

# MENDIVE



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## Pedagogical model for the training of pedagogical oral communication in Computer Science students

Modelo pedagógico para la formación de la comunicación oral pedagógica, en estudiantes de Informática

Modelo pedagógico para o treino da comunicação oral pedagógica em estudantes de Ciência da Computação

Kety Roque Cala <sup>1</sup>



<https://orcid.org/0000-0003-3190-1066>

Haydee Elena Martínez Bencomo <sup>1</sup>



<https://orcid.org/0000-0002-7369-9508>

Marialina Ana García Escobio <sup>1</sup>



<https://orcid.org/0000-0002-0880-4332>

<sup>1</sup> University of Pinar del Río "Hermanos Saíz Montes de Oca". Cuba



[kety.roque@upr.edu.cu](mailto:kety.roque@upr.edu.cu) ;  
[haydeee.martinez@upr.edu.c](mailto:haydeee.martinez@upr.edu.c) ; [marialina.garca@upr.edu.cu](mailto:marialina.garca@upr.edu.cu)

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### ABSTRACT

Pedagogical oral communication is currently presented as a social need that transcends all educational levels and, especially, the training of Education professionals. For these reasons, the objective was to develop a pedagogical model for the improvement of the training process of pedagogical oral communication, which is implemented through a strategy for students of the Bachelor's degree in Computer Education, from the University of Pinar del Río. A dialectical conception of research was used that had the dialectical-materialist method as a methodological basis, for which a system of theoretical and empirical methods and statistical techniques were used. As a novel element, this systemic model was conceived from the triad of the instructional, educational and developer, in transit through the elementary, intermediate and advanced stages, articulating in the groups of the academic years and in the communication strategy, to give it an outlet. to the academic, labor, investigative and extension aspects, mediated by didactic management and the relationships established between the Comprehensive Practice of the Spanish Language and Labor and Investigative Practice disciplines. Through the focus groups, the results were obtained for the theoretical and practical validation of the proposal, and the pedagogical experiment in its pre-experimental variant was used for the practical validation of the strategy. The results obtained demonstrated that the model meets the requirements to contribute to the training process of the pedagogical oral communication of the future professional and to its integral preparation..

**Keywords:** Communication; students; pedagogy; model; university.

### RESUMEN

La comunicación oral pedagógica constituye una necesidad social que trasciende a la formación de los profesionales de la Educación. Por tales razones, se planteó como objetivo socializar un modelo pedagógico para el

mejoramiento del proceso de formación de la comunicación oral pedagógica, instrumentado mediante una estrategia para los estudiantes de la carrera Licenciatura en Educación Informática, de la Universidad de Pinar del Río. Como principales métodos se contemplaron, el dialéctico-materialista, como general, así como teóricos, como el histórico-lógico y empíricos, la entrevista, la encuesta y el análisis de documentos que junto a los estadísticos para el análisis posterior de los datos obtenidos. Como resultados se diseñó e implementó el modelo sistémico se concibió desde la triada de lo instructivo, educativo y desarrollador, en el tránsito por las etapas elemental, intermedia y avanzada, articulándose en los colectivos de los años académicos y en la estrategia de comunicación, para darle salida a lo académico, laboral, investigativo y extensionista, mediado por la gestión didáctica y las relaciones que se establecen entre las disciplinas Práctica Integral de la Lengua Española y Práctica Laboral e Investigativa. A través de los grupos focales se obtuvieron los resultados para la validación teórica y práctica de la propuesta, y el experimento pedagógico en su variante preexperimental se empleó para la validación práctica de la estrategia. La principal conclusión estuvo en que el modelo reúne los requisitos para contribuir al proceso de formación de la comunicación oral pedagógica del futuro profesional y su preparación integral.

**Palabras clave:** Comunicación; estudiantes; pedagogía; modelo; universidad.

## RESUMO

A comunicação oral pedagógica constitui uma necessidade social que transcende a formação dos profissionais da Educação. Por estes motivos, objetivou-se socializar um modelo pedagógico para a melhoria do processo de formação da comunicação oral pedagógica, implementado através de uma estratégia para alunos do Bacharelado em Educação em Informática, da Universidade de Pinar del Río. Os principais métodos considerados foram o dialéctico-materialista, como geral, bem como

teórico, como o histórico-lógico e empírico, a entrevista, o levantamento e a análise de documentos juntamente com as estatísticas para a posterior análise dos dados obtidos. Como resultado, foi desenhado e implementado o modelo sistémico, concebido a partir da tríade instrutivo, educativo e desenvolvimentista, em trânsito pelos estágios elementar, intermediário e avançado, articulado nos grupos dos anos letivos e na estratégia de comunicação, para dar uma saída para o âmbito académico, laboral, de pesquisa e extensão, mediado pela gestão didáctica e pelas relações estabelecidas entre as disciplinas Prática Integral da Língua Espanhola e Prática Laboral e Investigativa. Por meio dos grupos focais foram obtidos os resultados para a validação teórica e prática da proposta, e o experimento pedagógico em sua variante pré-experimental foi utilizado para a validação prática da estratégia. A principal conclusão foi que o modelo atende aos requisitos para contribuir no processo de formação da comunicação oral pedagógica do futuro profissional e na sua preparação integral.

**Palavras-chave:** Comunicação; estudantes; pedagogia; modelo; universidade.

## INTRODUCTION

The cognitive activity of man and his thinking in concepts is only possible with the help of language; To investigate it is to penetrate the process of knowledge of life for the formation of man as a social being.

In this era of information and knowledge, relevant importance has been given to communication, understood as a process of interaction between man and his context and as an integral process designed to interpret the world and transform it, as it is a means of access to new technologies and scientific results that dizzyingly enrich human endeavor.

In this work, the definition offered by Domínguez is shared due to the relationship it has with the problem being addressed and its contextualization in the school, taking as reference the transformations that are being put into practice in the educational order and its influence on the process. training of students: "Human communication is the process of exchanging information, through signs, that expresses the relationships that men establish among themselves, from which a mutual influence is achieved" (2010, p. 2).

In this sense, the training of competent professionals constitutes one of the priority objectives of higher education, so the successful management of this process would guarantee said purpose (Pulido and Pérez, 2023). In relation to oral communication, as a more specific process, and the achievement of its efficiency in academic contexts, and based on what was considered by Montes and Navarro (2020), the authors subscribe to those theoretical positions that insist on the need to improve oral communication due to the impact it has on the work carried out by the teacher, and that they essentially agree that oral communication is the process that allows the exchange of information, prepared and reworked immediately, based on the mutual influence they exert the interlocutors, in which the elements of the oral and non-verbal verbal code are used according to the intention, the purpose and the communicative situation in which it is developed.

This type of communication constitutes a true and complex process of interpersonal communication, which implicitly involves the establishment of relationships between subjects, where meanings are created on the basis of previously established rules, in a certain context. Thus, in the historical course, pedagogical communication is considered by many theorists as a process of socio-psychological interaction of the teacher with his students, always aimed at the development of the latter's personality.

The training process of the COP is based on theoretical-practical bases related to the

management of the training process, the purpose of the proposal presented in this work, understanding training as an integrative and totalizing pedagogical process, where they integrate and relate dialectically the instructional process, the educational process and the development process. When carrying out a systematization regarding educational management, the definitions of De Vries and Ibarra (2004) and others are analyzed, which take into account these essential elements, which are part of the management of the training process.

The COP is involved in a process where culture is transmitted from generation to generation; Therefore, the training process uses the school and its socializing agents to perfect its appropriation process. In this sense, the role of the year group for the improvement of the COP formation process is a guiding basis for determining actions, activities and tasks; while learning is aimed at transforming behaviors in the COP and strengthening universal and professional values as supports for change in the ways of perceiving the educational process and, particularly, the communicative process.

Likewise, he warns, it constitutes an important theoretical reference for developmental didactics in the training of professionals that, in any curricular structure, the definition of learning content is carried out from the determination of the object of study and the skills set out in the objective, which allows introducing the components of the content: knowledge, skills, values and attitudes.

In this sense, the knowledge invariants associated with the COP and identified from the discipline programs are related to elements:

- Phonetics: pronunciation, intonation, rhythm and the links of words, expressions.
- Morphosyntactic: word formation, tenses, grammatical categories.
- Lexical: nouns, verbs, adjectives and other categories related to the semantic fields of everyday life.

- Sociolinguistic: relationship between linguistic forms-communicative functions-meaning, based on social interactions they focus on the sharing of meanings and ideas, as a social and reflective process).
- Discursive: coherence and cohesion of spoken discourse.
- Strategic: communication and learning strategies.
- Sociocultural: beliefs, ways of life, idiosyncrasies, culture, values and attitudes.

The invariants of the actions and operations of the COP skill are associated, among others, with:

- Identify key words.
- Deduce the meaning of lexical unknowns.
- Identify cases of contradiction, inadequate or ambiguous information.
- Identify the communicative functions (apologizing, thanking, etc.) in a conversation
- Predict and confirm based on knowledge of the world, the context and the topic.
- Delimit the meaning of words through context.
- Know how to interpret non-verbal codes (look, gestures, movements, tone of voice).
- Relate linguistic aspects with paralinguistic and extralinguistic aspects.
- Infer non-explicit information (fill in omitted information and establish referential relationships).
- Maintain the continuity of the text to help predict and verify the propositions of the discourse.
- Interpret the speaker's intention.
- Process speech that contains repetitions, errors, inconsistencies and corrections.
- Structure the speech: build the main idea by distinguishing the key points from the secondary details.
- Integrate the information from the text with that from other sources

(knowledge of the world, the context, the topic).

- Identify the change of turn in a conversation and open the next turn in a socially appropriate way.
- Identify the need for clarification and act accordingly.

Learning strategies are also part of the learning content of the COP. Some, also identified from the professional model and the discipline programs, are:

- Produce clear, fluid and well-structured speeches whose logical structure is effective and helps the recipient to focus on significant elements and remember them.
- Make clear and detailed descriptions and presentations on complex topics, integrating other topics, developing concrete ideas and ending with an appropriate conclusion.
- Make clear and detailed descriptions and presentations on a wide range of issues related to your specialty, expanding and defending your ideas with complementary aspects and relevant examples.

For their part, according to these authors, values are related to responsibility for the communicative act and the act of learning itself, tolerance, respect for the interlocutor and their beliefs and culture, solidarity and collaboration, among others. Attitudes are manifested in the subject's ability to plan, organize and evaluate their knowledge, skills, values and attitudes towards the COP act, by showing a respectful attitude towards interculturality and diversity through tolerance and respect for others.

It is important to highlight, then, that among the theoretical pillars of the training process of pedagogical oral communication, the theory of context stands out, which is based on the new concepts introduced in linguistics and that made its way in the 1960s and 1970s; Thus, the importance of context in linguistic practice begins to be highlighted. This same idea is supported by interactive language teaching (Acosta and Gómez,

2017), which emphasizes the unity between interactional and communicative competence, as well as the focusing of the interactive learning task and the context.

Working systematically with the internal structure of the COP encourages the student to take ownership of its invariants, which generates a work method that makes the management of the COP training process more scientific: the teacher has the role of leading the learning process through communicative teaching tasks, which demand the integrated use of communicative skills in contexts and communicative situations that are closest to the social and socio-labor reality of the students, according to Díaz (2016), and the student must manage their learning, developing the skills to monitor and provide feedback on the improvement of their COP.

Once the analysis of the fundamental constructs of the COP training process has been carried out, in its specificity for the students of the Bachelor's degree in Computer Education, this is defined by these authors as the uninterrupted succession of stages aimed at the appropriation of knowledge, skills, values and attitudes in the interrelation of the cognitive-affective for the coding and decoding of oral messages with a specialized pedagogical lexicon with the use of ICT, under the influence of the academic year group, the tutor teacher and the guide of the Spanish teacher, in an educational context for the training of IT professionals.

All the authors referenced in this work, in one way or another, direct their analyzes to improving communication relationships between students and teachers, by developing different scientific results depending on the problem; but no other references have yet been found regarding COP in the training of professionals in the Bachelor's degree in Computer Education.

The Ministry of Higher Education (MES) has made great efforts to influence the communication process in future Education professionals, since it produces young

people who have to face the great challenges of society, which is why pedagogical careers They cannot be unaware of this effort to ensure that their future professionals are competent communicators.

This research has its roots in study plan D of the Bachelor's degree in Labor-Computer Education, from where the first external manifestations of the problem are observed; but to give continuity to it, the study plan E is assumed, current in the Bachelor's degree in Computer Education, in which the conception of preparation to direct the teaching-learning process in the educational institutions of the different subsystems is continued. of education, with the purpose of graduating a student who, at the same time as knowing his science, becomes a competent communicator, capable of understanding not only the information that comes to him through various channels, but also of constructing speeches to satisfy his communication needs, as conceived by the professional model; reasons why the COP process takes on special importance for the adequate training of these future professionals.

In the review carried out by the authors of different activities carried out by students of the current Bachelor's degree in Computer Science, at the UPR, the following external manifestations in the modes of action could be confirmed: emphasis is placed on technology and not on COP; tendency towards automation, for example: focusing more attention on computer resources which generates insufficiencies to initiate, maintain and conclude the oral communication process; the limited universe of knowledge, not adjusting oral communication to the context and the recipient, and shortcomings in the communication strategy as a transversal axis of the curriculum.

From the manifestations presented, it emerged as a social problem from the research that the students of the Bachelor's degree in Computer Science manifest limitations in oral communication, which

are detrimental to the professionalization process of the career of this profile, given by the limited knowledge, skills, values and attitudes they possess to interact in specific communication situations in educational institutions of the different education subsystems.

To delve deeper into the problem, an initial exploratory study was carried out by consulting the normative documents of the Bachelor's degree in Computer Science: (professional model, methodological indications, PPD teaching process plans and the programs of the disciplines and subjects), the strategies of the disciplines, of subjects, of communication, of the groups of years of the training process of said career; the observation of the students' modes of action in workshops, practical classes, seminars and scientific activities in different years, and an interview applied to students and academic managers. The results of the study are presented in theoretical-practical potentialities and insufficiencies.

The main deficiencies, evaluated in this order and in their cause-effect relationship, are the following:

- The role of the Comprehensive Practice of the Spanish Language (PILE) teacher in managing the COP from the disciplines PILE, Investigative Work Training (FLI), and the communication strategy, is weak, since there are actions designed to work with the language maternal, but specific actions for the COP are not explained;
- The contents of PILE do not always constitute a backbone for academic, labor, research and extension, since its program presents methodological limitations of orientation in this sense;
- the poor correspondence between the methodological activities developed by the PILE teacher and the implementation of the actions by the teachers of the groups of the academic years;
- Professors of other specialties are unaware of the theory of the

cognitive, communicative and sociocultural approach, which provides interdisciplinary theoretical-methodological knowledge;

- In the conception of the career communication strategy there is an incoherent articulation with the contents of the PILE discipline and the implementation in the rest of the curriculum;
- The training of the COP is managed from traditional didactics, because the knowledge system does not emphasize the invariants of knowledge, skills and values;
- partial achievement of the COP by the students from academic, work, research and extension areas.

Finally, the historical analysis of the process of COP formation in the students of the Bachelor's degree in Computer Education at the UPR, manifests the need for its resizing from a systemic process; Therefore, it was decided to influence the training of COP in its students, since correct oral expression has to be an inherent trait of all teachers.

In response to this situation, the authors set themselves the objective: to develop a pedagogical model for the improvement of the COP training process, which is implemented through a strategy, for the students of the Bachelor's degree in Computer Education at the University "Hermanos Saíz Montes de Oca", from Pinar del Río. This systemic model integrates the instructive, educational and developmental, in the transition through the elementary, intermediate and advanced stages, articulating with the communication strategy and with the educational strategy of the academic years, to give it an outlet from the academic, work, research and extensionist, which will improve the COP training process in the students of this career.

The objective of the article is aimed at presenting a pedagogical model for the improvement of the training process of pedagogical oral communication, implemented through a strategy for

students of the Bachelor's degree in Computer Education, at the UPR.

## MATERIALS AND METHODS

The philosophical conception on which the study presented was based is Marxist-Leninist philosophy, which has the dialectical-materialist method as its methodological and ideological basis.

The population was made up of 35 students of the Bachelor's degree in Computer Education; 20 teachers were selected from the groups of the academic years and, also, 17 academic managers were considered (heads of Spanish-Literature and Computer Science courses, main teachers of the academic years, heads of disciplines and heads of subjects of the training process) from the Bachelor's degree in Computer Education, which provided relevant information about the COP training process in their students. The selected sample represents 30% of the population.

The instruments to be used to measure the state of the variable were the think-aloud protocol, interviews with academic directors, and group interviews with teachers and students, scientific observation of different activities and documentary analysis.

The theoretical and practical assessment of the pedagogical model for the improvement of the COP training process was carried out using the methods of the focus groups and the pre-experiment, to reach conclusions about the relevance of the designed model.

The design of the pre-experiment started from a hypothesis: if a systemic pedagogical model is applied, then the COP training process will be improved in the students of the Bachelor's degree in Computer Education, at the UPR "Hermanos Saíz Montes de Oca".

The introduction of the model had two stages: diagnosis and preparation of the

teachers of the group of academic years of the career who participated in the application of the experience. The second: verification of the problem, implementation and measurement of the actions of each stage, for the assessment of the degree of influence of the pedagogical model in relation to the COP, from the teaching-learning process of the disciplines of the curriculum in the Bachelor's degree in Computer Education.

We worked with three sample groups, and as instruments for evaluation, once the think-aloud protocol questionnaire and the scientific observation guide were applied in the initial measurement, the same instruments were applied for the final measurement, preceded by the preparation of the students and teachers who, together with the authors, proceeded to apply the pedagogical model in the sample groups.

The focus group method was supported by the systematic use of subjective criteria, which, on the problem investigated, were issued by experts previously selected for their level of professional competence. In the work sessions with these focus groups, the variable to be evaluated coincided; The difference only lay in the members and the physical space in which the activity was carried out.

The operational definition of the variable led to establishing four dimensions, which are clearly expressed in the distinctive features that make up its conceptualization. That is why the following were considered as dimensions:

**I. The instructional dimension** defined as the knowledge and skills necessary to encode and decode in educational contexts, related to areas of experience that are especially relevant to students of the Bachelor's degree in Computer Education.

**Knowledge subdimension:** it is composed of the following indicators:

1. State of the ability to start, maintain and conclude the spoken chain.

2. State of the universe of students' knowledge.

3. State of the appropriate use of language structures in the oral communicative process.

4. State of adjustment of oral communication to the context and the receiver.

5. State of the appropriate use of the texts, according to the communicative requirements. **Skills subdimension:** it is composed of the following indicators:

1. State to encode each of the oral messages: (plan, elaborate meanings, correct the discursive act).

2. State to decode each of the oral messages: (process, interpret, attribute and reconstruct meanings).

**II. The Educational dimension** is defined as the feelings, beliefs, convictions and values necessary to encode and decode each of the oral messages in educational contexts. This dimension is made up of the following indicators:

1. State of students' commitment to encode and decode each of the oral messages in educational contexts.

2. State in which the need to train as an efficient communicator is expressed in the student, by encoding and decoding each of the oral messages in educational contexts.

3. State in which the student expresses his philosophy of life, by encoding and decoding each of the oral messages in educational contexts.

4. State in which the student values the act of oral communication as a significant element for his or her personal development.

5. State in which the student expresses love for the teaching profession.

**III. The developmental dimension** defined as the communicative attitudes and autonomy in learning that are manifested to encode and decode each of the oral messages in educational contexts. This dimension is made up of the following indicators:

1. State of the self-transformation processes of students' modes of action.

2. State of the processes of transformation of the socio-labor reality by students.

3. Status of the student of the Bachelor's degree in Computer Education as a competent communicator.

4. State of the ability to interpret, argue and solve professional communicative problems in a creative and innovative way.

**IV. The Management dimension of the training process** is defined as the planning, organization, execution and evaluation of the teaching process by the teacher, which leads to the appropriation of oral communication in educational contexts. This dimension is made up of the following indicators:

1. State of the relationship expressed between the learning needs, objectives, contents, methods and evaluation, which are taken into consideration when planning the COP training process.

2. Status of securing support materials and organizational forms to manage the COP training process in students.

3. State of the ability to evaluate the COP training process in students, by teachers of the academic year groups.

4. State of the preparation of the teachers of the groups of the academic years of the training process, to scientifically direct the training process of the COP in the students.



In order to facilitate the work with the indicators, the parameterization was carried out for each of them, to specify when an indicator, a dimension and the variable are evaluated in each of the ranges of the scale, using for all processing of the information the simple ordinal scale of Good, Fair and Bad.

## RESULTS

The characterization of the COP training process in students and teachers of the Bachelor's degree in Computer Education is presented through regularities, which include the four dimensions with their corresponding indicators. The technique of methodological triangulation was used to establish the correspondences and discrepancies of the results of the applied instruments, which are presented in an integrated way as regularities of the diagnosis.

Both subdimensions of dimension I were evaluated as Bad, which made it possible for the dimension to be evaluated as Bad, like the rest of the other dimensions that were evaluated on the Bad scale, so the variable, in the same way, it was evaluated from M to L.

The most significant regularities of the COP training process in the Bachelor's degree in Computer Education were the following:

### Potentials:

- Students demonstrate some knowledge and skills that must be taken into account for a competent COP.
- They are aware of the importance of a competent communicator for their future professional work.
- There is a communication strategy.
- An attempt is made to establish relationships between disciplines in curricular management.

### Deficiencies:

- Some insufficiencies in initiating, maintaining and concluding the oral communication process, as well as in the use of language structures in the oral communication process, in the adjustment of oral communication to the context and the recipient and in the use of texts according to the communication requirements.
- The training of the COP is managed from traditional didactics because the knowledge system does not emphasize the invariants of knowledge, skills and values.
- The leading role is played by the teacher and not by the student and the group; The didactic components focus on teaching and not learning.
- The inconsistency in the development of the PILE discipline program.
- The insufficient implementation of the communication and learning strategy that ensures the COP from academic, labor, research and extension.
- The insufficient articulation between the PILE, FLI disciplines and the communication strategy.
- The poor correspondence between the methodological activities developed by the PILE teacher and the implementation of the actions by the teachers of the groups of the academic years.

Then, after processing the results of each applied instrument, it was confirmed that the COP training process in the students of the Bachelor's Degree in Computer Education has gone through several study plans from 1990 to the current Plan E; but a model has prevailed that lacks a systemic character based on this process, with insufficient articulation of the invariants of the knowledge, skills and values of the COP from the academic, labor, research and extension areas; the role of the PILE teacher in managing the COP in the training process is weak; insufficient articulation between the PILE disciplines, the rest of the curriculum and the mother tongue

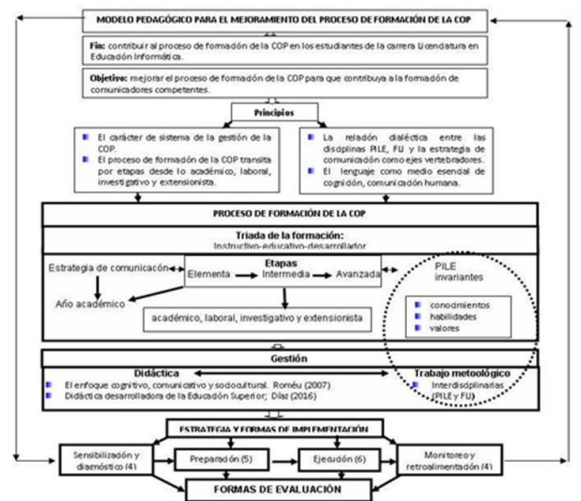
curricular strategy, and the COP is managed from a traditional didactics.

Based on these results, a pedagogical model was developed for the training process of pedagogical oral communication in students of the Bachelor's degree in Computer Education.

For the presentation of the pedagogical model, Valle's criteria (2007) were taken into account, so that the following were assumed as its components: purpose, objectives, principles, characterization of the object, strategy (stages, objectives and actions by stages), forms of implementation and forms of evaluation of the model.

The purpose of the pedagogical model was to contribute to the training process of the COP in the students of the Bachelor's degree in Computer Education, in correspondence with the demands of the professional model. Its objective was specified: to improve the training process of the COP, so that it contributes to the training of competent communicators, during the preparation for the profession of the students of the Bachelor's degree in Computer Education, at the UPR. Its structure is graphed in Fig. 1.

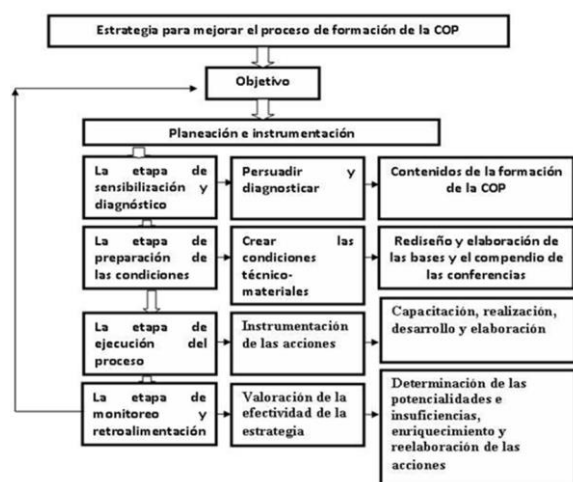
It is conceived from the triad of instructive, educational and developmental, in the transition of the elementary, intermediate and advanced stages, articulating the invariants of knowledge, skills and values of the PILE discipline in the communication strategy and in the academic years. , to give it an outlet from the academic, work, research and extension, mediated by didactic management: especially based on the foundations of the cognitive, communicative and sociocultural approach, of Roméu (2014) and the relationships established between the disciplines PILE and FLI based on methodological work, in such a way that it contributes to the improvement of the modes of action in the COP formation process.



**Fig. 1-** Graphic representation of the pedagogical model

For its implementation in pedagogical practice, a pedagogical strategy was developed based on Valle's criteria, which considers it as: "that set of sequential and interrelated actions, which, starting from an initial state (given by the diagnosis), allow directing the step to an ideal state as a consequence of planning" (2007, p. 91).

The pedagogical strategy had the following stages: a first dedicated to awareness and diagnosis; a second, to the preparation of the conditions to be able to face the demands of the process established by the model; a third, to the execution of the COP formation process and a fourth, to monitor and feedback the results according to the proposed objectives and the redesign of the actions and the strategy in general. Its objective was to implement the actions developed in the pedagogical practice to improve the training process of the COP, in the students of the Bachelor's degree in Computer Education, at the UPR. Its structure is graphed in fig.2.



**Fig. 2-** Representation of the Implementation Strategy

The focus group method was an important tool to verify the practical validity of the proposal and allowed a qualitative assessment of the scientific result, based on the criteria of employers and users, who in this case are the managers, the teachers of the group of the academic years, the students of the Bachelor's degree in Computer Education and the PILE teachers.

The criteria issued on the variable under study in the four focus groups allowed us to arrive at a group of potentialities and insufficiencies:

**Potentials:**

- It is proposed to improve the COP training process in an intentional and systematic way, by linking the contents of the PILE, FLI and the communication strategy.
- It is managed from developmental didactics applied to the teaching of language content for the training of professionals.
- The members of the groups agreed on the importance of addressing the COP, due to the connotation that being a competent communicator has today.

**Insufficiency, which translated into recommendation:**

ü Reveal in a more evident way the interrelation that must exist from the training process between initial training, training for employment and postgraduate training in the Computer Science teacher.

The application of the focus group methods and the pre-experiment offered high significance scores to verify the effectiveness of the designed model in pedagogical practice, whose difference with the acting one is shown in the following comparative table:

ELEMENTO A COMPARAR	MODELO ACTUANTE	MODELO PEDAGÓGICO (MODELO PROYECTIVO)
La estrategia de comunicación	Tendencia a ser asistémica, con acciones no contextualizadas a las esferas de actuación del futuro profesor de informática. Enfatiza en el resultado y no en el proceso de formación de la COP. No tiene una progresión en el diseño de las acciones, que responde a la lógica de la formación de la COP. El profesor de Español no juega un rol preponderante en la gestión de sus acciones en los colectivos de años. La concepción de la estrategia de comunicación no articula coherentemente con los contenidos de la PILE y la implementación en el resto de las disciplinas del currículo.	Se reconstruyó para un ciclo formativo de 4 años, que responde a la lógica de la formación del profesor de Informática y a la lógica del proceso de formación de la COP. Se concibió la formación de la COP como proceso y resultado, que integra los conocimientos, habilidades, valores y actitudes de forma progresiva. Se enfatizó en los procesos de metacognición, donde el estudiante juega un papel protagónico en la gestión de su aprendizaje. El profesor de PILE lideró su gestión en cada colectivo de año, desde el trabajo metodológico. Los contenidos de PILE se articularon coherentemente en la estrategia de comunicación y en su implementación en el resto de las disciplinas del currículo.
Concepción teórico-metodológica	La formación de la COP no es integradora y sistémica. Tendencia a ver el proceso desde la exterioridad. La concepción didáctica para gestionar con tendencia a lo tradicional	La formación de la COP se concibió como proceso que integra lo instructivo, lo educativo y lo desarrollador. Los actores (estudiantes, profesores y tutores) tienen un rol protagónico. La formación de la COP se trabajó con las potencialidades de los estudiantes, enfatizando en los procesos de metacognición: planificación, regulación y control de las estrategias de aprendizaje y de las propias estrategias de comunicación. Se imbricaron, al menos, tres concepciones didácticas: el enfoque cognitivo, comunicativo y sociocultural de Roméu (2003), la didáctica desarrolladora de la educación superior de Díaz (2016) y la de lenguas extranjeras para la formación de profesionales de Acosta et al. (2016), que se contextualizaron en la formación de la COP, donde se complementan una con otra dialécticamente en su sistema categorial.

**Fig. 3-** Comparative table between the acting model and the designed pedagogical model

**DISCUSSION**

The analysis of the specialized bibliography consulted reveals the lack of structured definitions referring to the training process of pedagogical oral communication in the Bachelor's degree in Computer Education; although the COP has been a debated topic at the national level, with the coincidence in aspects of great value for the training work in Higher Pedagogical Education, fundamentally aimed at the development of cognitive, communicative and sociocultural competence (Roméu, 2014), and very accurate criteria referring to: the

communication process as the essence of the pedagogical process; the theoretical and methodological nature of the relationship between oral communication and pedagogical communication; the importance of activity and communication in the ontogenetic development of personality; the leading role of communication, the development of personality in the pedagogical process and the skills inherent to the profession. (Verano et al., 2016)

In turn, the criteria of Martínez et al. were used. (2018) about the need to become aware of the complexity involved in the development of conversational competence and to assume it as a basic professional competence in all profiles of Cuban Higher Education, incorporating its continuous attention to the career study curriculum, to insert in that opinion attention to the development of the COP in all careers of this profile as a transversal competence.

All these postulates were integrated into a developmental pedagogical and didactic conception that considers training as a process that integrates the instructive, educational and developmental, managed from a teaching-learning process that

articulates the knowledge, skills, values and attitudes around the COP for the context it was proposed.

A look at the international context corroborated the results achieved, especially from the experiences of the Latin American context. Benoit Ríos (2020) in his findings ensures that collaborative techniques strengthen oral communication and encourage dialogue and participation and that perceptions focus on the need to work on tolerance, respect and the ability to listen to dissenting opinions for achievement. of shared goals, all of which is in accordance with the postulates defended in the Model. Other researchers such as Suárez Acosta et al. (2021) ensure that when taking into account the training model, instructive and educational objectives emerge that seek the development of the professionals who are trained, with a high level of professional

competence, which in the case of the proposal constitute general ones.

In the theoretical systematization of the background and fundamental constructs of the COP formation process, the harmonious integration of academic, labor, research and extension were taken into consideration; but in undergraduate training there is, at times, insufficient articulation with the COP training process, corroborated in the Bachelor's degree in Computer Education. Therefore, without its planning as a process, within the teaching-learning process, the latter would not be essentially effective in the pedagogical context.

The pedagogical model surpassed the acting one by conceiving the training process of the COP as the simplified theoretical representation of the articulation from the academic, labor, research and extension in the educational contexts in the academic year, based on the conceived actions, which They start from considering COP as a professional problem and as a gradual process structured in stages, which allows the resizing of the components of the teaching-learning process and their relationships.

From what was previously stated, new perspectives of analysis of this problem emerged, which led to the improvement of the students of the Bachelor's degree in Computer Education, by reaffirming its character as a system, through an integrative design of communicative teaching tasks that were carried out with that intention and purpose of improving the COP training process from communicative interaction, within the pedagogical context and from the knowledge of its distinctive features.

The development of the pedagogical model contributed to the assessment of the role that the COP plays in professional work and to students and teachers to appropriate its invariants, which generated a work method for its development, taking into account the shortcomings that in the order of knowledge of the COP possessed by the students, which led to considering that the

COP is a professional problem to be solved gradually; hence its valid application in pedagogical practice.

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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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