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Innovating in the mother tongue: the task of disseminating didactic knowledge in Language and Literature

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PROJECT TITLE

Elaboration and publication of a book. Carried out with Research Funds FPI UNAN-Managua. Start March 2018, completion March 2020.

ABSTRACT

The evident absence of scientific awareness to disseminate the results of educational work is a limitation of Nicaraguan teachers. Therefore, the need to make it known in a text that gathers in a reliable and verifiable way didactic

strategies created by Nicaraguan teachers allows to have a global vision of the educational work and the phases of research in didactics in the Spanish Department of the UNAN-Managua.

Therefore, the publication of a book of teaching and learning strategies of the mother tongue that helps improve the learning of the same in the educational levels of the country was developed in three phases: the design of the general structure of the text, the layout of the text under quality standards and the presentation of the book to the university community and the community of teachers in the country.

1. INTRODUCTION

It is a practice of language and literature teachers not to share with the educational community the results obtained from their research work. Moreover, the evident absence of a scientific conscience to disseminate the results of educational work is a Nicaraguan reality. This attitude generates limitations in teaching and learning, which can be evidenced in the results obtained in the entrance examinations and the academic performance of universities, in many cases due to the lack of use of strategies according to the educational context.

To help overcome this situation, the publication of a book on teaching strategies for learning the mother tongue is one of the viable and low-cost strategies. This text will contemplate three fundamental aspects: the vindication of teachers who have carried out research work for graduation; providing the educational community with updated material, with their strategies; and the search to create a research group in the area of mother tongue didactics oriented to the development of teaching strategies and the study and improvement of students' learning strategies.

The three aspects complement each other and generate a globalized vision of the work of the language and literature teacher and contribute to the lines of future research. For this reason, it is considered appropriate to share a novel product that deals with Nicaraguan didactic practices in the field of language and literature.

1.1. Objectives of the project

1.1.1. General

To publish a book of teaching and learning strategies for the mother tongue that will help improve the learning of the mother tongue at the secondary and university levels of education in the country.

1.1.2. Specific

- Design the general structure of the text, considering the educational level at which it will be used.

- Layout the text under considerations of national quality standards.
- To present the book to the university community and the community of teachers in the country.

1.2. Science

The concept of science for Martínez (2010, p.20), is applied: "both to identify the process of elaboration of scientific knowledge, as well as for the whole system of knowledge proven in practice, which constitutes an objective truth, and also to distinguish the spheres of scientific knowledge, that is, the different sciences".

Thus, the sciences are a developing system of knowledge, generated by the corresponding cognitive methods that reflect the understanding of reality in concepts whose veracity is checked or proven through scientific practice and social practice.

Modern science is an extraordinarily subdivided set of branches. Hence, we can say that science is knowledge in constant evolution (Ortiz and Del Pilar, 2007). Therefore, to make inroads in today's scientific world, academic units integrated into careers and research centers must break with the idea of sciences with isolated disciplinary developments to incorporate the culture of an interdisciplinary science capable of producing scientific values from applied research.

1.3. Scientific research

From a complex vision of reality, to investigate is to relate, to graft, to contaminate, to analyze conjunctures, to approach or cross the thresholds of disciplines. Consequently, research recognizes achievements but gives preeminence to noise, tensions, uncertainties, structural failures, rupture, entropy, and the negation of the single method.

Scientific research is an activity and a process of searching for new knowledge that involves several important categories. It makes it possible to handle the methods and methodological processes established in each area of knowledge, derived from previous experiences and knowledge, which only the investigation of reality can provide.

Therefore, scientific knowledge is the product of research processes that go from the strictly theoretical to the concrete to collect data empirically and submit them to theoretical analysis. According to Ortiz and Del Pilar (2007), if knowledge has a practical application for human welfare, it can be said that we are talking about applied sciences, which, when viewed from an interdisciplinary and transdisciplinary perspective, can provide solutions to complex situations in the social, economic, scientific and technical spheres.

1.4. Research group

A research group is the group of people who investigate in a given topic, formula one or more problems of their interest, draws up a strategic plan (formal project) of long or medium term and produces new results of knowledge on the subject in question (Martínez, 2010). The existence of a research group is demonstrated by the results of their work which are verifiable and criticizable by the local, regional and global scientific community.

The research groups are disciplinary, interdisciplinary and cooperate with other groups generating the integration of multidisciplinary and transdisciplinary knowledge, in order to understand reality and provide solutions to scientific, social and technical problems.

For the formalization of a research group it is required that it be:

- Creates a strategic plan that projects its work.
- Develops a work plan must which should be strategic and involve: its mission, vision, ethics regulations, area of knowledge, lines and sub-lines of research, problems it addresses, areas of action, products it will generate, applicability, and impact of its products, transfer systems, viability, communication and validation of the knowledge generated, work schedule, members (both teachers - researchers, associated students, and networks), resumes of the members.
- It must be formally registered in the corresponding instance or institution.

This unit of scientific action requires the presence and action of sensitive researchers, capable of perceiving, analyzing, and interpreting the phenomena, their constants, to translate them into theory applicable to similar conditions. To fulfill its work plan and research projects, it requires discipline and responsibility so that its work generates high-quality products.

Leadership and responsibility in research is a condition in which the actors fulfill the roles of leader, companion, and support. In a research group, the members participate as:

- Principal investigator: who is directly responsible for the group and its legal representative. This is the researcher with the most experience and training. He/she is in charge of analyzing, interpreting, and writing, producing, or endorsing the results of the projects in progress or completed.
- Co-investigator: accompanies the group at the same level as the principal investigator, but carries out activities under his/her supervision, given the characteristics of the specific project being developed.
- Auxiliary researcher: supports instrumental activities under the supervision of the principal investigator or co-investigator. Their activities may include information

gathering, data ordering and processing, laboratory assistants, and administrative activities.

- Field researcher: carries out operational activities under the supervision of the principal investigator or co-investigator. He/she may take samples, apply instruments (on slopes, interviews), write field notes and diaries.

The group must be clear about the functions of the researchers, their responsibilities, their internal and external mobility, and for this reason they must study, train and practice constantly, to obtain success and recognition in the scientific community, the university community, and society.

1.5. Research project

A research project is the development of scientific and technological activities organized systematically through a work plan that orients its action towards the achievement of the defined purpose or purposes. It involves actors (researchers, students, communities), problems (scientific, technological, social), knowledge (theories, methodologies), and resources (economic, infrastructure).

Tamayo and Tamayo, (1999), consider that every project is a design that contains, by its nature, technical, scientific, and logistical aspects. The latter deal with how the project is achieved:

> (...) for which the administrative part of the project indicates the management of resources, time, and budget for the development of the various activities of the project. If the scientific-technical aspects of the research project refer to the structural elements of scientific research contained in its definition, the administrative and control aspects of the project refer to the operational strategy of the project. In them, the activities, human, material, and financial resources are programmed, as well as the time required to carry out the research project. (p. 117)

Concerning the previous quote, as the economy of the countries and the world improves, the financing of projects becomes normalized and significant progress is achieved. Otherwise, in most cases, research funding is significantly reduced. Therefore, limited budgets (serious research is not possible without resources) and the tight deadlines to comply with the results (González, 2013), are limiting factors to achieve normalized and planned progress in the research lines of the institutions dedicated to this work.

1.6. Research and education networks

To refer to research and education networks is to enter into the process of transformation of the research and educational culture in higher education institutions. It is to produce new

knowledge competently and with group value, as opposed to the individualistic vision that prevails in the academic culture of many universities. Therefore, it is a process of local, regional and global collaboration that generates collective knowledge through the communication of the results of both praxes that require combined actions and interconnectivity.

González, (2007, p. 25) reflects on the characteristics and opportunities of networking:

> The configuration effect of a network operates positively when it acquires properties that do not derive from the sum of the elements. At that moment we begin to have a node, i.e., an integrated and open system with greater resilience to reconfigure itself creatively, i.e., more intelligent in the face of obstacles or unprecedented situations.

Therefore, research and education networks allow scientists, researchers, academics, teachers, and students to collaborate, sharing information and methodological tools, through a series of lasting face-to-face and virtual interconnections.

There are different types of networks from the point of view of education (training), research, and extension:

- From the geographical point of view: local networks (within a university, inter-university within a country), regional networks (inter-university between institutions in countries belonging to the same geographical region), intercontinental (inter-university between institutions in countries belonging to different geographical regions), global (inter-university linking universities all over the planet).
- From the scientific and educational point of view: networks according to scientific and educational branches and areas.
- From the point of view of the number of institutions and subjects developed: we can speak of simple and complex networks.

The purpose of academic networks is:

- The interconnection between teachers and researchers from different latitudes, areas, and fields of research and educational fields.
- Support the work of researchers and academics by providing a high-capacity data communication infrastructure, allowing the rapid transfer of large amounts of data.
- Be a powerful research tool in their own right, by providing a platform on which researchers and innovators can develop and test new network services and technologies.

Both academic collectives and research groups should make efforts to belong to different educational or research networks to consolidate their research projects from the following dimensions: communication, financing, recognition, and mobility.

1.7. Research funds

The funds for research at UNAN - Managua, according to *Research and Innovation Policy (2017)*, finance projects and in turn promote the search for external funding. *The Fund for Research Projects FPI Annex 2D. Call for Research Projects for Research Faculty Researchers (2018)*, considered the following provisions for research projects:

General provisions.

- The Fund supports novel scientific research, new models, tools, or technologies that have the potential for significant impact on the lines of research of UNAN-Managua and the PNDH.
- The execution of the Fund will be operated through calls for proposals. Each call contains its bases and mechanisms of application, and these can be modified without prior notice by the Vice Rectorate of Research.
- Applications to the calls for proposals will be made electronically by filling out a form.
- The researcher responsible for the project for this Fund will be the person registered in the application.
- Projects must be executed in Nicaragua.
- Interested persons may not submit projects that contain the same objectives, products, or expected results of projects that have already been completed; or that are contained in publications; or that have been financed by this Fund.

Specific Provisions

- Eligibility criteria for applicants: be a teacher-researcher at UNAN-Managua and not be enrolled in any graduate program at UNAN-Managua or any other national or international institution.
- Project eligibility criteria: research projects must be in line with UNAN-Managua's lines of research and the National Human Development Plan (PNDH) and must be approved by the Faculty/Center/Institute of UNAN-Managua.
- Criteria for evaluation of applications: the evaluation of the projects in this call will be carried out by a committee made up of at least two professors with an academic degree equal to or higher than that of the researcher responsible for the project.

About monitoring and follow-up, the university implements a management information system for the registration and monitoring of projects and research indicators.

1.8. Scientific production

Piedra and Martínez (2007), consider that scientific production is the: "form through which the knowledge resulting from intellectual work is expressed through scientific research in a given area of knowledge, whether or not belonging to the academic field, published or unpublished; which contributes to the development of science as a social activity". (p.34). Therefore, it contributes to the development of science, researchers, research groups, and research networks.

Scientific production results from research and its processes, which are characterized by being creative and of high quality given the control of the different moments: a) tracking and accumulation of information, facts, empirical data; b) development of theory, interpretation, description, explanation of the accumulated facts and data and prognosis or prediction of other new and unknown of the same nature and c) validation, verification, application, verification in the practice of what has been thought. However, the quality of the processes and results depend to a large extent on the researchers (training and ethics), the institutions (universities par excellence), research centers, and the system of regulation and promotion of research in the countries.

In academic terms, the development of research in Nicaragua is mediated, directly or indirectly, by the university. This offers advantages for monitoring, diffusion, and dissemination. In addition, it favors the transfer of results to the training and extension processes of these institutions towards society. Therefore, undergraduate and graduate theses (master's and doctoral), as well as scientific articles and papers (national and international in congresses), are the best evidence of scientific productivity related to the dedication of teachers - researchers to this task, the time assigned and allocated, internal or external funding, the level of deepening of the research culture in the institutions and with the number of publications in books, journals, and Webinar.

Chúa and Orozco (2016), express that the importance of scientific research is unquestionable. Therefore, it is very clear that tools are required to measure the production not only of researchers but also of higher education institutions that finance research projects and how this impacts social reality. However, substantial differences can be observed in this area (especially in this time of pandemic), between small countries that make efforts to enter the world of science and countries in which investment in science reaches considerable percentages with their GDP. However, the efforts of universities such as UNAN - Managua to disseminate their scientific production are directed in three ways: indexing the journals of the institution to overcome the "encryption of information" caused by the low visibility of these (the non-indexing of these media makes them untraceable), disseminate in journals in the Latin American area or

journals of greater international impact, and increase the publication of books derived from research processes.

1.9. Scientific dissemination

Taking as a reference the efforts that academics and universities make to make known to the national and international public, their scientific production in different areas of knowledge, Espinoza (2010, p 5), shares that: "the dissemination of scientific knowledge is a responsibility of all those who do research, because it contributes to the democratization of knowledge, to feedback pre-existing inequalities or to communicate results to the community formed by specialists in the field". The phrase "feedback pre-existing inequalities" refers to the need to help overcome the inequalities produced in societies by the lack of schooling and opportunities. The above was already raised by Fourez (1992) when he expressed that scientific popularization is how the scientific community makes the results of its work available to society in the form of understandable knowledge.

Vargas (2018), considers that scientific popularization makes scientific knowledge available to people in accessible terms. A knowledge that in itself is not understandable, but for specialists in the subject or the specific discipline, does not fulfill more than the vanity of the researcher. Therefore, scientific dissemination is at the same time diffusion, but not necessarily the other way around.

Vargas presents two ideal characteristics for the establishment of a scientific culture that promotes technology and innovation: a) to show the importance of science and technology for society and b) to preserve what has been achieved so far to promote more knowledge and not to lose it. If these are part of a State policy and a country's universities and are therefore objectified in terms of investment in human and economic capital, scientific programs will gradually emerge that result in technological production and innovation and their respective dissemination.

For the dissemination of research results and taking into account the third strategic way promoted by the university to make its scientific production visible - to raise the publication of books derived from research processes - it is required that university publishing has a clear purpose:

> (…) satisfy the academic needs that its substantive function entails (…): to help the scholar and the student by bringing him/her works and authors indispensable for training and research, both about an established knowledge and a knowledge under development (…) the editorial task constitutes an activity connatural to academic life since it has to channel and disseminate -beyond the university precincts- the work of teachers and researchers, and carry it out with the quality that in editorial care such specialized works demand. (Valdés, 2009, pp. 17 - 18).

Therefore, it is necessary to publish scientific and popular science books. The purpose of the former is to transmit sets of knowledge related to specific scientific areas. The second has the function of making scientific knowledge available to a wide range of possible readers and awakening interest in study and science.

2. METHODOLOGY

The project: "Publication of a book on didactics of the mother tongue: consolidation of the didactic knowledge of the Spanish Department". It is an initiative that arises from the need to improve the didactic instrumentation in the Hispanic language and literature major of the UNAN - Managua. It responds to the strategies of the PNDH and the Lines of Research: 3.8. The Common Good and Social Equity of Nicaraguan Families, proposed by the Spanish department. This is inscribed in the area of knowledge "social sciences", according to the Frascati Manual.

This is the result of different research processes ranging from the theoretical creation of the schema learning model to its practical application at the tertiary level and then projected to the secondary level.

The project was developed in three phases: a) design of the general structure of the text, considering the educational level at which it will be used, b) design and layout of the text under considerations of national quality standards and c) presentation of the book to the university community and the community of teachers in the country.

The first phase consisted of designing the general structure of the book. For this purpose, the teaching levels, language macro-skills, number of resources developed and validated were considered. The second phase was the design and layout of the text. In this phase, specialists in design and layout were consulted on the quality parameters for the elaboration of a book of this type. The third and final phase was the final edition of the document, the registration of this in the copyright office, to obtain the corresponding ISBN. On the other hand, the book was disseminated by presenting it to the university community of UNAN-Managua and secondary school teachers in the country.

The main results obtained were as follows:

- A book on teaching and learning strategies of the mother tongue was published and presented.
- Five students graduated from the Hispanic language and literature major, through the monograph modality.
- The creation of research group-oriented to research in mother tongue didactics.

For the elaboration, execution, and accountability of this project, the following ethical principles were put into practice:

- Promote and carry out research that will increase the welfare of the population.
- Make good use of the funds granted to carry out their research.
- Comply with institutional and governmental regulations governing research, such as those that ensure the protection of human subjects, the comfort and humane treatment of animal subjects, and the protection of the environment.
- Report the findings of their research in an open, complete, and timely manner to the scientific community of UNAN-Managua and will reasonably share their results with other researchers.
- Provide training and experience to their trainees when mentoring to increase their skills and knowledge in ethical research practice. Appropriately recognize their research contributions.
- Encourage and support the timely publication of trainees' results without imposing restrictions that have not been mentioned in advance.
- Create and maintain a work environment that is conducive to cultural diversity without discrimination of any nature.

3. RESULTS

The first phase consisted of designing the general structure of the book. For this, we considered the teaching levels, language macro-skills, and the number of resources developed and validated.

Concerning the *teaching levels*, the text focuses on two levels: university (students of Hispanic language and literature of the Faculty of Education and Languages of the UNAN - Managua) and high school (students of different levels where the didactic strategies were applied). Regarding the *macro-skills of language*, the didactic strategies respond to the teaching and learning process of the four macro-skills of the mother tongue: oral comprehension and expression, reading comprehension, and written expression; in addition to literary competence and grammatical competence. In all of them, it is possible to integrate them, making use of the principle that language is not a separate entity in its use.

Eight didactic strategies were prepared. These were worked on didactically by university teachers and undergraduate students working at different educational levels. Most of these strategies were reconstructed from didactic sequences already used in different classroom

contexts. The reconstruction process was based on a detailed analysis of the research works in which they were systematized. Then, through a working process of the Schema Learning Research Group (GIAPE) for the improvement of mother tongue learning at the middle and higher levels, they were transferred and adjusted to the proposal of the schema learning model.

Of the eight didactic strategies, four were replicated in other contexts to obtain data on their performance, especially because they were built based on the aforementioned model. The intention of this was to validate them and to promote educational action research in the language and literature classroom in the educational system of our country.

Each of them complies with a structure that responds to specific criteria:

- *Title of the strategy:* This should reflect, through a suggestive and attractive title, the need to read and evaluate the strategy. In addition, it should state the general idea of the macro-skill or macro-skills that the didactic intervention will help to improve.
- *Macro-skill*: the name of the macro-skill or macro-skills of language to be addressed.
- *Author or authors of the strategy*: The teacher or teachers who carry out the didactic proposal and plan to help improve a language macro-skill.
- *Theoretical approach*: This provides the minimum theoretical and methodological bases so that those interested can replicate them in their classrooms and, of course, write a quick research report that can be shared with this research group that is interested in the results that will be obtained.
- *Description of the didactic strategy:* The work to be done, where, how, and with whom. In addition, it states which are the competencies or capacities it contributes to developing, therefore, the relation with the curricula of the corresponding levels is expressed.
- *Operational structure of the strategy*[1] *:* This contains the methodological elements to be followed during the implementation of the didactic intervention:
  - The learning objectives to be written in the infinitive and respond to the tripartite vision of the dimensions of competencies: conceptual, procedural, and attitudinal.
  - The learning contents respond to the theoretical-conceptual and procedural aspects that serve as a means to achieve the learning objectives (results), therefore, of the level competencies (year, cycle).
  - The learning moments are based on the schematic learning model: *an exploration of previous knowledge* (conceptual - factual evolution (appropriation of conceptual

[1]. Sandoval and Escobar (2020) present the operational template that made it possible to transpose the Learning by Schemes model into a didactic strategy.

invariants)), *appropriation, development, and explicitness of new knowledge* (appropriation and metalinguistic development (explicitness of conceptual invariants)), *construction and reconstruction of new knowledge* (technical - procedural appropriation (attention and detection of models and patterns of analysis, reconstruction of procedural invariants), *the problematization of learning* (procedural application (problem-solving)) *and final evaluation of the new learning* that occurs throughout all the moments as a metacognition strategy, focusing on the form, techniques, and evaluation instruments that favor the collection of evidence of the level of learning achieved at each moment.

- *Use of technology and work texts:* The use of ICT and texts (written or oral) created during the application of the strategy are two aspects that should be considered as an extension resource from school to home (directed and planned follow-up of the tasks) and as a source of revision and correction of learning failures.
- *Support materials:* They assist learning (at least three types of materials: study guides, bases for action orientation (BOA as in Spanish), and evaluation techniques and instruments).
- *Work sessions:* In these, the different learning situations (simple or complex) are proposed, which are developed in a given time.
- *Materials:* These are auxiliary materials for each work session (blackboards, erasers, markers, filming machines, texts, questionnaires, among others).

The second phase was the design and layout of the text. In this phase, specialists in design and layout were consulted on the quality parameters for the preparation of a book of this type. In this phase, a series of meetings were held with the staff of the Editorial Universitaria de la UNAN - Managua, which led to the improvement of the structure of the text by experts in revision and layout. The importance of this exercise should be emphasized, as it allowed the debugging of faults and the acquisition of work experience with other teams dedicated to publishing at the tertiary level.

The third and final phase was the final editing of the document and its registration with the copyright office to obtain the corresponding ISBN. On the other hand, the book was disseminated by presenting it to the university community of UNAN-Managua and secondary school teachers of the country (authorities and faculty of the Faculty of Education, Vice-Rector of Teaching, students of the language and literature major and teachers of language and literature at the secondary level).

4. DISCUSSION

The book "Innovating in language and literature. Resolvamos problemas de aprendizaje con el auxilio de las ciencias cognitivas" (Let's solve learning problems with the help of cognitive sciences) is a theoretical-methodological resource with a scientific basis oriented to reflect on teaching and learning in the area of mother tongue (Escobar and Sandoval, 2020). It comprises six chapters. The first three are oriented to create the minimum bases on human learning, current learning models, and what competencies are about the schema learning model:

- *Human learning*, which lays the groundwork for our conception of what learning means and is, and proposes a series of complex tasks for teachers based on the schema learning model.
- *Learning models*, a synthetic vision that presents the types of learning models that exist and that are necessary to have a general knowledge of them, especially experiential learning and its main exponents.
- *Competencies and learning by schemas*, which consists of three sections that explain how the theories of genetic psychology are the basis of competencies, how the curricula of the educational levels are interrelated through their systematicity and integration, forming individuals who must be competent and responsible as professionals and, finally, presents the model of learning by schemas and how it should be implemented in its different moments.

The remaining chapters are an invitation to mother tongue teachers to initiate teaching innovation by first applying the proposed didactic strategies in their classrooms, write about the experience and share them with other teachers who are interested in improving their teaching practice:

- *How to achieve innovation in Mother Tongue?,* is an invitation for teachers to initiate a culture of innovation in their classrooms and validate them, to become teacher-researchers and have their proposals recognized and made visible;
- *Innovation in language and literature*, why teachers in this area of the curriculum see their teaching work in the classroom as ineffective and how through research, individual and collective effort, it is possible to offer real learning based on teaching innovation;
- *Innovative strategies in the mother tongue*, in this paper we present 8 proposals of didactic strategies based on the schema-based learning model that will be replicated in different contexts to obtain data on the functioning of the model. The intention of this is to validate them and promote educational action research in the language and literature classroom in our country's educational system.

The elaboration of a didactic project is based on a learning problem of students at any level. This is validated through research work, and therefore, it should become a teaching and learning tool for teachers and students, in this case, of language and literature in the country. For this reason, the aforementioned work is aimed at creating the theoretical and methodological bases so that those interested can replicate them in their classrooms and, of course, write a quick research report that can be shared with the Schema Learning Research Group (GIAPE), which is interested in the results obtained.

Of the eight didactic strategies, four of them were put into practice at the secondary level. Robles and Rodriguez (2020), applied the strategy How to improve formal oral competence during a symposium? in semirural seventh grade. The main results were the following:

- In Phase N°1: It was possible to diagnose the problems found on the elaboration of the concept of the symposium and its realization, therefore, it was found that students mostly did not know the concept of the symposium, however, some knew the concept of oral expression. The students showed a desire to learn about the subject, and when they met in workgroups they were able to develop concepts about this strategy.
- In phase N°2: When applying the didactic strategy, the development and interest of the students to improve oral expression and the symposium strategy were observed. There was greater participation in both individual and group work.
- In phase 3. Although the students were affected by the exam period, they were able to present their symposium in which they demonstrated a better level of oral language.
- The students' assessment provides evidence of the effectiveness of the model:

E1: "I have learned more about the symposium because there are things that I did not know about that topic for example its characteristics, I consider that with this technique we learn to express ourselves before people, I think you did a very good job because other people have come to the school and they don't explain the topic well and I liked the way you explained it, it was more comprehensive".

E3: "I think the symposium is important because we can develop our way of speaking in a better way, I liked the way you explained the topic".

Loáisiga (2020) developed another strategy on oral expression: "Oral language, the dress of thought". This one was worked with urban tenth-grade students, to say it could be expressed that even though they are students of a more advanced level the problems in the formal use of oral language persist. The main conclusions obtained:

- Phase N°1: The study of learning schemes focused on the scope of oral expression competence through the correct use of logical connectors in formal discourse round table has allowed the diagnosis and characterization of tenth-grade students: ignorance

of the concepts and their definitions, therefore, they could not apply them in their speeches. With teamwork, problems of coordination and supremacy in the discourse were evidenced in some students.

- Phase N°2: Analyzing the students' progress in the use of logical connectors in the formal multi-managed discourse during the second and third moments of the didactic sequence shows greater mastery of the concepts (ascertained through the qualitative evaluation rubric) and an adequate appropriation of the procedures to carry out the round table. Concerning teamwork, it was possible to verify that the students evidenced the functionality of the discourse with the transmission of knowledge and information as a group, which notably improved the work of the teams: there was a greater reflection on what was learned and its functionality in daily life.
- Phase N°3: In the last phase, it was possible to verify the development acquired by the students in the use of logical connectors in the multi-managed formal discourse during the realization of the final round table in the fourth moment of the didactic sequence. The (BOA) allowed a better mastery of the topic, use of arguments and connectors (use of 187 connectors distributed in the categories summative, consecutive, reformulation, counter-argumentative, computer, exemplification, and sequential), consequently, a coherent discourse product of a more successful attitude about coexistence with classmates, collaborative work and detection of improper behavior patterns.

Moreno and Vega (2020), with the strategy "Textual coherence in the writing of expository texts, a new way of learning" also worked with urban tenth grade. The students' written expression had different faults, which were diagnosed and then overcome with the application of the strategy:

- In phase N°1: In a general way most of the students did not show an approach to the correct definitions of expository text: concept, structure, and steps to elaborate it, evidently the theorems in the act lacked understandable information because what was intended is to know the level of learning that the students had. On the other hand, the students did not show mastery in practice of the concepts they claimed to know about expository text, structure, and steps to elaborate it, i.e. the expository text they wrote did not correspond to the concepts they formed. Concerning the writing process, they did not revise the ideas, which reflected that certain different and erroneous procedural components were in force, which is not the product of the theorems in action that they handle.
- In phase N°2: Appropriation and metalinguistic development (explicitness of conceptual invariants) and technical-procedural appropriation (attention

and detection of models and patterns of analysis, reconstruction of procedural invariants), the students began to study the theoretical material to the content under study and made the comparison with the definitions they knew. This was adequately assimilated, which favored a critical position about the expository text written in the first phase and then during the analysis of a model text: they were able to detect the mistakes made (results of evaluation rubrics).

- In phase N°3: The students elaborated their final expository text and also answered the evaluation guide that contained nine questions of which they answered only four. The results showed that most of the students demonstrated a better command, which was reflected in the evaluation guide: most of the answers referred to the fact that they were aware of what they wrote and what they wrote for. It is considered that the strategy used during the course was able to consolidate significant learning in most of the students, as well as in the teachers, projecting progress in the academic formation of the students.

Finally, Sanchez and Flores (2020), in semi-urban seventh grade, applied the strategy "Creative rewriting: the beginning to motivate writing. Use of synonyms for the rewriting of Nicaraguan stories". With this strategy, they were able to overcome the students' learning failures:

- The Schema Learning Model studies the functioning of the brain and its cognitive capacities for interaction, selection, and codification of information to lead to the consolidation of new knowledge. This achieves a recursive process to which the students were subjected (assimilation, accommodation, and balancing), from empirical knowledge to the formulation of concepts for the consolidation of new learning schemes.
- Phase N°1: Focused on the exploration of previous knowledge, not only theoretical but also procedural. With this phase, the teacher identifies failures in the learning schemes to create didactic strategies that help to solve them and thus be able to structure or restructure the learning schemes through the activation of the action subschemes, where all the categories that allow seeing beyond the reality of the learner are located; therefore, it is the most complex phase. About the central concepts (synonym, rewriting, and story), errors were found as a result of the bad association of concepts due to the interference of other conceptual fields, which did not allow establishing concrete ideas to define them and they did not have an evident technical knowledge, product of the previous training. The above evidence that the lack or erroneous conceptual information hindered the development of the tasks.

- Phase N°2: This second phase puts the students in contact with the theoretical material, to make a confrontation between their pre-knowledge and the new information or its extension. The results showed that there was a process of cognitive equilibration of the students when comparing the previous knowledge with the new knowledge provided after establishing contact with theoretical and technical materials for the restructuring of the new knowledge, therefore, the students assimilated better the procedure of rewriting stories after observing the modeling done by the teacher. The students were aware of the conceptual, procedural, and even attitudinal failures they had in the first learning moment. Finally, the students appropriated new conceptual and procedural invariants, creating procedural skills to demonstrate their autonomy in more complex tasks.
- Phase N°3: The students demonstrated their acquired knowledge and learning by being able to write their texts, in other words, they demonstrated their autonomy by following the guidelines of a BOA (the guiding basis for action) to apply conceptual and procedural operational invariants in final work. When triangulating, comparing, and contrasting with the diagnostic phase, changes in the learning schemes were evident, since uncertainty was reduced to a great extent, indicating that students assimilated the main concepts, synonyms, and rewriting; however, it was found that not all of them assimilated the proposed types of synonymy since the most predominant was conceptual synonymy.

5. CONCLUSIONS

The publication and dissemination of the product obtained from the research is the task of the researchers. The results should be useful and accessible to society, especially to the sectors that can benefit from the knowledge. From this research project, it can be concluded:

- Every research process requires effort and funding to conclude successfully. The FPIs, which help to promote research from the Vice Rectorate for Research and University Extension, is a good strategy for the academics of UNAN - Managua to direct their efforts to obtain useful knowledge products in the different areas of knowledge.
- The book “Innovar en lengua y literatura. Resolvamos problemas de aprendizaje con el auxilio de las ciencias Cognitivas” (Innovating in language and literature. Let’s solve learning problems with the help of cognitive sciences.), is a contribution of the language and literature major and the Faculty of education and languages for the national teaching profession both at the university level and at the secondary level in the area of didactics of the mother tongue.

- The results obtained with the application of the schematic learning model in the language and literature major and then its projection with renewed didactic strategies at the secondary level have allowed us to validate it with positive results. However, it is necessary to continue testing it to eliminate the comprehension failures and limitations that arise in the process.
- The schema learning model favors the development of competencies (language macro-skills subjected in the process) at the levels where it was applied. This can be inferred from the results briefly presented in this article; therefore, it is a valuable contribution to Nicaraguan education.
- The results proposed in the research project were achieved:
  - A book on mother tongue teaching and learning strategies published and presented.
  - Seven students graduated from the Hispanic language and literature program in the form of a monograph.
  - The creation of research group-oriented to research in didactics of the mother tongue. This group is in the process of conformation and legalization according to the guidelines of the UNAN - Managua.

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