

## THEORETICAL FORMULATION AND SCIENTIFIC JUSTIFICATION OF THE PROBLEM OF TRAINING TEACHERS IN TECHNICS, TECHNOLOGY AND ENTREPRENEURSHIP

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### Abstract

*The new paradigm expressed in radical social and economic changes in Bulgarian society generated a new concept in education and in particular in Bulgarian technological education. Still is specifying its contemporary vision. Students should be given knowledge about how to think, how to learn and how to be creative. It is very important for the future pedagogues to explain how to learn, how to study and how to teach. National strategies for education are developed following the Lisbon conference framework. There the technological knowledge and skills are considered a main resource of a particular individual and of the society as a whole. Technology becomes an essential element of literacy skills.*

**Keywords:** *technological training, way of training, teaching.*

Creating professionals with pedagogical education and increased technical training is a feature in our higher education over the past 25 years. Problems with their training had not yet been authorized. The new paradigm expressed in radical socio - economic changes in the Bulgarian society breeds new concept in education and in particular in the bulgarian technological training. It is necessary for the future teachers in the Cultural - education area /CEA/ "Customs and technologies" to be prepared to constantly changing conditions of the environment and labor, equipment and technology. Educational activity in this CEA aims to form technological literacy and competence of students as an essential element of their common culture. The technological literacy is the ability to use, manage, identify and understand the technology. It includes abilities, knowledge, skills and their application in real situations.

Main priority of the technological training today is the entry of young people into the world of labor, equipment and technology, and the development of their technological culture. Training equipment and technologies gives greater opportunities for active development. The student learns not only theoretical material, but carried out practical activities. Besides the acquired knowledge he acquires skills that require a much longer period of time. In the technological education students have the opportunity to make mistakes, to gain personal experience, and to apply basic laws and phenomena in practice. Writing for technological training, it should always be seen as part of an overall cultural training. It is an integral part of the development of educational activities and should therefore be mandatory in the general direction training.

Nikolay Bozhkov defines technological training as a fact and an equal element of the education and erudition. He justifies as a logical correlation the relationship between it and the factors of society-wide, overhead, labor and didactic nature. This link is displayed as a pattern. It rises to a new level the importance of the technological culture as' knowledge of the scientific basis of technologies, heuristic capabilities for technological conceptualization, management skills and control of the technological systems. "It takes the view that the overall fundamental polyvalent training should reinforce the importance of the technologically oriented knowledge, be it mathematics or natural sciences<sup>2</sup>. It should be noted that no specific natural scientific, technological or social knowledge for itself (in abstract form) cannot be interpreted as a polyvalent one. It became functionally in such (it becomes a politechnical one) just generalized and synthesize knowledge with others and it takes the form of the multiple technological application. Actually important is the process of the technological objectification (application) of the knowledge as a basis for technological solutions. The technical skills addressed in their poli option can be regarded generally as summarized means of politechnization of the knowledge and have a clear scientific - practical character. The extent of polytechnic development can be

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<sup>2</sup> Bozhkov N. Didactica na trudovo – politechnicheskoto obuchenie, Blagoevgard, Bulgaria, VPI, 1988

sought not in the amount of the kind of activity<sup>1</sup>, but mainly in the degree of community activities. The advantages of the polyvalence of the technological sense of education occurs mainly in the following areas:

It serves and approved objectively the necessary and promising trend to more closely link education with employment, the education and the production, the school life and the social practice.

It also helps the manifestation of the other two major trends in the development of modern education – its` democratization and modernization.

It directly serves the general purpose of education - the multilateral development and full realization of the individual.

There have been created real and workable conditions for broad professional information and consultation of conscious orientation in the world of occupations, determining the correct choice and orientation of the individual to appropriate about him or her career and life start, to harmonize the needs and the interests of individuals and the society.

It assists in building a robust scientific foundation for future professional training, and thus supports as well the professional adaptation to the realities of the production.

It realizes the principle of unity between theory and practice in the training process.

It forms successfully willingness to work in the students and desire to work in the sphere of material production or outside it.

It nourishes the potential for creativity, a manifestation of activity and initiative.

"The system of knowledge, skills and habits forms a polytechnic approach and creates a common worldview horizon. Such personal qualities relieve the changing of labor, the quick assimilation of new knowledge, the mastery of additional majors and are therefore socially necessary and significant".<sup>2</sup>

On the other hand it should not be forgotten about the specifics of technological training as the only one in the Bulgarian School proactive, productively focused strategy for education. The technological training is determined by the technological culture. It should reflect its modern dimensions, but not by random, but by the consequential elements of the widely interpreted nature of the technology and the technological. This in turn has two aspects – a social one and a productive one (consider the public way of production at all). The technological training should not be viewed simplistically and discriminatory. It is interpreted as helping to build the technological culture of the people. And it is a part of its overall culture and they should not be allowed to build it alone, thanks to their own efforts. "... The technological training in aspects of its general technical education lays the necessary foundation of training, which in turn develops them and specializes them" for the needs of the society for permanent reproduction of the productive forces.<sup>3</sup>

The technological training accumulates its` educational content from exceptionally dynamic performance trends and tendencies. As such it includes basic elements of technical, natural, social, economic and other kind of knowledge of the content blocks of the modern stage technology culture. Otherwise it becomes namely in excess of knowledge and an example of unfitness to the needs of the contemporary people.<sup>4</sup>

The processes taking place in our society, can impact both on science and on education. "Today we live in one of those top stages in history when by downloading the old barriers the entire structure of human knowledge again shakes. We do not collect just more "facts."<sup>5</sup> As entire economies have been reorganized the same way should be also reorganized the distribution of knowledge and symbols through which they are transmitted. This means creating new networks of knowledge, developing new conclusions, theories, hypotheses and ideas. Learners should be given knowledge of how to think, how to learn and how to be creative. It is important that future teachers have to explain them how to learn, how to be taught, and how to teach. "In a world that is constantly changing, there is no subject or several subjects that will surely be useful to you in the near future, let alone a lifetime. The most important skill you need to learn is to make yourselves to learn. If you know how to learn, you can adapt and modify no matter what technological, social or economic changes might become."<sup>6</sup>

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<sup>1</sup> Bozhkov N. Didactica na trudovo – politechnicheskoto obuchenie, Blagoevgrad, Bulgaria, VPI, 1988

<sup>2</sup> Skatkin M. N. Vaprosi na profesionalnata podgotovka, Sofia, Bulgaria, Narodna prosveta, 1975

<sup>3</sup> Bozhkova E. Technologuichna podgotovka, Blagoevgrad, Bulgaria, SWU "N. Rilski", 2007

<sup>4</sup> Bozhkova E. Predpriemacheska podgotovka i technologuichno obuchenie, Blagoevgrad, Bulgaria, SWU "N. Rilski", 2007

<sup>5</sup> Toffler A. Novata civilizaciya, Sofia, Bulgaria, Obsidian, 1995

<sup>6</sup> Neisbit D., Aberdeen P. Preotkrivane na korporaciyata, Sofia, Bulgaria, Ed. house „P.K. Yavorov“, 1990

There is no sense of education that does not make you thinking. These trends have been developed in the Bulgarian education. Tearing of the totalitarian and highly ideological education where the lesson shape and the focus on memorizing a certain set of knowledge were imposed as the main training model, in the years of transition Bulgaria lost a lot of successes achieved in education. It has led to a strong demotivation both of students and teachers. Nevertheless, there is still a traditionally strong desire for education of Bulgarians. The human potential is highly qualified, although not well motivated. These are positive factors that contribute to the reconciliation of the Bulgarian priorities with those of the European Union in the field of education. There has been stated a political will to significantly improvement of the education in order to increase the competitiveness of the economy. At a time when the technological knowledge and skills are the basic resource for individuals and society as a whole, the technology becomes an essential element of literacy. In this regard, the role and the importance of the educational field "Technology" included in the curricula of many countries under a different name has been growing. It appears as a logical extension and a new qualitative stage after employment training. It includes knowledge related to the technological change with respect to the formation of techno - technological picture of the world and creating approaches to improve what surrounds us. So students not only learn knowledge and skills, but design objects of labor and create the products of labor. The theoretical and scientific basis of the problem of teacher training equipment, technology and entrepreneurship actually covers training, which integrates different areas - pedagogical and technical. The simultaneous study of the pedagogical and technical education is a demanding and a difficult task. So grow up the specialists with an extensive training and a wide range of knowledge. What part of it will be needed the life itself will show them. In practice, there is an ongoing effort to update the curricula and adapting them to the top European education standards. It could be said that "the quality as of each product as well as of knowledge is a function of the quality of the processes that create the product. Only through effective management of knowledge and its quality the correct answer can be given to the questions: "What knowledge to produce", "For whom to produce" and "How to produce".<sup>1</sup>

In the years of constant change, the volume of training technological changes into the total volume of knowledge. How and to what extent to teach it, how to prepare the teachers who will interpret it in educational programs? These are some of the questions slowly finding their answer. Among the educators from CEA "Life and Technology" there exists an integration between the main aspects of their training - technical and humanitarian, industrial - technological and pedagogical.

Considering the state educational requirements for content<sup>2</sup>, the following features can be highlighted: The educational activity in the CEA "Customs and technology" is designed to build a foundation of the technological literacy and competence of students as an essential element of their common culture. The subjects in this area represents a kind of steps for moving the process of building a culture of the individual person to the process of building basic skills for her future career. Working with students is arranged so that:

- from the notion of organization and planning of activities at home to move to the building of knowledge and skills of organization and planning of activities in the world of technology and outside the home;

- from the notion of the modern household equipment and technology in a nearby world that communicates with the family, to move to provide a snapshot of key relationships in the complex world of the technosphere of our planet;

- form the knowledge management to the household income and the consumer behavior to move towards a knowledge of economical culture, and understanding and differentiation of basic economic concepts and concepts;

- Of understanding the impact of various occupations and fields of activity to move to the planning skills of their professional career in simultaneous depending on the individual performance and the prospects of the labor market.

Getting acquainted with these state educational requirements for content, immediately can be seen the responsible role placed in front CEA "Customs and technologies." The specific feature of the technological learning is what is decisive as ontogenesis in the technological training – the equipment and technology, the economic, the labor or the production activities. Thus, the boundaries of cultural - educational field are quite

<sup>1</sup> Ivanova D. Didacticheski aspekti na transfera – pedagogic theory and practice, University edition „Saint. Climent Ochridski“, Sofia, Bulgaria, 1994

<sup>2</sup> <http://www.minedu.government.bg>

blurred.

Interesting and skills are formed in the process of working in technological training:

Skills to establish the path of the analysis how things are made and what ingredients they are decomposed;

Ability to observe, curiosity in common sense, focused on the material world and social life, the desire to experiment. These are qualities that many times are ignored or suppressed, and they lead to the manifestation of creative events;

Skills for assessment and decision-making, when known are the evaluation criteria and the right choice between the old and new;

Work activity and growing it into career in development, which implies absorption of activities without which one cannot live and work;

Skills for behavior at home, workplace, cooperation and teamwork, striving for quality work in public places;

Skills to assess their abilities and expectations, planning and career choice depending on the individual performance and the prospects of the labor market;

Skill entrepreneurial behavior, which means nurturing entrepreneurial spirit, the opportunity to earn for themselves and for the country..<sup>1</sup>

From the positions of the current professional requirements the graduates should have built capabilities for autonomy, responsibility, flexibility, activity and communication. In other words, to differ with the key professional, personal and social skills. In this discourse the professionalism should be seen as a unity of professional competence and key qualifications. Transformation of knowledge and skills in the learning process to acquire significant professional skills and qualities are necessary for the full development of the future generation.

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