



Original article



The teaching-learning process of the Auditing subject from the gradual derivation of professional problems

El proceso de enseñanza-aprendizaje de la asignatura Auditoría desde la derivación gradual de problemas profesionales

O processo de ensino-aprendizagem da matéria Auditoria é resultado da derivação gradual de problemas profissionais

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Received: 16/07/2024

Accepted: 23/01/2025

ABSTRACT

The article shows the existing shortcomings in the teaching-learning process of the Auditing subject, which indicate the need to enhance it from the gradual derivation of the professional problems that are manifested in it, with the purpose of raising the quality of the training of future teachers of Technical and Professional Education. In this sense, its objective is to characterize the current state of the teaching-learning process of the Audit subject from the gradual derivation of professional problems by subsystems or organizational levels. A dialectical-materialist approach was followed, accompanied by theoretical methods such as: historical-logical, analysis and synthesis, induction and deduction; empirical methods such as: documentary analysis, classroom observation, interview, survey; and statistical methods for information processing and, finally, the methodological triangulation technique to cross-reference information and to determine the main regularities. As a

result, it was possible to systematize the process under study, which is summarized in the operational definition of the variable teaching-learning process of the subject Audit from the gradual derivation of professional problems, with its dimensions and indicators, which allowed the characterization of its current state. The results obtained show the urgent need to rethink the preparation, execution and evaluation of the teaching-learning process of the subject Audit from the gradual derivation of professional problems at each of the organizational levels, so that these, with the help of methodological work, reach the classroom in the form of invariants of the professional content.

Keywords: audit; teaching-learning process; gradual derivation; content invariants; professional problems.

RESUMEN

El artículo muestra las insuficiencias existentes en el proceso de enseñanza-aprendizaje de la asignatura Auditoría, las cuales indican la necesidad de potenciarlo desde la derivación gradual de los problemas profesionales que en él se manifiestan, con el propósito de elevar la calidad de la formación del futuro docente de la Educación Técnica y Profesional. En tal sentido, tiene como objetivo caracterizar el estado actual del proceso de enseñanza-aprendizaje de la asignatura Auditoría desde la derivación gradual de problemas profesionales por subsistemas o niveles organizativos. Se siguió un enfoque dialéctico-materialista, acompañado de métodos teóricos como: histórico-lógico, análisis y síntesis, inducción y deducción; empíricos como: análisis documental, la observación a clases, entrevista, encuesta; y estadísticos para el procesamiento de la información y, finalmente, la técnica de triangulación metodológica para cruzar información y determinar las principales regularidades. Como resultado fue posible realizar una sistematización sobre el proceso en estudio, que se sintetiza en la definición operacional de la variable proceso de enseñanza-aprendizaje de la asignatura Auditoría desde la derivación gradual de problemas profesionales, con sus dimensiones e indicadores, los cuales permitieron la caracterización del estado actual de la misma. Los resultados obtenidos evidencian la urgente necesidad de replantearse la preparación, ejecución y evaluación del proceso de enseñanza-aprendizaje de la asignatura Auditoría desde la derivación gradual de problemas profesionales en cada uno de los niveles organizativos, para que estos, con la ayuda del trabajo metodológico, lleguen hasta la clase en forma de invariantes del contenido profesional.

Palabras clave: auditoría; proceso de enseñanza-aprendizaje; derivación gradual; invariantes del contenido; problemas profesionales.

RESUMO

O artigo mostra as insuficiências existentes no processo de ensino-aprendizagem da matéria Auditoria, que indicam a necessidade de fortalecê-lo a partir da derivação gradual dos problemas profissionais que nele se manifestam, a fim de elevar a qualidade da formação do futuro professor de Educação Técnica e Profissional. Nesse sentido, seu objetivo é caracterizar o estado atual do processo de ensino-aprendizagem da matéria Auditoria a partir da derivação gradual dos problemas profissionais por subsistemas ou níveis organizacionais. Seguiu-se uma abordagem dialético-materialista, acompanhada de métodos teóricos como: histórico-lógico, análise e síntese, indução e dedução; métodos empíricos como: análise documental, observação em sala de aula, entrevista, pesquisa; e métodos estatísticos para o processamento das informações e, por fim, a técnica de triangulação metodológica para o cruzamento de informações e a determinação das principais regularidades. Como resultado, foi possível realizar uma sistematização do processo em estudo, que se sintetiza na definição operacional da variável processo de ensino-aprendizagem da matéria de Auditoria a partir da derivação gradual dos problemas profissionais, com suas dimensões e indicadores, o que permitiu a caracterização do estado atual da disciplina. Os resultados obtidos mostram a necessidade urgente de repensar a preparação, a implementação e a avaliação do processo de ensino-aprendizagem da matéria Auditoria a partir da derivação gradual de problemas profissionais em cada um dos níveis organizacionais, para que estes, com a ajuda de um trabalho metodológico, cheguem à sala de aula na forma de invariantes do conteúdo profissional.

Palavras-chave: auditoria; processo de ensino-aprendizagem; derivação gradual; invariantes de conteúdo; problemas profissionais.

INTRODUCTION

The growth and development of a country depends largely on the quality of its educational system. Consequently, Cuba, as a country that lives in unique conditions, strives to consolidate its own, in line with the evolution of knowledge and the advancement of new technologies. These efforts respond

to the need to train comprehensive, competent professionals committed to university processes that respond to the demand of educational centers in each province and municipality.

Consequently, Higher Pedagogical Education requires the training of a teacher capable of contributing to finding solutions to the problems of educational work, thereby improving their professional pedagogical performance (Jaime *et al.*, 2018).

Accordingly, the Graduate in Economic Education, a professional in education in training, is responsible for directing the teaching-learning process (PEA) in the families of Economics, Services and Social Services in Technical and Vocational Education (ETP) at the junior high level. Hence, their initial training is also linked to preparation for the control and management of the economic resources of the state.

The Accounting, Cost and Auditing discipline occupies an important place in this training [regardless of the fact that the Main Integrating Discipline (DPI) is the Investigative Labor Training (FLI)]. This is one of the most specific technical disciplines of the degree, which has a close interdisciplinary relationship with the rest of the professional's curriculum, serving as a starting point.

As part of this discipline, the Auditing subject has the task of providing teachers in training with the current provisions that exist in the country, to carry out the process of auditing an entity and its teaching methodology, allowing them to strengthen their economic training and to act on the object of their profession (direction of the ETP process at the middle level), represented in the professional problems that characterize it.

The problem related to professional problems has been addressed in the last decade by several authors: Álvarez (2004); Torres (2017); Jaime *et al.* (2018); Horruitiner (2020); Vega (2022); Gómez *et al.* (2023) among others.

For these authors, professional problems define the spheres of action of the production and service processes and form part of the object of the profession; therefore, they have their genesis outside the pedagogical process. However, the conception of the latter cannot be alien to them.

Consequently, Horruitiner (2020) insists on the need for the correct determination of professional problems as a principle or conditions for the design of the career curriculum, as they reflect the professional reality at a specific historical moment. The graduate must be prepared to independently

and creatively assume the possible solution to professional problems, hence the guiding nature of the TLP of the discipline and its subjects that acquire added value.

Álvarez (2004) synthesizes the above criteria by recognizing professional problems as the starting point of the entire TLP, since it is the bearer of social need; therefore, its presence is important, both in determining the objectives and content, as well as the methods to be used. Likewise, researchers such as Vaillant and Marcelo (2021) refer that this process should focus on the professional problems that characterize it.

Accepting these criteria means recognizing that the gateway for professional problems to enter the professional pedagogical process must be the degree and the DPI. In relation to this, regardless of whether the degree being studied has declared its professional problems, two elements criticized by Ferreira *et al.* (2022) remain latent on the subject. One of them is that, although the problems respond to the object of the profession, they still maintain a certain level of abstraction from professional reality. The second criticism addresses the absence of conceptions on the determination of the invariants of these professional problems, derived from the methodological analysis necessary to address them from the classroom.

According to this author, working on these professional problems from the TLP of the Auditing subject requires a gradual derivation that follows the logic of the career, the DPI, the disciplines, the subjects and the academic year, as subsystems or organizational levels of the curriculum (Horruitiner, 2020), until reaching the class in which they will become essential invariants necessary in the training and development of professional content.

Jaime *et al.* (2018) consider that, although the gradual derivation of objectives expresses the concretization of the ideal of man that society needs to form based on its development, gradually deriving professional problems allows identifying the goals that must be achieved in each academic year and subject, taking into account the levels of complexity and the development aspirations to be achieved in students.

As a facto-perceptual expression of these theoretical criteria, recent research at the "Hermanos Saíz Montes de Oca" University of Pinar del Río revealed a group of deficiencies that indicate inconsistencies in the conception of the TLP in the Bachelor's Degree in Education for ETP, related to its deficient professional orientation.

This situation seems to be caused by shortcomings such as: weighting of work from the logic of science over that of the profession; lack of contextualization and updating of the content that is worked on in the different disciplines and subjects; predominance of disciplinary work in the development of the professional content of the degree; insufficient role of the DPI as an exponent of the object of the profession, among others.

These results remain latent in the training of the Bachelor of Education, Economics, and specifically in the TLP of the Auditing subject, as shown by the research carried out between 2018 and 2024 in this career at the University of Pinar del Río. In this regard, it was found that in practice there are deficiencies in the comprehensive projection of the methodological work in the career, which does not take into account the gradual derivation of professional problems by subsystems or organizational levels. The interpretations of the results of the application of instruments made it possible to verify the existence of insufficiencies such as:

- Deficiencies in the integrative conception of the TLP, which limit the curricular projection of the career, based on the object of the profession.
- Abstract nature of the purposes of the professional model, which limits the professionalized conception of the TLP of the Audit subject.
- The professional problems of the model limit their character as a guiding axis of the TLP, which influences the curricular conception of the career.

These shortcomings show the lack of clarity in the guiding concept of the TLP of the subject, conditioned by the lack of knowledge about the main professional problems that characterize auditing in Pinar del Río, which causes the difficulties identified in the process. For this reason, this research aims to characterize the current state of the TLP of the Auditing subject from the gradual derivation of professional problems by subsystems or organizational levels.

MATERIALS AND METHODS

The research was based on the dialectical-materialist method as a general methodological foundation, since it allowed for a more objective analysis of the problem and more clearly defined the path to access scientific knowledge, accompanied by the application of theoretical, empirical and statistical methods.

As for the theoretical methods, the following were used:

- Historical logic: it allowed the study of the theoretical, conceptual and historical framework related to the TLP of the Auditing subject in the training of the Bachelor of Education, Economics, of the University of Pinar del Río, as well as its manifestations in the current context.
- Analysis and synthesis: for the theoretical study of the object and the field of research, which allowed arriving at criteria, discovering relationships and general characteristics between the elements of the object of research and the necessary construction of the variable under study.
- Induction and deduction: made it possible to make inferences about particular aspects and to ascend to generalizations about the object of the research.

As for the empirical methods, the following were used:

- Document analysis: was used to study documents of the Bachelor's Degree in Education, Economics (professional model, study plan, syllabus and methodological guidelines of the Accounting, Cost and Auditing discipline, syllabus and class plan of the Auditing subject), which provided the necessary information on the initial state of the object of study.
- Classroom observation: allowed us to verify, through direct and systematic perception, the current state of the object of study investigated.
- The interview: This was used with teachers who teach the Auditing subject, allowing them to verify the current state of the TLP under study.
- The survey: was used to characterize the current state of the TLP of the Auditing subject and the level of knowledge about it, in the selected population.
- Statistical methods: were used to process the information, using descriptive statistical techniques. All of this made it possible to interpret, summarize, make inferences and present the information.
- The methodological triangulation technique: was used to confirm the information obtained and determine the main regularities.

The study was carried out with five teachers who teach the subject Auditing at the University of Pinar del Río; ten specialists in production and services related to the training of graduates in Education and Economics; ten teachers belonging to the Polytechnic Center "Rigoberto Fuentes Pérez" of the municipality of Pinar del Río; and twelve students who are in their fourth year of training for

graduates in Education and Economics, whose selection is intentional and responds to the researcher's need to work with the academic year in which the subject Auditing is taught. The possibility of working with all elements of the population made it unnecessary to select a sample, following a census criterion.

For the development of research the following methodology was used: first, a systematization of the theoretical and methodological references around the object of study was carried out, which allowed establishing a group of characteristic features that were synthesized in the operational definition of the variable under study. In a second moment, the documents that govern the training of the Bachelor of Education, Economics, were analyzed through a guide for documentary analysis; 15 documents were observed classes of the Auditing subject, through a class observation guide; 15 teachers were interviewed through a 13-item structured individual interview; 10 specialists from the labor entities linked to the TLP of the Auditing subject were surveyed to finally methodologically triangulate the results obtained, which allowed characterizing the TLP of the Auditing subject from the gradual derivation of professional problems.

The application of the instruments constructed for the characterization of the current state of the variable under study allowed to establish a group of characteristic features that are synthesized in the operational definition of the variable *teaching-learning process of the subject Auditing from the gradual derivation of professional problems*, understood as: that which preparation, execution and evaluation starts from a gradual decomposition of professional problems related to the auditing, by organizational levels, which promotes the determination of the invariants of contents that the student will have to appropriate, to face and to solve the professional problems reflected in the professional's model, in the context of the university-work entity-community integration and the cooperation between the educator and the students.

RESULTS

Results of the application of the methods and instruments used

The analysis of the normative documents of the Bachelor's Degree in Education, Economics, shows that the characterization was carried out taking into account a historical summary of the same, the object of work, the spheres of action, the modes of action of the professional, the professional pedagogical skills, functions and tasks, the system of values to be developed, in addition to the

general objectives and by academic years; not being so with the professional problems, which are only raised at the career level and in a very general way. This means that they do not correspond to the commonest professional situations that take place in labor entities today, associated with the training of this graduate, which is due to the absence of an accurate and constant diagnosis of these situations.

It is also important to underline that, unlike the objectives, which are derived from the degree, DPI-FLI, disciplines, subjects and academic years until they reach the class, professional problems do not go through each of these organizational levels, nor are the levels of complexity that they can reach in each academic year taken into account. There are also no methodological indications that guide how to carry out this gradual derivation of professional problems, nor was there any reference to working with the invariants of the content and, therefore, there is no guidance on how to determine them.

Likewise, it was found that the professional problems to be worked on during the TLP of the Auditing subject are not determined. This means that there is also no gradual derivation of these problems by each of the organizational levels. Likewise, it was established that there is no prior diagnosis of the most common professional situations that take place in the labor entity, and that can be worked on in classes. As a consequence, there is no correspondence between these professional situations and the professional problems reflected in the model of this professional; extremely important aspects if we intend to train a comprehensive professional as demanded by today's society.

Likewise, it was not possible to verify the relationship between professional problems-objective-content, or whether or not the latter is part of the solution to professional problems in the subject. It was also not possible to verify whether the students' level of appropriation of the contents that make up the solution to professional problems in the Auditing subject is correctly assessed, since these are not determined and the assessment system is projected only based on the contents that are worked on, regardless of whether or not they are part of the solution to professional problems.

Likewise, the analysis of Resolution 47/2022 and the methodological work plans and their compliance at the different levels confirms that the topic in question (determination and gradual derivation of professional problems) does not constitute a line of methodological work to which importance is given in the training of the Bachelor of Education, Economics; Therefore, activities related to professional problems as a guiding axis and their gradual derivation are not planned or articulated, nor do they

refer to the identification of the necessary content invariants from the object of science, to act on the object of the profession and solve the professional problems that manifest in it.

A total of 15 classes (100%) were observed, at a rate of three classes for each university professor who teaches the Auditing course, in different forms of teaching organization (lecture, practical class and seminar). The review of these classes aimed to verify in classes the mastery that the professor has regarding the work with professional problems and their gradual derivation by organizational levels, as well as the appropriation of the content by the students.

Professional problems are not assumed as a starting point for the TLP of the subject referred to, hence there is an insufficient link between the subject and the object of the profession and the teaching tasks do not respond to these professional problems. Consequently, the relationship professional problems-objective-content is also affected, since the true authenticity of these is not recognized on the basis of the real needs of the labor entities.

Likewise, work with the invariants of the content was affected and there was insufficient appropriation of the content necessary to solve professional problems of the object of the profession, as a result of the training process.

For the interview with teachers of the Auditing subject, a structured individual interview of 13 items was used, with the aim of knowing the criteria of the teachers regarding the work with professional problems and their gradual derivation by organizational levels, and the factors that influence, favorably or unfavorably, this process.

In this regard, it is noted that, during the preparation stage of the TLP for the subject in question, all teachers acknowledge that they are not familiar with the most common professional problems that occur in labor entities associated with the training of the Bachelor of Education, Economics, since they only master those declared in the professional model. Hence, they do not know if there is any correspondence between the latter and the real situations presented by the labor entities in the territory.

Furthermore, they state that they are completely unaware of how to gradually derive these professional problems, since they have not received any methodological indication for this at any of the organizational levels. They also claim not to work with the invariants of the content, since they do not know what they are and why they are necessary. However, they claim to include some

teaching tasks within the planning of the subject, although these do not respond to professional problems of the subject, since none of them have been determined.

On the other hand, they agree that, during the execution of the TLP of the subject in question, they do not gradually derive the professional problems by organizational levels until they reach the class, nor do they work with the invariants of the content of their subject, which is a consequence of not conceiving it from the preparation of the subject as the starting point of the TLP.

All those interviewed acknowledge that during the evaluation of the TLP of the Auditing subject, most of their students have difficulties with the appropriation of the contents, since they do not know why they are useful, necessary or significant and what professional problems they can solve with them. They also do not evaluate the relationship among professional problems-objective-content, nor do they know if their classes respond to the contents that make up the solution of these problems, associated with the training of the Bachelor of Education, Economics, since they are not determined.

In general, everyone stated that it is necessary to orient methodological work in the career and at each of the organizational levels, based on the gradual derivation of professional problems and work with the invariants of the content.

Ten specialists with more than five years of experience in labor entities linked to the TLP of the Auditing subject were surveyed. The purpose of the survey was to obtain information related to their level of integration into the process of determining and gradually referring professional problems by organizational level, during the preparation, execution and evaluation of the TLP of the Auditing subject. To do so, a six-item questionnaire was applied, with a three-level scale, the same for each of them (never, sometimes and always).

The result obtained concluded that 100% of the respondents claim that they have never participated in any type of analysis, meeting or debate where the topic was the most common professional problems that take place in the associated work entities, in this particular case, to the training of the Bachelor of Education, Economics. Hence, the professional problems of the career do not respond to the situations The most common professional problems that occur in the labor entity. This means that the professional problems reflected in this professional model have never been compatible with those existing in the labor entities of the territory, preventing us from knowing the reality that the student will have to face once he graduates.

All the specialists state that they never participate in determining the professional problems to be worked on during the TLP of the Auditing subject, nor in the gradual derivation of these by organizational levels, which largely limits establishing the invariants of the content that cannot be left unworked at these levels because they constitute basic elements in the student's training.

Furthermore, they argue that they only sometimes perceive that the teaching tasks that students are given to carry out in work entities contribute to the solution of real professional problems in the same. From this it can be deduced that the teacher does not have a command of what professional problems the student in training must face in the current context.

On the other hand, everyone agrees that there is never any assessment of whether the content covered in class contributes or not to the solution of professional problems. Nor is there any assessment of whether students manage to appropriate the content and then integrate it and transfer it to the solution of professional problems. This is because there is no assessment process in which they participate.

Regularities detected

Once the results of the applied methods and techniques were analyzed, a methodological triangulation was carried out, with the purpose of obtaining the main regularities of the TLP of the Auditing subject in the training of the Bachelor of Education, Economics, of the University of Pinar del Río, among them:

- The Professional Training Model does not explain the necessary relationship among professional problems-objective-content. Nor is there an adequate determination and gradual derivation of professional problems by organizational levels.
- Professional problems, at the career level, do not correspond to the most common and frequent situations in work entities.
- There is no evidence of students' interaction, in a sequential manner, with the professional problems they must face in Professional Practice.
- The methodological work carried out in the course and at each of the organizational levels is insufficient, based on the gradual derivation of professional problems and the work with the invariants of the content.
- Participation of specialists from labor entities during the preparation, execution and evaluation of the TLP for the Auditing subject is limited.

The results obtained show the urgent need to rethink the preparation, execution and evaluation of the TLP for the Auditing subject, from the gradual derivation of professional problems at each of the organizational levels; so that these, with the help of methodological work, reach the classroom in the form of invariants of the professional content.

DISCUSSION

The results of the systematization carried out allowed us to establish a group of features that characterize the TLP of the Auditing subject as a planned, systematic, dynamic, didactic and scientific process, aimed at the integral development of the student, based on the active and creative appropriation of the contents. Its formative nature is also assumed from the cooperation between the protagonists of the process as a path of ethical learning, in which the teaching staff becomes a reference for the future teacher, both in the way of teaching and in the ways of promoting the learning of their students and of relating to them in the formal and informal spaces of university life (Martínez & Carreño, 2020).

These criteria are also applicable to the TLP that takes place in the training of professionals at any level. However, in this case the intention is determined by the object of the profession, which modifies in a unique way the criteria on teaching and learning.

When studying these criteria from the object of study, it is important to highlight the relationship between the cooperative nature of the TLP protagonists and the appropriation of the contents related to the object of the profession, resulting from this process. On the other hand, cooperation, as a new assigned quality, also distinguishes the nature of the communicative process associated with the TLP. All of this is focused on personal growth, as a characteristic of a training process that considers the student's integral technical and professional development.

Achieving the technical and professional integrity of the Bachelor of Education, Economics, implies his/her preparation for the direction of the ETP process at the middle level, related to the training of competent accountants. The above means, in turn, the appropriation of professional pedagogical content that enables an efficient projection of the economic-financial activity in the evaluation, both of this process and of its results and decision-making (Gómez *et al.*, 2023).

According to Abreu and Soler (2019), these professional contents are a reflection of those knowledge, skills, assessments, standards of conduct, experiences of productive and service activity that have a

professional character; to the point that their selection is conditioned by the labor nature of the productive and service processes at a given historical moment.

For graduates in training, appropriating the aforementioned content, as an important component of the object of the profession, is conditioned by the level they show when facing problems, as well as the quality of their solution. The above justifies that, when analyzing these categories, Álvarez (2004) considers professional problems as the starting point of the TLP.

In this sense, Torres (2017) and Vega (2022) consider the importance of current vocational training taking into account professional problems, as learning becomes more objective. Ferreira *et al.* (2022) states that when these problems represent the professional reality at a specific historical moment, then learning gains in authenticity.

The study of this category, which is specific to the productive sectors, has been of interest to Professional Pedagogy for the last 25 to 30 years. Several researchers consider professional problems as an abstraction and generalization of the most common and frequent situations or as the set of demands and situations of the object of professional work, which requires the professional's action for its solution. They all agree on the need to provide the student of pedagogy with the tools to learn to find solutions to professional problems of their type.

That is to say, the logic that guides scholars of the subject indicates that professional training gains in effectiveness when these situations are brought to the pedagogical and specifically didactic level, to be worked on in classes, as a result of the necessary integration between theory and practice; which according to Jarauta and Medina (2023) is not always of quality, since it depends largely on whether the learning carried out at the university is linked to those professional problems that emerge from practical contexts as a necessary condition in teacher training.

On this basis, the criteria of Mena and Mena (2020) are assumed, who consider these problems as an essential personalized component in the TLP of vocational training, defining them as those technical-professional situations specific to the object of the profession, which the student must identify and solve during the teaching-learning process of the career, taking into account the apprehension of certain basic contents and which solution promotes the formation and development of new professional contents.

The above criteria, from the perspective of a discipline and its subjects, require us to understand that the actions of confronting and solving professional problems, from the classroom, require that the student have mastery of certain basic content that must be integrated and transferred as a condition for solving the professional problem.

The understanding of this problem from a scientific perspective has led in recent years to different authors such as López *et al.* (2016); Torres (2017); Jaime *et al.* (2018); Mena and Mena (2020); Vega (2022); Ferreira *et al.* (2022); among others, defend the need for the identification of professional problems not to remain in the career, but to derive to disciplines and subjects; therefore, their determination is essential in those careers that have not yet identified them or their derivation from the career when these problems have already been recognized.

The above criteria in the theoretical order constitute essential foundations that contribute to understanding the object of study and that also gain strength in the official order in the Ministry of Higher Education (MES). In this sense, it was possible to verify how the majority of the courses advance towards the identification of those professional problems that should guide the training process.

However, according to the systematization carried out, even though the response for the specific historical moment is highly positive, these arguments do not show the recognition of a group of elements that, from the position of this research, should complement the current conception of the TLP of the subject under study.

In this sense, in the theoretical order, the understanding and comprehension of the methodological work so that these professional problems reach the classroom has not yet been sufficiently addressed, as the main organizational form of the TLP, in the form of invariants of the professional content that represent the gradual contribution of each subject and discipline to the solution of the professional problems of the career as an expression of compliance with the professional model.

Professional problems identified are not recognized on the basis of working to achieve compatibility of the proposals made with the real needs of the labor entities in each territory; an element that requires a systematic and updated diagnosis of the labor reality (Ferreira *et al.*, 2022).

On the other hand, and closely related to the above, the role of the DPI (expression of the object of the profession) as a guide for the rest of the disciplines in the curriculum is not addressed in depth.

In relation to the above, we fully agree with Álvarez (2004) when he says that professional problems, to a large extent, determine the objective and the rest of the components, not only at the career level but also in the rest of its subsystems or links, namely: the DPI, the disciplines of the curriculum, the academic year and its subjects. In this way, the PEA of the class should also be determined by the professional problems of the academic year, derived from the career.

In this sense, there is no doubt that this criterion for the career also affects the rest of its subsystems; so that, if there is a derivation of objectives for each level, a derivation of professional problems from the career is also necessary, which enables teachers to determine the invariants of content for each level.

For Jaime *et al.* (2018), the gradual derivation of professional problems allows identifying the goals to be achieved in each academic year, taking into account the levels of complexity and the development aspirations to be achieved with students from the exercise of their profession.

The criteria of these authors on how the gradual derivation of professional problems should be carried out are interesting, as they defend the need for an integrated and interdisciplinary methodological work that interrelates the different subsystems established by Hourutiner (2020). However, their proposals are hampered because, to a large extent, their criteria are reduced to the identification and work with basic skills and their actions, seen as invariants of the most general knowledge, without including the rest of the components of the content.

Another important aspect to highlight in the analysis of the gradual derivation of professional problems is the criterion of Horruitiner (2020), when he insists that the determination of the professional problems of the career is conditioned by the historical-concrete professional reality (object of the profession). Therefore, these may vary depending on the scenario, technological development and even the prevailing socioeconomic situation.

However, according to this author, these results involve the entire training cycle organized into curricular subsystems or levels, each of which must contribute to comprehensive training; which means that the work during the entire initial training cycle follows the logic from the object of science to the object of the profession.

This leads to the recognition that the result of the gradual derivation of professional problems must take into account a methodological procedure that starts from the professional problems of the career

until reaching those guidelines, guiding ideas, general contents, basic cores of knowledge, cognitive nodes, among others, that are part of the object of the sciences represented in each of the disciplines, subjects and academic years (López *et al.*, 2016).

However, the authors studied do not sufficiently recognize the complexity of this verticality for the gradual derivation of professional problems, in relation to the academic years. It should not be forgotten that, as a principle, the student learns from the simple to the complex, from the known to the unknown, from the general to the particular (Abreu & Soler, 2019). Following this principle, the curricular organization of the contents moves from general and basic areas, basic professional areas to specific professional areas. In the latter, the professional contents are integrated and, therefore, the professional problems identified in the study plan.

From this analysis, the gradual derivation of professional problems from the degree by years of study implies a process of inverse degradation or decomposition from the specific character of the professional problems that are worked on in the last year until reaching the general or invariant nature of the contents that are worked on in the first years. The same happens with the disciplines of the curriculum and their subjects.

In relation to this aspect, López *et al.* (2016) consider a group of important and necessary conditions in working with content invariants in the TLP which are applicable to working with professional problems:

- The invariants are related to the central core, the essence of the system, translatable to the mastery of concepts, laws, principles, procedures, skills, techniques, etc., which are general or basic and require preparation, analysis, imagination and creativity.
- Recognizing the impossibility of the study program covering everything related to the object of science requires emphasizing work with the basic content or regularities present in the problems of the profession. It follows from this that establishing invariants of professional problems implies determining the contents necessary for their solution.
- The application of general content (basic cores) to the solution of specific problems favors scientific thinking and ensures or derives the learning of new content in known problems with different degrees of complexity or unknown in the short or medium term, allowing the student to solve the problems of the degree.

- The TLP, through the content invariants, requires in-depth methodological work by the group of the career, the discipline and the subject of the academic year, which implies a radical change in the TLP, based on the relationship of the professional problems with the rest of the components of the process.

However, despite the importance of these conditions, it is striking that no reference is made to the possibility that the invariants facilitate interdisciplinary training that allows the integration and transfer of content to solve the problems of the object of the profession.

As a result of the analysis of the assumed assumptions, it is essential that the gradual derivation of professional problems takes into account the prior precision of the content invariants or guiding ideas that, as nuclei of maximum generalization, express the content system of the object of science, necessary to influence the object of the profession.

It is therefore necessary to coordinate methodological work in the groups of career, discipline, subject and year, with the aim of raising the quality of teachers' performance and improving or perfecting the development of the TLP, which in current pedagogical practice still does not reach the desired levels.

In Cuba, methodological work is governed by Resolution No. 47/22 of the MES, which identifies it as part of the TLP from a didactic point of view and takes into account the role played by the personal components involved in its execution (teacher, student and specialists in production and services), in order to achieve the objectives outlined in the study plan, essential aspects for the successful development of the TLP for the Auditing subject.

However, one of the aspects to be reconsidered in this resolution is the conception of the DPI, since the only thing that differentiates it from the rest is its level of responsibility regarding the work practice carried out by the students, the identification of the possible teaching units and base work entities to carry it out and advise the teachers in the preparation of the guides, with which the author does not agree. This criterion contradicts Horruitiner (2020), who considers the DPI of the career as the backbone of the training process, to which all the others are subordinated, as it represents the object of the profession.

Therefore, the criteria of Jaime *et al.* (2018); Hurrutiner (2020) and Vega (2022) are assumed regarding the adequate balance that this discipline expresses between the academic, work and

research activity of the student, based on the mastery of the contents of the profession; in the same way, it integrates the rest of the contents that the student receives during the years of study and the rest of the disciplines of the study plan. In it, the unity of theory and practice is concretized, consolidating theoretical-practical knowledge and the development of professional skills.

In keeping with these criteria, in the didactic order, the DPI as the first subsystem of the degree, assumes the professional problems of this, initiating the gradual derivation of these. The complex nature of the gradual derivation also imposes high complexity on the methodological work that starts from this discipline.

Similarly, we agree with Ferreira *et al.* (2022) on the guiding nature of the DPI towards the rest of the disciplines, which requires integrated and collective methodological work by all teachers of the year and degree, based on identifying the invariants of the content and professional problems that will be addressed in each academic year.

It is precisely through this integration of the components that all interdisciplinary work is achieved based on the integration and transfer of professional content, closely linked to the object of the profession and expressed through the solution to professional problems (Gómez *et al.*, 2023).

A derivation of professional problems at each of the organizational levels is necessary, allowing the teacher to identify from his or her level the content invariants necessary from the object of science, to act on the object of the profession and provide solutions to the problems that arise therein.

Seen in this way, methodological work should constitute the main way to achieve these goals at each of the organizational levels established by Horruitiner (2020), so that it allows to identify the invariants of the content that the student will have to appropriate to solve the professional problems reflected in the professional model. All this work must be organized and directed by the DPI-FLI, in order to put the object of science in function of the object of the profession and, thus, improve the TLP of the Auditing subject in the training of the Bachelor of Education, Economics.

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Conflict of interest

Authors declare no conflict of interests.

Authors' contribution

The authors participated in the design and writing of the article, in the search and analysis of the information contained in the consulted bibliography.



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