
Problemas que debe enfrentar la educación técnica en la formación del técnico medio en la rama construcción

Problems that technical education must face in the training of the average technician in the construction branch

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Resumen: Las insuficiencias que se manifiestan hoy día en el aprendizaje de los futuros docentes de Construcción en cuanto a los procesos constructivos contemporáneos y la necesidad de contribuir considerablemente a su capacitación constituye el problema de esta investigación. Se realizó un análisis de las diferentes teorías referidas a la capacitación del personal técnico en diferentes esferas de la sociedad y alternativas didácticas que contribuyan a este objetivo, lo cual permitió delimitar las carencias existentes en cuanto a la implementación de acciones que potencien el aprendizaje de los estudiantes, y con ello contribuir a la eficiencia en la formación técnica del personal.

Palabras claves: Formación profesional; Competencia; Capacitación; Enseñanza Técnica y Profesional

Abstract: The insufficiencies that are manifested today in the learning of future Construction teachers regarding contemporary construction processes and the need to contribute considerably to their training constitute the problem of this research. An analysis of the different theories related to the training of technical personnel in different spheres of society and educational alternatives that contribute to this objective was carried out, which allowed us to delimit the existing deficiencies in the implementation of actions that enhance the learning of students, and thereby contribute to efficiency in the technical training of staff..

Keywords: Vocational training, Competition, Training; Technical and Professional Teaching

Introduction

Construction is an extremely complex economic sector related to many other sectors, encompassing a huge variety of activities, but above all it produces a series of products those that are called constructions, within these both architectural and civil engineering works are characterized by providing spaces for human activities indoors and are connected in lines and distribution networks of various types.

The construction industry worldwide has undergone substantial advances, talking about automated constructions, intelligent buildings, system constructions, and new housing technologies, which constitute only part of the problem, since the fundamental one is limited to the social need to build, maintain and preserve architectural and civil engineering works in conditions of profitable, sustainable and competitive development.

The professional training of mid-level technicians for civil construction in Cuba has its antecedents since the colonial era where it was necessary to have skilled workers in this trade. Learning from simple trades and later from the more complex professions such as the work teacher has always been inextricably linked to work activity.

The professional training of civil engineering media technicians has its origin in our country after the triumph of the Revolution in the training of specialized media technicians in buildings, in drawing, and in concrete products (prefabrication), fluctuating in training trends from the more specialized to the most general and integral.

The aspects related to the formation and training of a competitive civil construction technician as a productive force that are presented in this research take up the integrative tradition of training, but qualitatively superior by giving an equitable weight to the basic, economic, ideo-political culture, technological, ecological and aesthetic as part of the overall preparation in general, and closely linked to it in the technical preparation in particular by organizing the process (the subjects of the technical cycle within it), responding to general pedagogical criteria, and the sequence scientifically argued of the actions and intellectual and physical operations of the technician in his work activity, and the logic of the technological processes that make it up both in architectural and civil engineering works, all this to achieve in this sphere a profitable, sustainable and competitive construction development .

Quality has become a fundamental concern in the field of construction and this because the satisfaction of the needs of society and the expectations raised by the Civil construction depends both on the infrastructure and the environment in which it is immersed and on the quality of the technical personnel that the program interprets, organizes, executes, controls,

certifies and directs in general. On the other hand, the quality of education is a task that becomes very important in technical and professional education, in this sense the efforts to improve it are closely linked to those aimed at strengthening relevance, which means improving their response to the needs of society, their relationship with the world of work and the productive sector, and their contribution to sustainable human development. New technologies and new forms of business management require greater creativity, flexibility, responsibility and versatility of technicians and workers in general. In line with all this, an analysis of the different theories related to the training of technical personnel in different spheres of society and educational alternatives that contribute to this objective was carried out, which allowed us to delimit the existing gaps in the implementation of actions that enhance student learning.

Development

The future worker must be able to incorporate and contribute more and more his knowledge, skills, abilities, convictions, feelings, attitudes, values, etc. to the production process or services; Actively participate in the analysis, diagnosis and evaluation, and in the search for alternatives and selection of the best for the solution of problems that hinder the elevation of quality and increase the productivity of work in the company.

Therefore, it is necessary to establish curricula that foster the intellectual capacity of students, improve the interdisciplinary and multidisciplinary content of the studies, and apply pedagogical methods that increase learning efficiency, especially considering the rapid advances in information technology and communication

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Elements that determine the need for a study:

- The deterioration of the housing fund in the country and the need for its repair and maintenance.
- The nation's environmental policy aimed at rescuing architectural, historical and

landscape values.

- The need to develop new low-cost construction techniques with better quality.
- Cycle qualification of future technicians to increase their work possibilities.
- The improvement and implementation of training by labor competence in the curricular design of Technical Education.
- A greater link between theory and social practice in class.
- The need to give a competent response to the requirements of company production and construction services in the territories.

Training by means of skills is currently applied in many countries of the world and in particular in the Americas, the experience gains strength and extends. In Cuba, some agencies of the Central State Administration have begun the certification of competencies in vocational training centers authorized for this purpose.

Competitiveness in the Cuban state enterprise ranges from fostering a business enterprise, where all levels are committed and identified with the mission of the organization and its strategy to generating competitive intelligence scientifically based and consciously demonstrated through satisfaction at the highest possible level. of certain needs in society competently by the main protagonists (the technicians).

There is a great diversity of definitions regarding competition. According to Gardner (1995), competence refers to “The ability to solve problems or to produce products that are of great value for a given community or cultural context” (p.27).

We agree in essence with this definition for being integrative, the term competence is not approached as a synonym only for skill, or capacity, nor is its analysis limited to a single edge of the surrounding reality.

The massive implementation of this training pathway requires an in-depth analysis of the country's social, cultural and educational conditions, specifying the necessary fundamentals, approaches and components. In the context of our society, technicians must possess a series of knowledge, skills and habits related to their level and specialty that allow them to face

and solve the problems of production and / or services corresponding to their specialization.

We also consider that we must conceptualize training by competition. Thus, we assume the definition given by Forgas (2003), on professional competence:

The result of the integration, essential and generalized of a complex set of knowledge, skills and professional values, which is manifested through an efficient professional performance in solving the problems of your profession, even being able to solve those not predetermined. (p. 4)

According to a UNESCO official, the main goals of the new education according to a universal consensus are:

- Learn to learn.
- To learn to do.
- Learn to be.
- To learn to live together.
- Learn to explore buried talents as treasures, memory reasoning.
- Develop skills and attitudes to be ready for the unpredictable.

Corresponding to this, the mission of Technical and Vocational Education, and of Higher Education is to train competitive workers, fit for a constantly changing work world where it is required to periodically recycle, reconvert or update the professional skills demanded by development. Economic and social of the country. Hence, it is necessary, associated with the problem we propose to solve, as the main challenge: the need for the Cuban polytechnic school to graduate a producer with high technical qualification, and immersed in the problems of its community and of the culture in general of the Country as agent of change.

What should theoretically be based on the training and training of technical means to achieve a high level of competitiveness in them?

From the sociological point of view, it must be based on the training and / or training of an average technician capable of responding to the technological and organizational changes of

the construction and the social transformation in which it is immersed, which allows the growth of its personality with a coherence that allows it to have a basic, economic, technological, ecological and aesthetic culture demonstrated through the preservation of natural resources and the environment, maintaining an ethical, critical, creative, independence and independence attitude. economic efficiency, responsible for a profitable, sustainable and competitive construction development in the country.

From the psychological point of view, the psychological model of man must be considered, the historical-cultural approach in which the student is considered as the center of the teaching-educational process where the curriculum is valid only when there is a great activity that favors the internalization of the content, which are constituted as the interconnecting agents of the student-social experience relationship.

From the pedagogical point of view, the teacher-student-instructor integration (the worker who attends the students in the center of production and / or services) must be demanded; where teachers and instructors are the leaders of the training and / or training process and the students who are knowledge builders under their influence, but with a high student role that guarantees effectiveness in learning and allows for an effective and efficient integral training.

From the didactic point of view, the relationship between the objective, the content (of the process) and its methods must be demanded. In this sense, the objectives are conceived as a symbiosis between the instructive, educational and formative so that they need the necessary content and its methods to be assimilated by the student. The content establishes the concatenation between knowledge, skills and values that determine the mode of professional action in the different spheres of action; and it is that part of the objective reality on which the action of the technician falls and which he calls the work object, which is modified by the professional during the execution of a method as a structural expression of the process, and which will be identified as a way of performance of the average technician or the skilled worker.

From the epistemological point of view, it must be based on the conception of a technical science coordinated with an intra and interdisciplinary approach that considers the logic of the construction process and that guarantees a holistic view of it through labor competencies.

What should we change?

What is our challenge and current challenge?

The education system requires the following changes:

From	To
Passive Reproductive Orientation.	Active producer orientation.
Routine and traditionalism.	Educational efficiency.
Conception of excellence based on:	Educational excellence through:
Professional scholarship from persons to Object	Participatory system between persons
Directional information.	Self direction.
Dogmatism and authoritarianism.	Renewal.
External final control.	Originality.
Design, efficiency and control	Activity and communication.
Curriculum for behavioral objectives	Quality control, design Exercise and curriculum control By processes and competences labor.

Other major challenges and current challenges are:

The training of producers: broad-profile technical professionals, trained to efficiently apply general working methods in solving practical problems.

The systematic application by students of the methods of scientific research in order to incorporate them into the professional's way of acting for the efficient solution of professional problems.

The organization of the teaching-learning process with an integrative conception in themes, units, or content modules to develop the skills that allows the solution of a family of problems.

Prioritize learning over teaching, with greater student participation in the search for new knowledge and the development of skills for autonomy in professional work.

The personalization of the process to adapt it to the different learning rhythms of the students and their particular interests.

Greater participation of students in the curricular projection and in the development of the process itself.

Develop the training process from the professional process to achieve a greater relationship with practice and life.

The introduction of computing as a vital support to solve professional problems more quickly and accurately, and favor the creation of virtual reality through simulations of technological processes that facilitate the training of professionals.

The projection within the process of forming a base for the business management activity that favors an economic culture, and adequate preparation to act within the community where the graduate will work.

The possibility of establishing intermediate exits in several professions and trades within the same curricular conception.

The possibility of interpreting and processing various sources of scientific-technical information in both the national and foreign languages.

In response to the main challenges, demands, alternatives and social trends in the training of technical media tackled, which constitute demands of the 21st century, we finally consider that training and training should be oriented towards:

Integration of the relationship between education and productive system. Identity of each of the processes (educational and productive) that are linked without identifying.

Concretion of the Marxist and Martian principle of the link of study and work associated with those of theory and practice, and polytechnism.

Integration of intellectual work with the manual, of science with production, and of the polytechnic school and the university with society.

Conception of an active and committed learning with transformative actions of the student in the internalization of the content that modifies his environment and himself in a qualitative change of his culture and its possibilities, whose consequence is manifested in the application of the methodology of scientific research, and participation in permanent activity and communication processes.

Integration of processes in the educational institution with a holistic approach.

Conclusions

The subject is of national importance and allows to improve the Professional Technical Education and the macro curriculum for the specialty. It is of great social importance as it will lead to the most competent conception and training of the technician.

Many of the inadequacies and problems in the civil construction branch are closely linked to an unfortunate curricular design, therefore, the economic and social outcome of the issue is of great importance because it will be reversed directly in production when obtaining a worker with greater preparation and this will greatly influence the improvement of the economic indexes of each province and, therefore, of the country.

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