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## **The Development of Vocational-Technical Education in the Ukrainian Governorates of the Russian Empire in the Late 18th and Early 20th Centuries. Part 2**

Oleksandr P. Trygub <sup>a</sup>, Sergey I. Degtyarev <sup>b, c, \*</sup>, Vladyslav A. Parkhomenko <sup>d</sup>

<sup>a</sup> Petro Mohyla Black Sea National University, Mykolaiv, Ukraine

<sup>b</sup> Sumy State University, Sumy, Ukraine

<sup>c</sup> Cherkas Global University, Washington, DC, USA

<sup>d</sup> V. Sukhomlynskyi Mykolaiv National University, Mykolaiv, Ukraine

### **Abstract**

The work addresses the evolution of vocational-technical education in Ukrainian lands within the Russian Empire. Chronologically, the study covers the period between the late 18th and early 20th centuries.

This is the second part of the work. It continues to explore the development of vocational-technical education in the region and examine the progress in this sector during the period.

The period between the late 19th and early 20th centuries witnessed rapid industrial development across the Russian Empire as a whole and in Ukrainian governorates in particular. This prompted the need to have in place a proper system of vocational training. To this end, the government adopted *Regulation on Industrial Colleges* (1888). Following the launch of this regulation, the areas started to become home to various trade colleges and schools, and their number continually grew on the cusp of the 19th and 20th centuries. Such educational institutions differed in structure, content of education, and organizational practices.

The period under consideration witnessed the development of such areas of vocational-technical education as rail colleges, maritime educational institutions, and technical colleges.

On the eve of the revolutionary events, there was a realization among many of the country's government officials and public figures of the need to reform vocational-technical education. Between 1915 and 1916, a number of draft regulations were proposed regarding technical education, but none were adopted in the end.

While, by and large, vocational-technical education was developing in the Ukrainian areas in the light of the development of vocational education in the Russian Empire, it had distinctive characteristics of its own – most notably, including a focus on meeting the need for workers and

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\* Corresponding author

E-mail addresses: [starsergo2014@gmail.com](mailto:starsergo2014@gmail.com) (S.I. Degtyarev)

engineering personnel of the sectors that were dominant in the regions (e.g., maritime transport, foreign commerce, shipbuilding and ship repair, rail transport, agriculture and flour milling, mining and metallurgy, and sugar production).

**Keywords:** Ukraine, Russian Empire, education, education policy, education reform, economic development, child labor, vocational education, Russian Technical Society.

### **1. Introduction**

In the late 19th century, the Russian Empire embarked on the path of rapid industrialization and industrial modernization. This process was particularly brisk in Ukrainian governorates, involving the creation of new enterprises, modernization of existing operations, attraction of foreign investment, development of technological innovation, and enhancement of labor productivity.

A major role in the production of the necessary workforce for the industrial sector was increasingly played by vocational-technical education. This required a shift from craft-based training of workers to training of a highly skilled workforce for the chemical, mining, shipbuilding, rail, food, and other industries.

Beginning in the 1880s, the government of the Russian Empire put in significant effort into the development of vocational-technical education in the country. This included creating a proper regulatory framework, providing financial assistance, offering scholarships, and improving the material-technical base of educational institutions. These measures helped attract young people to technical specialties and improve the quality of education.

Many of the undertakings attempted during that period that were cut short by World War I and the subsequent revolutionary events require deeper study, with a focus on extracting relevant best practices and employing them in building a robust system of vocational-technical education both in Ukraine and in other states that used to be part of the Russian Empire.

### **2. Materials and methods**

The study relied on relevant research by pedagogical scholars and historians. Use was also made of relevant statutory enactments, namely those from the third part of 'The Complete Collection of Laws of the Russian Empire' (PSZRI-3).

Methodologically, use was made of sets of general and historical research methods. As in the work's first part, the use of induction and deduction helped identify and amass relevant empirical information, which was employed to substantiate the paper's key tenets. The use of analysis and synthesis helped conduct an objective assessment of the various events and processes that had an effect on the making and development of the vocational-technical education in the Russian Empire as a whole and in Ukrainian governorates in particular. The use of the comparative-historical and cliometric methods helped gain an insight into the dynamics and mechanics of the development of the vocational-technical education sector and obtain both national and regional quantitative data for it. It is the use of the cliometric method that helped determine that in the period under consideration the number of vocational-technical educational institutions in Ukrainian governorates accounted for nearly 20 % of all educational institutions of this kind in the Russian Empire.

### **3. Discussion**

Issues related to the development of vocational-technical education in the Russian Empire were explored by contemporaries back in the day. A popular platform for the discussion of the present and future of vocational training in the country was the nationwide pedagogical journal *Tekhnicheskoye Obrazovaniye* (Russian: "Technical Education"; known as *Tekhnicheskoye i Kommercheskoye Obrazovaniye* ("Technical and Commercial Education") since 1908), launched in 1892 by the Permanent Commission for Technical Education. A common view was that it was important to focus on sustained manpower training, and also try to expand the country's network of vocational educational institutions.

The general historiographical picture for the imperial period and the Soviet time was described in sufficient detail in the first part of the work (Trygub et al., 2023: 679-681), so the focus in this part will be on contemporary historiography on the topic. Special attention ought to be paid to the works that provide insight into the study's immediate focus area – the development of vocational-technical education in the Ukrainian governorates of the Russian Empire.

In the early 2000s, Ukrainian historical-pedagogical science exhibited an upsurge of interest in the history of the development of vocational-technical education in the industrialization-era Russian

Empire. Over the last few decades, a number of solid works on the subject have been released, including those by V. Dobrovols'ka (Dobrovols'ka, 2006; Dobrovols'ka, 2021), O. Chorny (Chorny, 2007), S. Sytnyakivs'ka (Sytnyakivs'ka, 2009a; Sytnyakivs'ka, 2009b; Sytnyakivs'ka, 2010), Ya. Nahrybel'nyy (Nahrybel'nyy, 2012), M. Honchar (Honchar, 2015), T. Moiseeva (Moiseeva, 2020), I. Petrenko, I. Vynnychenko (Petrenko, Vynnychenko, 2022), A. Lebid, V. Korol, and others (Korol, 2015; Korol, 2017; Degtyarev et al., 2021; Lebid, Shevchenko, 2021; Lebid, 2022; Lebid, Lobko, 2022), which provide insight into various aspects of the development of vocational-technical education in the Russian Empire as a whole and in Ukrainian governorates in particular.

Most of this research is represented by dissertation-based works with a narrow problem or geographical focus. For instance, the work by V. Dobrovols'ka (Dobrovols'ka, 2006) explores the history of female education in Southern Ukraine. It touches upon vocational-technical education through the lens of the post-and-telegraph courses offered at the urban six-grade college in Odessa and the mixed dental schools of G. Balaban and M. Bank, likewise, in Odessa.

The development of pre-Soviet nautical education in Southern Ukraine is explored in the dissertation by O. Chorny (Chorny, 2007). The work provides an insight into the preconditions for the emergence of nautical educational institutions in the Black Sea region, offers a theoretical summarization of the operation of the system of educational institutions under the purview of the highest maritime authority, including an insight into the way they were managed and funded, and discusses the role of maritime schools in Southern Ukraine in providing the Black Sea fleet and private nautical societies and companies with qualified specialists.

The works by S. Sytnyakivs'ka (Sytnyakivs'ka, 2009a; Sytnyakivs'ka, 2009b) explore the development of trade education in Ukrainian governorates. This research represents one of the few attempts to investigate the subject under consideration in a historical-pedagogical, as opposed to purely historical, context. Consequently, the researcher not only provides insight into the key factors, trends, and stages in the development of trade education in Ukraine in the second half of the 19th and early 20th centuries but also offers an analysis of the theoretical foundations of the issue of the development of trade education in classical domestic and foreign pedagogical theories and historical world practice, discusses the mechanics of the organization of the educational process at trade educational institutions in Ukraine, and describes the key characteristics of the content of such education and instructional support for students' learning process.

The development of vocational education in Kherson Governorate is explored in the dissertation-based works by Ya. Nahrybel'nyy and M. Honchar. The one by Ya. Nahrybel'nyy (Nahrybel'nyy, 2012) discusses the place of vocational education in the Russian Empire's education system in the second half of the 19th and early 20th centuries and provides an insight into the development of educational institutions of an agrarian, pedagogical, medical, commercial, and maritime character in that region. At the same time, the work does not cover the pedagogical context of the educational process and provides no insight into the mechanics of the operation of such educational institutions and related characteristics.

The work by M. Honchar (Honchar, 2015) explores the development of lower vocational education in Southern Ukraine in the second half of the 19th and early 20th centuries. The author makes use of a large body of factual material to analyze the development of the system of vocational training in that period, brings forward a periodization of his own devising, fine-tunes the meaning of the term 'lower vocational education', and proposes a model for the use of the study's findings in reforming the system of vocational training of youth.

There has been an increase within historical-pedagogical science in interest in exploring vocational-technical education in the Russian Empire through the prism of regional science. However, there remains a lack of research focusing on the pedagogical component of the educational process, the role of the Russian Technical Society, and particular areas of vocational-technical education (e.g., shipbuilding and the food industry) in Ukrainian governorates specifically.

#### **4. Results**

In the early 1880s, the Russian Empire was faced with an acute need for a robust system of vocational training, with an added focus on the vocational-technical component. The development of specialized education required uniformity in terms of the organization and content of the educational process in vocational schools.

In 1878, this task was entrusted to the Ministry of Finance. In 1881, the country's vocational-technical institutions were placed under the purview of the Ministry of Public Education. In 1883,

a special department was set up at the Ministry of Public Education concerned with the management of the vocational education sector, including the opening of new educational institutions, designing of curricula, and approving of programs of study (Kuz'min, 1971: 17). In addition, some of the vocational-technical institutions were run by specialized government agencies, such as the Ministry of Communication Lines (technical rail colleges) and the Ministry of Finance (nautical schools).

The 1880s witnessed the building of a more or less harmonious system of vocational-technical education in the Russian Empire, and that would have an effect on this type of education in the Ukrainian lands as well. Special regulations were developed for particular vocational-technical institutions. The first regulation of this kind, *Regulation on Technical Rail Colleges Under the Purview of the Ministry of Communication Lines*, was released on April 7, 1886 (PSZRI-3. T.VI. №3611: 143-147) (amended on December 26, 1888, April 8, 1891, and February 28, 1894) (PSZRI-3. T.VIII. №5671: 635; PSZRI-3. T.XI. №7610: 166; PSZRI-3. T.XIV. №10391: 90-91), resulting in the establishment within the Ministry of Communication Lines of a department that would oversee all of the country's rail schools.

Pursuant to the above regulation, the objective for technical rail colleges was to educate primarily the children of rail workers (e.g., train operators and conductors). A college's first grade enrolled children aged 14 to 18 years who had graduated from a two-grade rural, uyezd, or urban college or a two-grade parochial school. In addition, it would also admit home-educated children who had successfully passed the entrance examination. The program of study was 3 years long. Upon completion of this program, students would undergo two years' practical training. There was an accepted practice of a class in the last year being split into sections based on area of specialization.

The average curriculum included about 20 core subjects. In addition to a set of general subjects (e.g., religious education, singing, and gymnastics), instruction was also provided in a number of disciplines crucial to future rail workers mastering certain practical skills (e.g., mathematics (inclusive of practical accounting and surveying), general physics, practical telegraphy, mechanics, a brief course in woodworking and metalworking, practical railroading, drafting, whitesmithing, blacksmithing, and joinery). Upon completion of the program of study, most graduates would be employed in the field of rail transport.

Each rail college had a pedagogical assembly headed by the head of the school and a facilities committee headed by the trustee, who was elected by the board of the Railroader's Society. Such colleges had training shops at them, and some had a preparatory grade catering to children of rail workers exclusively. This sector developed at a very fast pace, and over a period of 30 years (1869–1898) it produced 7,747 graduates across the Russian Empire (Uchilishcha zheleznodorozhnyye, 1902: 119). Many schools of this kind were established across Ukraine (e.g., in Odessa, Kharkov, Kiev, Nikolayev, and Yekaterinoslav).

The next statute crucial to the organization of the system of vocational-technical education was *Regulation on Industrial Colleges*, adopted on March 7, 1888 (PSZRI-3. T.VIII. №5057: 78-83). It was founded on 'A General Normal Plan for Industrial Education in Russia', developed by I.A. Vyshnegradsky, a well-known Russian scholar (Kuz'min, 1971: 18). The statute set out the following three categories of vocational-educational institutions: 1) secondary technical schools with a 4-year program of study (graduates of such schools would be conferred with the degree of Technician), which enrolled learners who had completed five grades at a real college; 2) lower technical schools with a 3-year program of study, which enrolled learners who had graduated from an urban school; 3) trade schools with a 3-year program of study, which enrolled learners who had graduated from a primary school.

The emergence of this document marked the beginning of a new stage in the development of vocational education in the Russian Empire. The plan for industrial education provided a set of key avenues for training skilled workers, foremen, and technicians. A set of regulations were put in place determining the place of vocational-technical educational institutions in the overall system of public education. Standard curricula were developed for each type of such educational institutions. The problem with the design of curricula for such schools was that it undermined continuity in teaching general subjects at lower technical colleges and general-education schools. This made it harder for graduates of vocational-technical educational institutions to continue their education at an educational institution of a different type.

The emergence of a document systematizing vocational-technical education in the country was a positive phenomenon. It was expected that the pace of the development of vocational

education and creation of an extensive network of educational institutions capable of training the required number of professionals for employment in industry, transport, agriculture, and commerce would increase substantially. However, in contradiction to the objective laws governing the country's economic development, the policy pursued by the tsarist government in the area of public education was artificially inhibiting the process of bourgeois-democratic transformations. There were still remnants of the social stratification system in the public education sector. In that climate, despite the natural need for radical improvements in training of professionals for industry, agriculture, and commerce, it was difficult to implement the plan for industrial education in Russia in an appropriate manner (Kuz'min, 1971: 18-21).

During that period, the Ukrainian areas started to become home to various trade colleges and schools, and their number continually grew on the cusp of the 19th and 20th centuries. Specifically, as at 1911, the Kiev Educational District had 18 trade colleges and schools across the five governorates: four trade colleges (Kiev Alexander Trade College (est. 1874); Poltava Trade College (1878); Chernigov Alexander Trade College (1888); Privy Councilor M.A. Tereshchenko Glukhov Trade College (1899)) and 14 trade schools (Klitsy Secondary Seven-Grade Technical School-Based Lower Trade School (1895); Chernobyl Lower Trade School (1899); Mrin Lower Trade School (1900); Oster Lower Trade School (1901); Kagarlyk Lower Trade School (1902); Kiev Lower Trade School (1902); Berdichev School for Trade Learners (1903); Bratslav Lower Trade School (1907); M.S. Ivanina Chebotarka Lower Trade School (1907); Baron P.P. Mestmacher Novaya Ushitsa Lower Trade School (1908); Krolevets Lower Trade School (1909); Kamenets-Podolsky Lower Trade School (1910); Zhitomir Lower Trade School (1911); Cherkassy Lower Trade School (1911)).

In the Odessa Educational District, the city of Odessa alone had 33 trade schools during that period, with a combined enrollment of 2,300 students. The governorates that were part of this district had more than 80 such schools combined (e.g., Odessa Main Trade College of Horticulture (1847); Odessa Female Trade Jewish College (1860); Odessa Trade College of the Trud Society (1864); Odessa Urban Female Trade College (1882); Simferopol Trade College (1884); Anan'yev Trade College (1891); Odessa Urban Trade College (1891); Bakhmut Trade College (1896); Odessa Orphanage-Based Trade College (1908); Uyezd College-Based Akkerman Trade School (1868); Odessa Trade School (1871); Anan'yev School for Trade Learners (1887); Stary Krym Trade School (1893); Odessa Trade School of Printing (1900); Autka Lower Trade School (1904); Yekaterinoslav School of Ceramics (1905); Bobrinsk Lower Trade School (1905); Berezovka Lower Trade School (1905); Stepanovka Lower Trade School (1905); Rezinsk Lower Trade School (1906); Lieutenant General P.K. Men'kov Sevastopol Lower Trade School (1908); Man'kovo-Kalitvenskoye Lower Trade School (1908) (Sytnyakivs'ka, 2009a: 96-98)).

Sometimes, trade education was provided via special courses at technical and other types of industrial educational institutions. Specifically, in 1900, Odessa Alexander Urban Four-Grade College began to provide evening courses in technical drafting and drawing for tradesmen and workers. This was funded through donations from local factory and mill owners. A distinctive characteristic was that these courses were attended by adults (workers and foremen from industrial enterprises), which was associated with the need to learn new production processes and required additional vocational-technical education.

Trade educational institutions differed in structure, content of education, and organizational practices. Different trade colleges and schools provided instruction in different crafts. For example, the educational institution in Kiev provided instruction in whitesmithing, blacksmithing, joinery, turnery, carving, and shoemaking, the one in Chernigov – whitesmithing, turnery, and foundry, the one in Poltava – whitesmithing-turnery, blacksmithing, foundry, and joinery-patternmaking-carving, the one in Glukhov – whitesmithing-blacksmithing and joinery-patternmaking, the overwhelming majority of the region's lower trade school – whitesmithing-blacksmithing and joinery-turnery, and the school in Krolevets – whitesmithing-blacksmithing, joinery-turnery, and weaving (Sytnyakivs'ka, 2009a: 102-103).

Thus, lower vocational-technical educational institutions (trade colleges and schools) typically prepared students for narrow trade professions and were of a homogeneous nature in terms of subject matter.

Another sector whose organization was formalized statutorily was maritime vocational-technical educational institutions. In 1902, the government adopted *Regulation on Nautical Educational Institutions* (PSZRI-3. T.XXII. №21413: 322-328). Per this regulation, nautical educational institutions were divided into four classes. *Colleges of deep-sea and coastal navigation*

trained Grade 1 and 2 ship drivers (for steam vessels). The Grade 1 and Grade 3 ship driver programs were 3 years and 2 years long, respectively. *Nautical schools* trained Grade 3 and 4 ship drivers (for sailing vessels) and were three-grade and two-grade, respectively. There also were *preparatory nautical schools*, which were equivalent in program length (3 years) to urban colleges and could open as standalone educational institutions or in tandem with other nautical educational institutions. In addition, there were *nautical knowledge courses*, designed to provide merchant seamen with the necessary knowledge in particular subjects or groups of subjects. Colleges of deep-sea and coastal navigation enrolled 15-year-olds who had graduated from a preparatory nautical school or an urban college and had at least 2 months' sailing experience. Nautical schools enrolled individuals at least 17 years of age who had completed primary school and had 12 months' sailing experience. Preparatory nautical schools enrolled individuals aged 13 to 17 years who could read and write and knew the four basic arithmetic operations. Graduates of colleges of deep-sea and coastal navigation and nautical schools would be eligible for trials, completing which would get one the degree of Ship Driver.

Pursuant to the 1902 regulation, the degree of Ship Driver was divided into two levels (Captain and Steersman), each of which was divided into four grades (depending on navigation being deep-sea and coastal and vessels being steam and sailing). To get one's Ship Driver diploma, one would also have to complete an exam to a special panel.

The theoretical education required in order to fulfill the duties of a steersman was considered sufficient for a captain too, with the degree of Captain conferred upon a steersman upon receipt of a special navigation qualification. To acquire the lowest (fourth) grade, one would have to pass exams in the following subjects: principal laws on merchant shipping, navigation, nautical astronomy, rules for preventing collisions at sea, ship rigging, barometer use, and English. To be eligible for the highest (first) grade, one would have to have sailing experience and knowledge of ship mechanics, ship hygiene, commercial correspondence, and geography.

The day-to-day management of a nautical educational institution was conducted by its principal and board of trustees. Such schools were normally established and run through port dues and other forms of state funding, as well as funding from non-governmental and estate institutions and individual persons. Tuition fees and donations formed a college's special budget to be spent on extra-budgetary purposes exclusively.

The transformation of nautical classes based on the 1902 regulation was a gradual process. It was completed by July 1, 1905. A portion of nautical classes were discontinued, including those offered in the inner governorates of the Russian Empire. As at January 1, 1906, there were 34 nautical educational institutions: 7 colleges of deep-sea navigation, 2 colleges of coastal navigation, 7 three-grade maritime schools, 11 two-grade maritime schools, 5 preparatory maritime schools running in tandem with other nautical schools, and 2 colleges with a broader program and of a somewhat different type (Odessa College of Merchant Shipping, established in 1898 and transformed in 1901 to offer ship driving and engineering courses, and Arkhangelsk Merchant-Nautical College, established in 1899).

Fourteen of the educational institutions trained personnel for working in the Baltic Sea, 8 – in the Black Sea, 5 – in the Sea of Azov, 4 – in the White Sea, 2 – in the Caspian Sea, and 1 – in the Pacific Ocean.

At year-end 1903, the funding allocated toward the upkeep of nautical educational institutions in the country amounted to 306,000 rubles, of which 252,000 rubles (80%) came from port dues and other forms of state funding and 54,000 rubles (20%) came from subsidies from local communities and other sources (with the exception of tuition fees). As at 1903, the country's 36 nautical educational institutions had a combined enrollment of 1,974 ([Morekhodnoye obrazovaniye, 1906: 208](#)).

On June 10, 1903, the government adopted *Regulation on Engineers on Nautical Vessels in the Merchant Marine* ([PSZRI-3. T.XXIII. №23125: 738-741](#)) (effective only in 1908), which established three grades of the degree of Ship Engineer (depending on the characteristics of steam vessels). To be eligible for the award of a diploma of Grade 3 and 2 Ship Engineer, one would have to pass a theoretical exam and have a reasonable amount of practical experience (24–36 months' sailing experience for Grade 3 and 36 for Grade 2). To qualify for the award of a diploma of Grade 1 Ship Engineer, one would just have to have some practical experience (24–36 months). In order to acquire a Grade 2 or 1 diploma, one would have to be a holder of a lower level diploma. Individuals with a higher or secondary education in an engineering specialism would be exempt from a theoretical exam and the required amount of practical experience would be reduced by two-thirds

for the former and by half for the latter. Exams for the degree of Grade 3 Ship Engineer would be sat in Russian, mathematics, theoretical mechanics, ship mechanics, and shipbuilding. Exams for the degree of Grade 2 Ship Engineer would be sat in the same subjects, except that there was electrical illumination instead of shipbuilding.

Apart from the above-mentioned types of nautical vocational-technical educational institutions, there also were colleges and schools for training ship engineers. The corresponding regulation was adopted on June 13, 1905 ([PSZRI-3. T.XXVI. №26420: 508-513](#)). Pursuant to this regulation, for the purposes of training ship engineers in the merchant marine, it would be permitted to establish colleges for ship engineers and courses in an engineering specialism in the merchant marine. Such educational institutions could be opened as standalone ones or in tandem with other educational institutions of a different class with the same focus or with colleges of deep-sea navigation.

*Colleges for ship engineers* provided theoretical and practical training to Grade 2 engineers and consisted of four grades – the preparatory grade and three specialized grades. *Schools for ship engineers* provided theoretical training to Grade 3 engineers in the preparatory and two specialized grades. There could also be an additional grade in place to train Grade 3 ship engineers to enable them to upgrade to the Grade 2 level.

Both types of educational institution provided instruction in the following subjects: religious education, Russian, mathematics, physics, chemistry, theoretical and practical engineering, strength of materials, ship mechanics, ship equipment, ship theory, English, drafting, special laws on merchant shipping, and first aid treatment for emergencies.

At the same time, the curriculum of such colleges also included heat, materials science, marine engine and boiler damage description and shipboard repair, and naval electrical engineering (as opposed to electrical illumination at such schools).

*Courses in an engineering specialism in the merchant marine* were concerned with the provision of applied and specialized knowledge of engineering in the merchant marine. A college for ship engineers would enroll 15-year-olds who had completed a preparatory nautical school or an urban college and had at least 2 months' sailing experience. A school for ship engineers would enroll 16-year-olds who had completed a full course of study in primary school and met the practical experience requirements for receipt of the Grade 3 Engineer degree. As at January 1, 1906, the Ukrainian region had two educational institutions for training ship engineers – School for Ship Engineers in Sevastopol and the Engineering Department at Odessa College of Merchant Shipping, which had a 3-year program of study ([Morekhodnoye obrazovaniye, 1906: 209](#)).

In conclusion, a few words as to the creation of a system of higher technical education in the country. Higher technical educational institutions were to produce skilled engineers-in-charge for technical and industrial enterprises and prepare personnel who would be employed as administrative staff and faculty members at technical educational institutions. A person could enroll in a higher technical educational institution if they had a secondary general education. Along with the necessary practical knowledge, each higher technical educational institution would provide one with relevant elements of higher general education. Consequently, the length of study at such an institution could be a year more than what was offered at universities, where it was 4 years.

In the early 20th century, three of the Russian Empire's 14 higher technical colleges were in operation in Ukrainian governorates: 1) Kharkov Practical Technological Institute of Emperor Alexander III (est. 1885), comprised of two departments (Engineering and Chemistry), which had a 5-year program of study; 2) Yekaterinoslav Higher Mining College (1899), comprised of two departments (Mining and Metallurgy); 3) Kiev Polytechnic Institute of Emperor Alexander II (1898), established for the purposes of training skilled technician-engineers in various specialisms. As at the start of the 20th century, the institute in Kiev had four departments, all of which matched the more developed sectors of industry in Ukraine's Dnieper region: Chemistry, Mechanics, Engineering, and Agriculture. The program of study was 4 years long. It was at the time the largest technical college in the Ukrainian lands. Established mainly on donations from proprietors of large commercial-industrial capital, it, however, operated with state funding ([Tekhnicheskoye obrazovaniye, 1901: 127-128](#)).

In the late 1890s, the Russian Empire witnessed the dynamic creation of large industrial associations and an increase in the number of enterprises. Amid stiffening competition in the world market, issues of labor productivity, production practices, and technical literacy were becoming a particularly pressing concern. There was a significant shortage of trained specialists and skilled technical operations managers within Russian industry, which could not but hinder the country's industrial development.

Thanks to its geographical location and natural resources, Ukraine was at the start of the 20th century among the more industrially developed regions of the Russian Empire. A distinctive characteristic of Ukraine's process of industrial growth was uneven regional development, which led to its industrial regions developing a particular specialization, with the Donbas becoming the center of the coal industry, the Nikopol Basin – the manganese industry, Krivoy Rog – the iron ore industry, Right-Bank and a portion of Left-Bank Ukraine – the sugar industry, Yekaterinoslav – metallurgy, Kharkov and Lugansk – machinery manufacturing and locomotive manufacturing, and Nikolayev – shipbuilding and Odessa ranking in the top three of the Russian Empire's ports in volume of marine trade and first in the Azov-Black Sea basin. Consequently, there was increased demand for professional workers, but the transformations also shaped the regional specialization of vocational-technical education in the Ukrainian lands.

In the early 20th century, the Permanent Commission for Technical Education, a body within the Russian Technical Society, performed an examination of the country's vocational-technical education sector. At that time, the country had 1,423 trade schools, colleges, and training shops, with a combined enrollment of nearly 80,000 students. However, the vocational education sector was in need of major structural change. To this end, members of the Commission proposed using the following system of trade and vocational education in the Russian Empire:

- combination of vocational and general schooling;
- specialized vocational schooling;
- educational workshops for children, adolescents, and adults;
- mobile workshops, courses, specialized instructors for particular crafts, technical brochures, etc.;
- manual training in primary school and provision of specialized knowledge in comprehensive school (Sytnyakivs'ka, 2009a: 70).

In May 1915, the government appointed Count P.N. Ignat'yev (1870–1945) Minister of Public Education. Under P.N. Ignat'yev, the Ministry was preparing to reform the country's school sector as a whole and the vocational education sector in particular. As one of the first steps in this direction, P.N. Ignat'yev convened in February 1915 a meeting with educational district trustees. Apart from issues related to reform of the country's general-education system, the meeting also discussed the future development of vocational education. In the February 24 sitting, the need was recognized to further develop the industrial education sector. Meeting participants discussed the need to enhance the content of vocational education at all levels. It was also acknowledged that it was advisable to spread this type of education amongst women.

Following the meeting, the Ministry of Public Education started work on a draft law on vocational education in the country. Concurrently, issues relating to reform of specialized school were also considered by a few other government agencies. To ensure uniformity and consistency in tackling challenges in vocational education, a special interagency council, headed by P.N. Ignat'yev, was set up in August 1915 to handle vocational education and work on legislation in this area. The Council was membered by officials from all Ministries that had vocational educational institutions under their purview. On August 10, 11, and 17, 1915, the Council discussed the following major issues related to vocational-technical school: ways to spread vocational knowledge; correlation between the systems of general and vocational education; types of specialized educational institutions, classes, and courses; content of specialized education and the rights of graduates of specialized educational institutions; coordination of work between the different entities involved in the process of development of the specialized education sector (Kuz'min, 1971: 32-33).

Of particular note in the context of this study is the draft of the *Regulation on Vocational Educational Institutions, Classes, Courses, and Educational Institutions Under the Purview of the Ministry of Public Education*, which envisioned having in place by 1915 “a single system of vocational-technical education comprised of four types of educational institution: 1) higher technical educational institutions; 2) technical colleges for training technicians via a higher primary college; 3) trade colleges for training foremen and skilled workers via a two-grade rural school; 4) colleges for training skilled workers via a primary college” (Polezhay, 2011: 91; Kuz'min, 1971: 34).

The draft regulation gave special consideration to implementing training in trades at general-education schools. It envisioned introducing specialized classes and vocational-technical courses.

Similar ideas were presented in the draft of the *Regulation on Technical Educational Institutions and on Institutions Concerned With Spreading Technical Knowledge Under the Purview of the Ministry of Commerce and Industry* (1915). This document envisioned having in

place a system of training junior- and mid-level specialists comprised of the following: 1) courses and schools for training workers; 2) courses for training leadmen; 3) courses and schools for training foremen; 4) technical courses; 5) technical colleges (Kuz'min, 1971: 34). The 1915 draft regulation was aimed at significantly simplifying the actual procedure for establishing trade schools, which would make it possible for them to be set up by private individuals, non-governmental organizations, other educational institutions, and enterprises.

A characteristic common to the above draft regulations was the increased focus on opening more vocational educational institutions and optimizing the operation of such schools (Sytnyakivs'ka, 2009a: 72).

However, the reforms proposed under P.N. Ignat'yev would meet the same fate as many other transformations undertaken in the early 20th century. As early as March 15, 1916, the Empress wrote the following in a letter to Nicholas II: "I would like to have an opportunity to put a stop to Ignat'yev's liberal speeches in the Duma in which he proposes opening up universities and so on throughout Russia" (Polezhay, 2011: 93). On December 27, 1916, P.N. Ignat'yev was dismissed from his post, with M.K. Kul'chitsky taking over.

Despite the pursuit of such an inconsistent policy in the area of vocational-technical education, the number of such educational institutions continually grew in the Russian Empire. As at the start of 1917, there were a combined 3,532 secondary and lower vocational-technical educational institutions in the country. This figure, however, included demonstration training shops (688) and factories (24). We should also exclude from that trade classes and manual training classes at general-education schools, which do not qualify as a specialized educational institution, as well as commercial colleges, which were secondary general-education schools (Kuz'min, 1971: 36). Thus, there were around 2,500 specialized educational institutions in the Russian Empire at the time. At the same time, Ukraine had around 498 vocational institutions (Siropolko, 2001: 442) (Table 1), which accounted for nearly 20 % of all educational institutions of this kind in the Russian Empire.

**Table 1.** Numbers of Secondary and Lower Vocational Schools in the Ukrainian Lands as at the Beginning of 1917

Secondary schools		Lower schools	
Agricultural	6	Trade	25
Technical	10	Agricultural	4
Fine arts	11	Industrial-technical	44
		Commercial-industrial	1
		Feldsher and obstetrical-feldsher	6
		Fine arts	1
Total	27	Total	71

### 5. Conclusion

The making of vocational-technical education in the Ukrainian lands was facilitated at the time by a number of socio-economic and socio-cultural preconditions. Vocational-technical educational institutions were a special category in the Russian Empire, and there were 12 groups of them there in the second half of the 19th century: ecclesiastical, pedagogical, medical, legal, military, maritime, surveying, topographical, arable farming, forest and agricultural, technical and trade, commercial, Oriental language, and art. Technical and trade educational institutions were divided into the following three subgroups – (1) higher (higher technical educational institutions), (2) secondary (industrial and higher technical colleges), and (3) lower (lower technical colleges, normal-type trade colleges, industrial schools operating per a special charter, technical rail colleges, and rural trade training shops).

Under pressure from the public and in view of a set of objective economic factors, the government realized the need to build a proper system of vocational-technical education in the country. A foundational step in this process was the launch on March 7, 1888, of *Principal Regulations on Industrial Colleges*, which set out key principles to guide the development of technical education in the Russian Empire. Consequently, the general approach to training vocational-technical personnel in Ukrainian governorates would not be much different to the way

the educational process was organized and managed across the Russian Empire as a whole.

A special type of vocational-technical educational institutions was rail colleges and nautical educational institutions. Rail colleges were concerned with training specialists for the building of railroads and the operation of rail transport. Nautical schools were focused on training mariners and maritime technicians, the need for which was driven by the emergence of steamships, which were supplanting the sailing fleet. A typical program of study was designed in such a way as to provide students with a sufficient amount of general-education and technical training and help them acquire an appropriate amount of specialized knowledge.

While, by and large, vocational-technical education was developing in the Ukrainian areas in the light of the development of vocational education in the Russian Empire, it had distinctive characteristics of its own – most notably, including a focus on meeting the need for workers and engineering personnel of the sectors that were dominant in the regions (e.g., maritime transport, foreign commerce, shipbuilding and ship repair, rail transport, agriculture and flour milling, mining and metallurgy, and sugar production). That said, despite positive shifts in the development of vocational-technical education, the system could not meet all of the demand for this type of education amid the rapid development of capitalism on the cusp of the 19th and 20th centuries. This, most notably, was associated with reasons such as a lack of attention to the issue on the part of central and local authorities, a high level of centralization of authority over education, and insufficient funding.

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