

CURRENTLY RELEVANT ISSUES OF TECHNOLOGICAL EDUCATION IN LITHUANIA

The article deals with the changes in technological education in Lithuania i. e. a transition from the craft-based technological education to the project-based education of technologies when the students' skills related with projects, information search, collection and analysis, knowledge of materials, etc. are developed, and the concept of technologies is expanded. Applying a method of literature analysis, the features of technological education as well as expression of didactic components of technological education in the activities of the educational process participants at different historical time periods are analysed.

Keywords: technological education, a subject of technologies, an examination of technologies, a general education school.

Introduction

Historically, the concept of technological education, its features, content and the use of the term has been changing due to different factors: technical progress, the changes in the curriculum of general education, educational reforms, approaches, political and economic situation of the country.

The concept of technological education involves a combination of two terms: "technologies" and "education", which outlines a certain field of education. Currently, technological education is defined as a pedagogical system whose didactic components are the goals of technological education, the content of technological education, forms of technological education, methods and techniques as well as teaching and learning aids of technologies with which the teacher helps the learners to acquire technological and general competencies significant for the society and the individual. Thus, it is aimed at further development of technologies and better quality of human life.

Lithuanian scientists V. Ruzgas (1928), B. Cesnaite (1992), J. Galkauskas (2001, 2009), A. Ramanauskaite (2002), P. Urbietis (2000, 2005), Z. Zebrauskiene (1999), V. Augustinavicius (2002), L. Paulauskas (1996), L. Statauskiene (2003, 2005), B. Zygaityene (2001, 2010) researched work education, early stages of technological education, revealed the problems related with teaching through practical training at different historical stages. Z. Sedereviciute (2005) summarized foreign experience in teaching technologies.

A modern concept of technologies is multidimensional. It reveals the nature of technological development from classical to modern technologies, and it is outlined by specific components of human activities, such as mastery, success of technical fulfilment, cooperation and a human role in performing work procedures [13, p. 66]. The status of technological education has particularly increased since the introduction of a maturity examination of technologies; therefore, currently it is very relevant to research the changes of technological education.

The Object of the Research — technological education.

The Goal of the Research — to study the change of technological education in Lithuania.

Research Method — the analysis of scientific literature and educational documents.

Changes of Technological Education in Lithuania over Different Periods

There is little knowledge on the ancient Lithuanian education [17, p. 143—148].

This knowledge is obtained from folk creation, rich archaeological material as well as the written sources of the early feudal period reflecting daily activities and customs of the ancient Lithuanians and their lifestyle [23, p. 46].

The didactic components of technological education in the socio-cultural context of Lithuania at certain historical time periods were treated variously, and they were expressed differently in the activities of participants (Table 1).

T a b l e 1 — The changes of technological education in Lithuania at different historical time period [13. p. 52]

	Manifestation of education	Period		
		1918—1940	1940—1990	Since 1990
Features of technological education	The goals of teaching through practical activities	In the primary school — development of the child’s kinaesthetic skills; in the general education system — teaching handicrafts for girls; in crafts schools — teaching of folk trades and crafts.	To provide vocational guidance for the learners to choose working class professions necessary for the country’s economy. In the secondary education system - to provide the lowest level vocational qualification. After 1988 — to revive national	To organize and maintain household, to cherish national traditions by teaching to do common household chores. To teach the students to produce not complicated products according to the examples of traditional folk articles. Since 2003 — to make

	Manifestation of education	Period		
		1918—1940	1918—1940	Since 1990
			traditions by teaching techniques of various crafts.	preconditions for developing the basics of technological literacy.
	The content of teaching	In primary and general education schools the learners get familiarized with the examples of folk art, and in crafts schools they acquire the basics of classical technologies.	Experience and knowledge conveyed by the foreman, the basics of work in manufacturing, engineering knowledge.	Nutrition, textile and knitwear (for girls), technical works (for boys), household and home economics (for all the students). Since 2003 — nutrition, textile, construction materials, electronics, product design and technologies.
	The needs for teaching	Development of a positive approach to work, preparation for future life and household, the need of a more skilled member of the society.	The demand for skilled workers in manufacturing. After 1988 — cherishing of national traditions on the basis of ethnoculture.	To cherish national traditions and cultural heritage. To understand the importance of technologies in everybody's life and in the economy of the country. To know classical and modern technologies.
	Developed technological skills	To do small works which require accuracy, carefulness, and tidiness.	Following the instructions, to perform not complicated work operations carefully, precisely and qualitatively.	Practical knowledge and skills are acquired by manufacturing not complicated products and applying different craft techniques. Since 2003 — knowledge of design, information accumulation and use, materials and technological processes as well as their results.

Manifestation of education	Period		
	1918—1940	1918—1940	Since 1990
Peculiarities of teaching organization	In primary and general education schools the learners are taught national traditions according to the examples of folk art. In crafts schools a teaching process is organized at workplaces.	Teaching is organized within the manufacturing process (at the workplace). After having familiarized the learners with the workplace safety rules and work instructions, they are taught to operate not complicated equipment. Application of instruction-demonstration and observation as well as practical teaching methods is prevailing.	The learners are taught to produce things according to the examples of tradition national articles by familiarizing them with ethnic culture and traditions. Project methods, creative design tasks targeted at basic technological skills are applied more frequently.

The period of restoration of independence (1990—2003) was distinguished for the start of the creation of own national culture, which reflected in the curricula as well [19, p. 59].

Twenty years after the start of the Lithuanian educational reform and also from the beginning of transformation of technological education, it was important to highlight the trends of changes in technological education. During that period the general education school in Lithuanian experienced the periods of creation, growth, breaks and restoration. The school structure, curricula, and the process of teaching organization were changing. The subjects also got into the flow of many transformations: they were updated, developed and assigned still another educational function. Technological education experienced such a change as well. This subject was changing not only its name (works/ teaching works/ home economics/ technologies), but also its goals and functions [14, p. 17].

In the general curriculum of technologies of basic education (2008) technological education is perceived as the whole of creative and manufacturing process [9, p. 1231—1266].

The basic school aims at developing a technologically literate, curious, thinking, creative, proactive and responsible personality. Technological

education is an integral part of holistic education which allows students to become technologically literate and to be able to constantly acquire new knowledge and develop technical skills, to understand, to use and to evaluate the ongoing developments of technologies in the creative (practical) process forming a positive attitude towards the transformation of technologies in the context of the past, present and future. Applying active teaching and learning methods, modern technologies of work, information submission, processing, materials cognition and taking into consideration the students' needs and abilities, conditions for all the students (not grouping them by gender) to study various technologies are created [9, p. 1231—1266].

Therefore, technological literacy as the ability to understand, to use, to evaluate and to manage technologies and a positive attitude towards the constant technological development are important for modern society.

A. Ramanauskaite (2002) indicates the changed distant goals of technological education, moving from teaching technical works towards technological education. These distant goals of technological education strictly focus on the improvement of quality of life under the conditions of developing technologies for the individual and the society as: a user of everyday technologies, a future employee using technologies at work depending on the functions performed, a human resource for future innovations and development of new technologies [10, p. 15].

Proponents of the holistic concept put particular emphasis on the dependence of a part of characteristics on the whole to which it belongs, and interrelationships between them help to understand these parts. Perception of the whole helps to understand holistic quality [7, p. 165].

All these statements enable to decide that one of the objectives of technological education is to educate a conscious consumer. Consumer education is important for enhancing the ability of children and young people to act in the society under current conditions, it encourages a rational choice and constructive use of their acquired knowledge and skills [4, p. 12].

At present, in Lithuania the curriculum is updated following these trends: to focus the curriculum on the development of general competences, especially creativity, and the key subject competences [9, p. 1231—1233].

Currently, in the context of national and global educational values there is a need to change and develop the teaching process in order to make it more efficient, more interesting for the child, to model the teaching process in a new direction focusing on the creative activities of the child and the development of general skills for activities [16, p. 8]. Such type of technological education enhances the students' independence, teaches them to solve the problems themselves, which is one of the key preconditions for

development of creativity. General technological skills (no matter what the object of technological education is, e. g.: nutrition, textile, construction materials, electronics, etc.) are developed in four areas of activities: design; information collection and its use; cognition of materials; technological processes, presentation and evaluation of their results. The provision is followed that every student of the basic school, regardless of gender, shall have a possibility to get acquainted with different types of technologies [2, p. 573—622].

Recently, in general education schools of Lithuania technological education involves the programmes of the following subjects: nutrition, textile, construction materials, electronics, product design and technologies.

Project activities are particularly important in the process of technological education as they help to develop the areas of students' knowledge, understanding, skills, attitudes and values. They are perceived as a set of the search for ideas (research), designing, manufacturing and evaluation activities performed during the lesson of technologies. The work is organized so that the students themselves could make decisions and participate in all fields of technological activities (Fig. 1).

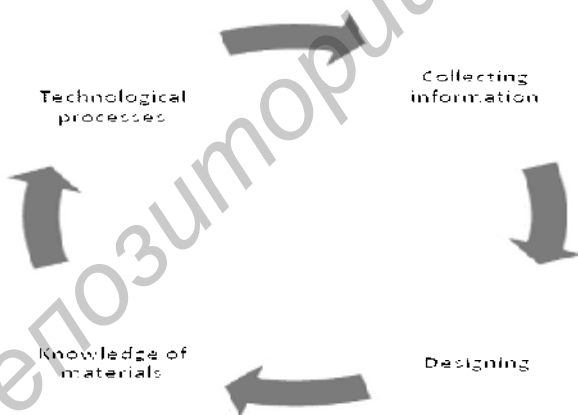


Figure 1 — Fields of technological activities

The main components of technological education are technological changes, education of culture of consumption and eco-culture, quality of life, computer literacy, design, business technologies, vocational guidance.

In general programmes of secondary education [21, p. 157] the goal of technological education is defined as follows: “to create preconditions for the

students to develop a technological competence i. e. to cherish moral values and technological skills necessary for each individual in the constantly changing sociocultural environment, to develop positive approaches to the permanent change of advanced technologies". Implementation of this goal is achieved when the students choose one of the modules in the area of technologies:

- textile and clothing;
- applied arts, crafts and design;
- tourism and nutrition;
- construction and wood processing;
- business, management, retail trade;
- mechanics, mechanic repair.

The status of technological education has particularly increased since 2009 after having introduced a maturity examination of technologies [18, p. 15–26]. The goal of the examination is to verify and evaluate the student's achievement aimed at the competence in the area of technologies. Organization and evaluation of the examination of technologies is conceptually different from other maturity examinations. In the examination process, which lasts for more than two months, a project-based work method is applied, and the process itself consists of three parts: preparation of description of the final examination work (a planning part), creation of the product of the final examination work (a process part) and presentation of the final examination work.

In 2010, the examination of technologies was carried out for the first time in Lithuania. Over 4 000 school-leavers took the examination. Meanwhile in 2011 already over 7 000 students chose the examination of technologies [18, p. 23]. The students learning under the chosen technologies programme of a general education school or a vocational training programme could take a maturity examination of technologies.

Conclusions

As the political environment of education in Lithuania was changing, teaching of household works (technical works) was transforming into technological education: from domestic consumption to the knowledge of not complicated technologies. An opportunity to reveal and develop the multidimensionality of technologies as an educational subject occurred.

Technological education is integral, open for cooperation, individualization and differentiation of the curriculum by applying a project method of education. The main components of technological education are technological changes, consumer education, quality of life, computer literacy, design, and vocational guidance. A close relationship among these components demonstrates multidisciplinary of technological education.

As the students select one of the six modules in the area of technologies in the secondary education school, a technological competence is developed i. e. moral values and technological skills are cherished. In order to verify and evaluate the student's achievements aimed at the competence in the area of technologies, in 2009 the examination of technologies was introduced in Lithuania. The examination is carried out by applying a project-based work method.

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