

Technical Culture - Educational Objective Imposed by the Lifestyle of Postindustrial Community

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Abstract: *În articol este relatată noțiunea **cultura tehnică** interpretată ca o componentă a culturii generale a omului contemporan; se evidențiază unele probleme de bază ce urmează a fi soluționate întru formarea culturii tehnice.*

Key words: educational objective, technical culture, culture, postindustrial society

From ancient times history of civilization shows that humans used various technical objects (mechanisms, machines, and apparatus) for different purposes. The primitive man, for example, made use of the stone axe, arch, arrows, etc. Later, these tools were replaced by tools made of bronze, cuprum, iron. Iron tools offered the possibility of processing various materials, opened the way to inventing different mechanisms. In the process of knowledge acquisition of nature laws the man has invented various technical objects more complicated from the point of view of construction and functioning. From the oldest times scientists have always emphasized technical objects as an objective reality. Aristotle, for example, divided all surrounding things into natural reality and artificial reality defining them as “fiuzis” (natural) and “**tecne**” (artificial). As the technical objects used to have a simple construction, in the past the notion “technique” included the technological aspect, the way man illustrated the technical objects. This is why “technique” used to mean all the technical objects created by man as well as the proceedings of using them. The role of technique has greatly increased with the development of the society as well as the quality of the created machines. This has influenced the approach to the meaning of “technique”. The dual meaning of the word disappears, nowadays “technique” means “a specific class of material things invented by man for certain purposes, which is continuously improved by man” [1]. Having defined the word “technique” as such makes it possible to use the notion “technical culture” in pedagogy terminology.

Nowadays, human’s lifestyle is greatly dictated by the scientific and technical progress. People of various ages and professions daily encounter technical objects to deal with while exercising their jobs. Preschool children, for example, use dynamic toy samples to play with (sample of car, crane, excavator); School children use various functioning technical objects – bikes, irons, meat mincing machine); adults use all kinds of machines (washing machine, motorbikes, cars). Not a single modern family can do without a television set, fridge, and kitchen

equipment. The automobile is no longer a luxury; it has become an object of prime necessity. Each of the technical objects used in our households is constituted of pieces of various sizes, forms, functions and have certain names. People of various age and professions have to use technical terminology while communicating in order to transmit information referring to the technical objects they use.

Another specific characteristic of the contemporary society is the speedy technical development in any domain. If, for example, during the 20th century the typing machine has developed from mechanical to electrical, now it has been substituted by the computer. Thus, the same job requires continuous technical knowledge improvement in the field. In addition, new labour market conditions influence the intense migration of people to other fields of activity. This dictates the necessity of creating optimal conditions for people retraining. It is obvious that having acquired the minimum knowledge about the functioning and construction of technical objects people will easier requalify.

In the new conditions people have to demonstrate the intelligence and skills to adjust to the permanent transformations which occur in the field of technical equipment and be able to use advanced technical systems. These activities may be difficult if there is no knowledge regarding modern technical equipment.

Nowadays, in contrast with the preceding stages of human civilization, technical equipment has become part of everyday life. This fact emphasizes how important the notion of “technical culture” has become as an integral part of culture in general. Basically, technical culture may be defined as the knowledge which reflects the principles of construction, functioning, and usage of technical equipment most frequently met necessary in order to solve problems related to technical machines, to ensure community communication in the field of technology.

Thus, it has become evident that the modern changes in society impose training pupils’ technical culture as a component part of culture in general. Every member of the society should have this knowledge, no matter what the profession is (doctor, musician, teacher). Moreover, technical culture is a prerequisite for further higher education in sciences, so it is important to train basic technical culture at the pre university level. The key factors mentioned above - continuous technical development, use of technical equipment by people of various ages and professions, the need of rapid retraining of people, the involvement in the nearest future of people in advanced technology – dictate the necessity of reshaping pre university education; forming technical culture is now one of the educational objectives. Since people deal with technical equipment since early childhood, it is important to start forming technical culture in a systematic way at the pre school level.

The problem of forming technical culture is complicated as there is still much to be investigated. Among the existing questions are the following:

- Defining the information spectrum related to technical culture;
- Selecting the technical information to be studied at various school levels (preschool, primary school, secondary school, lyceum);
- Selecting the technical equipment that will be used as didactic material to form technical culture;
- Identifying the standards of technical culture;
- Selecting the optimal pedagogical methods appropriate for each school level.

One of the listed problems relates to deciding on the optimal volume of technical information necessary to initiate the technical culture. In this respect, it is necessary to create a scientific and technical informational system which would exclude repetition throughout school levels. The information would be distributed per school subjects (technological education, physics, mathematics). Activities oriented towards forming technical culture take place at every school level:

- pre school pupils get familiar with the construction and functioning of toys as well as with the technical terminology necessary for communication;
- primary school pupils get familiar with technical objects constructing simple technical machines and learn the necessary terminology;
- secondary school pupils get initiated in the technical domain using different technical mechanisms (tools, machines, measuring devices) studying the construction and functioning of frequently used technical home equipment (the iron, coffee making machine, the bicycle) and learning the necessary terminology;
- high school students get familiar with the fundamental technical notions related to the technico-scientific aspects of life, study the construction and functioning of most frequently used technical devices. The devices are selected following the criterion: it should contain information from various technical domains. According to this , the automobile contains information from various technical domains (mechanics, hydraulics, pneumatics, thermotechnical, electrotechnical, radiotechnical, electronics, optics); The knowledge the students get at this stage, especially in physics and chemistry, is integrated and improved.

The problem of forming technical culture in the X-XIIth forms of secondary and high schools, and vocational schools started to be examined in the last five years. The school curriculum for the 1996-1997 year includes the optional course “Fundamentals of Technology”. The course started to be piloted in several educational institutions in accordance with the order of the Ministry of Education, Youth and Sports Nr. 221 issued on 10.09.96. An experimental program was developed and one chapter of the course for the Xth form was published. [1, 2]

During 2001-2010, the problem in question was examined with reference to the primary school. Research results are illustrated in the doctoral thesis “Methodology of Promoting Primary School Pupils’ Basic Technical Culture” [3].

Analyzing the problem of forming technical culture in pre university education, it can be stated that primary and secondary school pupils get a satisfactory training. At present, the school curriculum for the course “Technological Education” contains modules related to the domain of technique and technology. It goes without saying that forming technical culture should be continued in high school as well. Unfortunately, the school curriculum at this level does not contain any courses related to the technical field. This is a drawback in terms of forming technical culture. The problem can be solved by developing and offering optional courses related to the technical field, which should be viewed as an applicative continuation of the exact sciences taught in schools (physics, chemistry).

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