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**THE MAIN FEATURES OF THE TECHNICAL EDUCATION'S  
HISTORICAL DEVELOPMENT IN EUROPE**

*The history of the European technical education development is studied in the article. The study is dealing with such countries as Britain, France, Austria, The Netherlands, Finland, Switzerland, Germany, Greece and Russia Empire. The technical education has a significant role for the economy development of the country. Each country has its own education and training system. It is formed under the influence of the historical events, national peculiarities, so on. But there is also the mutual influence of the countries. It is the positive point, as such an experience is very valuable for the process of the education development. Ukraine's integration into the global economy requires the knowledge about domestic and international experience in training workforce in order to choose the most effective way to develop educational system.*

*Keywords: technical education, a historical analysis, the development of the education, Europe.*

There is no doubt, that the technical education has a significant role for the economy development of the country. Each country has its own education and training system, but they influence each other either. The historical events contribute a lot into the process of the development of the education. Besides, educational systems in neighbour countries integrate and influence each other. Today Ukraine is eager to join the European Union, and, as a result, to integrate EU in all spheres. Today, Ukrainian education comes under the changes to integrate the European educational system (e.g.: the academic mobility of students and teachers in higher education, when they are moving to another institution inside or outside their own country to study or teach for a limited time). So, any development is to be based on the previous study, and it is highly important to do a historical analysis of the issue.

Such scientists as Tereshkun A., Sitnyakovskaya S., Martirosian L., Holovko I., Papenko N., Wollschlager N., Guggenheim E., Greinert W., Frommberger D., Reinisch H., Heikkinen A., Petrini F., Guasconi M., Varsori A., Saunier G., Krednets N., others, have recently devoted their works to the place and the role of handicraft education, vocational education and training as professional-technical way of educational system in Europe.

Still, the problem of the technical education's historical development in Europe remains unknown.

The aim of this comprehensive study is to gain a better understanding of the technical education development in European countries from the historical point of view.

The important role of education is known all over the world. It is an integral part of economic and social policies and still remains an instrument for strengthening competitive power.

Ukraine's integration into the global economy requires the knowledge about domestic and international experience in training workforce in order to choose the most effective way to develop educational system. It can be done by the usage of the best historical and pedagogical achievements in the education of different countries of the world, by the study of all trends and, as a result, choosing the best of the possible directions of transformation national system of education.

Talking about Ukrainian education, it should be mentioned, that, historically, neighbour countries tried to divide among themselves the territory of Ukraine. So, as a result, education in different parts of Ukraine was quite different.

The Eastern, Central and Southern Ukraine, which were the part of the Russian Empire, were in some way isolated from the European life. So the proceses, which took place on its territory were different from the European ones. The education of the Western Ukraine was formed by the influence of the other processes. For example, when the Galician Ukrainian was

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the part of Austro-Hungarian monarchy, government led some reforms, which were to promote the cultural and educational development. Austria- Hungarian government was eager to make close cultural and artistic ties between Vienna and Lviv, so dozens of scholars from Galicia studied in Vienna's universities and technical schools every year [8, p. 21].

So, let us study the similarities and differences of the technical education in European countries.

Until the 12-th century there was hardly any systematic technical education, except apprenticeship in handicraft production. The technical education followed through trade guilds almost everywhere in Europe in the distant past. But with the Industrial Revolution national systems of education came to differ widely in accordance with the societal characteristics of each nation [2, p. 2].

Starting from the 12-th century, people who worked in the same trade or craft joined together in a town or city and formed the guilds. Helga Reuter-Kumpmann and Norbert Wollschlager in their project say: «Guilds wrote their own bylaws, rules that were binding upon all members of the guild. These rules and regulations defined how things were to be made and set «consumer-friendly' prices» [4, p. 7]. The guilds' system had a strict hierarchy. One should become the apprentice (after the trial period of several weeks the person studied for nearly 2-4 years); then, after the specialised examination, the journeyman (the person had to travel to get knowledge from different masters), and, at last, the master.

The historical changes in the social structure (the abolition of slavery) became a powerful push to the development of machine technology, which was to substitute the free slave labour. The process of mechanization intensified especially during the Renaissance (14-16-th centuries). So in the 18th and early 19th centuries the traditional guild system was losing its importance because of the Liberal economic doctrine, which started to encourage the free trade. Wolf-Dietrich Greinert, the Professor of Vocational Pedagogy at the Technical University of Berlin, points out: «Paradoxically, the process of industrialisation in Europe did not produce one uniform vocational training model. On the contrary, it more or less destroyed the roughly homogeneous craft/trade-based vocational training methods which had established themselves over the centuries, and replaced them with a myriad of «modern' education systems, which at first glance seem to have very little in common».

N. Wollschlager and H. Reuter-Kumpmann noticed in their work: «France played a leading role in the natural sciences in the 18th century. Its colleges known as «grandes ecoles', such as the Ecole Polytechnique, became a model for technical education in Europe» [4, p. 10]. There appeared the tendency to polytechnic training in order to obtain technical knowledge in the universities of Italy, France, Germany and, a bit later, Russia.

In the mid-twentieth century scientific and technological revolution occurred. It resulted into the great demand of the further development of the technical education. In 1970 microelectronics, information technology and biotechnology became the most developed scientific fields. This again led to a radical change in the nature of the technical education – a rapid grow of the new specialities and specializations appeared. Nowadays the Internet, telecommunications networks and the widespread use of electronic home appliances in the world information space had a great influence in the transformation of technical education. The computerization and informatization of education, especially technical, is widely used all over the world and intensify the learning process, speed it up [5].

As you see, «the Enlightenment' brought to life the ideas about the importance of the education for the development of the country, as a result, the educational system started to change and develop. The development was different in different countries of Europe. Let us focus our attention on the technical education in several European countries: Britain, France, Austria, The Netherlands, Finland, Switzerland, Germany, Greece and Russia Empire.

*Germany* started to develop rapidly the mechanisation from the mid 19th century. The electrical, chemical and automobile industries became very important by the end of the 19th century. The guilds, on the contrary, lost their importance, because the appearing of the employment's freedom. The country needed skilled workers in industrial and administrative positions. The government needed young people to support their political beliefs, and the traditional way of life and work in the craft trades was a good basis. So the technical education was legally reinstated in 1897. It started from the «continuation schools', which were often attended by the apprentices in the evenings or on Sundays. Curriculum in such schools, besides the repeating the material of the primary school, imparted the theoretical knowledge needed for particular trades. Later, by the end of the 19th century, such schools changed into the «vocational schools'. The person could gain the technical education both in the vocational school and on the job.

*Austria* had a similar development of the technical education like the German one.

*Great Britain* is told to be of the liberal market model of vocational education and training [1; 4]. This means that there is the freedom from state intervention. Everyone is responsible for his own fate (nobody else). The industrialisation in Britain began in the 18th century. A tendency to leave the rural areas and to settle in the cities to find work appeared. There was no more need of the trained, skilled workers to operate the machinery in the factories. This led to the abolishing of the guild system, and young people received no training. For a long period of time the educational system didn't change. It was because of the geographical position of the Great Britain. But in 1988 the government began to reform the education, as the country needs «knowledgeable» workers and professionals. The vocational education in England has always been a weak link in the educational system. In the mid 80-s the educational program, focused on the *German* model, was developed. It introduced pre-professional training in schools, which developed the partnership between the businesses and educational centres. Technical colleges began to receive grants from companies, selected talented children and trained them free. The first such college was opened in 1988. Nowadays there are dozens of them.

*France* has the state-regulated model of vocational education and training [1; 4]. It means that the state determines how vocational education and training is organised. The guild system in France was abolished in 1791, and the main reason was the French Revolution. Schools for the soldiers' orphans were changed into «The Schools of arts and crafts». They taught workers for the state factories instead of specialists for the army. In the whole, the technical education was similar to that in other countries. Education was not for everyone. The establishing of the Republic (1871) caused the changes – the children were to be raised in the spirit of the Republic, the 13-year-old children were to be accustomed to working. It caused the development of the technical education.

*The Netherlands*, influenced by the French occupation, faced the final broke of the guilds in 1806. The skilled workers at first came to the Netherlands mostly from abroad, as there were only few schools, where they could be trained. But from 1860 the industry was in need of a many greater quantity of the skilled workers. That was the reason for full-time craft and technical schools to appear all over the country. «The State gradually took over the burden of financing these schools, many of which were initially private «ambachtscholen', i.e. vocational schools. These schools remained successful well into the 20th century» [4, p. 11]. There also were the «evening' schools, attended after work with the aim to complete the general education, but very soon they began to meet occupational needs.

After gaining its independence in 1809, *Finland* began the process of the reorganisation. The changes were made in the social life, the politics, the economy and, of course, the education. The first earliest craft and commercial schools appeared in 1840. Since 1890 Finland established the full-time technical school, run by the state [4].

*Switzerland* started to support the technical education only from 1884. Till that time it didn't want to change the traditions of the technical education. The economy flourished, but the spirit of the experimentation brought to the country several improvements in the educational system.

We can't but mention *Greece*, which had made an invaluable contribution to the formation of the European culture. It, of course, had its own peculiarities, based on its national traditions and history. In 1832 Greece was recognized as a fully independent kingdom, free of Ottoman Empire control. Since then reforms in its educational system started. By the 1890s Greece became the bankrupt and the education was not the first thing people thought of at that time. There was a little education, especially in the rural aeries. Only in the beginning of the 1910s the reforms in education started. But as for the technical education, it has been developed mainly since the beginning of 1950s, which «resulted in intensity and instability within the educational system. Although vocational/technical education had been autonomous and constituted a channel of promotion for the better students of popular classes in the past, now, it has become a magnet pole for the students failing in the general/academic educational network: In effect, power of promotion for the better students has been transformed into power of marginalization for all the students who were obliged to attend this educational network. At the same time, since 1960s, prevalence of the «human capital theory» has reinforced the connection between education and economy. In fact, education constituted the cornerstone of economic development while the state increasingly took over education organization and control. Education being highly financed by the state, relevant requirements by left parties, and social movements resulted in expansion of education, which acquired more distinct governmental features» [3, p. 569]. Serious social, political, and economic events of 1920-1930 led to the necessity of the reconstruction of education in a more realistic and practical way. In the 1920s the horizons of popular education was broadened and strengthened. There also was the educational reform in 1965. But it did not face the problem of the technical education rightly – no «legal frame» was created and the principles on which the construction of technical education was based were not changed either. The children of poor social classes were channelled to the «market of cheap workforce». In 1977, the law of «organisation and administration of secondary and post-secondary technical/vocational education» was adopted, but it didn't change the social thought about the «second sort' of the technical education. The situation changed, when the technological dependence of the economy became evident. Mostly, it is of the main demand for the educational system as a «fundamental for improving employment and competitiveness» and «must be strengthened, especially continuing training», which the EU established in the «White Papers'.

The main difference of the development of the technical education in the Russian Empire is that there were no «guilds'. Though the territory was very large (almost the entire territory of modern Russia, most of Dnieper Ukraine, Belarus, Bessarabia, the Grand Duchy of Finland, Armenia, Azerbaijan, Georgia (including Samegrelo), the Central Asian states of Russian Turkestan, most of the Baltic governorates, a significant portion of the Kingdom of Poland and Ardahan, Artvin, Iğdır, Kars and northeastern part of Erzurum Provinces from the Ottoman Empire) the empire was mostly agrarian. In 1697, it was the reason for Tsar Peter I to sent emissaries throughout Europe to search for people who had the scientific, technical and craft skills. In 1701, he issued a decree on the establishment the Moscow School of Mathematics and Navigation, called the Naval School, which is believed to be the start of the Engineering Education. Peter I dreamt of a mighty empire with a strong economy and a powerful navy, so he encouraged mining, metallurgy and naval shipbuilding. An entire education and training system was established by the navigation schools, ballistics, engineering and medicine, academies to train specialist workers, and primary schools. «The population showed little interest in sending their children to these schools, so Peter I

passed strict laws to enforce vocational education and training. «Top-down' control and the influence of political objectives remained a feature of vocational education and training for many centuries. In 1868, the so-called «Sequential Method' was established by Viktor Karlovich Della-Vos, who was the director of Moscow's Imperial Technical School. Apprentices began by learning to perform and master simple tasks. In a precisely predetermined sequence, the tasks gradually became more challenging. After its presentation at the World Exhibition in Vienna in 1873, this method spread to many other European centres of education and training» [4, p. 8].

Four days after the Revolution of 1917 the Bolsheviks published a long-term educational programme. Actually, it was the first universal educational programme.

The training schools were directly attached to factories, and the skilled workers for all branches of industry are trained free of charge, even been granted by the State while training. A number of different technical courses for both adults and children were also provided.

To sum it up, we should say, that, in spite the national, historical and geographical peculiarities, there are several common features of the technical education in Europe. We may name them: the entrance examinations, the finals, the connection of the employer and the employee, the eagerness to improve the technical education as the vehicle of the economy development. One of the ways of such improvement is to continue the developing of the common European policy of the educational system. And it is impossible without the historical researches. Unfortunately, the article studied the development of the technical education only in several of the European countries. The further research can compare the technical education of European countries and the USA, Canada, India, Australia.

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ОСНОВНЫЕ ЧЕРТЫ ИСТОРИЧЕСКОГО РАЗВИТИЯ  
ТЕХНИЧЕСКОГО ОБРАЗОВАНИЯ В ЕВРОПЕ

В статье рассматривается история развития европейского технического образования таких стран, как Великобритания, Франция, Австрия, Нидерланды, Финляндия, Швейцария, Германия, Греция и Российская империя. Техническое образование играет важную роль в развитии экономики страны. Образовательная отрасль формируется под влиянием исторических событий, национальных особенностей и других факторов, но существует также и взаимное влияние соседних стран на данную отрасль, что является очень ценным для процесса её развития. Интеграция Украины в мировую экономику требует знания о внутреннем и международном опыте в обучении персонала для того, чтобы выбрать наиболее эффективный путь развития системы образования.

Ключевые слова: техническое образование, исторический анализ, развитие образования, Европа.

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ОСНОВНІ РИСИ ІСТОРИЧНОГО РОЗВИТКУ ТЕХНІЧНОЇ ОСВІТИ В ЄВРОПІ

У статті розглянуто історію розвитку європейської технічної освіти. Технічні навчальні заклади відіграють важливу роль для розвитку економіки, адже від того, наскільки якісно підготовлено кадри, залежить подальший розвиток промисловості країни. У дослідженні розглянуто генезу освітньої галузі технічного напрямку таких країн, як Велика Британія, Франція, Австрія, Нідерланди, Фінляндія, Швейцарія, Німеччина, Греція та Російська імперія (з часу її виникнення до кінця ХХ століття). Кожна з вищезазначених країн має свою власну систему освіти та професійної підготовки. Освітня галузь формувалася під впливом історичних подій, національних особливостей та багатьох інших чинників, але існує і взаємний вплив освітніх систем сусідніх країн, що, безперечно, є позитивним моментом та одним із рушіїв процесу розвитку освіти. Дослідження надає змогу віднайти як спільні, так і відмінні риси розвитку вищезазначеної освітньої галузі у країнах Європи. Інтеграція України в світову економіку вимагає знань про внутрішній і міжнародний досвід у навчанні робітничих кадрів для того, щоб вибрати найбільш ефективний шлях розвитку системи освіти. Одним із таких шляхів є продовження впровадження спільної європейської освітньої політики, що є неможливим без попереднього вивчення історичного аспекту цієї проблеми.

Ключові слова: технічна освіта, історичний аналіз, розвиток освіти, Європа.

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ПРОСВІТНИЦЬКА ДІЯЛЬНІСТЬ М. Ф. ФЕДОРОВСЬКОГО

У статті розглядаються основні напрямки просвітницької діяльності Миколи Федоровича Федоровського (1838, Борзна Чернігівської губернії – 20.06.1918, Бердянськ) – військового і громадського діяча, подвижника української культури, педагога, дослідника, публіциста, благодійника, одного із засновників українського «Добровільного товариства для видавання загальнокорисних і дешевих книг», Єлисаветградського ремісничо-грамотного училища, Товариства поширення грамотності та ремесел та ін. Акценти поставлено на діяльності ремісничо-грамотного училища, започаткованого 1868 року, що діяло досить успішно й за своїм типом і програмами, викладанням навчальних дисциплін помітно виділялось зі всіх нижчих училищ того часу і за своїм укладом було єдиним не тільки в Єлисаветграді, але і в Росії.

Ключові слова: громадський діяч, подвижник української культури, Товариство поширення грамотності та ремесел, ремісничо-грамотне училище.

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