

INNOVATION OF THE CONCEPT AND CONTENT OF TECHNOLOGY EDUCATION IN THE CZECH REPUBLIC IN CONTEXT WITH THEIR DEVELOPMENT IN THE COUNTRIES OF CENTRAL EUROPE

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ABSTRACT

Fundamental changes of innovation in the concept and content of technology education on elementary schools and gymnasium occur during the course of the last fifteen years in the CR and in the countries of Central Europe. These changes are conditioned by steep scientific and technological development and particularly by massive application of ICT in the whole society as well as by new social-political changes.

The centrally controlled school system conditioning instruction in accordance with nation-wide valid curricula has gradually been replaced by system providing the schools with greater freedom in the implementation of subjects of technological character, and also in the modification of frame curricula with regard to local conditions and interest of the pupils, and also in fixing the time appropriation of these subjects, and makes selection possible to the schools concerning the fact of implementing certain subjects as obligatory or optional.

The diversification of subjects included into the system of technology education on individual schools together with the possibility of the teachers to realize innovation of the concept and content of the curricula with regard to the specified conditions has contributed to the creation of wide spectrum of subjects included into the system of technology education. On the other side, however, larger competence of the schools to make decisions have led on many of these schools to particular limitation of time appropriation for these subjects. It is necessary to understand the intensification of ICT as one of the positives of educational programmes of schools of general education for which a comparatively satisfactory material base has been created in special classes equipped with computer technology.

Innovation of the concept and content of technology education has been reflected into the fundamental changes in preparation of teachers on Faculties of Education (for example in the implementation of obligatory and compulsory optional teaching modules) as well as in further education of teachers with the aim of updating and making the teaching strategies more effective (for example engagement of the pupils into the development of school projects with the application of problem teaching and work of the pupils in teams, etc.).

The paper solves these issues not only from the aspect of the CR but also with regard to the development in technology education in the neighbouring countries of Central Europe.

Key words: Innovation of the concept and content of technology education, changes in the teachers training, activating teachers strategies.

1. BACKGROUND

Technology education as an organic part of general education on basic schools and upper secondary schools (gymnasium) have during the last fifteen years gone through significant concept and content changes which have been conditioned particularly by massive application of ICT in all the spheres of human activity, but also by significant changes of the whole political-social frame and by the preparation of these countries for entry into the European Union which has taken place on May, 2004. The aim of the most effective integration of the concept of technology education and its concept orientation in advanced countries of the European Union with the application of all the positives from national traditions of the schools systems in individual countries of Central Europe has been gradually reflected into the concept and content changes which have occurred from the nineties of the last century till the present.

The trends of reform of the school system as a whole and innovation of technology education in the countries of Central Europe – in the Czech Republic, in the Slovak Republic, in Poland and Hungary have generally a common denominator even though the methods of their realization differ according to the specific conditions of individual countries.

2. THE CZECH REPUBLIC

Technology education has a two-hundred year tradition in our country even though the name and concept of the subject was quite different. We would like to mention a fact that the Austrian-Hungarian monarchy has on our schools implemented hand works as an obligatory subject on our basic schools (with a different content for boys and girls) conceived as a preparation for future life and oriented only to practical part of teaching. It is not our aim to be concerned in detail with the historical development of the subject which has as a rule gone through innovations. We would like to specify the changes which have occurred during the course of the last 20 years. The principle of technology education was applied on our nine-year basic schools from the half of the fifties of the last century to the year of 1991. This principle was understood as a system applied in the whole educational process, i.e. this means in all subjects with regard to their specification. Its centre was in the relevant subject – Work Teaching with time appropriation of 1 hour per week from the 1st to the 5th grade, and 2 hours per week from the 6th to the 9th grade. The aim of this obligatory subject which has in the curriculum for the 8th and 9th grade included different topics for boys and girls, was to equip the pupils in the sphere of technical theory as well as practical part of the subject with basic knowledge and practical skills from the sphere of technology (from work with paper, cardboard, paper-board, wood, metal to the basic electro-engineering works and simple assembly and disassembly works in the highest classes of basic schools), and plant-growing. The girls also got acquainted with the bases of house-keeping. The schools proceeded in accordance with centrally approved curricula in which it was possible to use 20% of teaching time for updating of topics in accordance with the conditions of the school. This subject of which the content has been during the years innovated on a systematic basis, should have contributed to conscious professional orientation of pupils to further studies and future career choice and to support functional connection of school with life in a wider context. Many technology free activities of interest as for example radio-technicians, modellers, breeders of small animals, realized at schools as well as in many special facilities – for example Houses of Children and Youths, have followed this subject in the system of technology education. It is necessary to remind of the fact that many production plants have financially supported schools and created suitable conditions for teaching of this subject.

Teachers – leavers of five-year studies on Faculties of Education were commissioned with the subject of work teaching.

The center of technology education on upper secondary schools was in an obligatory subject of Bases of Technical Preparation with time appropriation of 2 hours per week in the 1st and 2nd grade, 4 hours per week in the 3rd grade and 6 hours per week in the 4th grade. This subject which was of a technological character in the first two grades, was in the 3rd and 4th grade specialized according to the interests of the students to various technical spheres as for example machinery, electro-engineering, construction, computer technology, agriculture, technical chemistry, etc. One of its parts was also formed by practice in production plants. In the theoretical and practical part of the subject taught by engineers – leavers of Universities of Technology, the pupils got acquainted with the basic principles of technology, with its application in practice. In specialized studies in the last two grades they adapted the bases of the relevant technology subject. This enabled them to acquire technical qualification on the basis of successful passing through graduation examination of general technology subject and subjects of technology preparation. They applied this qualification at the entry to job of technical-economic offices. A particular role was played by technology subjects on upper secondary schools in the conscious choice of further studies, due to the reason that a larger number of percent of leavers of this secondary school proceeded in their studies on various technology fields on universities. Many production plants, research institutions and other facilities significantly participated in teaching of these subjects on upper secondary schools.

The reform of the school system in the CR which was realized from the beginning of the nineties was reflected into the concept and content of technology education. One of the characteristic features of the gradually implemented reform of the school system in our country was among others the development of frame educational programmes providing the schools with greater freedom in the realization of curricula with regard to the interests of the pupils and students and to the conditions of concrete schools. Experts have during the course of the last decade developed frame educational programmes which together with educational standards specify new tasks and aims of technology education in basic schools. Its center lays in the subject called Practical Activities. The frame educational programme lays in the new concept an emphasis upon technical knowledge and practical activities connected with school and out-of-school life and with the ability of pupils to apply the acquired pieces of knowledge and experience in various situations of the present as well as future life. The new concept of this subject is expressed in competencies, as for example ability of orientation on the labour market, application of free activities, rational use of energy sources and protection of environment, etc. These competencies are connected with applications to the sphere of economic life, legal relations in new social-economic conditions, to the application of information technologies and influence of mass-media, etc.

The frame educational programmes define a set of competencies in the subject of Work Activities so the pupil particularly gets to know the following:

- to apply the acquired working skills and simple activities in everyday life.
- to solve simple work tasks with suitable selection of materials, instruments and tools with the application of the corresponding technologies,
- to select the most suitable progress of works,

- to work with information including ICT and with other technology means,
- to organize and to plan his/her working activity with the observation of the principles of hygiene and safety at work, and technological discipline,
- to evaluate the result of his/her working activity from the aspect of quality, functionality, economy and social importance,
- to design, organize and control processes of work on the basis of acquired information on technologies and organization of works,
- to work in teams according to his/her abilities,
- to quickly adapt to the changed working conditions at work,
- to fulfil the imposed duties and obligations,
- to communicate with co-workers, to find compromising solutions with the aim to effect the quality of common work,
- to express his/her opinion, to independently make decisions, to be responsible for his/her decisions, to meet with opinions of the others.

Practical Activities are taught on lower basic schools (grades 1 to 5) 1 hour per week in total as the minimum number of hours in the third grades during the course of 5 years (the total number of 99 lessons on the lower level). This number of hours can, however, be extended of optional subjects of technology character. There is a much larger number of lessons of Practical Activities on special schools which pay greater attention to the development of practical skills. The minimum number of hours is on the higher level of basic schools (grades 6 to 9) 1 hour per week during a four-year study. The school director has the possibility to distribute teaching of this subject in the model of 1-1-1-1-, or 1-0-1-2-, or 0-2-2-0-, etc. The center of topics in the 6th to 9th grade is oriented to the following fields of topics:

- work with computer,
- work with technical materials,
- plant-growing,
- assembly and disassembly works,
- electro-engineering around us,
- preparation of meals,
- operation and maintenance of households,
- man and the world of work.

The pupils in the 7th to 9th grade can deepen their technological knowledge and skills in the offered wide palette of optional subjects with time appropriation of the total number of 6 hours (during the course of 3 years), that means 2 hours per week in each grade. Let's mention (out of optional subjects) for example the subject of Informatics, Technical Drawing, Technical Activities, Bases of Economics and Accounting, etc.

Technological literacy enabling the pupils to acquire significant information from the sphere of work performance and helping them in conscious decision making on their further studies

or further professional orientation is being gradually developed in subjects included into the new concept of the system of technology education.

The system of technology education is oriented to the fulfilment of educational standards which concretely define the requirements which should be fulfilled by the pupils in concrete grades or on concrete school levels. The standards are formulated as a set of knowledge, skills and habits in relation to the planned content of education in the relevant teaching subjects. The function of educational standards can be specified as follows:

- of motivation (of simulation of self-regulation)
- prognostic (self-selective, differentiating)
- of verification and regulation
- of information and cooperation.

It is necessary to mention that the new concept of the system of technology education on basic schools in the CR has been reflected into the new concept of preparation of teachers on the Faculties of Education. During the course of the five-year magisterial studies (in combination with other subjects) the future teachers choose the study of the relevant subjects as for example: Introduction into Information Technology, Technology and Ecology, Introduction into Technology Education, Materials and Technology, Principles and Systems in Technology, Electro-Engineering, Graphical Communication in Technology, Operational Systems, Principles and Systems of Machines and Equipment, Database and Information Systems, Practice from Material and Technology, etc.

Evaluation of subjects of technology character on basic schools by the students themselves as well as by the parents is positive. The teachers, however, request a larger number of teaching hours which are necessary for the development of working skills and habits.

Basic innovation changes in technology education have occurred during the last 15 years on upper secondary schools (gymnasium) which offers four-year studies in the 1st to 4th grade.

The system of technology education is applied in generally educational subjects with regard to their specification particularly in science and in special subject of Informatics and Computer Technology (obligatory) with time appropriation of 2 hours per week in the 1st grade. The aim of this subject is to get the students acquainted with the basic terms of informatics and computer technology and to provide theoretical knowledge and practical skills necessary for work with information and equipment of computer technology. Moreover to the extending and deepening of the students' literacy in this sphere, this subject is oriented by its content to practice, to the development of their algorithmic thinking and leads them to systematical approach to problem solving. The aim is to teach the students to work with Internet not only as a source of information but also as a mean of presentation of results of activity of an individual and institution.

The topics in this subject particularly oriented to the significance of informatics for each individual as well as for the development of the whole society, to computers as an instrument at work with information, to Internet and computer networks, text editors, to text processing, presentation technologies, table calculators, database systems as well as to the bases of algorithmization, to drawing with the support of computer, to the creation of www pages, etc.

The frame curricula make up-dating of topics possible according to the conditions of school and interest of students. When working with Internet it is possible to connect to international projects of which aim is the exchange of information between schools. The students also get shareware and freeware from Internet.

The school has moreover to the obligatory subject of Informatics and Computer Technology also the possibility to include within optional subjects even other subjects within technology education with time appropriation of 2 hours per week in the 2nd, 3rd and 4th grade. The school develops curricula for these optional subjects on its own.

Significant decrease of the number of hours paid to special subjects included into the system of technology education occurred during the last years in our republic due to the reason that upper secondary schools have been understood as a preparation for further studies on various types of universities. Intensive technical preparation of students of upper secondary schools realized on these schools to the nineties made for its students possible to immediately after graduation examination (if they don't continue in their studies) to enter employment on the basis of acquired acknowledged qualification to medium-technical jobs, i.e. according to technical orientation of the students on the upper secondary schools.. Unfortunately, it is a fact that in market economy there are thousands of upper secondary school leavers on the labour market who have only a small chance to find an adequate job without their preliminary technical preparation, and they are for many months on unemployment benefit. In this connection it is necessary to mention that the rate of unemployment in the CR forms an average amount of 10%, this percentage rate significantly differs in individual regions. However, in case of detail analysis of the structure of the unemployed according to the acquired education we have found out that fresh school leavers make about 20% out of the total number of unemployed. This says, that in the future it shall be necessary to solve the innovation of education on upper secondary schools by the preparation of its school leavers by the intensification of technology education for a more effective inclusion of jobs immediately after their graduation.

3. THE SLOVAK REPUBLIC

The development of the school system as well as technology education in the Slovak Republic was analogous with the Czech Republic due to the reason that both of the above mentioned countries formed till the beginning of 1993 and for more than 70 years part of the Czechoslovak Republic. The unified curricula for technology education were binding for basic schools in the whole Czechoslovak Republic.

After many innovations of the subject similarly called Work Teaching as in the CR, the concept and content of this subject has been particularly changed in the Slovak Republic. These changes have come into effect in school year 1997/98.

The topics of the subject of Work Teaching was in the 1st and 2nd grade of basic schools integrated in the present concept into the subject of Arts and Crafts and part of plant-growing was integrated into Elementary Teaching.

The Work Teaching is a separate subject included in the 3rd and 4th grade in an extent of 1 hour per week, and includes part of technical work and plant-growing works. On the contrary to the CR, there is a four-year lower level of basic school in the SR. The aim of realization of the new concept of Work Teaching on the lower level is the acquisition of technical literacy,

knowledge, skills and working habits as well as the acquisition of basic pieces of knowledge about technology, about its utilization in households, in the school system, in the health care system and in other fields.

An innovated subject of Technology Education has been implemented in the 5th to 9th grades of basic schools from 1997. The following aspects formed the bases for the curricula development:

- Steep development of science and technique and particularly information technologies are conditioned by educational aims of Technology Education.
- The present trend of development of technology education in the world.
- Pedagogical-psychological special characteristics of pupils as to their age.
- Interests of the pupils, connection with other subjects (interdisciplinary relations).

The new concept of this subject has been significantly reflected in the curriculum development itself. The topics is in the curriculum divided into two parts:

- The basic part representing 30-40% of time appropriation of the subject. This topics enables basic orientation of the pupils and is obligatory in its whole extent.
- The alternative part enables the orientation of the process of knowledge to problems in which the pupils are interested. The alternative topics makes the bridging-over of the present material and technical school possible, and to apply conditions of schools for manual activities.

The time appropriation for technology education is in the 5th to 9th grade one hour per week with the possibility of teaching it for 2 hours once per 14 days.

The concept of the new subject of Technology Education should particularly develop technical thinking of the pupils and creativity in the work of teachers and pupils.

The topics of the subject of Technology Education is oriented in the 5th to 9th grade to the following fields of topics:

- Man and technology.
- Technical materials, raw materials, production, energy, communication in technology.
- Electric energy, simple electrical circuits, electrical appliances.
- Simple machines, conversions, transfer of powers and movement.
- Means of mechanization.
- Operations and instruments for the technical materials processing.
- Elements of household installations.
- Electro-assembly works. Electronic automation and regulation elements.
- Minor maintenance works in households.
- Technical electronics.
- Technical, economic, ecological and aesthetical evaluation of investments into households.
- Alternative topics and independent works.

Many optional and non-obligatory subjects follow the obligatory subject of Technology Education in an extent of 1 to 2 hours per week. The pupils can choose from the subjects of

technology character the following: work with computer, household keeping, graphical processing of materials. Various technically oriented free activities also contribute to the support of Technology Education. These are for example the Basis of Electrical Engineering, Work with Computer, Maintenance of Bicycles and Motor-bikes, etc.

If we evaluate interests of the pupils in subject of technological character, we can state that most of them have a positive relation to these, they like to work with materials, to produce objects and often present their products at exhibits.

The contribution of Technology Education is also evaluated by parents particularly from the aspect of preparation of pupils for future choice of career and their successful application on the labour market. The teachers positively evaluate the contribution of technology education from the aspect of support of communication and mutual cooperation between the pupils.

The pre-gradual teachers training for technology education is in the SR realized by the two following forms:

- 1st level within bachelor's studies which lasts for 3 years.
- 2nd level within magisterial studies which takes 2 years (the studies can be of one subject or in combination with second subject of teaching qualification – these studies last five years in total).

Even though there is the possibility of acquiring the relevant technology qualification the subject of Technology Education is taught only by 42% of teachers with teaching qualification.

The subject of Technical Work was taught on upper secondary schools from the beginning of the nineties of the last century according to the same curricula as in the Czech Republic. However, there is absolute lack of this subject on this type of schools at the present. Experts, however, criticize this situation and they recommend to implement an obligatory subject of technology character in the first two grades on these schools in an extent of 2 hours per week.

4. POLAND

Significant concept and content changes in Technology Education occurred at general schools the same as in the Czech Republic and the Slovak Republic.

The subject of technology character was at the beginning of the nineties included as an obligatory subject in all the 8th grades of basic schools. In advance of reform of the school system which took place in Poland in the nineties, the time appropriation for the subject of Technology Education was 1 hour per week in the 1st to 4th grade, with the possibility to link-up two teaching lessons once per 14 days. The time appropriation in the 5th to 8th grade was 2 hours per week. The aim of the subject which was common for boys and girls, was to get the pupils acquainted with the bases of culture of work, to acquire the bases of technology in theory and in practice. The topics oriented to various materials, wood and metal processing, household keeping and maintenance of its technical equipment, to the bases of graphical art and the utilization of technology information etc. should have with the use of activating forms of teaching as work of pupils in teams and solution of technological problems, led to the fact that the basic school leavers are prepared to understand the scientific and technological

progress and its initiating into national economy. This should help in the preparation of young people to successfully enter life after they complete their studies.

The obligatory subject of technology character was included on upper secondary school (lyceum) as obligatory in the 1st and 2nd grade of the lyceum. Its content was the same for boys and girls. The aim of this subject was to get the students acquainted with the following topics:

1. Culture and history of technology
2. Bases of technology:
 - Technology at home
 - Technology at work
 - Communication technology
3. The tasks and exemplary practice:
 - Drawing tasks
 - Assembly tasks
 - Production tasks
 - Designing tasks
4. Vocational guidance

The student could in the 3rd and 4th grade of the Polish lyceum continue in deepening of technological literacy in optional subjects oriented for example to operating of computers, cutting materials, sewing and knitting, electrical and electronic engineering, agricultural technology, building and construction, architecture, etc.

Innovation changes in the concept and content of Technology Education have taken place during the course of the years to the start of reform of the school system in Poland in 1999. Particular limitation of time appropriation of subjects within Technology Education has occurred in Poland after the implementation of the school reform the same as in other countries of Central Europe. This subject is being taught from the 4th grade of basic school and is taught in the 5th and 6th grade in an extent of 2 hours per week. That means that Technology Education is taught on basic schools as an obligatory subject in three consequent years and the teachers have the possibility to choose work according to various curricula.

The main aim of Technology Education in the new concept is to let the pupils acquire technological knowledge necessary for everyday life. Its primary task is to let the pupils acquire the basic obligatory knowledge and skills of technology out of the following fields of topics:

1. Environment analysis from the technological point of view.
2. Technological documentation tests and economic calculation
3. Various materials, their features and application.
4. Technologies and basic tools useful in the pupils' environment.
5. Machines and installations.

Poland has on the contrary to the CR and SR continued in teaching of obligatory subject of technology character on upper secondary schools (lyceum) in three grades in an extent of 2 hours per week. Regarding the steep development of science and technology its tasks and aims are specified at a more general level as follows:

1. To teach the habit of evaluation one's own abilities to choose a school, career, and one's own vocational activity.
2. Development of the ability to read technical and economical information which can be found in instructions, manuals, technical literature, everyday press, computer programmes, etc.
3. To teach creative solving of technological problems connected with safe handling of technical equipment in everyday life.
4. To show the technology creators influence on the civilization development.
5. To indicate safety rules of cycling, motorbike riding, how to behave as a pedestrian and how to use different means of transport.

The Polish educationalists remind of the fact that on the basis of results (reached till the present) in teaching of technology lessons on lyceum these should improve the technological skills which form the foundation for further Technology Education.

5. HUNGARY

Technology Education has a long tradition in Hungary. The original pre-war concept has been based upon the Scandinavian concept of "Slojd" developed by Finnish educationalist Udo Cygnaens. The subject of Technology Education was till the nineties of the last century obligatory for pupils aged 6 to 16, i.e. in an extent of 1 to 2 hours per week. The schools had the possibility to work according to centrally valid curricula, i.e. according to curricula of Technology A or Technology B.

The aim of the centrally developed curricula for Technology Education was to provide the pupils with basic technological knowledge and skills, and to cultivate in them the ability to apply these in practice. The fields of topics of Technology Education were oriented to the following:

- Materials and their processing (30 – 40% out of the total volume of topics).
- Construction (10 – 15% out of the total volume of topics).
- Assembling (10 – 15% out of the total volume of topics).
- Industrial products (0-15% out of the total volume of topics).
- Technical communication, Transport or Traffic.
- Computer Technology.

School working on the basis of curricula of Technology Education B had the possibility to alternate the fields of topics with topics oriented to agriculture, to housekeeping, etc.

Technology Education was on upper secondary schools (four-year gymnasium) included in an extent of 1 to 2 hours per week in the 1st and 2nd grade (students aged from 14 to 16 years). The topics was particularly oriented to the understanding of mutual relations in technology and was oriented to conscious choice of future studies and career.

The Hungarian educationalists remind of the fact that teaching of technology in its original concept was on some schools reduced to mere compulsory problem solving and that is why they did not realize its real potentials. Technology education was considered to be a place of getting practical information and not a way of forming attitudes.

The school reform in Hungary which started in the nineties of the last century has also brought new concept of Technology Education.

The new National Core Curriculum for Technology Education developed by groups of experts follows from the following aims:

- The aim is to prepare the pupils and students for activities where they are aware of their environment, and to provide a framework for the acquisition of basic technical culture. The tasks within this area are primarily aimed at the practical solution of problem situations taken from everyday life which extend the pupils' and students' knowledge of the relationship of natural, social and artificial environment surrounding them.

The new concept of the subjects takes into account its inclusion in all the grades of basic schools (grades 1 to 8). Technology Education on upper secondary schools (gymnasium) include the following fields of topics:

1. The necessity of work and technology, their significance and role, usefulness and hazards in human life; the notion of sustainable development.
 - 1.1 The artificial environment
 - 1.2 The role of technology and the solution of technical problems arising from human needs
 - 1.3 The relationship between humans, society, nature and technology
 - 1.4 The use of the environment, life in the environment.
2. Knowledge of documents (object, books, network documents)
3. The process of creation. Elements of the practical problem recognition and problem solving process.
 - 3.1 Problem recognition
 - 3.2 Planning
 - 3.3 Execution (objects, principle of models, structure and agrotechnical solutions, household and hygiene solutions)
 - 3.4 Evaluation of activities and their results.

The topic of individual fields of subject (thematic fields) is specified in the curricula according to individual levels of basic schools and upper secondary schools and creates logical system of Technology Education in Hungarian schools which lay great emphasis upon the development of literacy of youths in the sphere of ICT.

6.CONCLUSIONS

If we evaluate the development of technology education in the Czech Republic and in the neighbouring countries during the course of the last 15 to 20 years we can state the following:

- The system of technology education has together with the changes of political, social and economic character in progress, met with significant changes as a consequence of school reforms.

- The development of science and technology and particularly the application of ICT in all the spheres of national economy and the whole society has significantly influenced the concept of technology education. The application of ICT has been included into the content of the topics at various levels according to the age of the pupils the same as the innovation of the topics from the wide sphere of technology.
- The aspect of compatibility of the concept of the subject of Technology Education with analogous subjects in the countries of West Europe was also observed in the development of the new curricula for Technology Education, due to the reason that the countries of Central Europe have become the members of the European Union on May 1st, 2004.
- The new concept of technology education emphasizes the new activating approaches in teaching as a solution of technical problems, work of the pupils in teams, system of module teaching, the use of Internet etc. which support their education to independent and creative work.
- The innovated Technology Education in the countries of Central Europe has according to the educationalists as well as the parents brought some negatives as for example the decrease of time appropriation for this subject which eliminates space for the development of working skills. Partial or total absence of subjects of technological character on upper secondary schools (students aged from 14 to 18 years) is understood as a significant shortage not only from the aspect of education but also from the aspect of limitation of direct entry of youths to the labour market immediately after their graduation, due to the reason that if they do not continue in their studies on universities or on three-year higher technical schools, they do not have the bases of technical preparation and they become unemployed.

By way of conclusion, it is necessary to remind of the fact that innovation of Technology Education in its whole broadness is a long-term process. The results of research and verification of this subject in school practice contribute to the parallel improvement of its concept, content as well as of teaching strategies with the aim to prepare young people for work and life in a democratic society.

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