

## **Curricular transformations in higher education based on collaborative and interprofessional relationships: a contemporary demand**

Transformaciones curriculares en la educación superior basadas en relaciones colaborativas e interprofesionales: demanda contemporánea

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### **ABSTRACT**

**Background:** The training of professionals in Cuba faces global demands aligned with the objectives of the 2030 Agenda, although challenges persist in integrating collaborative and interprofessional practices in higher education in general.

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**Objective:** To design a methodological procedure for the curricular transformation of the General Pedagogical Training discipline, based on collaborative and interprofessional relationships.

**Methods:** A qualitative research study with a grounded theory design was conducted between February 2022 and April 2023 at the Central University "Marta Abreu" of Las Villas. Theoretical methods (historical-logical, analytical-synthetic, inductive-deductive) and empirical methods (document analysis, in-depth interviews, and content analysis technique) were employed. Qualitative data analysis was performed using Atlas.Ti 9 software.

**Results:** A methodological procedure was developed for the curricular transformation of the subject programs within the discipline, based on collaborative and interprofessional relationships and the transition from an interdisciplinary to a transdisciplinary approach, integrating students from different specialties in training settings. The procedure ranges from teacher preparation to the redesign of the scope of objectives, skills, and professional problems, the practical work component of subjects, the use of active methodologies, and interprofessional assessments simulating real professional problems.

**Conclusions:** A methodological procedure was designed for the curricular transformation of the General Pedagogical Training discipline, based on collaborative and interprofessional relationships. These transformations made it possible to prepare students for better performance, in correspondence with the complex demands of the current educational context.

**MeSH:** training; programs; education, professional; faculty, education, higher

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## RESUMEN

**Fundamento:** la formación de profesionales en Cuba enfrenta exigencias globales alineadas con los objetivos de la Agenda 2030, aunque persisten desafíos para integrar prácticas colaborativas e interprofesionales en la educación superior en general.

**Objetivo:** diseñar un proceder metodológico para la transformación curricular de la disciplina Formación Pedagógica General, basada en relaciones colaborativas e interprofesionales.

**Métodos:** se realizó una investigación cualitativa con diseño de teoría fundamentada entre febrero 2022 y abril 2023 en la Universidad Central “Marta Abreu” de Las Villas. Se emplearon métodos teóricos (histórico-lógico, analítico-sintético, inductivo-deductivo) y empíricos (análisis documental, entrevista en profundidad y la técnica análisis de contenido. El análisis cualitativo de los datos se realizó con el software Atlas.Ti 9.

**Resultados:** se elaboró un proceder metodológico para la transformación curricular de los programas de las asignaturas de la disciplina, basada en relaciones colaborativas, interprofesionales y el tránsito de un enfoque interdisciplinar hacia uno transdisciplinar con la integración de estudiantes de distintas especialidades en los escenarios de formación. El proceder parte de la preparación de los profesores hasta el rediseño del alcance de objetivos, habilidades y problemas profesionales, la práctica laboral de asignaturas, el empleo de metodologías activas y de las evaluaciones interprofesionales que simulen problemas profesionales reales.

**Conclusiones:** se diseñó un proceder metodológico para la transformación curricular de la disciplina formación pedagógica general, basada en relaciones colaborativas e interprofesionales. Estas transformaciones posibilitaron preparar a los estudiantes para un mejor desempeño, en correspondencia con las complejas demandas del contexto educativo actual.

**DeCS:** capacitación; programas; educación profesional; docentes; educación superior

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## INTRODUCTION

Globally, higher education is moving towards a global dimension from a holistic perspective. It is called upon to design new policies, strategies, and curricula that respond to the solution of professional problems and the demands of the national and international context.

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In Cuba, higher education aligns with the aspirations of international organizations and the fulfillment of the Sustainable Development Goals defined in the 2030 Agenda.<sup>(1)</sup> It is responsible for training professionals capable of promoting the sustainable and prosperous development of society, as aspired by the Cuban State, and it is considered that training enables the guidance and direction of personal and professional development.

The Ministry of Higher Education<sup>(2)</sup> is perfecting training models and study plans so that they respond to the national and international context, with a greater link to the solution of professional problems and needs. Its basic principles are the study-work connection and the training of broad-profile graduates who demonstrate professional skills, personal qualities, ethical, moral, aesthetic, and cultural values, as well as scientific, technological, and innovative thinking.

Researchers Sánchez Romero *et al.*<sup>(3)</sup> point out that the training of education professionals should prepare them to address inclusive education, which entails equity and social justice. This implies transforming educational institutions to respond to diversity and coexistence, using strategies that foster respectful environments and autonomy in learning.

The implementation of training models in Cuba includes innovative pedagogical practices and the use of educational technologies to improve the quality of teaching. According to Palau,<sup>(4)</sup> the use of technologies must consider the needs of the students and the context in which it is used for it to be successful.

The training of early childhood education professionals (preschool, primary, speech therapy, and special education) is a priority, with high professional pedagogical performance, enrichment, and personal and professional self-development, which is why it is constantly being improved. In Study Plan E, the training models for early childhood education careers are conceived on a common basis, materialized through two disciplines: Linguistic and Literary Studies and General Pedagogical Training. However, this integrative conception does not explicitly set forth a transdisciplinary curricular conception. It does not conceive collaborative and interprofessional relationships among the different professions in all

training scenarios. Nor does it fully prepare future professionals to address complexities such as diversity, special educational needs, and inclusive education with the collegial intervention of different professionals. These limitations point to the need for transformation.

Professionals dedicated to teacher training express constant concern for the improvement of the training process. In this sense, García Viamontes *et al.*<sup>(5)</sup> carry out a critical analysis of the General Pedagogical Training discipline (hereinafter GPT) that is of interest for this work. The authors analyse the essential elements of the discipline and highlight its importance for the training of early childhood education professionals; however, they omit its nature as a common core, a fundamental aspect that distinguishes it in its conception and development.

The analysis of this problem leads to the objective of this research: to design a methodological procedure for the curricular transformation of the subject programs of the GPT discipline based on collaborative and interprofessional relationships. This objective arises from the need to answer the following question: how does the conception of the GPT discipline -as a common core- enable collaborative and interprofessional relationships to face current social and educational demands?

This problem leads to reflection on the need to delve deeper into whether the curricular design to foster interrelationships among different professions in all training scenarios can solve complex professional problems through collaborative and interprofessional work.

## METHODS

An educational development research study was conducted at the "Marta Abreu" Central University of Las Villas under a qualitative paradigm<sup>(6)</sup> for the interpretation of professional training practice, with a grounded theory design,<sup>(7)</sup> during the period February 2022-April 2023. A non-probabilistic intentional theoretical sampling was used. The inclusion criterion was expertise in the early childhood education professional training process. A total of 22 professionals participated: four career program coordinators, one principal professor of the discipline program, and 17 principal professors of subjects within the discipline. All had

experience in training early childhood education professionals. The exclusion criterion was the existence of a conflict of interest with this condition.

Theoretical saturation criterion was reached when no new categories or properties emerged in the last three interviews conducted.

Theoretical methods (historical-logical, analytical-synthetic, inductive-deductive) were used to study the topic, delve into its essence, and draw conclusions.

The empirical methods and data collection and analysis techniques were:

- Documentary analysis and content analysis of normative documents related to early childhood education professional training.
- The progressive in-depth interview method was applied to the different actors in the training process until information saturation was reached.

Data were processed through open, axial, and selective coding using Atlas.Ti9 software,<sup>(8)</sup> from which codes emerged that were grouped into categories for analysis.

External validity of the scientific result was carried out using the user criterion method, applying a survey to 58 specialists, professionals from all early childhood education programs, and members of the national career commissions. Of these, 21 held master's degrees with the category of Assistant Professor, 37 held doctorates with the category of Full Professor, and in both cases, all had more than 10 years of experience. They were considered experts due to their preparation and involvement in the conception and development of study plans. The hypothesis test on Kendall's W coefficient measured the assessment criteria for 20 items. The dimensions were: feasibility and viability; innovative aspects and contribution; clarity and internal coherence.

Ethical considerations: All participants signed informed consent prior to their inclusion in the study; confidentiality of their responses and the exclusively academic use of the information provided were guaranteed.

## RESULTS AND DISCUSSION

The first coding process (open, axial, and selective) was carried out on the results of the documentary analysis method applied to the professional models (4), the base document for the development of Study Plan E (1), the document for the conception of the common core of early childhood education programs (1), and the GPT discipline syllabus (1). In the analytical memos, it was specified that the normative documents have limitations, but can foster collaborative and interprofessional relationships through the curricular integration of the GPT discipline, as it provides theoretical, epistemological, and methodological foundations on educational practice; it is a basic discipline for the profession.

It was concluded that the training process does not operate in isolation, but as a dynamic and integrated system, based on relationships with a higher-level integration category - professional training. The results of this analysis allowed us to define that the curricular transformation would take into account:

- a) Professional training as a permanent, comprehensive, systemic, and developmental process
- b) The development of professional pedagogical skills for inclusive education
- c) The training process based on collaborative work, a transdisciplinary and interprofessional approach

It was necessary to delve deeper into the research field with the actors of the training process; three progressive in-depth interview sessions were conducted with each group. Participants included 17 professors, 4 career coordinators (Preschool, Primary, Special Education, and Speech Therapy), and one discipline head. A second coding process was carried out on the interview results, which provided new elements for the curricular conception of the subject programs within the GPT discipline.

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It was concluded that the categories of comprehensive preparation, theory-practice articulation, and collaborative practices are intertwined with the pedagogical training process as it is a central category. This not only organizes the undergraduate training of the early childhood education professional but also guides it towards transformation. The analytical memos specified: collaboration among professionals strengthens the relevance and quality of training; the transition from an interdisciplinary to a transdisciplinary approach; curricular integration with a transdisciplinary approach, relationships among the different professions (interprofessional), and evaluation with this same approach. The results allowed defining which curricular transformation to undertake:

- a) Integration of practical work activities and research tasks.
- b) Development of professional pedagogical skills that facilitate collaborative work in the different training scenarios.
- c) Design of collaborative practices with emphasis on didactic interaction and comprehensive training.
- d) Need to prepare discipline professors to incorporate the collaborative and interprofessional approach in training.

Once information saturation was achieved, the emerging categories were corroborated through cross-data comparison. These categories offer a complete vision of the studied phenomenon and allow determining areas for improvement for the curricular transformation of the GPT discipline based on collaborative and interprofessional relationships.

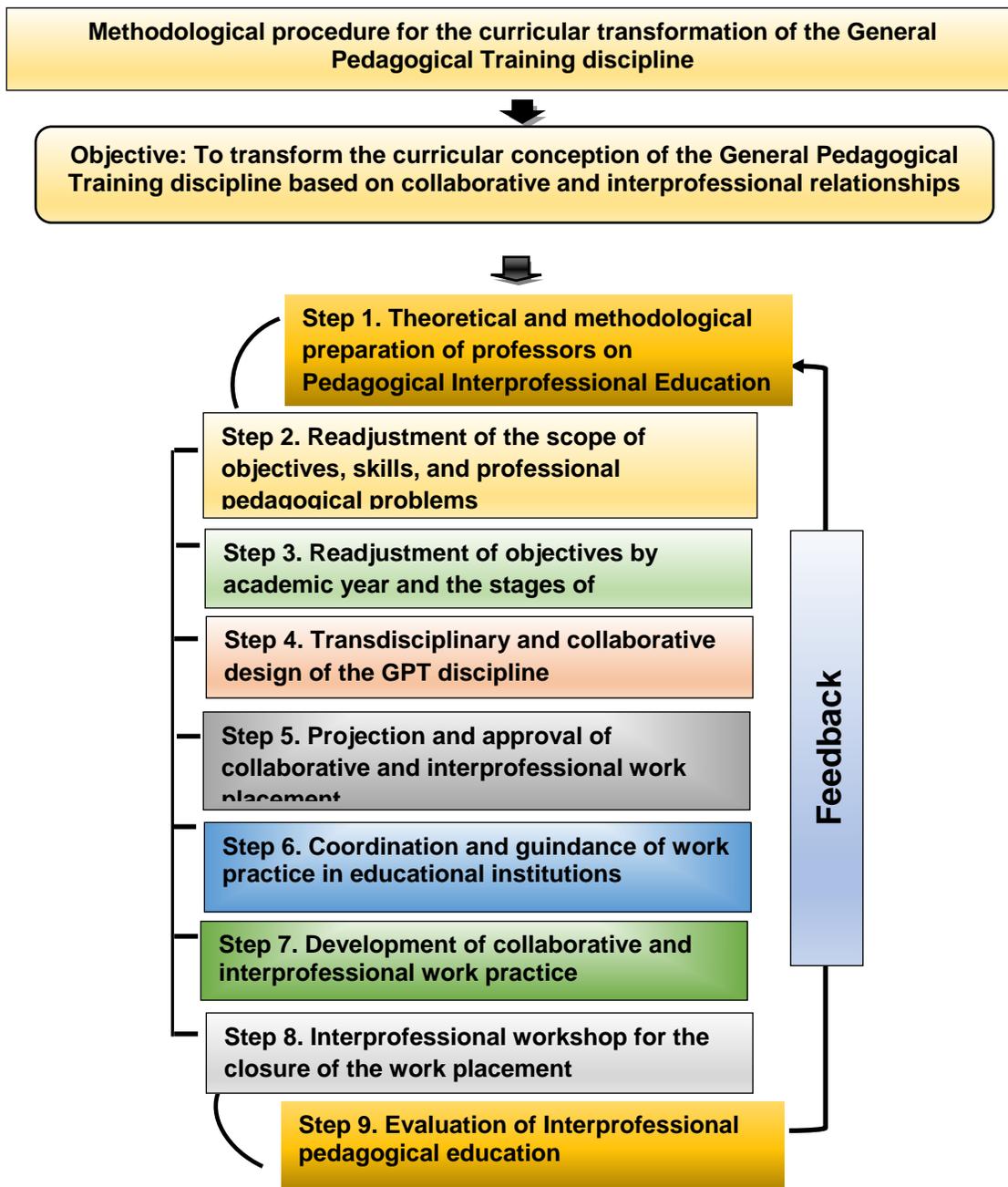
The areas for improvement are as follows:

1. Transition to a transdisciplinary approach, implying the reformulation of objectives, skills, and professional problems
2. Projection of the theory-practice link in academic, work, and research activities with a collaborative and interprofessional nature

3. Use of innovative methodologies in directing the educational process in general and the teaching-learning process in particular
4. Projection of interprofessional evaluations

Taking these areas for improvement into account, a methodological procedure was developed for the curricular transformation of the GPT discipline, based on collaborative and interprofessional relationships. Its conception followed the theoretical assumptions about the methodological procedure as a scientific result.<sup>(9)</sup> It is assumed as a succession of interrelated steps to obtain the expected result. This procedure responds to the stated objective and facilitates the solution of the identified problem.

Below, Figure 1 presents the procedure to more clearly understand its logical relationships.



**Fig. 1.** Representation of the methodological procedure for the curricular transformation of the General Pedagogical Training discipline

Source: Authors' own elaboration.

Instructions for the application of the methodological procedure

The theoretical and methodological preparation of professors must be carried out through different means (instructive methodological classes, demonstrative classes, workshops) for the study of the collaborative and interprofessional approach, and to establish the necessary relationships with the professional models of the different programs, integrated into a common core.

They must be prepared in the transformation of the design of subject programs with a transdisciplinary, collaborative, and interprofessional approach; as well as in the ways to establish links with the different training scenarios and develop interprofessional pedagogical skills. Likewise, they must be prepared for the use of active methodologies in directing the educational and teaching-learning process, with an interprofessional approach. These activities are carried out both in the disciplines and in the subjects.

The methodological instructions of the programs must explicitly state how to transition to a transdisciplinary approach in the treatment of content with a greater connection between training scenarios, suggest collaborative activities to address professional problems with collaborative solution proposals, explain how to project work placements with greater interaction among students from different professions (interprofessional relationships), and guide from the subjects the link between academic and research content with work activities where the transformations of the Improvement of the National Education System are applied.

It is necessary to refer to the use of interprofessional evaluation linked to practice and interrelations between specialties, and evaluations based on joint case studies and simulations in real educational settings. These should lead to student debate, argumentation, and contrast of knowledge and opinions with those of other colleagues.

This methodological procedure is functional as long as it is assumed as a projection of the group of programs under the direction of its coordinator, as the maximum person

responsible for the preparation of professors, and for directing the transdisciplinary curricular design, the didactic transformation with active and innovative methodologies, the organization of work placement, and the research and extension activities based on coordination with work entities.

Once the research is concluded, it is important to recognize its limitations:

- a) The implementation of the methodological procedure requires longitudinal follow-up to evaluate its long-term effectiveness.
- b) The perspectives of students and employers, key actors in the training process, were not included.

In Cuba, the training of early childhood education professionals responds to current educational and social demands. The modes of action of this professional must correspond to the context of educational institutions, marked by the Third Improvement that proposes changes in curricula and in the functioning of the educational institution, both within the institution and in its relationship with the context.<sup>(2)</sup>

It is considered that the GPT discipline, being the common core of the Primary Education, Preschool Education, Speech Therapy, and Special Education programs, has the task of providing a more complete and integrated vision of professional training. This requires transformations in its conception and development towards a transdisciplinary approach, which implies re-dimensioning its objectives and professional pedagogical skills with a greater scope towards the interprofessional, thus enabling more comprehensive professional training.

The use of collaborative and participatory methodologies fosters the connection between theory and practice and the solution of professional problems from an interprofessional perspective. This conception must be materialized in the development of subject programs with joint practices and interactions among students from different specialties, which transforms the way of teaching and learning.

Likewise, it should foster the development of teamwork and communication skills, and respect and understanding of others' opinions. We agree with Lermenda Peña *et al.*<sup>(10)</sup> on the importance of collaborative work for solving professional problems, as it facilitates more complex analyses and innovative proposals to impact the comprehensive development of students; it is a different way of understanding the educational process with a social character, of shared responsibility, where teachers, managers, students, and other community agents participate, share knowledge and experiences.

Similarly, there is agreement with what is stated by Fernández Estébanez *et al.*,<sup>(11)</sup> who point out that innovation in improving teaching practices aims to achieve changes in the quality of student learning, building what is common and collective. This is important for finding didactic strategies that facilitate sustainability, social justice, human rights, and fraternity.

The use of experiential learning methodologies, problem-based learning, project-based learning, and the use of simulation can bring the academic setting closer to the professional context. Ávila Parrales *et al.*<sup>(12)</sup> state that these methodologies allow students to acquire knowledge through direct experiences and reflections that reinforce critical reasoning and the sustainability of learning.

Learning is shaped by social relationships and cultural interactions that connect what is learned with their experiences in work placement. It can include games, community visits, and practical activities linked to their profession with the participation of other professionals, according to the content and professional skills to be achieved in the academic year.

The use of case studies in the different subjects of the discipline, as proposed by Jácome Hortua *et al.*,<sup>(13)</sup> is a proven way for the development of interprofessional pedagogical skills, critical thinking, and pedagogical communication. The authors highlight that working with case studies also favors the teacher being a mediator who promotes the organized participation of students not only in classes but also in practical activities. It favors that the

teacher fulfills their function of organizing participation and collaboration from the direction of the teaching-learning process.

Fernández Olivero *et al.*<sup>(14)</sup> point out that problem-based and project-based learning fosters the acquisition of knowledge and skills, the development of individual and collective responsibility, and attention to diversity. It also favors a good classroom climate "by combining efforts towards a common goal." We agree with the authors when referring to its benefits in the development of communication skills in the classroom, for cooperation and reflection. The use of these methodologies in the discipline is essential to achieve the link between academic and research activity.

Finally, simulation methodology is fundamental for developing interprofessional skills. Díaz Guio *et al.*<sup>(15)</sup> highlight that simulated scenarios adjusted to the students' zone of proximal development allow progressive advancement in skills and abilities by promoting critical thinking and teamwork.

The transdisciplinary approach implies a deep curricular transformation; it transcends the integration of disciplines by including scientific, social, cultural, and community knowledge, overcoming traditional boundaries between areas of knowledge and specialties. It is an opportunity to break down barriers between areas of knowledge (psychology, pedagogy, and didactics) and between the different specialties trained from the common core. It fosters analysis, reflection, and collaboration with families, agents, and socializing agencies regarding recurring problems in educational institutions, and proposes solutions using the socio-educational network. The transdisciplinary approach raises the integrative potential of the GPT discipline.

Work placement is also transformed with the transdisciplinary approach. It requires a redesign to reflect a greater scope of the common core. In this scenario, strategies aimed at addressing the needs of students and their families must be developed, especially in the educational inclusion of children with special needs. It should be a space for reflection, listening to the criteria of different specialties, and consensus in action.

Evaluation, for its part, must assume an interprofessional approach, combining the individual and collective character to promote reflection, criticism, and collaboration in the different academic, work-research, and extension training scenarios, without ignoring families and communities. Evaluative activities should incorporate the socio-educational network with the participation of the main institutions in the school context (doctor's office, cultural institutions, etc.). It is considered that an effective strategy is interprofessional workshops where students share experiences and good collaborative practices, using methods such as group problem-solving, case studies, and joint planning of intervention strategies.

From these reflections, it is inferred that the discipline should not only ensure that future professionals acquire theories that cut across the different programs; they need to learn collaborative and communicative practical tools that transcend the classroom framework, enabling them to share ideas, opinions, listen to others, interact with agents and agencies in the professional context, and undertake tasks to solve problems of common interest where respect for the professions prevails.

Once the procedure was developed, its validity in educational practice was corroborated, and the user criterion method and the hypothesis test on Kendall's *W* coefficient were applied using SPSS professional software, Version 21.0. The dimensions evaluated were: feasibility and viability; innovative aspects and contribution to the improvement of the discipline; clarity and internal coherence of its steps. Fifty-eight users participated: professors from the Primary Education, Preschool Education, Special Education, and Speech Therapy programs from different universities in the country.

The results allowed identifying the hierarchy of viability and feasibility of the methodological procedure with a very low range of differences. The best-rated aspects were the dimensions of feasibility (P5, P6) and viability (P14), where the responses placed between the categories Agree and Totally Agree coincide. They argue for the existence of specialists in the disciplines, subjects, and transdisciplinary work. Regarding the graphic representation, they point out that it facilitates understanding of the relationships between the steps, and

constitutes a quick reference tool and guide for the reader for its interpretation P5 (11.60). Only two users assumed a neutral assessment.

In the general evaluation of the methodological procedure with a value of P6 (11.18). They consider it understandable, coherent, and solid, with a clear and updated conceptual framework. It contemplates a diversity of aspects with an integral, coherent, and contextualized character, thus making its applicability viable in work, academic, and extension settings. All these items had a high level of agreement among them.

In the dimension "Innovative aspects and contribution," the analysis suggests the review or reformulation of some elements to achieve greater effectiveness; although the agreement remains in an adequate range, it is lower in relation to the previous dimension. The items with the lowest viability are: the emphasis on the transdisciplinary approach and collaborative work with a value of P17 (8.91) and the articulation with the socio-educational network with P18 (8.67). The value of the procedure as a tool for the work of program coordinators, discipline heads, and professors reaches P19 (8.84) and implementation in the institutional context P20 (8.91). In the evaluation of these 4 items, 2 users coincide in the neutral category. From this, a review was inferred to clarify methodological indications.

The levels of agreement in the dimensions of clarity and internal coherence are high and superior to the previous dimension. They indicate that they are clear and solid P1 (9.77), similar to whether they respond to the demands of professional training P2 (9.75), because it regulates the implementation of the IPE P4 (9.35). In the feasibility dimension, the item referring to the integration of IPE in the training scenarios (academic, work, research, extension) obtained a rating of P8 (9.76), similar to the item referring to the sequence by academic years P9 (9.67) and the one measuring structure and organizational culture P13 (9.18), in which two users also coincide with the neutral category, without issuing judgments as shown in Table 1.

**Table 1.** Results of the statistical processing of Kendall's W coefficient.

Ranks	Average rank
P1	9,77
P2	9,75
P3	10,15
P4	9,35
P5	11,60
P6	11,18
P7	10,81
P8	9,76
P9	9,67
P10	10,65
P11	10,00
P13	9,18
P14	12,15
P15	10,48
P16	10,16
P17	8,91
P18	8,67
P19	8,84
P20	8,91
N	58
W de Kendall <sup>a</sup>	,042
Chi-cuadrado	44,166
gl	1
Asymptotic meaning	,001

Source: statistical processing

In general, as shown in Table 1,  $p=0.001$ , which is less than 0.05, thus the null hypothesis of no agreement is rejected. Therefore, it can be stated with 95% confidence that the respondents fully coincide in their judgments on the items (P1 to P20) when evaluating that the methodological procedure is feasible for application.

Scientific contribution

A methodological procedure for curricular transformation based on collaborative and interprofessional relationships is proposed, considering the theoretical-conceptual and methodological foundations that influence the training process. Its application, under the direction of the program faculty team, can facilitate more comprehensive training better adapted to contemporary educational demands.

## CONCLUSIONS

A methodological procedure was designed whose practical implementation enables more comprehensive training, with the development of teamwork skills, assertive communication, respect and understanding of diversity of opinions, and collaborative professional performance, essential for responding to the complex demands of the current educational context.

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### **Conflict of interest declaration**

The authors declare that they have no conflict of interest.

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