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The Comprehensive Content Seminar, a Pedagogical Experience for Education in Agronomical Engineering

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ABSTRACT

In preparation for the introduction of Curriculum E in all the degrees, the Department of Marxism-Leninism has conceived the Comprehensive Content Seminar, a type of lesson whose main purpose is to integrate the contents (knowledge and skills) of subjects Socio-Political Theory and Social Problems of Science and Technology, within the Marxism-Leninism discipline. These will contribute to second-year student training in the Agronomical Engineering Degree, as a way to improve management of farming system processes within the update of the Cuban social and economic model, according to the requirements of the Model of the Professionals. This teaching activity comprises various tasks based on inter and intra-disciplinary relations and the theory-practice dependence, from which student motivation levels were raised. Further improvements included consolidation, integration, and generalization of contents; the acquisition of scientific-technical information use skills, computer skills, and written and verbal communication, as well as proper interpretation of the association Science-Technology-Society-Politics, as part of the scope of an agronomical engineer.

KEY WORDS:/ Science, Technology, Politics, Society, Integration.

INTRODUCCION

By definition, the Cuban university is integrating and innovating (Alarcón Ortiz, 2015), and is focused on quality, creative, and liberating universal education to achieve comprehensive student development, which is based on scientific, technological, and humanistic principles. These features call for the need to improve student training to implement scientific methods that provide comprehensive solutions to all sorts of academic, scientific-research or on-the-job problems.

Therefore, the Department of Marxism-Leninism has conceived the comprehensive content seminar (Sáez, 2017 p. 5), as part of its methodological sessions. It is a pedagogical experience based on university pedagogics (University Didactics, Cepes, 1995), Martínez Llantada (s.), the Model of Professionals and Curriculum of the Agronomical Engineering Degree (2006, p. 11); the Pedagogical Model of Cuban Higher Education: Broader Scope (Horruitinier, 2009); the documents for comprehensive education of university students (2013, 2014); and the basic

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document project for Curriculum E Design (2016), Ministry of Higher Education; Lectures of the Minister of Higher Education (Pedagogía 2015, Universidad 2016); and Guidelines 13, 24, 98, 107, 157, 159, and 161 of the Social and Economic Policies of the Party and the Revolution (2016-2021).

The comprehensive content seminar was designed following the above references. This lesson type meets the requirements of the Rules of Teaching and Methodological Work for Higher Education (2018), concerning instruction and education. Additionally, it meets the demands for inter and intra-disciplinary relationships and theory-practice interdependence, and favors student motivation toward their profession, which contributes to a more humanistic education and social responsibility of the new agronomical engineers, according to the Model of the Professional.

This idea was shaped into an innovating and advanced pedagogical experience[4], since it was an educational practice (not precisely a scientific research activity), which demands analysis and reflection by educators. It will also require the search for updated information on particular problems of the teaching-learning process; adaptation of the results of experiences and research related to the target problem; and the use of scientific research methods and techniques to broaden the scope of existing knowledge.

The aim of the innovating and advanced pedagogical experience was to integrate contents (knowledge and skills) of subjects Socio-Political Theory and Social Problems of Science and Technology, within the discipline Marxism-Leninism, in order to provide agronomical engineering students with efficient management of processes implemented in agricultural production systems in the context of the Cuban social and economic update.

MATERIALS AND METHODS

The application of Materialistic Dialectics as the methodological basis and dialectic aid to train in thinking and knowing within the inquiry stage of the Innovating and Advanced Pedagogical Experience, favored the efficient utilization of different empirical and theoretical methods. The empirical methods used were document review, observation[5], and interview[6]. The pedagogical methods included were the research method, to integrate the results of homework assignment and student experiences, as a way to improve management of scientific procedures that are necessary during research. It is characterized by high creativity and student cognitive independence.

Triangulation and experience recording were also used by teachers to compile information systematically, from the most significant experiences in terms of subjects, regarding the study of norms, self-preparation, communication with students and the members of the class teaching board. The Positive-Negative feedback scale was applied to determine and assess teaching-learning effectiveness, and to hear the views of students on the *innovating and advanced pedagogical experience.*

[4] Adjustment of practices implemented at the University of Holguin (Cuba), by doctors María Rita Concepción García and Félix Rodríguez Expósito (2001, 2003), and the University of Pereira (Colombia), by professors Teresita Vásquez Ramírez and Ángela Henao Fernández (2008).
[5] In their visits to science and technology entities, students act as researchers, therefore, they share experiences and daily activities with senior researchers to acquire all the information the target individuals have on their own reality; in other words, learning about the life of a research team from the inside.
[6] To gather information about opinions and individual experiences from executives and/or specialists on specific issues included in the visitor's guide.

The theoretical methods applied were the historic method, logical method, analysis, induction, deduction, and system approach. They were oriented to conceptual interpretation of the object based on empirical information and the existing scientific knowledge to indicate the interaction modes of participants with the object of investigation, and their appropriation of relationships, links, and essences of the process.

Various subject content books were reviewed (Social-Political Theory and Social Problems of Science and Technology), including the basic bibliography oriented for the two subject matters, the Guidelines for the Social and Economic Policy of the Party and the Revolution, and norms issued by the Ministry of Higher Education (Model of the Professional and curriculum of the agronomical engineering degree). Also included were general pedagogy and didactics books for higher education, monographs, and short reports on contents, skills, and knowledge integration from national and foreign authors.

The work strategy of the class teaching boards for Socio-Political Theory and Social Problems of Science and Technology consisted in a) analysis of inter and intra-disciplinary relationships; b) selection and treatment of the knowledge systems of both subjects, which favor stronger bonds with the degree; c) procedure to follow during scheduled teaching activities in relation to the Guidelines of the Social and Economic Policy of the Party and the Revolution; d) diagnostic of student knowledge of the Model of the Professional and curriculum, along with a test to determine professional motivation, and intellectual and research skill acquisition and development.

In coordination with subject Agricultural Project, which is taught in the fourth year of the degree, agreements were signed with other science and technology institutions within the agricultural sector in the province. As part of student training, the comprehensive teams were made according to their area of residence and the existence of one of these institutions in the vicinity, as well as a facility[7] associated to the degree with the best possible conditions to deliver the seminar. These were essential requisites of the *innovating and advanced pedagogical experience.*

According to the rationale of the project for the preparation of the seminar, two main topics were assigned to the teams, which had been selected by the joined efforts of the main authors in the pedagogical experience, in the municipality of Camagüey and other municipalities with no science and technology units. Overall, this was part of the update of the Social and Economic Model, as well as the conception of sustainable development of socialism in Cuba, in which the educational and professional contexts take place. The presentation and discussions of these topics gave way to the presentation of the other teams.

The seven remaining teams were made of students from municipalities with the entities below: Beans Station (Vertientes); Station of Pastures and Forages (Jimagüayu); Territorial Station of Sugar Cane (Florida); Center of Genetic Engineering and Biotechnology, Station of Soil Studies, Forest Experimental Station, and Plant Health Unit (Camagüey), which prepared their presentations based on information achieved through observation (participants) and interviews made during the visit (Appendix 1. Visitor's Guide).

RESULTS AND DISCUSSION

[7] The seminar was delivered at the Botanical Park of Camagüey.

The pedagogical model of higher education in Cuba, based on a broader scope, requires continuous optimization of syllabi and curricula, in order to build a strong relation between disciplines and subjects, as well as a more effective link of students with the employment entities and the specialists of this particular sector (Horruitinier, 2009). In that sense, articulation of the academy with companies is not new, though in recent years it has expanded internationally, based on the growing influence of entrepreneurship and the demands of the labor market.

In the context of the Cuban society, this relation has an alternative paradigm with the purpose of training an integrated professional, "(...) a competent professional with scientific skills to assume the challenges of modern society and comprehensive humanistic development to live in today's society, and serve society with humbleness and modesty as the pillars of their education." (Horruitinier, 2009 p.16).

Consequently, improvements in the process management system of comprehensive education of university students set the basis for high-quality substantial processes which

"(...) should produce, as a paradigm, highly politically and ideologically educated graduates, gifted with a broad social, humanistic, and economic culture. These new professionals should be ready to defend the Cuban Revolution with their own arguments in the battle of ideas, be professionally competent and socially committed to the nation's interests. These elements, working as a network, are a complex system whose main attribute is the production of a graduate who is ready to live in revolutionary Cuba.

In terms of this paradigm, according to the update of the Cuban social and economic model, the university in Cuba should be proactive and dynamic within the changes that take place in concert with existing ethical principles and values today. Therefore, the essentiality of innovation encompasses "systematic updating of undergraduate and graduate education, the curricula, teaching procedures, assessment methods, and the relations between students and teachers," (Alarcón, 2016 pp. 11-12), which allow them to transform learning into a renovating continuous and systematic process, capable of developing capacities to enhance performance of individuals in the areas of productivity and competitiveness, family realization, and social interactions.

Therefore, continuous quality improvement of the teaching-learning process is the main premise of comprehensive university student education, which is a complex process that calls for two pedagogical principles: indissoluble union between educational and instructional aspects along the formation process, and the link between study and work, to ensure student appropriation of knowledge, values, skills, and innate professional capacities of professionals. It supports the close relations with the social reality, life, which is materialized through personal contact (MES. 2016 p. 7).

As part of the ongoing improvements, the Department of Marxism-Leninism, Ignacio Agramonte Loynaz University of Camagüey, designed a group of teaching-methodological and scientific-methodological actions toward a more effective teaching-learning process of all the subjects in the discipline, whose aim was to reinforce humanistic education and social responsibility of students by strengthening the theory-practice interrelation.

According to recorded researcher experience and the characteristics of problems detected, the "working philosophy" (Fiallo, 2001 p. 17) adopted was *interdisciplinary work*. It is one effective way that contributes to a reciprocal relation of the system of knowledge, values, and skills in

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Socio-Political Theory and Social Problems of Science and Technology with other disciplines in the curriculum, the social environment, and particularly, the working and investigative practices, and the work places, which are essential in the education of agronomists.

One of the main actions programed was a detailed study of the current conception of theme structuring of discipline Marxism-Leninism in Curriculum D, which revealed methodological limitations with the use of the systemic approach. These were unclear, concerning the inner links of the contents delivered in the lessons, during one of the two terms of the course. In consequence, one priority of the methodological work of the discipline is the precision of *interdisciplinary nodes* (Fiallo, 2001 p. 69), to identify every topic whose contents can be articulated with the contents of other disciplines.

This problem shows the limitations that second-year students have in the Agronomical Engineering degree, concerning understanding of the integrity of the discipline and its specific characteristic in the syllabus, so it was necessary to emphasize on the design of teaching activities that enable a link between new information and previous knowledge, from which a more effective contribution to reshaping the inner universe of students and the integration of knowledge to new concrete situations was viable. It was in line with the requirements of the Model of the Professional.

A triangulation of the model of the professional, curriculum, and information collected from the diagnostic to students was used to identify the main problems to focus on during the conception of the comprehensive content seminar, among which the most critical were,

- The content selection of the academic year for the two subjects does not favor a proper link with the profession.
- In the different teaching activities programed, the teachers are unable to produce a comprehensive approach of the discipline, particularly in the target subjects.
- The methods and techniques used in the teaching activities fail to produce the desired protagonism in the students during the teaching-learning process.
- Both subjects have failed to create a proper hierarchical arrangement of *key concepts*; namely, the learning content, in relation to the set of objects, facts or symbols that have certain common features or are designed to orient students.
- Insufficient work by previous subjects and the year, which are engaged in training and developing general intellectual skills, and research skills, especially in relation to individual studying and homework assignment.
- Limited understanding of the dialectical relation between science-technology-society by the students.
- Poor knowledge of the political system of the Cuban society and its functioning, by the students.
- Students have little knowledge on the Guidelines of the Social and Economic Policy of the Party and the Revolution related to their degree.

As in all the other university degrees, Agronomical Engineering is moving from Curriculum A and B in the 1976-1988 period, which created the need of a large staff per cultivating area, and the solution of related problems. Curriculum C provided a solution to this new need of agricultural development in Cuba, with the formation of a broader scope agronomical engineer with a solid base, who would be trained to solve agronomic problems in basic farming units.

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However, the dynamics of national social and economic development, and the relentless advancement of science and technology in agriculture internationally, along with new pedagogical, political-ideological, scientific, and productive experiences derived from previous curricula, led to the conception of Curriculum D (2006). The pedagogical conception of this document (in progress), stems from the broader-scope Model of the Professional, which relies on the need of deep basic education that allows the graduate to solve the main existing problems at different professional levels.

However, despite the advances seen in the basic document to design Curriculum E (2016), there is a need to carry out "qualitative changes" that improve the broader-scope educational model currently in place to increase coherence with the social and economic needs and demands. This should rest on stronger and comprehensive education of students throughout life, placing a high priority on creative and effective management that enhances students' roles. The new changes should create individual and collective learning situations that allow students to think, reflect, express themselves, provide judgment, and look into new ways to become active subjects of their own learning.

The authors of this research note that the seminar is an ideal teaching activity that meets such demands.

It is "(...) the type of lesson whose main goals are for students to consolidate, widen, deepen, discuss, integrate, and generalize the given contents. It is also expected that students cope with teaching tasks, by using knowledge and research-related methods, develop oral proficiency, and produce logical arrangement of contents and skills while using different sources of knowledge." (Ministry Resolution 210/07, p. 20)

The scientific literature coincides as to the importance of the seminar in terms of collective work of teachers and students, where the former acquire research skills or training in a certain discipline. The seminar is also recognized as a teaching technique for collective teaching, which enables discussions on one or several topics. It is also seen as team working, or as a way of intellectual work done with a small class in order to propitiate intensive studying of a given theoretical topic (DLAE, 2006 pp. 2813-2814).

Nevertheless, among these different approaches, there is a common element: active participation of all students, who are collectively engaged, whether it is to acquire more knowledge or to solve problems stated by the teacher, or as in this particular case, by a two-teacher team. This conception is known as team-teaching (Dipoté, 2008, p. 8) for pair work, since the two teachers (one from each subject) shared the conduction of the activity, and the one with the higher experience and category acted as leader.

This was the groundwork for the conception of the comprehensive content seminar, as a strategy directed to the articulation of knowledge that offers constant innovation in terms of knowledge acquisition by students, by establishing inter and intra-disciplinary relations. Besides, it made possible a tighter link to the profession and stimulated creativity and critical thinking with the guide of the teacher's innovating ideas.

The seminar guide was made with these elements (Appendix 2), whose working characteristics demanded a more detailed body of objectives for each presentation, according to the didactic requirements, which respond to 1) The Model of the Professional and the Curriculum of Agronomical Engineering in place for that year and term; 2) the focus of the objectives of subjects in this study is on strengthening the humanistic formation of students; 3) acquisition of

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the main knowledge and skills of interpretation stated in their presentations on the relations between science, technology, and politics in the agricultural scenario of the province.

The presentation of the objectives is more directed to the level of productive assimilation in general terms, without excluding student creativity in the individual and collective planes, due to the qualitative and novel contributions they make in their presentations, and the use they make of logic and scientific research. The barrier between productivity and creativity is not absolute, and it depends on the demands created by the new problem given to the students and the tensions generated by the solution.

Due to the unusual character of this teaching activity, some adjustments of the academic program of subjects were required to tackle some theoretical and/or methodological problems arisen from the inquiry process, which need some additional information. The feedback received that way allowed for timely correction of certain aspects previously conceived in the Visitor's Guide and the Seminar's Guide. Additionally, some administrative issues were addressed. It was also necessary to set up the conditions for the seminar at the Botanical Park of Camagüey where third-year students perform their on-the-job and research practices.

This type of lesson was characterized by a pleasant, dynamic, and flexible environment that promotes active *team* learning, the search for information by students themselves, and collaboration. In this particular case, *integration* was dealt with in three directions:

- *vertical integration* (intra-disciplinarity) is based on the interconnection of curricular contents within the discipline Marxism-Leninism, namely, Philosophy and Society, Political Economics, and Political Theory of Capitalism, all from first year, and Political Economics and Political Theory of the Construction of Socialism, which are delivered in the second year. The Model of the Professional mistakenly includes History of Cuba in the same discipline.
- *horizontal integration* (interdisciplinarity), which relates to the links among curricular contents from different disciplines in the same course, and even years, as part of the Self-Syllabus, which were considered in this experience: Computer Science, Agricultural Practice I and II (first and second years); Plant Health (third year); Agrarian Extension and Pedagogy (fourth and fifth years). Didactic and research issues include Agricultural Production I and II; and National Defense (second year).

The *innovating and advanced pedagogical experience* is oriented to improving the quantitative and qualitative results achieved by the two subjects during the degree. Consequently, it can contribute to a more effective management of agricultural production systems through quality productive processes based on the advances of science and technology in the sector, which also guarantees environmental protection according to the scale of values established in society.

The motivation toward the profession became a pedagogical requirement to set the conditions for the seminar, a reason why it was held at the Botanical Park of Camagüey. This is one area where third-year students participate in their practices. The park has adequate infrastructure and pedagogical conditions to demonstrate the knowledge acquired, and make proper use of presentation and defense of a presentation skills.

During conception of the team activities to visit the target institutions, specialists considered the tasks to be accomplished by students during their work and research practices. The aim was to contribute with higher efficiency in meeting the set goals for the two activities, along with enhancement of undergraduate experiences by students working at science and technology institutions, which are engaged in optimizing productive agricultural processes.

The preparation of team presentations demands interactive and communicational skills that facilitate team work and require the accomplishment of independence tasks with higher cognitive requisites. Adapting this variant favored the combination of other types of seminars in the same period, such as open conversation and discussion, with voluntary participation of all students in discussions of various topics.

The Dean of the Faculty of Agricultural Sciences was scheduled to participate in the seminar, along with the Head of the Agronomy Department, and the Senior Specialist of the park, who was in charge of the introduction of the activity. He remarked the social importance of the park, not only for recreational purposes, but also for the environment and the profession. He explained the diversity of areas where the agronomical engineer can work as a specialist and researcher.

Another novel idea was the inclusion of specialists and scholars in this activity; their timely interventions were helpful in that these elucidated various issues raised by students, or because they provided broader insight on specific topics of the degree, which show the close ties of science-technology-society-politics and the particularities of the university-business association in the agriculture of the province.

Since subjects Social Problems of Science and Technology and Socio-Political Theory do not have final exams, the guide of the seminar included the cognitive, educational, and control functions. Additionally, student performance during preparation for the seminar was monitored and assessed accordingly. In that sense, assessment of the seminar was designed with a productive, applicative, and integrating intention to show the bond between instruction and education within the pedagogical process, and as a way to stimulate the formation of citizens with the capacity to transform their social context.

The individual performance seen as quality of knowledge, habits, and skills acquired throughout the semester was not considered as determining. Accordingly, student personality development and teamwork were assessed to corroborate goal accomplishment. This approach enabled the complementation of cognitive, educational, and control functions, all within a suitable environment and creative exchange of views among students, and between them and the guest teachers, and collective discussion.

The presentations were very coherent, in line with the goals set, though certain insufficiencies were observed in relation to Instructive 1/09. However, during the oral presentations, the integration of knowledge was not as good as in the written memoirs due to the limitations in communicational skills and critical reflections.

From a cognitive standpoint, recap, systematization, broadening and complementation of knowledge were possible. It also stimulated student independent thinking, thus contributing to the system of skills suggested, and it fostered initiative, creativity, innovation, and teamwork, which had not been consciously assimilated in previous teaching activities.

From an educational standpoint, the comprehensive content seminar strengthened student information on the position and role of the Communist Party of Cuba and the State in society, and it offered wider knowledge of the Guidelines of the Social and Economic Policy of the Party and the Revolution in science and technology entities in the agricultural sector in the province. Contrary to the academic activities carried out in previous moments by Social Problems of Science and Technology and Socio-Political Theory, students faced real complex situations, and

learned about some which caused the opposite effects of those set by the Cuban Party and State policies, conditioned by objective and subjective factors.

The control function of the comprehensive content seminar complements all the others. Student mastery and assimilation of knowledge systems was determined, and individual and collective works were assessed positively. Furthermore, it was possible to control the effectiveness of the work with the use of the literature recommended; it was considered acceptable, because there are still insufficiencies in the systematization of studying practices.

The results below were achieved during the preparation and development of the seminar.

- Creation of a methodological criterion to determine *key concepts* of Socio-Political Theory and Social Problems of Science and Technology, and adaptation of knowledge systems to the needs of the Agronomical Engineer in the second year of their degree, which allowed for more dynamic inter and intra-disciplinary relationships.
- There was greater knowledge of the Model of the Professional and the Curriculum by students and teachers.
- During the inquiry process carried out by students, proper management of suggested research methods and techniques was corroborated, which was considered an expression of the advances produced in intellectual skill acquisition and mastery, particularly the ones related to individual study and work, as well as complex scientific research.
- Better understanding of the dialectical relation between science-technology-society-politics was achieved.
- The important contribution made by these subjects to Agronomical Engineering was demonstrated.
- Collective student work during the preparation of the seminar includes field and desktop works, which showed encouraging results during the presentations, in terms of communication development, supporting relationships among team members, and promotion of individual and collective creativity.
- During the preparation and execution of the seminar, greater interaction and communication were observed among students, and between teachers and students.
- The activities developed during the preparation and development of the seminar contributed to professional motivation, and stressed on the need to systematize the development of similar activities by both subjects.
- Co-assessment is an important element during student education. It helped discover, appreciate, and praise the values of others, as part of the joint and supportive work done. It also stimulated individual responsibility, though no precedent experiences were known, which called for the need to translate it into a score.
- One negative aspect pointed out by students was the thickness of the guide of the seminar.

CONCLUSIONS

The conception and development of the comprehensive content seminar revealed the need to continue to work on the study of the Model of the Professional in this degree. It showed the critical need to master the essential elements of didactics of higher education to adapt the academic course program to the political and social dynamics that condition the educational process, and to design teaching activities that can be used to stimulate the protagonism of students, and encourage the love for the profession.

The comprehensive content seminar proved the need to go back to the study of inter and intra-disciplinary relationships in order to establish a more effective link between theory and practice, which are pivotal factors that motivate students, consolidate, deepen, and generalize the contents delivered in class. It also made possible the utilization of various sources of knowledge, and the use of participatory methods and techniques of scientific research. Integrated assessment was viable, though its design and execution must be improved. However, it produced objective information about the pedagogical process of the two subjects in the semester.

The activities carried out by teachers and students before and during the execution of the seminar contributed to a more humanistic formation and social responsibility of the new agronomical engineers. It favored the integration of knowledge, stimulated sensitivity and spirituality, and helped interpret the historical, social, and cultural processes associated to agronomical engineering.

RECOMMENDATION

To assess systematization of teaching activities like this one with the inclusion of discipline subjects of the specialty in the meeting of the class teaching board.

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APPENDIX 1

Characteristics of the Guide of the Comprehensive Content Seminar

Title. Synthetic explanatory reference of the target object by each team.

Introduction It guides the reader and should be concise and brief (approximately 10% of the total work). It refers to the importance of research for training in Agronomical Engineering, and states the objectives.

Development to guarantee the success of teaching, information is provided about the seminar as a type of lesson, according to Ministry Resolution 210/07. The main skills and their system of operations are stated, which should be dealt with in all the presentations. Similarly, the teams should take into account all the general skills in their works, and the research methods to be applied.

The Guide of Visits to Research Centers was created for the teams that work in these institutions. It was based on the qualitative research paradigm, as the study was made in natural conditions, without experimental controls. Special attention was paid to the context, and it included interview and observation, predominantly.

The formal aspect of the presentations was assessed; therefore, the guidelines for presentation include a review of the scientific redaction norms that must be used in the works. The use of Microsoft Power Point software is also recommended. In short, the intention is to ensure correspondence of the presentations with the objective or objectives to be met by each work.

Several key concepts were selected after analyzing knowledge systems in subjects Social Problems of Science and Technology and Socio-Political Theory. The concepts were built to provide more coherent explanations used as structural referents of the Marxist-Leninist theory, mainly, and other related social and humanistic sciences, in order to reveal certain causal relations of the phenomena and processed studied.

The gradual process of understanding key concepts allows students to establish links between previous knowledge and the new information acquired through independent study and observation, explicitly and intentionally. They can also be restructured and applied to a particular situation, to achieve full generalization. The adoption of this criterion also pursuits other goals, such as increased efficiency of information search using the recommended literature, and the literature included by students; better presentation structure; the use of key concepts as indicators of team assessment and for validation of the experience.

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APPENDIX 2

Guide for visits to research centers

1. Name of the institution, date of foundation, social mission.
2. Request information about similar institutions in Latin America and the Caribbean to make a brief comparison stressing on the differences of their social mission.
3. Assess the importance of the technology used by that institution for agricultural development. Specify if these respond to technological innovations and/or technological transference.
4. Assess the level of implementation of the Guidelines of the Party and the Revolution at this institution, namely, ongoing or in-preparation research projects; scientific and technical services offered by the institution (specify the type of agricultural activity favored).
5. Acknowledgments issued by CITMA or other national and/or international institutions, based on the scientific results achieved, and their impact on society.
6. Assess the importance of international relations at the institution for its scientific and technological development, as well as the effect of collaboration on the development of other countries.
7. Assess the correspondence of postgraduate training strategies to increase scientific, professional, and political-ideological levels with the social mission and the needs of agricultural development in the province.