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THE RENEWAL OF THE TEACHING AND LEARNING PROCESSES IN THE SUBJECT OF METHODOLOGY OF THE RESEARCH IN THE SPECIALIZATION IN TEACHING

*Maritza Librada Cáceres Mesa, Coralia Juana Pérez Maya, Obdulia Irene Martínez Espinosa and Octaviano García Robelo

Research Professor of the Academic Area of Education Sciences of the UAEH. Mexico

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ABSTRACT

In the scope of the project project "Networks of communities for the renewal of teaching – Learning in Higher Education" (Recreate), in particular in the specialization in teaching, an investigation has been developed whose fundamental objective consisted in Design, apply and evaluate the instructional design in the subject of methodology of the investigation and intervention, which is in the area of training of research-intervention and taxes to the exit profile in relation to acting professionally in Educational institutions, in the field of teaching practice and educational intervention, where the design of learning tasks is considered, according to which students design projects/proposals for educational intervention, with a critical vision, Reflective and creative of the educational phenomenon in general and with the knowledge required to assume its teaching practice from a transformative position. In addition, it postulates as a form of approach and study, constructivist schemes, with axes of thought, oriented to the investigation, intervention, for which integrative tasks are elaborated as an alternative for the planning of the instructional design of six steps. These tasks are based on a position focused on learning and integrates contents of different disciplines and the axes of thought, complex, research-teaching and ICT for the solution of a specific learning situation. It raises the challenges that have arisen after their application and how they have taken into account in the reconstruction of the initial planning of the instructional design of the approach of the problem of investigation and/or intervention.

INTRODUCTION

The Institute of Social Sciences and Humanities of the Autonomous University of the State of Hidalgo, in the search not only to respond to national and international educational policies, but also to consolidate the excellence of teaching practice at different educational levels and in particular in the Specialty in Teaching. The teaching practice is a space where renewal is present both in the field of discourse and as through the teaching and learning processes, which in particular in the Specialty in Teaching, these aspirations correspond to the formative purposes of the students, expressed in the profile of the graduate and in particular in the knowledge and skills to be developed, as a basis for understanding two major processes: research in the field of teaching practice and educational

*Corresponding author: **Maritza Librada Cáceres Mesa**
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intervention, through proposals in accordance with reality of the classroom and the school in which the student-teacher plays. The application of the Project "Networks ofCommunities for the Renewal of Teaching - Learning in Higher Education" is considered, where the student is encouraged to identify research problems related to their teaching practice, in the field of integration-appropriation of Knowledge related to research, diagnosis, evaluation and action of the main problems defined in your terminal project of a professional nature. In this sense, as part of the challenges oriented to the improvement of the quality of education, in the year 2017, in the academic body of Evaluation, Planning and Curricular Development, of the Academic Area of Educational Sciences, in the Institute of Sciences Social and Humanities at the Autonomous University of the State of Hidalgo, the RECREA Network project begins, with the specific objective that the teacher can design and plan educational experiences based on the general guidelines of an educational model

focused on learning and instructional design for complex learning.It is also global because the tasks are considered where the concept of integration is applied fully addressing equally specific and generic learning of one or several subjectsIn the pedagogical experience that is presented, the investigative and / or intervention competence is chosen. It is applied in the postgraduate program Specialization in Teaching, in the subject in the subject of Research Methodology / Intervention, in the Learning Unit Problem Approach, where educational practice is considered in the scientific field of research and intervention from the analysis of the challenges and perspectives of education in the national and international context for the selection of problems for research and / or educational intervention. Its conception as a methodological strategy has been evolving and in this case it is defined as a research investigation. The integrative task is presented as a methodological support that conditions the autonomy and independence in the students in the knowledge management, in which the traditional curriculum does not have space, which is developed applying the instructional design of the six steps. This proposal tries to take the student to the identification of research problems related to the teaching practice, in the field of integration-appropriation of knowledge related to research, diagnosis, evaluation and action of the main problems defined. Where the teacher is a mediator that generates strategies to help student-teachers from their specific needs and encourages active participation in their own learning process, where significant experiences are recovered with which they have been sensitized as problems to be solved and/or transform.

Development: According to the contributions of Caceres Mesa (2018), emphasizes that in the practice of teaching practice, the identification of research problems, condition the transformation and understanding of the main events that arise in it, from where scientific research is erected, In particular, in the Teaching Specialty of the UAEH, it isalso mentioned that two major processes are articulated: research in the field of teaching practice and educational intervention, through proposals in accordance with the reality of the classroom and the school in which the student-teacher works and at the same time Gama Melecio, Pérez Maya, Caceres Mesa, & Zuñiga Rodríguez (2018), emphasize the role of the renewal of teaching practice and in particular Sala & Arnau (2014), They specify that all research processes begin with the problem, from which the research questions are delimited, based on which the formulation of the general and specific objectives of the study. Similarly, the ideas of Abreu (2012), support the identification of the problem of research and / or intervention, is the most important step of the scientific method, from where the birth of a research project is built, emphasizes how the approach of the research problem is the most complicated stage in the formulation of a research study, this is due to the number of variables and / or categories of analysis that in particular intervene in the understanding and problematization ofthe object of study, in particular teaching practice, which must be problematized as support for the approach of the problem under study.

In this area it is important to consider the contributions of Van Merriënboer & Kirshner (2010) in relation to the proposal of the instructional design, which is based on the proposal of Ten steps for complex learning a systematic approach to the instructional design of the four components, whose components in the version of the six steps, a summary of the

instructional design prepared for its application in 2019 is presented, references that from the didactic organization of teaching practice are considered by (Cañedo Iglesias & Caceres Mesa, 2008). From the experiences of the implementation in practice of the tasks designed as part of the instructional design, according to the contributions of Pérez Maya, Gama Melecio, & Caceres Mesa (2018) and Caceres Mesa, (1998), it is concluded that the commitment to renewal is gained through the planning of activities and actions of the innovation process, its negotiation with allthose involved, its application, the evaluation of activities and actions, and the creation of new contributions or improvements of those applied , which is why the instructional design is improved. Some of the steps of instructional design are presented.

Products of step one: Description of the exit competency of the subject emphasizing aspects of complexity, research and use of ICT.

Investigative and / or intervention competence:

- Problematizes the teaching practice in the educational context of study, as a complex phenomenon from which the central research question is formulated.
- Review and select the information in trustworthy and reliable sources.
- Identifies educational issues at national and international levels in different media.
- Integrates and applies methods, procedures, techniques, research to their teaching practice from a transformative position.
- It formulates a research problem, according to the methodological bases of a project.
- Prepares a research or intervention proposal according to the real context of your classroom and school.
- Promotes, disseminates, shares, the results of educational research.

What problems of the real life of the professional area can be solved with the learning obtained in this subject?

Design projects / proposals for research or educational intervention, with a critical, reflective and creative vision of the educational phenomenon in general and with the knowledge required to assume their teaching practice from a transformative position. In the problematic field of research and educational intervention, whose objective is to: analyze challenges and perspectives around teaching, to identify and select problems, through the application of research methodology, with the purpose of generating terminal projects, professional character, research / educational intervention.

The renewal of the teaching and learning processes in the subject of methodology of the research in the specialization in teaching

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Do the learnings include complex thinking? For example, do you question conceptual or methodological frames of reference?

The students problematize their teaching practice, from where the research problem arises, from which they can carry out research projects and educational intervention proposals and at the same time recover theoretical and methodological referents, based on the theoretical foundations contemplated in the different subjects that make up your curricular map of the Teaching Specialty, for example from; Panorama of Education in the XXI Century, Psychological Theories of the Teaching and Learning Processes, Social and Cultural Implications in the Teaching and Learning Processes, Didactics in Action / Practice, Teaching and Learning Models, Technologies of Education Information and Communication in Education and from specific didactics. In addition, they can apply different research methodologies or educational intervention, for example, action research, ethnographic research, case studies, quantitative descriptive studies, explanatory, design educational innovation projects.

Are variables related to other fields such as social, economic and value added included?

The program of the Specialty in Teaching offers as a basis of its proposal, the holistic training of interdisciplinary character of the students, and declares education as an object of complex, multifactorial study and with different levels of derivation. It is considered that in education there are situations and problems of interdependent and influential analysis that, despite their autonomy, have an impact on the behavior of others.

Does the approach to competition imply decision-making?
There is an integration of knowledge in the formation of competence with a systemic character that has allowed to articulate the most diverse knowledge from the competences contemplated in the Specialty in Teaching that are: competency of training for teaching, collaborative competence and didactic-pedagogical competence; where the complexity of the educational phenomenon arises from the diversity of phenomena and meanings in different areas of one's life. Formulation of a research problem based on conceptualization and the methodological bases related to research / intervention, within the scope of the terminal project of a professional nature. Methodological basis for the design of a diagnosis and / or intervention proposal.

Approaches to psych pedagogical research

- Create an intervention proposal according to the real context of your classroom and school.
- Integrates and applies methods, procedures, techniques, research to their teaching practice from a transformative position.

- It formulates a research problem, according to the methodological bases of a project.

Do the apprenticeships include activities with methods or techniques of inquiry or investigation beyond the investigation of the context where the problem is defined?

Integrates and applies methods, procedures, techniques, research or intervention to their teaching practice from a transformative position.

Do the apprenticeships include the incorporation of current knowledge or research results?

- Prepare a research / intervention proposal according to the real context of your classroom and school.
- It formulates a problem of investigation, according to the methodological bases of a project, being based on the elaboration of the state of the with the incorporation of updated bibliography.

Does the approach to the task require students to use information and communication technologies?

- Review and select the information in trustworthy and reliable sources.
- Identify educational issues at national and international levels in different media
- Promotes, disseminates, shares, the results of educational research.

Applies various methodologies of educational research and intervention, from an academic perspective, practice, using ICT, for the development of the terminal project of a professional nature.

- Statements of the units of competence / grouped and hierarchized. The grouping and ranking serves to design, in the next stage, the learning tasks achieved by the units of competence described.

Transversal competences (generic)

- Instrumentals
  - Analysis and synthesis capacity
  - Critical and self-critical ability
  - Problem solving and decision making
- Specific competences
- Investigative and / or intervention competence
- Teaching training competence
- Communication competence

Step two products

Statement of the learning tasks for the subject: How to identify and select research and intervention problems in the field of teaching practice, incorporating ICT within the framework of the multidisciplinary nature of psychological theories of teaching and learning processes, social and cultural theories and didactics; with the purpose of generating terminal projects, of a professional nature, of research / educational intervention?

Definition and relationship of at least one type learning task with two levels of complexity (type of task) and the different strategies to develop complex thinking, link with research, and use of ICT, according to the level described, referents that are validated by (PM Milian Vázquez, 2008). Design and develop research or intervention processes applied to different contexts and with diverse methodological approaches.

Task 1: Problematizes teaching practice and defines the cause-effect relationships that derive from the identified problem situation, based on a critical and reflective exercise that can be answered in professional practice in the selected educational institution.

To do this, students must:

- Analyze and inquire about the main problems of the situation analyzed and define the most important effects of the problem in question, in terms of analyzing and verifying its importance, relevance and scientific relevance. (You can apply the technique of the five whys).
- Analyze the cause-effect relationships that emerge from the problem from a complex view, where rescue the critical cause or scope in which it is possible to address the problematic situation that you want to transform, from an exercise of individual reflection and interaction with peers, that allows him to define the central problem of investigation / intervention.

Performance

- Develop a problem tree to identify the cause-effect relationships that emerge from the problem.
- Communicate in a reasoned way a complex vision of the problem that you want to transform.
- Situate the critical cause or scope that is possible to address the particular situation.

Task 2: From the problem situation, rescue the background of the same and characterize the study context, using ICT, for the diagnosis of the causes of the problem situation and formulate the research problem.

To do this, students must:

- Characterize the antecedents of the problem and the study context where it is delimited, where diagnostic evidences are recovered that give relevance to the research problem.
- Describe the background of the problem, the study context and the diagnostic references (descriptive or explanatory) that reflect the relevance of the research problem
- Based on personal criteria, it formulates a research problem, according to the methodological bases of a research project or educational intervention.
- Formulate a research problem, according to the methodological bases of a research project or educational intervention, where it defines the research questions and objectives, the hypothesis and / or scientific idea and the justification of the study.

Products of step three: For each type of tasks / projects and their competences, indicate the supporting information (theoretical and strategic), procedural and the practices required to develop the competence and address the learning tasks / projects.

Task 1: Problematizes the teaching practice and defines the cause-effect relationships that are derived from the identified problem situation, from a critical and reflexive exercise on which the professional practice in the selected educational institution can be answered.

- To do this, students must:
- Develop a problem tree to identify the cause-effect relationships that emerge from the problem.
- Communicate in a reasoned way a complex vision of the problem that you want to transform.
- Situate the critical cause or scope that is possible to address the particular situation.
- Prepare tables, diagrams, synoptic tables, conceptual maps, graphs, etc. that clearly show both the elements and the relationships between them, as a support for the problematization process and for the precision of the research problem.

Task 2: From the problem situation, rescue the background of the same and characterize the study context, using ICT, for the diagnosis of the causes of the problem situation and formulate the research problem.

- To do this, students must:
- Describe the background of the problem, the study context and the diagnostic references (descriptive or explanatory), which reflect the relevance of the research problem.
- Ability to define the problem accurately taking into account the background, context and diagnostic situation.
- Think rationally. Think creatively, problematize the teaching practice.
- Analyze the causes of the problem and its prioritization based on the background and context is another step in the resolution of problems. Also point out the alternatives to the solution of a problem.
- Formulate a research problem, according to the methodological bases of a research project or educational intervention, where it defines the research questions and objectives, the hypothesis and / or scientific idea and the justification of the study.
- Analysis from different theoretical and methodological bases the background of the research / intervention problem.
- Characterize background and the context of the problem, in terms of seeking and investigating for yourself the information that is needed.

Products of step four:

Task

- Identify the causes and effects of the research problem.
- Support the process of problematization and the approach of the problem.
- Graphical representation of the problem tree.

- To do this, students must:
- Upload the information located in the Google Drive folder
- Create a problem tree
- Open and share a Drive file
- Create a group folder
- Write in Word two pages the problem situation identified in the context of your teaching practice. Presentation PW and / or Prezzi.

Closing Reflections

The research problem linked to problematic situations of the teaching practice, arises from the dissatisfaction, incomprehension or difficulty that needs to be explained or solved by the scientific community, which is not a simple task, since it demands that a question be asked or question about what is not known, which requires specifying a situation to analyze it, delimit it, describe it and offer a possible solution, which constitutes the new knowledge obtained through the investigative process. Therefore, it must be well defined and precise, as well as other conditions that must be met, such as its objectivity, feasibility and that can be proven in practice (Espinoza Freire, 2017). In this area it is opportune to signify the role of the integration of knowledge in the context of Higher Education, as a foundation that supports the development of research skills in the students of the Specialty in Teaching, in particular in the approach of the research problem , where the integration of knowledge allows not only the articulation of knowledge among themselves, but the interconnection of these in the situations in which they must be mobilized in the field of the solution, of the problematic object of study (López, Castro, & Baute, 2016), which transcends the competences of the graduate profile, which requires the preparation of a preliminary research or intervention linked to the context of teaching practice, with a critical, reflective and creative vision of the educational phenomenon in general and with the knowledge required to assume his teaching practice, from a transformative position and sustained in the lines of generation and application of knowledge, which guide said educational program.

The learning tasks that are presented in each of the phases of instructional design, are intended to promote the development of complex thinking in students, based on strategies that promote the integration of knowledge based on the competencies approach, which essentially aim that students develop the main skills associated with the development of these, which in the context of the present study arises from the problematization of teaching practice, from where the research problem approach is promoted, as a heuristic exercise that It contemplates a whole series of innovative actions and strategies that lead the student-teacher to specify a functional and meaningful learning, in which meaning is attributed to what is learned, since they face reality, to the handling of information through the analysis, debate and research, (Landin Miranda, 2015). In this area the forms and modalities to achieve the integration of knowledge in the teaching and learning process of the subject of Methodology of Research and Intervention, according to the contributions (López, Castro, & Baute, 2016), it is specified that it is required of the design and application of integrative tasks as didactic support, in which the integrating understanding of knowledge has to be sought, from where the ability to accurately define the problem is stimulated taking into account the antecedents, context and

diagnostic situation, the think creatively to problematize the practice, analyze the causes of the problem and its prioritization is another step in the resolution of problems, search for alternatives to the solution of a problem, analyze from different theoretical and methodological points of view, which condition the holistic understanding of the research / intervention problem. All this has conditioned a challenge in the didactic organization of the teaching practice, when considering the integrating tasks, as a methodological support that conditions the autonomy and independence in the students in the knowledge management, in which the traditional curriculum does not have space, since that are promoted from them, new ways of teaching to learn in the subject of Methodology of Research and Intervention in the Specialty in Teaching, where the complexity of the cognitive activity in the field of the approach of the problem is erected, in "the problem-based approach, which requires a curricular and instructional design that puts the complexity of the real-life problems and the practice of student-teachers and translates them into learning processes that integrate and develop the skills required to solve them. The components are the learning tasks, support information, procedural information and practice parts of the task "(Zambrano Ramirez, 2016).

From this perspective, the design and orientation of integrating tasks as support for the renovation of the teaching practice in the subject of Research Methodology and Intervention in the Teaching Specialty is considered, where the development of students' cognitive activity is promoted. from the understanding and problematization of its practice, from where its potential unfolds in the definition of the problem to be investigated. In this area, based on the contributions of Cruz (2017), the role of integrating tasks in the organization of learning environments centered on the activation of cognitive processes in students is based, perspective that conditions the mediation of the teacher, in the identification and resolution of problems of these in the exercise of their practice, in the context of an ethical context of their profession. Which supposes that the professor of the subject of Methodology of the Investigation and Intervention; design learning tasks with a rising character in the level of complexity of the cognitive activity to promote, where certain levels of help are generated in correspondence with the demands and needs of the student-teachers, from their commitment in the active process of learning, from an integral, holistic, dialectic and flexible dimension. The integrating tasks condition a change of paradigm in the teachers of the subject of Methodology of the Investigation and Intervention, that place them before the challenge of how to teach to learn, when considering the problematization like strategy that stimulates the student-teachers to delimit the problematic object of study, from where the development of constructivist, dialogical schemes is stimulated, with axes of thought, oriented to the investigation, intervention and development of specific realities with theoretical and methodological emphases, having as base a problematizing node, that stands out in the process of solving a contextualized problem, in an environment related to the teaching and learning processes within the scope of their teaching practice, from where the evaluation of background studies and the analysis of theory is stimulated; in terms of promoting an adequate understanding of the experience of the practice, within the scope of the research and intervention process. The approach of the research or intervention problem must be based on contextualized situations, which is aligned to the identification of problems related to teaching practices,

where through the design of integrating tasks, a potential deployment of students is promoted -teachers and allows them to learn to obtain information of a fact, to organize, systematize and analyze it to arrive at conclusions that can enrich the field of knowledge, which in the Educational Program of the Specialty in Teaching, constitutes the foundation from which erects the Terminal Project of Professional Character, to which it prints an innovative conception in the solution of the problems raised.

As final considerations, we can point out that the project "Networks of Communities for the Renewal of Teaching - Learning in Higher Education", in the field of the renovation of the teaching practice in the subject of Research Methodology in the Specialty in Teaching, has considered in its instructional design, the design of integrative tasks oriented to the approach of the research and intervention problem by the student-teachers. From this perspective, the activation of cognitive processes in student-teachers is promoted, since problematizing thinking is stimulated in terms of the identification of research problems related to teaching practice, in the field of integration-appropriation of knowledge related to the research, diagnosis, evaluation and action of the main problems defined. Where the teacher is a mediator that generates strategies to help student-teachers, based on their specific needs and encourages active participation in their own learning process. In this sense, the designed tasks are oriented to the investigation, with the intention that they learn to obtain information of a fact: to organize it, systematize it and analyze it to arrive at conclusions that can enrich the field of knowledge of their teaching practice, in accordance with a specific purpose, where significant experiences are recovered with which they have been sensitized as a problem to be solved and / or transformed.

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