

Methodology for the establishment of interdisciplinary relationships in the Agronomy career

Iván Giraudy Chedebeaux^{1*} <https://orcid.org/0009-0009-1746-7786>

Mireya Fernández Vivet¹ <https://orcid.org/0000-0002-0395-6054>

Ibia Villalón Jiménez¹ <https://orcid.org/0000-0002-8826-0864>

¹Universidad de Guantánamo. Cuba

*Autor para la correspondencia: ivan@cug.co.cu

ABSTRACT

The establishment of interdisciplinary relations is an effective way of academic linkage, but there are still difficulties in the integration of knowledge imparted in the training of the Agronomist Engineer, which is limited to a disciplinary approach without giving an integral response to the problems of agriculture and livestock. The objective of this work is to design a methodology for the establishment of interdisciplinary relations in the agronomy career. The modeling of this process is based on and explained through its structural and functional components, the sequence of its stages, phases and integrated actions, making its dynamics more flexible and functional, singular and operative.

Keywords: Interdisciplinary relations, Integrative main discipline, Methodology, Agronomy career

Introduction

The Integrating Main Discipline Agronomic Production acquires a special meaning since it directs the actions of the teachers of different subjects, with the work of the pedagogical collectives and fundamentally of the disciplines. In its conception and execution, it prepares the student with the intention of being able to perform efficiently in the farming

practice, guiding them to increase their practical and scientific research preparation. For this reason, the integration of contents is inherent to it and makes it the guiding axis to achieve a competent performance in the solution of professional problems.

Regarding interdisciplinary relations, there are several researches carried out at the national and international level. The research of authors such as Addine (2012) and Armas (2014) stand out, who, attending to the reality of the professional training process, have investigated the close link between the instructional, educational and developmental aspects, as well as the necessary interrelation that should exist between the academic, labor, research and extension at the different organizational levels of Higher Education.

These results are identified with the levels of socialization and interaction present in the curricular design and the conception of the study plan, structured by modules, disciplines and subjects organized in integration areas, with interdisciplinary predominance from the pedagogical and didactic point of view.

Going deeper into the methodological work of the Agronomy career, we notice an inadequate establishment of interdisciplinary relations in the Main Integrating Discipline of Agronomic Production, which leads, in the first place, to visualize the interdisciplinary behavior of the academic, labor, research and extensionist dimensions that compose the study plan, research and extensionist dimensions that make up the Integrating Main Discipline, investigating its primary integrating role, assuming interdisciplinary relations as a mode of professional performance of the graduate, so that he/she can perform accordingly with his/her mode of professional performance and the social task to be fulfilled in the bioproductive context, according to Fiallo (2012).

In this research, the logic of interdisciplinary relations provided by Mañalich (2008) is assumed as a concretion in the practice of a discipline whose object of study is not only explained, but is assumed as a possible object to modify or transform, while its actions are theoretical and practical and are consistent with the variability of the contextual demands to the training process, which determines the need to make its dynamics more flexible, which has been conceived as a sum of components that do not achieve the necessary level of integration to respond to contextual needs.

Therefore, it is necessary to guarantee the links between the academic, labor, research and extension components, in order to address the solution of professional problems, from

the professional training for their effective insertion in the agronomic and livestock context.

Within this research context, the work carried out in the Agronomy career of the University of Guantánamo is proposed, which assumes as a problem the limited interdisciplinary approach existing in the methodological work of the career group, which limits the work of the future graduate in the solution of integral agro-productive problems in agronomic production systems.

As a fundamental cause, the non-utilization of the aspects that make up the theoretical perspective of the Integrating Main Discipline of Agronomic Production, as a way to establish interdisciplinary relations, is detected. Therefore, it is proposed as an objective to design a methodology for the establishment of interdisciplinary relations in the methodological work of the Agronomy career group.

Development

In the diagnosis carried out in the career collective, the main potentialities and fundamental weaknesses in the establishment of interdisciplinary relations were identified and with these results a methodology was elaborated to transform the current state of interdisciplinary relations in the Integrating Main Discipline Agronomic Production of the Agronomy career.

The methodology is manifested as a logical process conformed by its respective stages and conditioning and dependent links, which ordered in a particular and flexible way, allow the achievement of the proposed objective. Each of the stages includes a system of conditioning, dependent and logically ordered procedures in a specific way, with its system of actions to be fulfilled Colás (2008).

Taking into consideration that the methodology determines its direction depending on the part of the object to be explained, the research approaches the establishment of interdisciplinary relations from the Integrating Main Discipline of Agronomic Production. In this sense, the methodology offered enables to represent how this process takes place integrally, by establishing its components, relationships and organization.

It also provides the teaching staff with an essential tool for the establishment of interdisciplinary relationships in the methodological work of the career collective, from the Integrating Main Discipline where there must be unity of action among all, which constitutes a system, It also reveals the possibility that the methodology has to cause the intended effect in the establishment of interdisciplinary relations in the methodological work, from the Integrating Main Discipline, in function of achieving the formation of an interdisciplinary thinking in the students, which contributes to the formation of an interdisciplinary mode of action, both in students and teachers.

The methodology has a flexible character because it identifies and respects the particularities and concrete conditions of the members of the career collective, both of the Agronomy department and of the career coordinators of the university branches in the Guantanamo territory.

The actions and methodological indications proposed can be adapted or modified depending on the situations diagnosed. It is singular because it differs from others carried out, with the particularities focused on the establishment of interdisciplinary relations in the methodological work of the career collective from the Integrating Main Discipline Agronomic Production.

The theoretical support of the methodology is based on the aspects that make up the theoretical perspective of the Integrating Main Discipline, which interrelate the philosophical, psychological, gnoseological, sociological, pedagogical, methodological and didactic aspects in order to conform a way of thinking and acting interdisciplinary from the methodological work of the career collective.

It is considered that the methodology for the establishment of interdisciplinary relations constitutes a way to direct the process of appropriation by the future Agronomist Engineer from the contents of the Program of the Main Integrating Discipline of the career and to guide the realization of activities through the solution of real problems of the agricultural practice, which means to resort to methodological procedures that in a particularly organized and concatenated way express a unity that allows its consideration as a systemic whole, to these demands responds the one proposed in the research.

In the structure of the methodology, it is considered pertinent to assume the criteria proposed by Bermúdez (1996), who considers that the methodology by didactic arrangement has two apparatuses: “(...) the theoretical or cognitive apparatus and the

methodological or instrumental apparatus” (p. 5). This structure is assumed since it allows conceiving the methodology in its two dimensions as a process and as a result from the interrelation between each of its components.

As a process, it presupposes a sequence of stages and each stage in turn is a sequence of actions or procedures for the establishment of interdisciplinary relationships and therefore requires the explanation of how it operates in practice, how the stages, methods, procedures are integrated in the course of the process and as a result, the conformation of the methodology as a whole and the relationships that occur between the elements of its structure must be expressed as a model resource. Its structural logic is developed in three stages: sensitization, application of the methodology and evaluation.

In the first stage, the conditions are prepared so that a climate of affection, cooperation and familiarization with the Main Integrative Discipline is created to enable the treatment of interdisciplinary relations from the aspects that make up its theoretical perspective, that is to say:

(...) a stable and systemic organization of the premises, contents and psychological functions that characterize the integral expression of the subject, its educational functions, that is, as a systematic introduction that is expressed in an individualized way in the behavior of each subject. (González, 1999, p. 9)

Once the premises and requirements are established, the methodological procedure is proposed for the establishment of interdisciplinary relations in the methodological work of the career collective from the Main Integrative Discipline; this stage should be characterized by the production of ideas, evaluations, discussions of the problem from different positions and points of view.

In this second stage, the forms of organization, methods and means for the methodological work of the career collective are determined, as well as the procedure for the development of integrative tasks.

Finally, in the methodology evaluation stage, the methodological procedure for the establishment of interdisciplinary relations in the methodological work of the career collective was evaluated.

The general objective of the methodology is to provide theoretical and methodological guidance to the professors of the career group for the establishment of interdisciplinary relations from the Integrating Main Discipline. Figure 1.

Source: Self elaboration

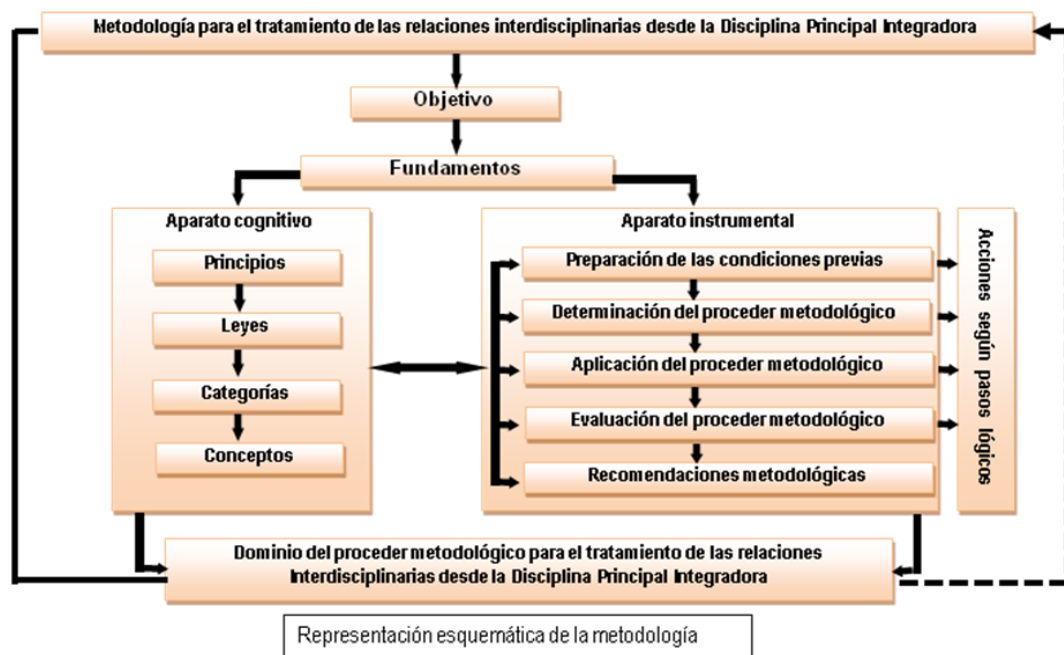


Figure 1. Methodology for the establishment of interdisciplinary relations from the Main Integrating Discipline Agronomic Production

Sensitization stage

Its objective is to offer the essence of the work to be carried out, to highlight its necessity and importance based on demonstrating the social priority nature of the Agronomy specialty at a higher level in the province of Guantánamo.

This stage is of great importance because in it:

1. It is proposed a way to contextualize the system of actions to work in practice the methodology and contribute to the establishment of interdisciplinary relations from the Integrating Main Discipline.
2. It generates an exchange with the professors of the Agronomy career, both of the University of Guantánamo and of the municipal university branches, also with the tutors of the basic labor entities where the labor-research practice is carried out, where the need and actuality of the establishment of the interdisciplinary relations is based on.
3. Emphasizes the potentialities of the integration between the University and the work entity to develop the establishment of interdisciplinary relationships.

4. Encourages the personnel involved to hold meetings to assess the level of commitment, motivation and willingness, in order to ensure the effectiveness of the activities to be developed, so that they become active and creative entities in the conduction, assurance, monitoring, control, evaluation and feedback of the process of establishing interdisciplinary relations.
5. Promotes the active participation of each of the actors involved in this activity that acquires socio-educational value for its purpose, seen as a process and result for the Agronomy specialty.

From here, the premises that condition the practical implementation of the methodology are defined.

Premises of the methodology

- Study of the theoretical references that refer to the need to methodologically approach the treatment of interdisciplinary relations.
- Theoretical elaboration and methodology modeling.
- Compilation of criteria and opinions of specialists on theoretical elaboration and methodological modeling.
- Analysis of the practical realization of the methodology for the treatment of interdisciplinary relations by the professors of the Agronomy career group from the Integrating Main Discipline.
- Confrontation of the information obtained, reconstruction and arrangement of the results.
- Final elaboration of the proposal of dimensions and indicators for the assessment of its instrumentation in the teachers' pedagogical practice.

For the implementation of the methodology, it is required that it be, in a faithful way, an expression of the contextualized training process that, from the recognition of the essentialities of the agro-professional culture, allows the student to perform in contexts with diverse characteristics. This conditions that, from this learning, the student integrates and generalizes the professional contents, which means that he/she has managed to understand the particularities of his/her profession, raising the level of generalization of the problems he/she can face, promoting his/her realization and

motivation as a professional committed to the diversity of his/her context, in order to solve social needs.

Methodology requirements:

- a) Aimed at the search for modes of action that show an integral teacher, with knowledge, skills, values, expressed in their contexts of action, for which it is necessary to develop in the students of this career, from the Integrating Major Discipline, interdisciplinarity as an aspect that works in two directions: a) as a contribution to their scientific conception of the world and b) as a way to teach to learn to their future students at different levels of education.
- b) To guarantee the development of interdisciplinary interventions in the educational teaching process, promoting more flexible, reflexive and developmental modes of action.
- c) Willingness and preparation of teachers to assimilate the proposed methodology and accept possible changes in their professional work and methodological preparation.
- d) The career collective is in charge of carrying out the execution of the methodology because it groups together the professors who lead the discipline and year collectives that make up the career at the central headquarters, the career coordinators of the university sites and the student representation.

Methodological preparation of the Main Integrative Discipline

The methodological preparation will be based on the study of the program of the Integrating Main Discipline Agronomic Production to verify its suitability for the establishment of interdisciplinary relations in the career group, conceived as part of the methodological work of the career group. In this sense, priority will be given to methodological teaching activities of a practical nature, such as instructive and demonstrative methodological classes, as well as workshops and seminars based on exercises and integrative exams.

Regarding the evaluation indicators of this phase, for the indicator Level of knowledge of the aspects that make up the theoretical perspective of the Integrating Principal Discipline of Agronomic Production, a High level will be obtained when the student masters the theoretical aspects that make up the theoretical perspective of the Integrating

Principal Discipline, a Medium level when he/she knows some of the aspects that make up the theoretical perspective of the Integrating Principal Discipline and a Low level when he/she presents limitations in the knowledge of the aspects that make up the theoretical perspective of the Discipline.

Methodology Application

The objective of this stage is to apply the methodological procedure for the establishment of interdisciplinary relations from the aspects that make up the theoretical perspective of the Integrating Major Discipline.

The application of the methodology will have, in the first term, the analysis of the different aspects of the theoretical perspective of the Integrating Major Discipline and its contribution to the establishment of interdisciplinary relations from the study-work linkage, the theory-practice relationship and the active character of the personality. It will also extend to practical activity as a source of motivational stimulation. The unity of activity and communication in work practice and finally the system character of the direction of the pedagogical process.

In a second moment, the correct orientation of the methodological activities designed for the establishment of interdisciplinary relations in the career collective from the Integrating Main Discipline and the explanation of the objective of each one of the methodological activities to be developed in the career collective will be taken into account, starting from the work with the work of the classics where the aspects that conform the theoretical perspective of the Integrating Main Discipline are revealed.

In this second phase, an evaluative instrument will be applied consisting of verifying the treatment in the extracurricular works, courses and diplomas of the career, of the aspects that conform the theoretical perspective of the discipline. It will obtain a High level when it reveals in the conception of the extracurricular, course and diploma works of the career, the aspects that conform the theoretical perspective of the Discipline, it will have a Medium level when it reveals in the conception of the extracurricular, course and diploma works of the career, It will obtain a Low level when it presents insufficiencies in the conception of the extracurricular, course and diploma works of the career that reveal the aspects that conform the theoretical perspective of the Discipline.

Methodology evaluation

This stage of the methodology is aimed at evaluating the methodological procedure for the treatment of interdisciplinary relations in the methodological work of the career collective from the aspects that make up the theoretical perspective of the Integrating Main Discipline.

- a) The level of execution of the methodological activities that favor the treatment of interdisciplinary relations from the aspects that make up the theoretical perspective of the Integrating Major Discipline will be evaluated.
- b) Changes operated in the way of thinking and acting in students from the treatment of interdisciplinary relations in the career collective from the Integrating Main Discipline.
- c) Activities designed not only for the evaluation of the acquired knowledge but also for the development of abilities, feelings, points of view in the students as a result of the fulfillment of the developed methodological activities, which contribute to the formation of an interdisciplinary way of acting.

For the evaluation of this phase, a High level will be obtained when in the methodological activities the aspects that make up the theoretical perspective of the discipline are made explicit in their totality, a Medium level will be obtained when in the methodological activities some aspects that make up the theoretical perspective of the Discipline are addressed, and a Low level will be obtained when in the methodological activities the aspects that make up the theoretical perspective of the Discipline are not addressed.

Proposed actions for the insertion of the methodology.

The methodology is inserted in the methodological work system of the career collective, for which the following ways will be taken into consideration:

- a) Methodological meeting: interdisciplinary relations in the career collective, need for its treatment from the Integrative Main Discipline.

Objective: To promote the progressive involvement of the members of the career collective in the work with the Integrating Main Discipline as a way to deal with interdisciplinary relations in the career collective.

Participants: professors who are members of the career collective.

Characteristics of the action: Elements that support the importance and necessity of interdisciplinary relations from the aspects that make up the theoretical perspective of the Integrating Major Discipline will be presented.

After making the diagnosis to the members of the career collective to corroborate strengths and weaknesses with the treatment of interdisciplinary relations from the Integrating Major Discipline, it will be explained to the professors that as a particularity of the discipline, its contents should be worked from the theoretical, methodological, practical and investigative aspects, methodological, practical and investigative, from the first year, which allows penetrating into the essence of the object of the profession, the object of work, that is, the educational process and the process of teaching-learning development, hence its significance within the career, for this reason it is necessary to penetrate into the essence of it.

It specifies that consequently the aspects that make up the theoretical perspective of the Integrating Main Discipline have wide possibilities for the treatment of interdisciplinary relations in the career collective, these are:

- The theory-practice link.
- The study-work principle.
- The active character of the personality.
- Practical activity as a source of motivational stimulation.
- Unity of activity and communication in labor practice.
- The system character of the direction of the pedagogical process.

After these were debated in the collective deepening in their essences, it is proposed to assume for the methodological work with interdisciplinary approach in the career collective the works of the classics as cognitive nodes for their educational potentialities and because in them the same are revealed.

This activity promotes individual and collective involvement, for the use of the Integrating Main Discipline as a method and style of work, in the establishment of interdisciplinary relations within the career collective. The activity fosters emotional relationships, collectivism, collaboration, decision making and involvement of the parts as a whole.

The coordinator of the career collective evaluates the participation of the members of the collective throughout the activity, their suggestions, ideas and proposals aimed at perfecting the work with the discipline, based on the treatment of interdisciplinary relations in the methodological work.

The activity culminates with the orientation of the next methodological activity and with the selection of the professor of the group who will teach it, in this case the head of the Agronomic Production Discipline.

Conclusions

The methodology becomes an effective way to raise the establishment of interdisciplinary relations in the Agronomy career; it is about preparing the career collective, through methodological work to face the challenges of integral and interdisciplinary work and its subsequent application by the student in the different problems it faces in the labor and agro-productive environment. The actions proposed in each of the phases should be integrated to the methodological work of the career collective to provide the faculty with an effective tool for the integration of career contents.