



## A National Component in Shaping the Worldview of Electrical Engineering Students

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Hanna Kapustyan and Volodymyr Maslak

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November 30, 2022

# A national component in shaping the worldview of electrical engineering students

Hanna Kapustian, Dr. hab. (History) Professor

Kremenchuk Mykhailo Ostrohradskyi National University

Humanities, Culture and Art Department

Kremenchuk, Ukraine

atk.history@gmail.com ORCID: 0000-0001-7334-9666

Volodymyr Maslak, Dr. hab. (History), Professor

Kremenchuk Mykhailo Ostrohradskyi National University

Humanities, Culture and Art Department

Kremenchuk, Ukraine

vimaslak2017@gmail.com ORCID: 0000-0002-2898-2400

**Abstract** – *The article is devoted to the analysis of practical application of the theoretical knowledge gained by electrical students in the process of studying social disciplines. A significant influence on the formation of the national component of the worldview of electrical engineering students who study social disciplines and educational activities, the content of which is related to the history of the Ukrainian statehood formation and development, has been proven.*

*Knowledge and determination of research results are implemented with the help of the following research methods: constructive analysis, synthesis, induction and deduction, visualization, analogy method, as well as the use of specific historical methods such as historical-genetic, historical-comparative.*

*Person-oriented learning, as well as the importance of applying in practical visualization the theoretical knowledge obtained in university classrooms, is proven.*

*This article has shown the influence of historical knowledge on the student's formation of civic attitudes. The ability to analyze and comprehend historical processes as well as to distinguish between objective and fake information has also been presented. This article has proved the importance of the investment of acquired knowledge in sustainable innovative scientific and technical development of society and the protection of Ukrainian statehood.*

**Keywords** – *Worldview, sustainable development, national education, education, Ukrainian statehood, electrical engineering students*

## I. INTRODUCTION

Sustainable innovative scientific and technical development of society requires qualitatively trained specialists. Electrical engineers occupy an important place in this cohort of socially in-demand specialties. University educational and professional programs aim to teach future specialists to possess knowledge, abilities and skills that ensure social progress both in the world in general and in Ukraine in particular.

Among the important features that should be in the range of skills and abilities of a future specialist there are mastery of basic methods, methods and means of obtaining, storing, and processing information.

Understanding and estimation of historical events and their impact on social and political life, the ability to analyze and estimate modern challenges that Ukraine and the world facing, designed to shape both social disciplines and educational activities. The professionally-oriented humanitarian training of the Educational-Scientific and Educational-Professional Program (EPP) of higher education applicants of Institute of electromechanics, energy saving and automatic control systems of Kremenchuk Mykhailo Ostrogradskyi National University over the years provides for educational components that fundamentally ensure the formation of a national worldview [1]. However, along with the humanitarian training disciplines, the formation of a national worldview relies on a wide range of other educational activities. One of these is the Stages of the Ukrainian Statehood Formation field trip.

Once in December 1989, a one-day thematic trip to the village of Subotiv homeland of the Great Hetman of Ukraine Bohdan Khmelnytskyi to with industrial students of the evening department of the electromechanical faculty turned out to be in demand among admirers of the Ukrainian statehood history. Subsequently, the Stages of the Ukrainian Statehood Formation project, launched in the late 1980s, was successful in the following decades and contributed to the formation of the statist worldview of many generations of electrical students of Kremenchuk Mykhailo Ostrogradskyi National University.

## II. RECENT RESEARCH REVIEW

The problem of the national-patriotic education influence on the young people national worldview formation is the subject of many studies in the field of pedagogy [2; 3; 4; 5; 6; 7; 8].

Historical education, fundamental knowledge and understanding of historical dynamics contribute to the formation of a reasonable worldview. Researchers emphasize the historical memory of the Ukrainian people, who, even in the conditions of Ukraine's loss of statehood, identified themselves as belonging to Greater Ukraine [9; 10; 11; 12; 13].

At the same time, researchers come to the conclusion that Ukrainians did not accept the loss of statehood and desperately resisted either the Russian autocracy, or the totalitarian Soviet political regime, or the open phase of

the Russian Federation's military invasion of Ukrainian lands. Examples of self-sacrificing resistance to the Russian Empire, the Soviet totalitarian regime, and Russian fascism form the traits of a conscious Ukrainian in young people [14; 15; 16; 17; 18; 19; 20].

The educational, professional and scientific programs of Institute of electromechanics, energy saving and automatic control systems of Kremenchuk Mykhailo Ostrogradskyi National University emphasize the importance of self-improvement, self-education and lifelong learning as factors that shape the personality and are worthy of responding to the socio-economic and political challenges of the Ukrainian present [1; 21].

### III. AIM OF THE ARTICLE

The purpose of the article is to show the output of practical skills from the acquired theoretical training of electrical students in the process of studying social disciplines, to substantiate the importance of developing a strategy for solving scientific and applied problems taking into account universal human values, public, state and industrial interests.

### IV. METHOD OF RESEARCH

The study of the influence on the national worldview component formation of electrical engineering students in the process of studying social disciplines and educational activities requires the following methods: constructive analysis, synthesis, induction and deduction, visualization, analogy method, observation as a method of empirical research, as well as the application of specific historical methods such as historical-genetic, historical-comparative.

### V. RESULTS AND DISCUSSION

The reconstruction and later the collapse of the USSR and the formation of free states on its territory significantly changed the socio-political, economic, and military dynamics both in Ukraine and beyond. The revival of Ukrainian statehood significantly influenced the formation of many political, social, economic and cultural processes. In Ukraine, interest in national history, Ukrainian spiritual values and cultural heritage in general have been revived. The processes of national revival, which accelerated after the restoration of the Ukrainian independent state, emphasized the public demand for objective historical information. It is then that the promotion of the national historical and cultural heritage is intensified, especially in student classrooms.

The study and promotion of the national historical and cultural heritage of Ukraine in the early 1990s involved filling the age-old niche of silencing and outright falsification of the heroic Ukrainian past. Ukraine was entering the era of returning the right to memory. The taboos imposed by the Soviet command and repressive management system on obtaining information on resonant social and political topics, in particular: political repressions, the Holodomor-genocide of 1932 – 1933 in Ukraine, forced deportations of peoples, the destruction of the intellectuals and the Ukrainian church, the formation

and shaping of the Soviet totalitarian political regime, etc. Resonant socio-political topics demanded by society were powerfully and loudly discussed.

At the end of the 1980s, the Kremenchuk branch of the Kharkiv Polytechnic Institute trained electrical engineers, among other specialists. The form of education at that time was evening. The course Political history was introduced to replace the subject History of the CPSU, which in itself was close to the reality of the time. Students brought bundles of newspapers, magazines "Ogoniok", "Izvestiia of Central Committee of the CPSU", etc. to class. Applying the historical-comparative method and the method of historical analogies, the students came to the conclusion about the forms and features similarity of the political regimes functioning of the Russian Empire and the USSR. These political regimes were characterized by strict vertical power system of governance, the concentration of political power in the hands of one person, the impossibility of the people to influence the change of power and the political course of the state.

At each seminar or practical session, the interested audience raised the urgent issues of Ukrainian state formation. The problems of political repressions, their origins, causes, consequences, the essence of Soviet totalitarianism and the command-repressive management system were discussed. Similar forms of conducting classes, active conversations encouraged feedback between the teacher and the student audience, contributed to knowledge acquisition, the ability of making an in-depth study of literature independently.

Society's desire for historical truth and national memory has significantly increased. A flurry of emotions was experienced by all the partial, who sought to know the truth, and among them there remained physically alive victims of political repressions and witnesses of tragic events they experienced [9].

Historical knowledge acquired in student classrooms formed firm beliefs. Students have always been a dynamic part of the social segment. It happened so that the most active group of students who changed the social and political realities of Kremenchuk during the collapse of the USSR studied at the electromechanical faculty and at the same time worked at the Kremenchuk Automobile Plant (KrAZ). It was the students Andriy Hladyr and Hennadii Rykov who formed the backbone of the brave Ukrainians group who changed the Soviet red flag to our blue-yellow Ukrainian flag on the flagpole near the Kremenchuk Mayor's Office! It was this cohort of caring electrical engineering students and industrial workers who founded the Field Trip Project and Stages of the Ukrainian statehood formation.

The historical experience of Ukrainian state formation proves that its dynamics had a phased nature:

- Kyivan Rus (IX – XII centuries);
- Kingdom of Galicia – Volhynia (middle of the 12th century – 40s of the 13th century);

- Cossachchyna (40s – 70s of the 15<sup>th</sup> century – middle of the 17th century);
- Cossack Hetmanate (middle of the 17th century 70s – 80s of the 18th century);
- Ukrainian statehood in the 20th century – beginning of the 21st century [10, 59 – 63].

The route choice of the Stages of the Ukrainian Statehood Formation field trip: Kremenchuk – Subotiv – Chyhyryn – Kholodnyi Yar visually contained the multifaceted dynamics of Ukrainian statehood.

Historical artifacts, archaeological finds, social history, historical folk memory attract admirers of the history of Ukraine from different periods.

The theoretical knowledge acquisition on the history of Ukrainian state formation in practice is facilitated by the visualization method. A unique opportunity for visual reproduction and comprehensive understanding of the peculiarities of Ukrainian state formation is the Chyhyryn district of the Cherkasy region.

The excursion program is extremely rich. It is a historical and cultural heritage: Illinska Church in the village of Subotiv (1653) and the chapel in Chyhyryn (modern reproduction), Ukrainian Baroque style; recreated Residence of Hetman Bohdan Khmelnytskyi in Chyhyryn; the Church of the Apostles Peter and Paul built according to the 17th century models; the Church of the Assumption of the Blessed Virgin Mary was built in the pseudo-Byzantine style (1864) in the village of Medvedivka; the administrative building (late 18th-early 19th century) in Chyhyryn (modern reconstruction) and the Holy Trinity Church (1803) in the Motronyn monastery reflects the classical style.

The historical and architectural ensembles are complemented by the unique nature of this region. Elite oaks and the thousand-year-old oak of Maksym Zalizniak, and healing springs make this nature special.

On the eve of the field trip, there is an intelligent preparation, which expands the process of cognition, improves the methods and forms of education, and demonstrates the impact of the educational process on a person. Students familiarize themselves with the content of the historical route in advance; determine the halting points and specific visits to one or another object related to the history of Ukrainian statehood.

The memory of Kyivan Rus is preserved by the history of the Motronyn Monastery founded in the 11th century. With regard to political organization, Kyivan Rus had neither a centralized administration nor an all-encompassing and extensive bureaucratic system. It was an early feudal monarchy. The power of the prince was limited to a certain extent by representative institutions in the conditions of early feudal society: vecha, row, treaty, conventions princes, boyar council, etc. Political power was concentrated in the cities that arose on the main trade routes. The most important city was Kyiv [11, 5].

A constructive analysis of the peculiarities of the formation and functioning of political authorities in Kyivan Rus proves its limitation to a number of institutions. Students come to the conclusion that the prince's power in Kyivan Rus was not absolute.

In the period between the middle of the 14th and the middle of the 17th century, a heroic-democratic era of Ukrainian statehood is being formed – Cossachchyna.

The Cossacks became a new social force capable of reviving Ukrainian statehood. The Motronyn monastery, the history of the village of Subotiv, the capital of Hetman Ukraine Chyhyryn, the majestic Kholodnyi Yar tell about Cossachchyna as a stage of Ukrainian statehood.

Applying the methods of analysis and synthesis when studying the history of the Cossacks, students identify two main interrelated factors: the natural desire of people for personal, political, economic and spiritual freedom and the need to protect the land from enemies. The Zaporozhian Cossacks created their own social organization. It had the form of a democratic republic with the broadest participation in the administration of the Cossack masses. Supreme power in Sich belonged to the Cossack council, which represented the legislative branch of government. The Council elected a Kish otaman, who was given full authority. The executive branch of government was provided by: clerk, osavul and oboznyi. The judicial branch of government belonged to the judge. The lower level of the administrative apparatus was made up of kurin otamans. All command positions in the Cossacks were elective, which ensured their high military skill.

Cossack families lived in small villages that ran the household according to the farming model and used the labor of hired workers [11, 30 – 31].

The Ukrainian national early-bourgeois revolution of the middle of the 17th century. eliminated the Polish feudal serfdom system of governance. Peasants became part of the Cossacks, and in the territories liberated from the Polish nobility, the estates of the Cossack elders were managed according to the farming model, where goods/money relations were intensified and hired labor was introduced. Ukrainian statehood is continued by the Hetmanate.

The student's search for institutions of statehood under the Hetmanate leads to the village of Subotiv – the family estate of the Khmelnytskyi and the country residence of Hetman Bohdan Khmelnytskyi, to the Hetman's capital Chyhyryn, to Kholodnyi Yar. This region inspired Taras Shevchenko, the genius of the Ukrainian people, to remind Ukrainians in the period of statelessness and socio-political decline of the 19th century about our genetic roots, and cherish the hope that "the wind of truth will blow from Kholodnyi Yar".

The military-political and social phenomenon of the Kholodnyi Yar Republic (1919 – 1922) differed in its original approach to the processes of state formation. The Peasants' Republic was formed on the lands of the

Ukrainian People's Republic (UNR), in the Chyhyryn district of the Kyiv province (now the Cherkasy district of the Cherkasy region), in the area of the Kholodny Yar forest tract, with the capital in the village of Melnyky.

On the black-and-white flag of the Cold War soldiers was the slogan: "The will of Ukraine or death!" emphasized the active sacrifice of the rebels to defend the state independence of Ukraine. At first, a rebel squad led by Vasyl Chuchupak, consisting of 22 people, guarded the treasures of the Motronyn monastery from the Moscow invaders. Subsequently, such detachments were organized in each village of the district, and then they were united into a single Peasant Republic. In each village, the government was headed by an elected chieftain, and Vasyl Chuchupak was elected the leader of Kholodny Yar. Each rebel peasant had his own weapon. The ideological principle of the Kholodnyi Yar movement was that only armed resistance can defeat the enemy and protect the will of Ukraine [13].

One of the methods of empirical research is observation, that is, purposeful study of an object. With the help of this method, students determine that the peculiarity of the resistance of the Kholodnyi Yar fighters to the Moscow invaders acquires all-Ukrainian features – to consolidate the nation's human, material, and military efforts to fight the enemy.

The system of resistance to the Soviet totalitarian regime, led by the Ukrainian Insurgent Army (UPA) in the 1940s and 1950s, was built on this principle. Ukrainians supplied the ranks of the UPA with fighters, food, and informed the insurgents about the movement of enemy troops.

A decade later, during another trip to Kholodny Yar, we met a native of the town of Smila, a participant of the Euromaidan, a hero of the ATO, a sniper by the pseudonym "Czech" Evgeny Voytsehevskyi, who heroically died in the city of Shchastya. The meeting took place on April 7, 2014 near the first monument to the heroes of the Hundred of the heaven, on the fortieth days of the death of Euromaidan participants. At the fall of that year, in the church there was a portrait of Yevgeny in a black frame and a candle.

This land is the heart of the high Ukrainian spirit! It combines eras, destinies, generations. It preserves the memory of the rise of the human spirit, extraordinary personalities, noble Ukrainians who in their own way proved the legitimacy of Ukraine as a state.

The current top political leadership of the Russian Federation does not recognize the existence of an independent state of Ukraine, and for this purpose on February 24, 2022, organized a large-scale military invasion of Ukraine. The multimillion-strong conscious free Ukrainian community began to defend the state of Ukraine. Heroic historical experience of the Ukrainian state-building brought up a generation of Ukrainians who consciously chose the path of struggle against the insidious racist political regime. Graduates and today's electrical engineering students of the university are

defending the state independence and territorial integrity of Ukraine on the front lines. Both subjects of the humanitarian cycle, in particular "History of Ukraine", "Ukrainian studies", etc., and active participation in the social and political life of the country and region contribute to the filling of nationally conscious categories of student generations. An educational excursion plays an important role in the visualization of theoretical knowledge and its practical application.

The study showed that usage of innovative forms and methods of working with students in the form of extracurricular activities contributes to the formation of qualities that characterize their national consciousness: citizenship, patriotism, social activity, responsibility, tolerance, etc.

The next part of our project is a trip along the route Lviv – Carpathians, we are interested in the stage of the Ukrainian state called Kingdom of Galicia-Volhynia. The medieval princely city of Lviv undoubtedly testifies to the noble goals of the aristocratic princes Roman Mstyslavovych and Danylo Halytskyi to unite the fragmented Ukraine – the once united Kyivan Rus. And they succeeded to some extent.

The most emotional discovery of the trip to the Carpathians was the songs of the Ukrainian Insurgent Army fighters. Students, together with local residents – descendants of soldiers of the Ukrainian Insurgent Army, sang songs that are similar in content to Cossack songs that emphasize the unity of the nation, the unity of the state of Ukraine. This is the essence of comparison and observation – methods of empirical research.

Breaking of the stereotypes generated by the Soviet reality, the sensation of a united Ukraine, common motives in the defense of national interests are important determining factors of the Stages of the Ukrainian Statehood Formation field trip.

The historical capitals of Ukraine: Gadiach, Baturyn, Hlukhiv should be the objects of the following field trips among the students of higher education.

## VI. CONCLUSION

One of the components of the national education and mentoring system is the historical experience of generations regarding the formation of the national worldview of higher education recipients. An applied visual study of the process of formation, shaping and defense of Ukrainian statehood at its various stages through personal active participation in the Stages of the Ukrainian Statehood Formation field trip encourages students to realize their own national identity, to understand the personal mission of highly professional specialists as future electricians, aimed at conscientious service to the state and increasing its well-being [1; 21].

The analysis of educational programs reveals that in terms of general, professional and subject competencies as well as of program learning outcomes the attention is paid

to the student's national self-awareness as a component of the future specialist formation.

This approach ensures the content of the educational-professional and educational-scientific programs of Institute of electromechanics, energy saving and automatic control systems of Kremenchuk Mykhailo Ostrogradskyi National University, which combines theory and practice, as well as encourages decision-making and developing a strategy for solving scientific and applied problems taking into account universal human values, public, state and industrial interests [1; 21].

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