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Human development and education for work in a Pedagogy based on Competencies

El desarrollo humano y la educación para el trabajo en una Pedagogía basada en Competencias

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Abstract: This article seeks to establish the relationship between the pedagogical model of teachers and the skills of students in a Colombian institution dedicated to education for work. It was a qualitative study with a grounded theory design, and convenience sampling was used for instructors and contractors from a national job training institution. The results showed that although this institution aims to train its apprentices in three fundamental cores, at the Axiological, Epistemological, and Anthropological levels, it is evident that it focuses on the Epistemological core, moving away from the Anthropological. Furthermore, the emerging model determined that the practices employed by instructors are mainly limited to a predetermined quality system. Considering that educational institutions must promote practical skills that facilitate students' job placement, it would be interesting for their pedagogical model to be adjusted to guarantee the comprehensive professional training of their graduates.

Keywords: Pedagogical model, Strategies, Pedagogy, Training, Competencies.

Resumen: Este artículo busca establecer la relación entre el modelo pedagógico de los docentes y las competencias de los estudiantes, en una institución colombiana dedicada a la educación para el trabajo. Fue un estudio de tipo cualitativo, con un diseño de teoría fundamentada, y se utilizó un muestreo por conveniencia a instructores y contratistas de una institución de formación para el trabajo del orden nacional. Los resultados arrojaron que, aunque esta institución pretende formar a sus aprendices en tres núcleos fundamentales, a nivel Axiológico, Epistemológico y Antropológico, es evidente que se focaliza en el núcleo Epistemológico, alejándose de lo Antropológico. Además, el modelo emergente determinó que las prácticas empleadas por los instructores se limitan en gran medida a un sistema de calidad predeterminado. Teniendo en cuenta que las instituciones educativas deben promover habilidades prácticas que faciliten la inserción laboral de los estudiantes, sería interesante que se ajuste su modelo pedagógico para garantizar la formación profesional integral de sus egresados.

Palabras clave: Modelo pedagógico, Estrategias, Pedagogía, Formación, Competencias.

1. INTRODUCTION

Since 2008, the Colombian Ministry of National Education (MEN) has proposed, within its policies, the implementation of competencies in the educational field, including higher education [1]. In this sense, there is a legal framework that ratifies this and which the National Council of Economic and Social Policy (CONPES), 2945 of 1997, established as a guideline a national training system for work and human development aimed at defining work, primary and transversal competencies. In Decree 933 of 2003, the National Learning Service (SENA) was established as a regulator, designer, standardizer, and certifier of labor skills. Likewise, in 2004, with Decree 249, this entity was restructured to implement the National Work Training System [2].

Malpica [3] states that the Organization for Economic Cooperation and Development (OECD) and the Tuning Educational Structure in Europe establish that education for work skills should not be separated from the frameworks of integrality in the human being. Thus, the MEN [1], in its proposal, determines competency-based education as a quality standard that demonstrates the technical combined with the comprehensive. Various authors establish that competency-based education is required in the changing world and a new paradigm in modern education [4], [5]. The above determines the importance of carrying out studies on education by work skills in the framework of Colombian higher education.

However, when conducting research in databases, a low rate of studies carried out on labor skills in Colombia is established, linked to a growing interest in pedagogy applied to specific disciplines to overcome the traditional teaching model [6], [7]. In this sense, the questions that guided this work arise: What application is being given to education for work skills, and what skills are developed by the students of an institution of this type in Colombia?

2. THEORETICAL FRAMEWORK AND METHODOLOGY

2.1. Critical pedagogy

Tobón [8] indicate that pedagogy is characteristic of each era, corresponding to the scenario of the historical moment in which it is developed. Likewise, each particular era generates a set of beliefs, values, and shared arguments, which determines that pedagogy is formalized with the characteristics and worldview of the specific period being addressed [9].

Becerra and Moya [10] propose that theoretical reflection in these times of pedagogy should be visualized in a critical approach, in which Latin American pedagogy and didactics are built to emphasize these nations' internal needs. This vision of Latin American pedagogy has been forgotten and kept on the old shelves of universities and educational institutes since it has entered particular positions considered "Civilized," emphasizing that the point of view of education obeys the political and economic interests of these countries [11].

It is known that the position of critical pedagogy emphasized by Ramírez [12] is the division of education in the construction that governments have typically established in Latin America on the contents that generally underpin education in these nations, in which It advocates purely instrumental knowledge. In the assumptions of this approach, social participation is determined as a pillar in pedagogy, raising awareness among the actors who participate in this dynamic of the responsibility for the development of the context in which they interact [13]. In this sense, democratic thinking is strengthened, in which a series of implicit practices impact the development of conditions of power [14].

Secondly, symbolic imaginaries have significance in integrating a particular group's historical, sociocultural, and political reconstruction. Historical because the circumstances are essentially reconstructed and understood, understanding that ideologies are not subject to sporadic and momentary formations but rather correspond to constructions generated, among others, by socializing institutions, such as schools, religion, and family, among others The government agencies and the mass media [15], [16].

Thirdly, there is the humanization of the processes in education, in which the aim is to build intellectual processes without ignoring the integrality of the students, tending to cultivate other dimensions such as the emotional, ethical, and moral aspects directed towards the self-management of emotions [17]. The development of pure teaching is considered a breaking point since it only provides instruction on curricular content. This pillar guides the person to reflect and self-criticize their behavior and that of others to improve and not censure.

Fourthly, there is the contextualization of the educational process, aimed at educating for life and living in a community, in which the intellectually constructed reality is confronted in order to compare it with the experiential reality [18]. The person looks for information in society and the context since they can correlate the reasons for social phenomena [19]. Finally, the transformations of the social reality limit the school, differentiating political events and becoming a participant in them [20]. This ensures the development of the student's skills, impacting their context and determining social transformations that generate social awareness through teamwork [21].

Criticism in education states that pedagogical and didactic theory in Latin America must respond to particular idiosyncratic frameworks based on social realities. This will allow us to move away from the tendencies that guide efforts to frame education, pedagogy, and didactics for economic and political purposes that undermine students' critical dimensions and are normalized in the dynamics present in educational centers [22], [23], [24].

Critical pedagogy establishes a framework for understanding phenomena in local Latin American educational environments. In this sense, Tamayo [25] states that pedagogical thinking in Colombia is visible in four defined currents, identifying pedagogy as the symbolic control device that re-contextualizes, transforms, and reproduces culture and science in society, which is evaluated through people's ability to perform a task.

Currently, pedagogy is based on neuroscience since it links cognition to the study of emotions and addresses questions such as: How do memory, perception, reasoning, and emotion affect learning? What is the interrelationship? What happens between emotions and cognition? How is social behavior regulated in the brain? To what extent does culture influence the individual's biology or modify neural networks and nuclei? [26]. However, when determining pertinent questions on which neuroscience and cognitive sciences should work together with educational sciences, it is essential to mention that methodologically, the former are treated under the positivist medical model, while the latter are qualitative, generating a gap for the convergence of these two branches.

However, Puebla and Talma [27] mention that the questions established by neuroscience have a point in common with educational sciences since the learning process is influenced by the so-called executive functions: Non-verbal memory in real-time, internalization of speech (verbal real-time memory), self-regulation of emotions/motivation/activation and recomposition (planning and the ability to generate) [28], [29], [30].

2.2. Competencies in Pedagogy

The emergence of the competency model in education can be understood by understanding that pedagogy is subordinate to the claims of governments and the economy in the exercise of perpetuating the hegemony of specific sectors [31]. According to Zabala [32], competence has a functionalist origin. It is applied primarily in the professional field, in which it is emphasized that human actions are efficient, obeying an application of knowledge. The competition is of a positivist or interpretive paradigm. However, it is found that the definitions refer to the execution of tasks to meet prescribed standards, linked to learning in the development of knowledge; that is, content related to the subject, trade, or discipline [33], [34].

The concept of competence has evolved in the pedagogical and teaching fields throughout history. Tobón [8] state that competence can be conceptualized as a model and a new educational paradigm that meets a series of principles that significantly impact traditional pedagogical models and approaches. The principles with the greatest consensus in the pedagogical competence model are given in relevance, quality, the formation of competencies, the teaching role, the generation of change, the essence of competencies, and the component of competence [35].

Silva [36] mentions that the concept of competencies originated in the workplace, and its application in educational contexts had an impact in many ways, supporting a profound transformation in this area and focusing on comprehensive human development. In the 1960s, it was established that labor competency focused on the skills that workers should have. Malpica [3], in addition to the above, establishes that the competencies were subject to cognitive, motor, and socio-affective elements. In this sense, competence is the relationship between a person's abilities and the satisfactory performance of the tasks he must fulfill [37].

Competencies are located halfway between knowledge and concrete ability, where action is defined, but knowledge between knowledge and skills is also essential [38]. In this sense, one must

be subjected to conflict resolution tests in the areas where the competition is framed, whether work, commercial, or educational [39].

According to the Organization for Economic Cooperation and Development (OECD), competence is the ability to put into practice in an integrated manner skills, knowledge, and attitudes to face and solve problems and situations [40]. For Tuning Educational Structure in Europe, an entity that brings together European universities from 45 countries, competencies: "represent a combination of attributes (concerning knowledge and its applications, aptitudes, skills, and responsibilities) that describe the level or degree of sufficiency with that a person is capable of performing them" [41]. In this case, two types of competencies were determined: specific and generic. The first are related to a professional profile and are crucial because they are directly linked to specific knowledge of a thematic area [37]. On the other hand, generic competencies are attributes, such as the ability to learn, synthesize, and synthesize, which are all profess [42].

Authors such as Tobón [8] establish that the competency model is a new paradigm in education. According to them, competencies have been incorporated into education as an alternative to address the shortcomings of traditional pedagogical models and approaches, such as behaviorism, cognitivism, and constructivism. Although some of their theoretical and methodological approaches support them, they do this with a new perspective, with a change in logic, moving from the logic of content to the logic of action.

The competency model supports a rapprochement between educational institutions and society, considering the dynamics of change they may face. In this work, the competency model refers to a complex socio-formative approach. This approach deals with exceptional educational conditions to facilitate the acquisition of skills based on articulating educational guidelines and social, community, economic, political, religious, spiritual, and artistic processes, among others [43]. This approach is characterized by comprehensive training that takes into account different types of relationships, both work-related, social, and personal.

The above allowed us to establish questions related to the SENA pedagogical model, for example, differences and similarities at the pedagogical level with respect to educational entities that offer professional training with technical and technological programs, the pedagogical models implemented in the SENA, or the competencies that the institution's instructors develop regarding their teaching work.

2.3. Method

According to Hernández-Sampieri [44], the research uses a qualitative approach with the following characteristics: “each qualitative study is a research design in itself. That is, no two qualitative investigations are the same or equivalent. There may be studies that share various similarities but not replications, as in quantitative research", their procedures are not standardized, they are not planned in detail and are subject to circumstances. of each particular environment or scenario." The research design is based on the Grounded Theory of Glaser and Strauss, an emergent design in which the theoretical propositions arise from the data obtained in the research more than in previous studies. The procedure generates an understanding of a concrete educational, psychological, communicative, or any other phenomenon.

The work was carried out with instructors belonging to the qualified training of a national Technical and Technological Training Educational Institution, with a competency-based approach. 13 teachers in the institution were called instructors from different areas, selected randomly, and participated. At an ethical level, care was taken to ensure that the participants filled out an informed consent form, in which the purpose and reasons for the research were explained, emphasizing the discretion of their identity.

The data were collected through an observation grid and semi-structured interviews. The analysis used the Atlas Ti software version 6.2, considering three codings when interpreting the data: Open, axial, and selective coding [45].

3. RESULTS AND DISCUSSION

The analytical process expressed in the selective coding of the data made it possible to highlight emerging categories evoked by the study participants through the techniques used. Central categories are evident that guide the analysis in the construction of theory and a model, which allows the understanding of the competencies developed in the training process.

3.1. Pedagogical models

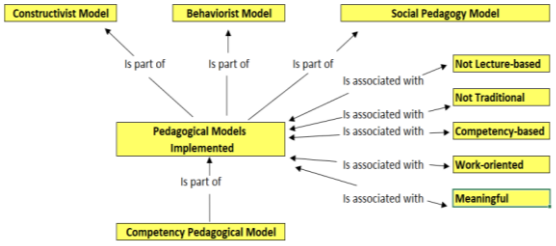

Fig. 1. *Pedagogical models are implemented within training for work and human development.*
Source: *own elaboration.*

Fig.1 shows the category tree of pedagogical models implemented by the 13 instructors interviewed. It is established that constructivist, behaviorist, and social pedagogy models are part of the models used in training for work and human development. This is evident in the pedagogical practices and strategies applied in the dynamics of training, which are associated with characteristics of non-traditional, non-masterful teaching, Competencies for Work, Human Development, and Significance. Pedagogical models determine the beginning of other categories within competency education training.

3.2. Instructor practices

Figure 2 shows the model used by the instructor for training for work and human development. The practices developed in training are determined by the Integrated Management System (GIS), called procedures. These procedures are evidenced in the completion of forms, call to roll, and work on a guide. The instructor systematically carries out these procedures in the training process [46].

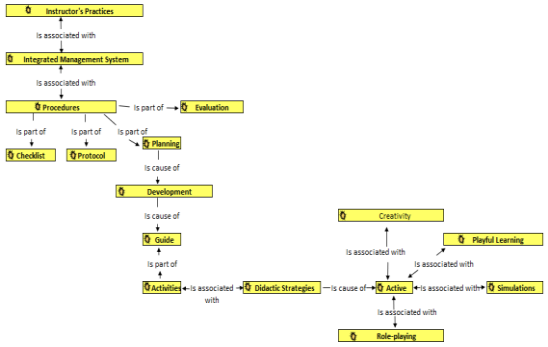

Fig. 2*. Instructor practices of training for work and human development*
Source: *own elaboration.*

Likewise, a series of pedagogical actions are evident apart from the procedures defined in the SIG, which focus on didactic practices to achieve content internalization. In this sense, instructors establish exercises or recreational activities that generally simulate reality, which include dynamics such as role plays, case studies, video reflections on problems, round tables, contextualizations of topics, or dynamics focused on knowledge, which are carried out through specific readings of topics that the learners will later present to the group [47]. Likewise, when working with technical literature, instructors propose active dynamics, such as IDRISCA, concept maps, semantic networks, and ideograms.

In contrast to the characteristics of the pedagogical model declared by the institution, masterful practice is irrefutably observed. In this case, the contents are addressed through a teaching method focused on the teacher's knowledge and its transmission, in which the teacher mainly expositions the contents continuously [48]. Learners listen, take notes, and have the opportunity to ask questions.

The evaluation aims to determine the degree of competence and is generally oriented towards doing. Within the applied strategies, debate and discussion activities are evident; Responsibility in the delivery of work and creativity are also evaluated. In this sense, the trainees' actions, reflections, strengths, deficiencies, and knowledge are assessed in the training process through questionnaires and checklists. Likewise, the instructors address the planning and preparation of the work with the apprentices in a previous stage, which is reflected in the preparation of the guide.

The instructors consider that the conclusion of the practices carried out during the training positively influences the development of the work skills that the apprentices will exercise during their work activity.

3.3. Competencies developed

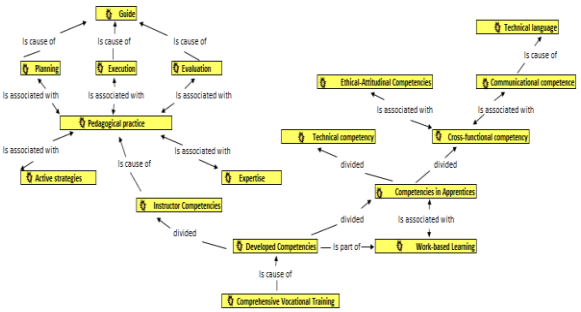

Fig. 3*. Competencies developed in training for work and human development.*
Source: *own elaboration.*

The Fig. 3, shows the tree of the category of Competencies developed in training for work and human development, obtained from the 13 interviews with the instructors participating in the study. In this case, the analysis leads to two lines: The first corresponds to the skills the instructor develops in his/her learners, and the second corresponds to the skills the instructors develop concerning their pedagogical practice.

The institution's Work and human development training relates to Comprehensive Vocational Training (FPI) with a focus on work and transversal skills, oriented towards the development of skills and practices for the exercise of a job [49].

The first line shows that apprentices strengthen other types of skills, such as argumentative, propositional, and interpretive, underlying the work that the technical instructor performs in the learning environment, in addition to developing technical skills.

Furthermore, the training model for work and human development directs the apprentice to develop skills related to the ethical and attitudinal aspects since the practice of a job will always be immersed in contextual codes such as starting time, established functions, and even the existing regulations on personal schemes. The above is aimed at creating awareness, understood as the learner's possibility of knowing and understanding what he does and why and why he does it.

The study also reveals that the development of communication skills strengthened in the training process emerges, evidenced by the technical language the apprentice manages to internalize. These skills, along with other ethical skills such as conflict resolution and other communication aspects, will serve as a basis for the apprentice's job performance.

The second line corresponds to the teaching competencies that instructors develop through practice. In this case, the coherence between the implemented strategy and the processes developed explicitly in executing Comprehensive Vocational Training (FPI) is determined.

The above evidences the instructor's skill at three specific moments: The first corresponds to planning a working guide, the second to applying that guide in the learning environment, and the third to evaluating the guide. The activities planned for the development of the guide generally involve active group work dynamics, such as role-playing and crossword puzzles [50].

Other skills developed by the instructor in applying the model correspond to the practice of mastery as a didactic strategy in the teaching-learning process, which demonstrates the instructor's skill in transmitting the contents, the aids used, and the limits that the instructors face their trainees. It determines the distance between the instructor and the learner and the possibility of applying the regulations established within the training context. The above determines that instructors develop communication skills and establish a role.

The instructors' communication is permeated by language aspects, such as the implementation of technical language and a language that is empathetic to the learner. Technical language is a necessary condition to achieve adequate technical training. However, through empathetic language, the instructor helps internalize the technical content, familiarizing the learner with the language of the program [51].

Thus, the model identifies the relationship between communication competence and competence in technical language. The communication dynamic between instructor and learner is complemented by aspects not only concerning theoretical-practical but also social, cultural, and human content. In other words, instructors only sometimes rely on technical language but instead find spaces for other linguistic levels that allow comprehensive training.

3.4. Discussion

Training for work and human development, in the training proposal of the Institutional Educational Project (PEI), determines that the starting point of training involves dimensions of the human being, in which the Anthropological, Axiological, and Epistemological, evidenced in a Comprehensive Vocational Training (FPI) model. The PEI assumes the constructivist model as a starting point for knowledge and learning, combined with active teaching practices and the conception of meaningful learning 2013. The expected result is knowledge of a self-structuring nature, in which knowledge is constructed, de-constructed, reconstructed, related, and connected to the environment (social systemic conception), in which the development of technical and competencies is focused transversal.

The above determines that the apprentice of this institution will be trained in competencies of being (Anthropological and Axiological) and in knowing and doing (Epistemological). These competencies are classified as specific (technical knowledge), basic (allowing the learner to understand, argue, and solve technological, social, environmental, and ethical problems), and transversal (they cross the occupations established in the National Classification of Occupations (CNO) [46].

In this sense, the theoretical training model has three cores, in which competencies in the focuses above must be promoted through the pedagogical construct developed by the institution in its PEI.

This model has the shape of a cone, in which the three previously mentioned nuclei are located at the base and in which, through a fusion process derived from the axis where the applied models are found (constructivism, systemic-social, and competencies, problematic), the focus is evident at the top, which is the development of IPF. Each model has a derived series of practices and procedures that are also fused and respond to how the model is developed. However, it needs a fundamental component at the base since there is no evidence of a paradigm that supports it and that would make it robust.

The results of the analysis of the interviews are far from the model declared by the institution. In this case, it is established that the emerging competition model considers two cores. The first refers to the technical competencies in which instructors, through their pedagogical practice, specifically develop the learner's ability related to the work area of the program they are studying. The second core refers to developing essential competencies specific to the program's performance, which corresponds to acquiring a specific language and the axiological level related to deontology. In this sense, the instructors fulfill part of the institution's mission, which places the training provided within the Technical and Technological Professional.

Likewise, this particular conception of FPI establishes the development of transversal competencies, the specific element of which is attitudinal ethics. Therefore, the development of ethical conduct is considered necessary within the framework of the training program and the work in which the apprentice is being trained.

The skills that instructors develop in teaching are generated when practicing the training with the apprentice. Skill is acquired in managing active dynamics and in the planning, execution, and evaluation of a guide whose purpose is to establish the body of the FPI. The above occurs in the conception of the pedagogical model generated by the institution and directed by the GIS in communicative aspects that help the internalization of technical content in learners. Contrary to what was mentioned within the fundamental characteristics of the pedagogical model, mastery skills are developed.

However, it is problematic that the relationship of the paradigm from which the model is approached needs to be evident since there is a wide range of fused models (Competencies, Systemic, Problematic, Constructivist). In this sense, taking into account the complex principle in which it is determined that the whole is not the sum of the parts [52]. It is evident that didactic strategies specified in the PEI and SIG are applied that do not respond entirely to the established FPI.

In this sense, it is necessary to determine the predominant pedagogical model in the institution or to generate clear guidelines on how all the assumed models are applied, finding congruence in the development of teaching practice and how it comes to fruition—the FPI.

Authors such as Ramírez [12] indicate that returning to pedagogical positions typical of the Latin American field is necessary to strengthen students' different "skills," resulting in horizontal communication, social, cultural, and social re-signification, and reconstruction. Policy that allows for greater equality. On the other hand, humanization in the educational process allows for comprehensive development and not just intellectual development; educational processes aim to educate about community life and not only individuality, knowledge, and work. The above must be combined with education to acquire skills subject to participation in the political sphere so that education resizes the instrumental teaching model, in which only what is considered helpful for work is taught. [53], [43].

Returning to Tamayo [25], it is determined that pedagogy establishes a device that perpetuates unchangeable rules and norms, generally aimed at repeating power dynamics. Likewise, it is conceptualized that specific knowledge of the culture is transmitted through it, in which languages and meanings are reconstructed. The personal experience of the actors who operate in the dynamics of teaching is taken into account, in which

they are understood. The needs of the students, as well as their knowledge and needs, are enhanced [54].

When comparing the results of the research, it is possible to find some agreements with the previous paragraph, among which are that the established training model for work and human development is an instrumentalizing model of knowledge and skill, generating competencies for the performance of a task that is established at the time of entering a program. In this sense, there is a legal framework that ratifies this, decree 1120 of 1996, which establishes that one of the functions of this institution is to lead a work training system in Colombia. In addition, the National Council of Economic and Social Policy (CONPES) 2945 of 1997 established a national training system for work as a guideline aimed at defining basic and transversal labor competencies. In Decree 933 of 2003, SENA was established as a regulator, designer, standardizer, and certifier of labor skills; 2004 under Decree 249, a restructuring of SENA was established to implement the National Work Training System.

Malpica [3] indicates that the OECD and Tuning Educational Structure in Europe establish that education for Labor competencies should not be separated from the frameworks of integrality in the human being. Thus, training for work and human development in the SENA established a pedagogical model called Comprehensive Professional Training (FPI) [46], in which a set of foundations, principles, and criteria for comprehensive human development are determined and established as its mission.

Compared to the FPI model, it is evident that technical instructors generate job skills in apprentices, underlying the fact that they are professionals with work experience, teaching experience, and the technical p profile established by the institution, whose knowledge is framed in the Epistemological core. They develop transversal transversal l and attitudinal aspects. However, this claim is limited to the work context, leaving aside other contexts and relegating the training of the Anthropological core to the instructors of institutional policy competence.

4. CONCLUSIONS

Although instructors and apprentices under the FPI training model for work and human development generate and develop a series of competencies, these are still biased toward work frameworks, essentially leaving aside the integrality of the being.

The above in the apprentice originates from their trainers (the instructors) generating these dynamics. In their training as university professionals, they focused only on the theory and practice of a disciplinary order. This is in addition to the fact that the institution needs clear parameters for how comprehensiveness concerning training should be directed.

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