from human resources and materials that be possessed. Álvarez, (1999).

You form them and they obey an integrative show in the process of teaching learning of the Didactics of Agronomy, because they allow the achievement of the objectives if they combine between them, taking the material conditions into account and humans to accomplish the intervening process a determined form. Besides, the selection of this depends on the objectives, of the contents and of the means, and they carry methods and the types of evaluation implicitly. From this perspective, the forms of organization are various and constitute a system, reflecting the account professor – student – group.

It is important to stand out than the selection of the system of forms of organization in the Didactics of Agronomy considers two fundamental processes, on the base of the fulfillment of his objectives: Technical training and the preparation for the job. They recognize like essential ways in Higher Education the classroom in the first (and like class rates the lecture, the practical classroom, the seminary, the classroom encounter, the laboratory practice and the workshop); you practice it of study, labor practice, the students' investigating work, the students' auto-preparation, consultation and tutorship.

In the second one, are identified the tutorship and the workshop essentially, because by means of tutorship the execution of the system of teaching productive tasks of the subject is organized, in one that favors the interchange and the reflection on the professional problems of the position from the tutor's vocational experience that are used in the aforementioned job. The characteristics of the position and the methods of technological work itself; contribute to the socialization of workshop in the labor, allowing his causes to group reflection, on the professional problems of the position, and possible solutions, in mail with this and the entity's characteristics.

Nevertheless, the forms of organization of the process of teaching learning, independently they must ponder the educational beginning that takes to the student like main character of his technical training of his typology. Méndez and Leon (2014).

The above synthesizes the relations between the components of the didactic system in teaching general learning of Agronomy, from the theoretic and methodological foundations contributed by pedagogy and didactics, as well as the Pedagogy of the Technical Education and Professional and his didactics. In addition, the Didactics of Agronomy enriched because of his investigators' work, for the sake of raising the quality of the formation of the professionals of this branch of economy.

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