

# MENDIVE



*Translated from the original in Spanish*

## **The professional reaffirmation in the Computer specialty of Technical and Professional Education: Educational project**

### **La reafirmación profesional en la especialidad Informática de la Educación Técnica y Profesional: proyecto educativo**

### **A reafirmação profissional na especialidade de Informática da Educação Técnica e Profissional: projeto educativo**

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**Received:** December 18<sup>th</sup>, 2019

**Approved:** February 24<sup>th</sup>, 2020

#### **ABSTRACT**

The professional orientation process goes through different stages; One of them is the professional reaffirmation that is characterized by the consolidation of professional motives and interests During the study or preparation for the performance of the future profession ; in this sense, the group educational project in Technical and Professional Education occupies a primary place. It was the main objective of this work, to expose the stages and essential actions to commit, from the mentioned project, with the first year students of the Computer science specialty in the Primero de Mayo Polytechnic Center of Pinar del Río, place where the investigation ; the research process was carried out on a dialectical-materialist basis and methods of the theoretical level and empirical level such as the historical and logical, inductive-deductive, analysis-synthesis, modeling, system approach, observation and documentary analysis were used , which allowed a theoretical-practical assessment of the educational reality. The proposal contributed to the strengthening of students' interest in the study of the computing specialty.

**Keywords:** Technical and Professional Education; career guidance; Computing; educational project; professional reaffirmation.

#### **RESUMEN**

El proceso de orientación profesional transita por diferentes etapas; una de ellas es la reafirmación profesional, que se caracteriza por la consolidación de los motivos e intereses profesionales durante

el estudio o preparación para el desempeño de la futura profesión. En tal sentido ocupa un lugar primordial el proyecto educativo de grupo en la Educación Técnica y Profesional. Constituyó el objetivo principal de este trabajo, exponer las etapas y acciones esenciales a acometer, desde dicho proyecto, con los estudiantes de primer año de la especialidad Informática en el Centro Politécnico "Primer de Mayo" de Pinar del Río, lugar donde se llevó a cabo la investigación. El proceso investigativo se realizó sobre una base dialéctico-materialista y se emplearon métodos del nivel teórico y del nivel empírico tales como el histórico-lógico, el inductivo-deductivo, el análisis-síntesis, la modelación, el enfoque de sistema, la observación y el análisis documental, que permitieron realizar una valoración teórico-práctica de la realidad educativa. La propuesta contribuyó al fortalecimiento del interés de los estudiantes por el estudio de la especialidad Informática.

**Palabras clave:** Educación Técnica y Profesional; orientación profesional; Informática; proyecto educativo; reafirmación profesional.

## RESUMO

O processo de orientação profissional passa por diferentes etapas; uma delas é a reafirmação profissional que se caracteriza pela consolidação dos motivos e interesses profissionais durante o estudo ou preparação para o desempenho da futura profissão. Neste sentido, o projeto educativo do grupo em Educação Técnica e Profissional ocupa um lugar fundamental. Foi o objetivo principal deste trabalho, expor as etapas e ações essenciais a serem comprometidas, a partir deste projeto, com os alunos do primeiro ano da especialidade de Informática do Centro Politécnico Primero

de Mayo em Pinar del Río, onde a pesquisa foi realizada. O processo de investigação foi realizado numa base dialéctico-materialista e foram utilizados métodos dos níveis teórico e empírico, tais como histórico-lógico, indutivo-dedutivo, análise-síntese, modelagem, abordagem sistêmica, observação e análise documental, o que permitiu uma avaliação teórico-prática da realidade educativa. A proposta contribuiu para o fortalecimento do interesse dos alunos no estudo da especialidade de Informática.

**Palavras-chave:** Educação Técnica e Profissional; orientação profissional; Informática; projeto educativo; reafirmação profissional.

## INTRODUCCIÓN

The professional orientation process in Cuba has been investigated for many years and is currently a priority to be attended in Technical and Vocational Education; This becomes one more important given the diversity of options available to the students for choosing a specialty, stay in it and project their future professional life, which must be in line with its potential, possibilities and needs of the country.

It complies with the statement, it is considered that the entry of young people into technical and vocational education, specifically to the Computer, is a complex process that demands of familiarity, from the levels of support offered by agents and educational agencies of the society, with the school as its center, to contribute to the development of professional and

personal motives and interests once the specialty is chosen.

As is known, the Technical and Vocational Education (ETP) has the social function of providing the economy of the country with the qualified mid-level workforce that it requires for its development in the different branches of production and services, where it plays a decisive role is the professional orientation towards the different technical specialties.

The process of professional orientation has been studied by several researchers, including those related: Mena & Sierra (2014); Algadheeb (2015); Martínez, Torres & Cordero (2015); Pérez & Acosta (2016); Ramos & Breijo (2017); Del Pino & Matos (2017); Gómez, Torres & Aguilar (2018); among others. Everyone agrees that this process passes through different stages.

In this case, the study is focused on the stage called professional reassertion; particularly in the first-year students of the Computer Science specialty at the "Primero de Mayo" Polytechnic Center, from an Educational Project of the PEG Group that allows to achieve the purposes of the Professional Model.

Similarly, the professional reaffirmation has been a matter examined by different authors within the nationally and abroad among which stand out: García Colunga & Marquez (2015); Villalón, Odio & Correa (2016); Hernández, Ramírez, Macía & Ramírez (2017); Bell (2017); Forgas (2017); Ferreira, Mena, Acosta & Mena (2019); among others. Regardless of the contributions given by the researchers cited, based on solving the problems presenting this process,

difficulties still be seen in the school context.

An exploratory study of educational practice in the first year of Computer Science specialty, from the application of an observation guide classes in basic areas and different teaching, extra teaching and extracurricular activities, as well as analysis of reports of the meetings made, it was possible to verify that the students present demotivation for the study, attrition in the first year of the specialty, they did not optimally take advantage of the services of the networks, poor use of computer applications, difficulties in relationships and unity in the group, in teamwork, as well as a low knowledge of socio-political issues and national and international news.

These difficulties denote as a problematic situation that students show disinterest in the specialty and lack of responsibility in the activities carried out in the group. This leads to the identification of the next scientific problem: ¿How to consolidate the professional reaffirmation in the Computing specialty the Polytechnic Center "Primero de Mayo" of Pinar de Rio?

The objective of this work is to expose the stages and essential actions involved in the consolidation of professional reaffirmation of the computer specialty in the Polytechnic Center "Primero de Mayo" of Pinar de Rio, from the project Educative Group.

## MATERIALS AND METHODS

The study was conducted at the Pinar del Río "Primero de Mayo" Polytechnic Center,

in the period from November 2018 to September 2019. A population of 13 first-year students was used for the descriptive research year of the IT specialty and the 11 professors of the teaching department.

The investigative assumed as a procedure the dialectical conception of the investigation that has as a methodological basis the dialectical-materialist method and methods of the theoretical and empirical levels were used.

The methods of theoretical level used were:

The historical logic: it possible the study of the theoretical reference frame on the process of vocational guidance, professional reassertion in the ETP in general and in particular in the Computer specialty, as well as relative to the PEG from different theoretical positions.

The inductive - Deductive: allowed the analysis of the issue of study passing from the general to the particular and the singular, determining what is essential in professional reaffirmation of students of that specialty.

The analysis- synthesis: facilitated to identify, organize and summarize the stages and actions to be carried out in the PEG in the first year of the IT specialty at the "Primero de Mayo" Polytechnic Center, which enables the professional reaffirmation of the students.

The modeling: by means of this the abstractions and generalizations that are present in the projection of steps and actions involved in the PEG were done.

The system approach: it was applied in the integration of the research results, to establish the links between the design elements, in the analysis of the theoretical-referential framework, as well as in the outline of the stages and actions proposed for the consolidation of professional reaffirmation in students.

In the empirical inquiries were used:

The preservation: it was carried out in educational and extra-teaching activities, to verify the status of the professional reaffirmation of the first year students of the Computer Science specialty at the "Primero de Mayo" Polytechnic Center.

The documentary analysis: allowed the analysis of the guiding documents, programs and bibliography to assess the treatment given to the subject.

## RESULTS

The main result of the work was in the proposal stage and essential actions that the PEG involved in the consolidation of professional reaffirmation of the students of First year in the Computing specialty in the Polytechnic Center" Primero de Mayo from Pinar del Rio province.

The PEG can be considered as a scientific result according to the criteria of authors such as Jiménez & Peralta (2014); Delfino, Terrero & Suzeta (2015); Pla & Ramos (2016); Pereira, Escorcia, Pertuz & Pájaro (2017); among others. In it systematic and supportable actions with a particular object and clear and viable purposes were projected this is a group or personal

intervention that seeks to solve the problems present in the group of students.

The work for making the PEG had four main stages, with their respective shares. These are:

1. Creation of the previous conditions
2. Design of the educative project
3. Execution of the educative project
4. Evaluation of the educative project.

These stages overlap and blend, since from the beginning it should monitor and evaluate the progress of the planning process itself and to the extent that they are found flaws in the conduct actions must be taken. Each of them will be specified below.

### **Creation of previous conditions**

This first stage pursued as objective: to raise awareness and prepare educational agents in the why and wherefore of construction and development of the PEG, in addition to identifying the main problems and their causes. It is characterized by determining the status in terms of: preparation, limitations and potential of educational agents (students, educators, family, community, and non-teaching workers) to develop the process.

The family continues occupying a fundamental place to achieve the values that these young people must have and in the consolidation of their professional reaffirmation. Although study and profession become something important for almost everyone, the efforts made in the process of their professional

training are, in many of them, limited and do not lead to sufficiently good results.

Main actions and developed debates and exchanges with students, faculty, specialists of labor organizations, family and community, using the spaces that were already created, like political reflection periods, assemblies of groups, schools, family education, visits to home and to labor organizations, school board; among others, where the objectives, their scope, mastery of the conception and educative model of the year of study were prepared.

The theoretical foundations of the PEG, the determination of the ways of solution to the problems identified to achieve the educational project were studied.

At this stage the diagnosis of the students taking into account their motives, needs, aspirations, life projects, capacity for teamwork and participation in decision-making in the group was made. On the other hand, the diagnosis of the family, companies and the community allowed, to define the potentialities and resources to be taken into account and, to predetermine the active participation of the subjects by assigning them functions and creating spaces for intervention in the teaching- learning process.

For the development of the planned activities or tasks, a commission was created in the group (guide teacher, three teachers, representation of the students and the family, classroom council) that is responsible for organizing the work and will have the responsibility to design, and priorities, taking into account the professional skills of the curriculum for the training of the Middle Technical oin Computers.

Those responsible for each activity and task proposed by the group were determined, specifying dates of compliance, participants and managers, so that the students themselves organize, develop and control these tasks in a leading way, establishing individual and collective commitments for the fulfillment of the responsibilities in the work to develop. So they selected a name that will identify them: "The programmers of the future".

### **PEG design**

The objective of this stage was to elaborate the educational project specifying its components in order to help solve the group's main problems or problems, in this case the professional reaffirmation in the first year students of the Computer specialty at the Technical Center "Primer de Mayo."

Once all the educational agents were prepared according to the change, the diagnoses of the educators, the students, the family, the labor entities and the community were made; the actions were drawn up at the group level.

In this space, the guide teacher, as leader of the PEG, based on the diagnostic result, determined the limitations and potential of the group.

They were agreed as potential cloister with good preparation lab with 10 computers networked access to the national network, email, very good relations with labor organizations serving the specialty, environment Community favorable for the development of the educational process and collaboration the parents with the activities of the group and the school.

From the problems detected, which coincide with those seen in the exploratory diagnosis, the general characterization of the group that synthesized the most significant elements diagnosed in each of the students, their family, labor entities and the community where they live was developed.

The commission responsible designed the relevant actions, where the following components were taken into account:

- Characterization of the group.
- Objectives that the group intends to achieve.
- End of the year of study and specialty.
- Plans and study programs.
- The methodological and overcoming actions that derive the PEG.
- System of curricular and complementary activities of the group, specifying the means and forms of evaluation to be used.
- Sequential, temporal and spatial organization of the group.
- System of activities of integration with the family, labor entities and the community with previous analysis with the family and community factors designed in the collective agreement of the institution.
- Material, human and financial conditions of each group.
- The group's life schedule.

It was decisive the integration with labor organizations and schools of the People's Council, so that agreements

with: Desoft, Computer Palace, Young Club, Medical Sciences, Telecommunication enterprise of Cuba SA and non - state centers , as well as educational centers of the school network: "Carlos Ulloa" Urban Secondary School, "Hermanos Cruz " school and " Tania la Guerrillera " Pedagogical School , for the development of teaching, complementary, vocational training and professional guidance activities and the development of socio- productive projects were elaborated and redesigned.

### **Execution of the educative project**

In the professional reaffirmation during the study process, the educational influence plays an important role in the center of studies, curricula and programs, extracurricular activities and the role of teachers, tutors and teacher guides.

Everything begins with the student's entry to the center. This is the first time when the student of the specialty of Computing feels motivated towards their profession; it is here that he should prepare himself scientifically in the contents according to the specialty they have chosen. It is then when teachers and managers tried to keep those motivation latent, projecting activities of the professional reaffirmation process. In our institution, it is promoted by the Department of Information Technology.

In the Computer science specialty, which was selected for the realization of the PEG, the profession in the education at work and the link with the labor entities and community are reaffirmed; It is here where everything theory that is given to the students is ratified and knowledge, habits, skills, attitudes, feelings, values and

motivation they have towards the profession are evaluated.

During the school year activities such as the day of the open doors, where each specialty put into practice the content of its main subject. Scientific Events, Festivals Informatics Forum of Science and Technology at the grassroots level (municipal and provincial), which reaffirm in a theoretical and practical way knowledge, skills, habits, feelings and values with the need to achieve the quality of services and develop the computerization of society.

Some concrete actions to be carried out depending on the fulfillment of the PEG objective:

1. Development of preparation workshops, where specific activities to be carried out were discussed.
2. Analysis and determination of the problems to be solved, through the elaboration of computer products. The school did not have a website, lack ban materials for vocational guidance of the specialties of the center, shortages of materials for the awareness of caring for the environment and no consumption of drugs and addictions, insufficient bibliography updated on subjects of different subjects, specialties and in the Computer science specialty such as: computer security, networks, operating systems, computer architecture and others.
3. Search and study of computer applications for the creation of computer products and videos and image treatments (Incomedia WebSite, Mediator 9.0, Adobe Photoshop, Paint, Vegas Sonic, Goomla), to applications that are not taught as first-year content.

4. Observation and debate of audiovisual related topics.

5. Determination of topics, teams work, tutors, planning of work and time, estimating time and resources.

6. Visit to state and non-state companies (Desoft, Computer Palace, Young Club, Medical Sciences, Telecommunication Enterprise of Cuba SA and University of Pinar del Río "Hermanos Saíz Montes de Oca"), for the study of applications and the search for updated information on the different topics.

7. Conferences and conversations with specialists from Desoft, Computer Palace and University of Pinar del Río "Hermanos Saíz Montes de Oca" about software development.

8. Planning stages for the development of computer products.

9. Development of computer products in machine time and weekends with the collaboration of the family and the community.

10. Control and evaluation by stages of the development of computer products; determination by experts for the use of teaching means.

11. Exhibitions of products made in FVOP activities, skills competition, summer software, family education schools, school councils and other center activities.

### **Evaluation of the educative project**

This stage aims to evaluate the tasks and activities that will be developed in the educational context from the initial diagnosis to consolidate the professional

reaffirmation in the informatics specialty; evaluation must be seen in its procedural nature.

For the evaluation of this PEG it had been into account the participation in in activities, degree of involvement and motivation, attendance and punctuality, participation and results achieved in the activities: the attitudes that students manifested during the development the activities, quality of the computer products, which assesses whether the end and objectives of the year, the degree of training achieved of the feelings and values specified in the content of the curriculum, the evaluation of the results of the change, involvement of the family and labor entities, results of the teaching evaluations of the subjects, the priorities of the institution and the problems detected.

### **DISCUSSION**

It is unquestionable that society evolves at a surprising speed and that the traditional models of formation and orientation do not adapt to the contemporary context; as a sample of it we can mention the number of young people who, both in the world and in Cuba abandon their studies and consider their future uncertain professionally. For both, an issue deserves to be served from science because it is important in their lives for the decision of their academic and professional future.

It is pertinent to carry out an analysis of the concepts professional orientation, professional reaffirmation and educational project, based on the review carried out on the work of the consulted



authors. For Martínez, Torres & Cordero (2015) "The professional orientation is a complex process of training and systematic development of the subject's motivation for a profession" (p.7).

The previous consideration is related to the training process of the skilled labor force in the ETP and in essence with the Computer science specialty, in the effort to motivate students towards this profession with the purpose of their insertion in the labor world. Ramos & Breijo (2017) refer that it has not been achieved unless proper relationship between the force formed and the real needs that business entities have. To this, the professional orientation of students towards technical specialties needs to be reoriented and increased is added.

According to Gómez, Torres & Aguilar (2018) "The work of professional guidance indicates the work of the counselor with those oriented, through sequenced actions and operations to pay not only their learning, but also the development of their professionalism and the construction of their professional identity" (p.251).

Professional orientation is an activity of information, advice and training that helps students to make a vocational decision, a good professional choice. For this, it can and should be done so permanent, throughout life, not only during periods of preparation and transition to a profession, because in a continuous way its full development as a worker would be achieved; it is proposed to proceed in this way in the Computer specialty of the Polytechnic Center "Primero de Mayo".

It is essential to establish a harmonious relationship between oriented (students)

and counselors (school-family-community) in the process to achieve their goals, since the last ones do not allow that things happen, merely they guide to allow things happen. That is, to say the counselor should guide students for themselves discover and take decisions more successful at their own discretion about the profession that will accompany them during their life; thus, it could be considered that they have professional reaffirmation, as an important stage of the professional orientation process.

The need to work professional reaffirmation as a transcendental stage of professional orientation becomes increasingly recurrent. It coincides with Gonzalez (1995) when he considers that professional reaffirmations are characterized by the consolidation of the motives and intentions professionals in the process of studying or preparing for the performance of future profession and in the same work activity.

For García, Colunga & Márquez (2015) "it is not enough to prepare the subject in a general way for the exercise of the profession, he must be aware of the real efforts he must make to achieve his aspirations and social aspirations" (p.245).

The professional reaffirmation (education for the profession), has as main objective to stimulate the development of people with respect to work. That is why the studies of the aforementioned process in the school and business environment are currently being expanded.

Ferreira, Mena, Acosta & Mena (2019) ensure that in the integration with the company the formation of aspirations and professional interests is strengthened, which in turn

allow the development of these motivations to be consolidated, since the influence of moral and political motives that act in the workplace, as well as internal needs and stimuli, as the young person gets in touch with the content of the work predominate.

It shows that in essence there is the manifestation of a serious learning process that occurs during the study of the profession and even during the exercise of the same, which integrates a system of educational influences, aimed at professional training, to be in conditions, from the motivational and cognitive point of view, to ensure the fullness of the Model of computing Professional.

A key objective of vocational reaffirmation in this specialty is preparation of the student for performing professional creative and enterprising, which is achieved through a process of training focused on the student as active subject and their own learning; rector role of the Polytechnic Center is paramount in this aspiration, especially if we want the development of interests, values and ideals that influence in their professional choice.

However, it is appropriate to remember that the Curriculum of Computer Science specialty, the programs of the general subjects, basic and specific training, activities extension, the role of teachers, tutors, specialist instructors and the labor collective of the companies, among other agents and social agencies, are determining factors in the professional reaffirmation of the Computer Science student.

It is considered here as a necessary process to have into account the levels of

maturity and consolidation of training in dealing with situations that arise in the context of school-enterprise. It constitutes a process of initiation of professional socialization, to the extent that it obtains greater independence and responsibility in the execution of activities in the workplace. Pérez & Acosta (2016) consider that one set of activities well-conceived "helps to raise the comprehensive training of future technicians, from the current demands, challenges and the challenges of development of science and technology" (p.85).

The process should not be seen as a sum of incoherent and isolated actions, but as a structured and articulated system in correspondence with the theoretical referents addressed, in which an adequate integration of the educational institution and the business world must be achieved.

The professional reaffirmation of the first-year students of the Computer Science specialty of the "Primero de Mayo" Polytechnic Center is characterized, then, by the consolidation of professional motives and intentions, in the process of study and preparation for the development of the future profession and in the same work activity, which should be seen from a PEG.

The PEG is seen by Arzuaga (2011) as "the elaboration, execution and improvement of the system of actions to achieve the objectives projected at the stage of the school year, in correspondence with the individual needs of each of its members and the model requirements of the professional one" ( p.23 ).

The PEG in Computer Science specialty is conceived as the system of action in the

short, medium and long term with the involvement of students, teachers, specialists in production and / or the services, family and community, to contribute to the formation of a competent professional with a broad profile, who integrates fully with society as an active subject of its improvement.

Analyzes conducted in this investigation led to the conclusion that the process of professional reaffirmation that unfolds in the formation of the Technical Middle in the Informatics specialty, demand significantly to consider the polytechnic-school work organization relationship, as educational agencies involved in that process, taking into account the psycho pedagogical characteristics of the students to achieve the proposed purpose and with this the correct professional training.

It is evident that the proposed actions allowed the strengthening of the professional reaffirmation in a conscious way from a PEG, in accordance with the current requirements of the polytechnic school, the participation of the family and labor entities of the territory.

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**Conflict of interest:**

Authors declare not to have any conflict of interest.

**Authors' Contribution:**

Authors participated in the writing process of this article and in the analysis of documents.



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