THE EFFECTS OF OTTO SALOMON'S SYSTEM ON THE DISSEMINATION OF PEDAGOGICAL MANUAL TRAINING IN RUSSIA IN 1884-1917

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General preconditions of the introduction of manual training in Russia's general educational school

The latter half of the 19th century has a special place in the history of mankind. Rapid development of science and technology, construction of cities, railroads, communication lines substantially changed human life. Patriarchal natural economy was left behind.

Development of industrial production has resulted in strengthening competition between the states, activation of struggle for commodity markets and sphere of influence. The competing states jealously kept up with each other, all innovations, including the sphere of education.

The general educational school at that time underwent sharp criticism for contents and methods of training being behind the requirements of society, industry, and vocational education. School was criticized for having no ties with practice, reality, for verbal teaching. A movement for school reforming emerged. A new pedagogics was created, which was called reformatory pedagogics. Teachers-reformers tried to change the character of teaching at school, provide its psychological and pedagogical bases, and approach the contents, methods and orientation of school education to the requirements of scientific and technological progress and practice.

One of the leading tendencies in reformatory pedagogics was aspiration to overcome unilateral character of training, to add various kinds of kinesthetic activity to intellectual activity. Therefore, the most representative in reformatory pedagogics was the movement for "labor school". The participants of the movement believed that intellectual activity prevailing in the process of teaching should be counterbalanced by physical activity, first of all by various kinds of physical labor. Within the movement for the labor school, a number of independent trends were formed. "Manualism" was the leading one. The term "manualism" was derived from French "travail manuel", which means "manual training". With the purpose of improving teaching the European teachers-manualists suggested the introduction of manual training as an independent subject in the general educational school. They believed that manual labor should be a pedagogical device and, first of all, develop and educate students.

Besides, other variants were offered too. So, supporters of vocational training insisted on introducing elementary vocational training in the general educational school already at the elementary level. For example, in Russia, beginning with 60-s-70-s of the 19th century vocational classes were opened at elementary national schools.

Owing to growing objective need of the Russian industry for skilful and dexterous qualified workers and low efficiency of vocational classes the suggestion to introduce manual training as an independent subject in national schools of Russia was discussed. The previous analysis of manual training at schools of the European states revealed that there were their own systems of manual training in France, Germany, and Sweden by then. The most prominent representatives of the movement for the introduction of manual training as an independent subject at the general educational school were Uno Cygneus (1810-1887) in Finland, Clauson-Caas (1826-1906) in Denmark, W. Götze (1843-1898) and A. Pabst (1854-1918) in Germany, G. A. Salissis (1818-1890) in France, O. Salomon (1849-1907) in Sweden.

Systems of manual training at schools of the European states

The most popular were the French, German and Swedish systems. The French system of training developed by G. Salissis relied on discrete exercises in creating various objects or their parts. Such training prepared students for work in industry with an intensive division of labor. Sometimes such system of training is called "operational". Children moved gradually from work with paper and cardboard to shaping wood and metal. The advantages of the French system were coordination of the curricula of different levels of public schools, a diversity of operations and materials, the use of drawing and drafting. But the performance of discrete exercises appreciably reduced students' interest in the lessons.

The system of training in Germany developed at the Leipzig seminary of manual labor under the leadership of W. Götze was notable for the combination of theoretical and practical lessons. Its students made objects from paper, cardboard, wood and metal that were useful for school practice. But from a pedagogical point of view that system was insufficiently thought over and proved, was characterized by uniformity in the organization of the lessons and their low efficiency.

As to U. Cygneus' system of training accepted in Finland, it was not widely disseminated. Joinery, wood-turnery, work with tin and weaving of baskets were used at schools of Finland. A special attention was paid to thoroughness and precision in the work at hand, the application of knowledge acquired by students at the lessons of natural sciences, mathematics. But too a big variety of items and the complexity of producing appreciably diminished the popularity of the Finnish system of training.[1]

The Danish system of manual training featured simultaneous work of the teacher with the whole class, applying preliminary exercises in using various tools to perform practical operations, strict systematization of tools and items in increasing order of difficulty, availability of additional parallel tasks for students with different level of ability.[2]

Discussion of the problems of vocational training and manual training in Russia

Problems of teaching crafts and introduction of manual training in Russia were repeatedly discussed at the sessions of the standing commission on technological and vocational training, created in 1868 at the Imperial Russian technological society.[3] Questions of combining general education at national school and the elements of practical training were a subject of special concern of the Commission owing to extremely low qualification of Russian industrial and agricultural workers. Therefore, the members of the Commission had supported the introduction of manual training in general education schools. It would enable to appreciably raise the efficiency of the subsequent vocational training.

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[1] Cirulis' K. J. Ruchnoi trud v obscheobrazovatel'noi shkole. – S-Pb., 1890. – P. 47-48

[2] Karel' I. Pedagogicheskiy ruchnoy trud po datskoy sisteme: Ukazaniya dlya nachinayuschikh uchiteley: Po soch. Akselya Mikel'sona. – S-Pb.: izdaniye sostavitelya, 1905. – 62 p.

[3] Trudy komissii po tekhnicheskomu obrazovaniyu, i otchyot o shkolakh dlya rabochikh i ikh detey uchrezhdyonnykh Imperatorskim Russkim tekhnicheskim obschestvom: Pri sodeystvii gg. fabrikantov i zavodchikov g. S-Peterburga, 1880-1881. – S-Pb.: Tip. br. Panteleyevykh, 1882. – P. 109.

As a result of the discussion it was decided to accept the Swedish system of instruction as a model for Russia. Such decision was caused by more thorough development of the pedagogical and methodological aspects of the system and its real conformity to the general state of the Russian industry. In its character O. Salomon's system was of material nature, that is children were supposed to produce according to "models" whole items from wood that were useful in the country household.

Especially it should be noted that O. Salomon developed a pedagogical substantiation of the necessity of manual training. The major tasks of this substantiation were accepted actually by all adherents of manual training. It is expedient to characterize O. Salomon's basic ideas in brief. In the dissemination of manual training O. Salomon distinguished between the Fröbel, Herbart and Nääs trends. He saw the essence of the Fröbel trend in the development of moral-spiritual abilities of children by means of manual labor and informing them of useful knowledge; of the Herbart trend – in using hand made items as illustrative means; of the Nääs trend – in using manual labor for the purpose of general development of the child.[4]

O. Salomon named five specific targets of manual training:

1) Teaching should awake in children wish and love for work in general. Since after school most children will have to provide themselves by means of manual labor, without skill and love for work they are doomed for pity existence. But wish and love for work can be instilled only in direct labor activity, and the new subject serves for this purpose most of all.

2) In the process of manual training children acquire general manual training that are a kind of contrast of narrow craft skills. The school being comprehensive, it should teach both general elements of crafts, and the elements of general education. The school only lays the foundation for the further activity.

3) The lessons of manual training reinforce a habit of independence. The existing school has few means and opportunities for its development. At the lessons of manual training nobody is in condition to help children, and besides they do not wish any help, sincerely being satisfied with their success.

4) Children are accustomed to order, neatness and accuracy. It is possible only when they are able to perform the offered work in a certain order and with the required accuracy. Besides it is in manual labor that harm of disorder and discrepancy are most obvious.

5) Attention, diligence, persistence are brought up in children. It is difficult to develop children's attention only by theoretical problems, since it is object (material) oriented. At the lessons of manual training first external, sensual attention develops, and then – internal, mental attention, that is required in solving abstract problems.[5] These positions of O. Solomon had laid the foundation of his system of instruction that was later called the "Swedish" system.

The practical part included producing by each student completely independently, following the "model" finished items of wood that were useful in the country household. That is, joinery prevailed. The so-called "collection of models" or a set of exemplary items for making was developed by O. Salomon, objects being selected so that the operations constantly became more

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[4] Metodika ruchnogo truda po sisteme Solomona, direktora Naaskoi uchitel'skoy seminarii, izlozhennaya V. Farmakovskim. – Odessa, 1889. – P. 8.

[5] Ruchnoy trud v obscheobrazovatel'noy shkole: Pedagogicheskoye znacheniye i pol'za ruchnogo truda, ego istoriya, sovremennoye razvitiye i sostoianiye, prakticheskaya postanovka i literatura / Sostavil K. J. Cirulis. – S-Pb., 1894. – P. 65-77.

complicated. The collection began with the production of simple articles (teeth for rakes, peg for flowers, handle for pens) and ended with fairly complex products (bench, chair, wooden basin).

To popularize and disseminate his system O. Solomon organized course training for teachers at Nääs teacher's seminary. Here many teachers from Sweden, the European countries, Russia had a fine opportunity to familiarize themselves with the theory and practice of the Swedish system of manual training.

In the whole, in the latter half of the 19th century the movement for the introduction of manual training in general educational schools was supported by the governments of many European states. It accounted, first of all, for the fact that the innovation yielded rather appreciable results both in pedagogical and economic relation. For example, the famous Russian figure in education V. I. Farmakovsky (1842-1922) pointed at substantial increase of competitiveness of the German goods and increase in pace of industrial development in Germany due to the general changes in the contents of education and the dissemination of manual training at national schools.[6]

Introduction of manual training in schools of Russia

Successful experience of the states of Western Europe could not but attract attention of the Russian government to the problem of education in general and manual training in particular. Under the initiative and at the direct participation of the well-known scientist and mechanical engineer, director of Petersburg Institute of Technology, and since 1888 Minister of Finance of Russia I. A. Vyshnegradskiy (1832 – 1895) "The Plan for a General Standardized System of Industrial Education in Russia" was developed by 1884. In this document basic foundations of establishing the system of vocational training were stated for the first time. "The Plan" provided for creation in Russia of the harmonious system of training specialists of various levels – workers, masters, "commercially educated" leaders. In "The Plan" the important tasks were set: to coordinate professional school with the needs of industry; to achieve strict conformity of each stage to a certain level of training specialists, to overcome unilateral character of vocational training – to provide mandatory coordination of general and vocational training.[7]

It was suggested that manual training should be included in the curricula of national schools as an independent subject. Thus the task of achieving both the pedagogical and practical goals was set, but the priority was given to the pedagogical goals. The authors of the "Plan" saw the utilitarian purposes of the new subject in developing crafts and "... providing the industry with workers having true eyes and dexterous hands".[8]

Serious requirements were placed by the document on the selection of the kinds of manual training:

- compliance with age characteristics of children;
- a variety of movements sufficient for hand development during the lessons;
- practical utility of the items made;

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[6] Farmakovskiy V. I. Pedagogika dela: Teoriya i praktika trudovogo obucheniya v shkole. – Odessa: Tip. L.Nitche, 1911. – P. 1-28.

[7] Proyekt obschego normal'nogo plana promyshlennogo obrazovaniya v Rossii. – S.-Pb.: Tip. F. Eleonskogo, 1884. – P. 5-15.

[8] Proyekt obschego normal'nogo plana promyshlennogo obrazovaniya v Rossii. – S-Pb.: Tip. F. Eleonskogo, 1884. – P. 16.

- a minimum number of sedentary lessons;
- promoting aesthetic development of children;
- compliance with the interests and needs of the local population;
- availability and cheapness of materials and tools.[9]

According to "The Plan for a General Standardized System of Industrial Education in Russia" programs, which trained public school teachers for instruction in the new subject was supposed to start in 1884. A direct occasion to introduce a course of manual training was I. A. Vyshnegradskiy's report to the Minister of National Education I. D. Delyanov (1818-1898) devoted to the importance of manual training. It was decided to open a class of manual training at St. Petersburg Teacher's Institute and send Russian teachers to Sweden to the Nääs seminary to study O. Salomon's system. Among those who were sent to the Nääs seminary were K. J. Cirulis' who became the first instructor of manual training in Russia to follow the Swedish system and A. F. Kotikov, the inspector of national schools of the Ladoga district (Uyezd).

The introduction of manual training was a significant innovation in the process of reforming the Russian school. Instructors of teacher's institutes gradually became the most famous experts in manual training in Russia. They were: K. J. Cirulis' (1857-1924) – an instructor of manual training of St.-Petersburg Teacher's Institute, N. V. Kasatkin (1866-1928) – an instructor of manual training of Moscow Teacher's Institute and N. P. Stolpyansky (1834-1909)– an instructor of Khar'kov Pedagogical Institute. It should be noted that teacher's institutes of Russia were not higher educational institutions and trained teachers for middle schools. Elementary school teachers were trained at teacher's seminaries, and only graduates of universities were eligible to teach at complete secondary schools or high schools (senior level of secondary schools). That is, teacher's institutes were somewhere in between teacher's seminaries and universities. Despite of it, it was the instructors of the teacher's institutes K. J. Cirulis', N. V. Kasatkin, N. P. Stolpyanskiy who undertook an attempt to create the Russian system of manual training in the general education school.

"Russian" and "Rossiyan" systems of manual training

It is necessary to distinguish between the so-called "Russian system of teaching" a concrete craft or trade, developed by the instructor D. K. Sovetkin (1838-1912) at Moscow Technical School (MHTU named after Bauman) at the direct support of the school director V. K. Della-Vos (1829-1890) and the "Rossiyan (Russian) system of manual training" as an independent subject in the general educational school. The Russian system of training created at Moscow Technical School was directed toward improving the quality of special training in professional educational institutions. It was represented at the international exhibitions in Vienna, Paris, and Philadelphia and was disseminated in the United States of America. But neither in the archival materials nor in the literature of that time there are any indications on the use of D. K. Sovetkin's system of training in the general educational school of Russia. Nevertheless, some experts in the field of labor school specified the fact that K. J. Cirulis' had closely familiarized himself with D. K. Sovetkin's system.

The Russian system of manual training in general educational school had gradually developed for almost thirty years. At the initial stage, it was the Swedish system of instruction that

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[9] Proyekt obschego normal'nogo plana promyshlennogo obrazovaniya v Rossii. – S-Pb.: Tip F. Eleonskogo, 1884. – P. 18-21.

served as the basis, foundation of its development. Moreover, the first years after the introduction of manual training in Russia instruction in the subject followed exclusively O. Salomon's system.

Educational institutions of Russia subscribed to methodical materials from Sweden about how to work, subscribed to the "collection of models", that is samples for manufacturing, got complete sets of tools. Many instructors of manual labor from Russia had had teacher's training courses at Nääs teacher's seminary.

Criticism of the Swedish system of instruction

Despite the advantages, the Swedish system of instruction appeared insufficiently suitable for the Russian school. Criticism of the Swedish system of instruction testifies to it. Some famous educators for example P. F. Lesgaft (1837-1909), N. A. Korf (1834-1883) were against the introduction of manual training in public schools. On the whole, P. F. Lesgaft's position was ambiguous. On the one hand, he recognized the developing value of manual labor, on the other hand, he fairly objected to the character of teaching that consisted of copying the "models". He considered invalid and oppressing to teach students according to a pattern and was against manual training in any general educational school except for educational institutions of orphanage type.[10]

N. A. Korf's attitude to manual training was ambiguous too. On the one hand, he supported creation of "pedagogical-craft" workshops at schools, on the another hand, wrongly identifying manual training and teaching crafts, he considered its introduction in national school as curtailment of time for general education of people.[11]

Besides, the most frequently met arguments against the introduction of the new subject were:

– denying possibility to teach physical labor in general educational school on principle;

– doubt about the educational value of manual labor;

– necessity to cover expenses for the equipment and materials;

– unnecessary rigid requirements of Salomon's system to accuracy and quality of operations.[12]

An attempt of the consistent critical analysis of the Swedish system was undertaken by V. Devel'. As a result of the analysis V. Devel' came to the conclusion that none of the problems set by O. Solomon could be completely solved. He saw the basic drawback of the Swedish system in suppressing the child's identity, his will and imagination, lack of opportunity to develop its creative abilities and independence. V. Devel', a supporter of the idea of free education, believed that the child's activity should be operated by its will and imagination. He evaluated O. Salomon's system as a means of suppressing the child's independence and creativity. V. Devel' offered a wider approach – in the spirit of ideas of activism. He believed that in family and school manual labor could be used not as a subject, but only as a means of meeting the child's physical

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[10] Lesgaft P.F. Sobr. ped.soch.: – T. 2.: Rukovodstvo po fizicheskomu obrazovaniyu detey shkol'nogo vozrasta. – Ch. 2. – M.: Gosizdat, 1952. – P. 339-341.

[11] Nashi pedagogicheskiye voprosy: Soch. barona N. A. Korfa – T. 2. – Vyp. 1. – M.: Tip. P.Korkina, 1886. – P. 16-18.

[12] Bekhter A. Ob opasnosti vvedeniya "Ruchnogo truda" v russkiye shkoly // Vestnik vospitaniya. – 1891. – № 3. – P. 90-118; Ototskiy P. Ruchno-trudovaya epidemiya // Vestnik vospitaniya. – 1891. – № 4. – P. 84-92.

labor could be used not as a subject, but only as a means of meeting the child's physical needs and as a means of self-service.[13]

Even the supporters of introduction of manual training in Russian schools did not always have a positive attitude towards O. Salomon's system. The discussions opened at the three congresses of the Russian figures on technical and vocational training in Russia testify to it (First Congress was held in late 1889 and early 1990, Second Congress – in late 1895 and early 1896, Third Congress – in late 1903 and early 1904).

Nevertheless, the pedagogical principles offered by O. Salomon, actually were not exposed to revision, but only were supplemented and developed. For example, among important ideas one should consider raising a question dealing with supplementing the course by theoretical lessons, observing didactic principles, the role and value of manual training for moral and physical development of children, purposeful development of strong-willed qualities of students in the process of teaching.[14]

The practical part of O. Salomon's system, namely his "collection of models" was subject to the most reasonable criticism. Many well-known experts of Russia – K. J. Cirulis', N. V. Kasatkin, D. I. Zagrebin, I. L. Shatalov took an active part in the revision of the practical part and offered their own programs. Thus, D. I. Zagrebin stated that O. Salomon's "collection of models" did not correspond to the life of the Russian peasants and meet their needs, since the life of the Russian peasantry appreciably differed from that of Sweden. Therefore, a certain part of items could not be used in real life. D. I. Zagrebin developed and offered his own "collection of models" which, in his opinion, was more suitable for schools of Russia. N. P. Stolpyanskiy, S. M. Soloshenko and others presented their own programs too.[15]

It is obvious, that there was a considerable share of truth in the reasoning of the opponents of the Swedish system. It is true O. Salomon's system had some serious drawbacks. They were emphasis exclusively on joinery; prevalence in the "collection" of fine single-type items; overstatement of the role of knife as the main tool. At the same time one cannot consider reasonable to fully deny developing and educational value of the Swedish system. Besides, the critics of the subject frequently identified vocational instruction and manual training. Nevertheless, critical statements towards the new subject stimulated gradual deviation from O. Salomon's system, accelerated emergence of the Russian system of training.

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[13] Devel' V. V. Kak vliyaet shvedskiy ruchnoy trud na detskoye tvorchestvo // Novoye slovo. – 1895. – № 7-8. – P. 60-63.

[14] Syezd russkikh deyateley po technicheskomu i professional'nomu obrazovaniyu v Rossii: 1880-1890: Trudy V-go otdeleniya: Ruchnoy trud v shkole / Pod red. V. I. Sreznevskogo. – S-Pb.; Tip. Y. N. Erlikh, 1890. P. 6-18; II-y syezd russkikh deyateley po technicheskomu i professional'nomu obrazovaniyu v Rossii: 1895-1896: XIII-ya sessiya: Ruchnoy trud v obscheobrazovatel'nykh uchebnykh zavedeniyakh. – S-Pb.; Vladimirskaya tipo-litographiya, 1896. – P. 57-61.

[15] Kotriakhov N. V. Pedagogicheskiy ruchnoy trud v russkoy obscheobrazovatel'noy shkole kontsa XIX-nachala XX v. – Kirov, 1995. – P. 109-117.

Features of the Russian system of manual training

Creation of this system required significant efforts on the part of the Russian manualists K. Y. Cirulis', N. V. Kasatkin, N. P. Stolpyanskiy, V. I. Farmakovskiy, K. K. Sent-Iler (1834-1901).

Due to K. Y. Cirulis's and the director of the institute K. K. Sent-Iler's efforts, St.-Petersburg Teacher's Istitute became the recognized center for the popularization and dissemination of the new subject in schools of Russia. As to K. J. Cirulis', right at the beginning of his career he faced serious problems in trying to work according to O. Salomon's system, especially in copying the "models". Gradually K. J. Cirulis' came to the conclusion that in teaching manual training far better results were achieved not by entire copying the samples by students themselves, but by showing working techniques by the teacher, enhanced attention to the process of work, applying explanations widely, communicating elementary theoretical and technological data. And the further he gained ground, the more he diverged from O. Salomon's system, from which in the long run there was only the principle of ... "performing tasks on the completed, practically useful objects of increasing difficulty" [16]

K. Y. Cirulis' was a convinced adherent of the idea of harmonious development of the person and shared the point of view of many progressive teachers about an opportunity of full and effective intellectual development only in its unity with physical development.[17]

K. Y. Cirulis' allocated central place to enhancing the child's interest to the subject and directly to the process of child labor. He was the supporter of wide use of drawings and gradual refusal of the "models" which he recommended later to use only as visual aids. He was convinced that it was during joint activity of the pedagogue and the student where the pedagogue acts as the senior comrade, that the most important impact of manual training – educational impact – could most fully be realized. In this connection he especially emphasized, that from an educational point of view it was not the problem that was important but the "method and process" of its solving.[18]

K. Y. Cirulis' stated the problem rather widely and spoke about the "new principle" of education the essence of which he saw in mandatory use of work and physical activity in general for the development of intellect, will, steady moral qualities. He constantly emphasized that the educational value of manual training was not in the problem itself, but of the method and process of its solving. The process of work is the element in which will is tempered, character becomes stronger, skills are developed, here a skilled teacher can render real influence on the student, K.Y. Cirulis' believed.[19]

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[16] Pamyatnaya zapiska o vvedenii i prepodavanii ruchnogo truda v S-Pb. uchitel'skom institute: 17/X 1884 – 17/X 1909 g. / Sostavil K. Y. Cirulis' – S-Pb., 1910. – P. 30-31.

[17] Ruchnoi trud v obscheobrazovatel'noi shkole: Pedagogicheskoye znacheniye i pol'za ruchnogo truda, ego istoriya, sovremennoye razvitiye i sostoianiye, prakticheskaya postanovka i literatura / Sostavil K. Y. Cirulis. – S-Pb., 1894. – P. 2.

[18] Cirulis K. Y. Ruchnoy trud v obscheobrazovatel'noy shkole. – S-Pb., 1890. – P. 51.

[19] Ruchnoy trud v obscheobrazovatel'noy shkole / Sost. K.Y. Cirulis. – S-Pb., 1894. – S. 6-9.

According to S. M. Shabalov, K. Y. Cirulis' had the honor to teach manual labor to two children of the imperial dynasty, at first Michael, and then Alexey Romanov.[20]

Moscow Teacher's Institute where N. V. Kasatkin lectured was the second center in importance in the dissemination of manual training in Russia. The syllabus on paper and cardboard work devised by him was awarded a Big gold medal in the international exhibition of 1912 devoted to the schools' organization and equipment. To the advantages of work with paper and cardboard N. V. Kasatkin referred cheapness of tools and materials, possibility of conducting lessons in the same classroom, as in other subjects, ease of the organization and an opportunity to work with the whole class (up to 40-45 students). From a pedagogical point of view, in N. V. Kasatkin's opinion, works with paper and cardboard are not worse than joinery at all, since they develop the same qualities – attentiveness and accuracy, creative abilities, ingenuity, exercise eyes and hands, bring up will and persistence.[21]

N. V. Kasatkin paid special attention to applying drafting and establishing interdisciplinary ties in the process of manual training. He called drafting an international language, which can easily be understood by everyone. Without drafting the value of manual training sharply drops. Only at integrating with drafting the work of students become intelligent and capable to cause their critical attitude to the process of work and the sequence of executed operations. N. V. Kasatkin appreciated manual training not only as a means for students' development, but also as the major means for preparing students for the future technical and professional activity, an initial step for technical education. In this respect he expressed his opinion to communicate technological data appropriate to the age of students.[22]

As a result of perfection of O. Salomon's system, introduction of not only wood processing, but also processing of other materials, by the beginning of the 19th century Russia had developed its own – the Russian system of manual training as an independent subject of general education school. It represented reasonable synthesis of various elements of the European systems of teaching and personal developments of the Russian teachers. Its distinctive features were:

- emphasis on the process of work itself, aspiration to the maximum use of opportunities of pedagogical influence on the pupil in the process of item producing or task performing;
- producing items not according to the models, but according to the sketches and drawings independently executed by the students;
- updating curricula in view of the regional features and capabilities of a concrete educational institution;
- introduction of work with paper and cardboard, elementary metalwork in addition to joinery;
- informing the students of elementary data on processing and properties of materials;
- applying direct explanations in the process of producing items by the students;
- use of face-to-face teaching and special "explanatory" theoretical lessons;

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[20] Shabolov S. M. Politekhnicheskoye obucheniye v sredney shkole: Dissertatsiya doktora ped. nauk. – M., 1954. – T. 2. – P. 15.

[21] Kasatkin N. V. Ruchnoy trud iz bumagi i papki v obscheobrazovatel'nykh shkolakh. Programma rabot. – M.: Tip. T-va I. D. Sytina, 1914. – P. 14.

[22] Kasatkin N. V. Ruchnoy trud v obscheobrazovatel'nykh shkolakh kak pervaya stupen' technicheskogo obrazovaniya. – M.: Tip. M. G. Volchaninova, 1897. – 20 p.

– creation and use of personal methods of teaching.

To put this system into school practice the illustrated books for teachers of manual training were created and issued by K. Y. Cirulis' and N. V. Kasatkin. For example: Cirulis' K. J., Kasatkin N. V. Sistematicheskoye rukovodstvo po ruchnomu trudu. Nachal'nye raboty iz dereva c chertezhami, risunkami i obyasnitel'nym tekstom / Sost. K. Y. Cirulis', N. V. Kasatkin, prepodavateli ruchnogo truda S-Peterburgskogo uchitel'skogo instituta. – 2-ye pererab. i dop. izdaniye. – S-Pb.: Kartograficheskoye zavedeniye A. Ilyina, 1894. – 40 p.: Sistematicheskoye rukovodstvo po ruchnomu trudu. I. Kurs nachal'nykh rabot iz metalla. II. Kurs dopolnitel'nykh rabot iz metalla. S obyasnitel'nym tekstom, rabochimi chertezhami i risunkami Sost. K. Y. Cirulis', prepodavatel' S-Peterburgskogo uchitel'skogo instituta i rukovoditel' uchitel'skikh kursov. – S-Pb.: Kartograficheskoye zavedeniye A. Ilyina, 1899. – 28 tabl.

The problems of methods of manual training were developed mainly by the instructor of Kharkov Teacher's Institute N. P. Stolpyanskiy. He was convinced that methods of teaching a subject in the general educational school play the main role in achieving the intended goals. Drawing analogy to shop lessons, lessons of reading and writing and arithmetic, N. P. Stolpyansky believed, that they should yield the same fast and obvious outcomes. And for this purpose first of all one should study the theory of labor process, and then practice in performing concrete techniques and operations. Wood processing being disseminated most widely, the theory of its manual and mechanical processing should be studied. It is necessary to imagine legibly, what force and in what direction should be put on the instrument and how the instrument is to operate on the processed material. It is expedient here to use elementary data from the course of physics. In the initial stage of studying the theory it makes sense not to go beyond three kinds of tools: a bow saw, a plane and a chisel. At the same time N. P. Stolpyansky exaggerated the role of exercising in separate operations and techniques, agreeing thus with the basic idea of the French system of teaching.[23]

Considerable influence on the process of popularization and dissemination of manual training and emergence of the Russian system was rendered by K. K. Sent-Iler. Recognizing suitability of the Swedish system as a model at the initial stage, he supported its improvement, introduction of metalwork, maintaining close ties with drafting and drawing, introduction of the elements of ornamenting subjects from the "collection of models" with the purpose of aesthetic development of children. He was one of the first teachers who appreciated the role of manual training in choosing a career, having specified that the new subject would promote to a considerable degree making an informed choice of vocation in the future.[24]

Development of alternative systems of manual training

Alongside with the development of the Russian system of teaching there were attempts to develop other systems. So, personal, rather original system of manual training was offered by practicing teachers S. G. Akbroyt and A. Verzhbitskiy. They suggested a mixed syllabi construction, or in S. G. Akbroyt's words "propaedeutics of all outstanding crafts". S. G. Akbroyt recom-

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[23] Stolpyanskiy N. P. Uroki raboty v obscheobrazovatel'nykh uchilischakh: Doklad v Postoyannoy komissii po technicheskomu obrazovaniyu pri I.P.T. obschestve 22 marta 1894 goda. – S-Pb.: Tip. I. N. Skorokhodova, 1894. – P. 5-24.

[24] Sent-Iler K. K. Ruchnoy trud kak obscheobrazovatel'nyi predmet obucheniya. – S-Pb.: Tip. V. S. Balasheva, 1884. – P. 21-25.

mended alternation of work from various crafts provided that there would be gradual introduction of each craft. He had tried to ascertain the most important and necessary techniques in each of the crafts, accessible to children and age determined, and to establish their sequence in the program. He designated joinery, metalwork, binding, cooperage, "suitcase", tin, painting, wallpaper crafts as the most acceptable to school and included their elements in his syllabus.[25]

Similar construction of the system of teaching was offered by A. Verzhbitskiy. Having completed courses for teachers in manual training in 1894 and having tried to work according to K. J. Cirulis's and N. V. Kasatkin's syllabi, he experienced disappointment. Local peasants did not support his courses and considered unsuitable the items from his syllabus. He accepted necessary to develop his own syllabus taking into account regional and local conditions and consisting of useful objects and children's toys. Like S. G. Akbroyt, A. Verzhbitskiy insisted on alternation of works from various crafts motivating that children could quickly lose interest being engaged in one kind of work. In A. Verzhbitskiy's syllabus carpentry, joinery, sawing, work with knife and tin alternated each other.[26]

The principle of creating the system of teaching with the use of alternating work from various crafts is worth attention from a pedagogical point of view. Such approach enhanced children's interest in manual training, speeding up formation of general manual training, reducing adaptation time at transition to new tools and operations.

However such approach resulted in serious problems in the organization of lessons. Firstly, teacher of manual training should be a master, all-rounder;

– secondly, there was a problem of equipping the workshop and storing various tools and materials, and also the unfinished items;

– thirdly, development of didactically and methodologically proven syllabi became complicated.

Another variant of system of manual training was offered by P. I. Khristianovich. He had not only created his own system but also put it into practice at Yekaterinoslavski elementary school. In that system educational and didactic goals were achieved in the process of performing diversified work having a strongly pronounced practical orientation. The core idea of P. I. Khristianovich's system was development of efficiency, initiative, diligence, and also forming in children abilities and skills of applying their knowledge in practice in the process of producing practically useful things. It was the Russian variant of pedagogics of pragmatism. P. I. Khristianovich had rather thoroughly studied the technology of achieving the set goals, the content of which he saw in exercising children to bring any work to a conclusion, to develop skills of sequence at work and maintain constant attention to it, in consecutive, punctual performance of practical tasks with their preliminary comprehension and the analysis of the received results. The most important in teaching he considered reliance on interest; feasibility of tasks car-

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[25] Propedevtika vsekh vydayuschikhsya remyosel, kak neobkhodimyi element vospitaniya v nachal'noy shkole. – 2-ye ispravlennoye izdaniye S. G. Akbroyta. – Odessa: Tip. Isakovicha i Belinsona, 1902. – P. 33.

[26] Verzhbitskiy A. Shkolnye remyosla. – Verkhnednepropetrovsk, Tip. F. I. Rozenfelda, 1913. – 20 p.

ried out by students both in the degree of complexity, and in the degree of accuracy; clearness of the goals for the students.[27]

Revealing distinctions in using manual training as an independent subject and as didactic means, P. I. Hristianovich marked, that ambiguity of goals of manual training as a subject inevitably leads to ambiguity of the obtained results. He himself set the precise goal: to develop at children not only physical strengths, but, mainly, spiritual, necessary at any activity of the person. But P. I. Hristianovich's system used at his school was not widely disseminated because of the complexity of its realization.

Manual training in elementary school practice of Russia

Analyzing the practice of dissemination of manual training in Russia's schools, it should be said, that within almost two decades instruction followed O. Salomon's system. Only by the boundary of the 19th-20th centuries K. J. Cirulis and N. V. Kasatkin's systems of instruction were more widely disseminated and recognized.

The elementary school of Russia in late 19th and early 20th century featured diversity and polytypicism both in terms and content of teaching and departmental belonging. The most widespread were rural elementary national schools and the city schools subordinated to the Ministry of National Education, and also parish schools subordinated to the Sacred Synod. Besides, there were schools of the Ministry of Home Affairs, Cossack, railroad, private and others. "Adoption in people of religious and moral concepts" and "dissemination of originally useful knowledge" was claimed the purpose of elementary national schools.[28]

In all types of elementary schools it was allowed to introduce teaching crafts or pedagogical manual training as optional to all students. For example, in the "Instructions for urban schools" manual training was considered as general not specialized subject, teaching of which should be done at after-hour time. That is lessons of manual training were not mandatory to all students. Lessons of manual training were conducted, as a rule, in free from other lessons time. Those who wished to engage were grouped in streams consisting of 10-12 students depending on the age and level of readiness to training. There were usually 30-50 students in every school who were grouped into 2-4 classes. More often children were engaged in work with wood, less often with metal, paper and cardboard. Students were between the age of 10 and 15 on the average.

The lessons were conducted twice or three times a week in the classroom or in the specially equipped workshop – a class of manual labor and lasted 2 hours. In most of the cases the lessons were conducted individually, since the level of students' readiness to work was very different. Additional tasks were provided for the most capable students. In early 19th century in the process of divergence from O. Salomon's system, attempts of simultaneous work with all students were undertaken. So, N. V. Kasatkin considered such work as one of the real advantages of the syllabi on paper and cardboard.

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[27] Khristianovich P. Opyt ustroystva obscheobrazovatelnoy shkoly s tsel'yu podgotovki uchaschikhsya k zhizni. – Izd. 2-ye. – M.: Tipolitogtaphiya t-va I. N. Kushnereva i K, 1912. – P. 16-22.

[28] Plastinin A. T. Primernye programmy predmetov, prepodavaemykh v nachal'nykh narodnykh uchilischakh vedomstva Ministerstva Narodnogo Prosvescheniya. – Izd. 11-ye. – Odessa: Tip. E. I. Fesenko, 1914 g. – 32.

A special attention was paid to the equipping the workshop with tools. Tools could be ordered from abroad, for example from Sweden. On the basis of the industrial school in Saint Petersburg, manufacturing of tools was organized by the Russian specialists during a short period of time.

The tools corresponded to the "children's physical abilities and hands" and were made under K. J. Cirulis's direct leadership. The tools were delivered in different variants: 1) for one person; 2) for the group consisting of 6-8 students; 3) for the group of 15-20 students. The first set of tools was intended for the teacher.[29]

One of the experts – M. I. Goshkevich developed requirements to the device and operation of school workshops which were named classes of manual labor. In particular, he believed that there should be at least 10 cubic meters of room per pupil. Workshops should have good ventilation. There should be no air pollution and therefore boiling of glue and paste should be done only at open windows. Performance of work accompanied with vent of dust, for example, sawing and finishing work with the use of an emery paper should be limited. It is important to constantly maintain cleanliness and order in the workshop. To achieve good illumination it is desirable, that the windows are on the south and located on one side, and the light falls to the workplace from the left.

Analyzing various kinds of work from the hygienic point of view, M. I. Goshkevich had come to the conclusion that at school the most preferable is joinery. It can be started at the age of 10 with producing simple hand-made articles, and more difficult tasks can be allowed from the age of 12-13. Also M. I. Goshkevich considered acceptable work with paper and cardboard, knife, metal performed in an upright position. Care should be taken while using lathe work, sawing, woodcarving, incrustation, weaving of baskets, and also blacksmith's work; and metalwork. M. I. Goshkevich named the major hygienic requirements to the lessons of manual training.[30]

Vocational classes at national schools of Russia

Opening of pedagogical classes of manual training at national schools had demanded their differentiation from vocational classes or branches, which provided elementary vocational training. To discuss this problem a special commission was created at the Ministry of National Education at the end of the 19th century. The commission tried to solve a question of principle about expediency of teaching crafts at national schools. After rough debate the decision was made to

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[29] Syezd Russkikh deyateley po technicheskomu i professional'nomu obrazovaniyu v Rossii: 1880-1890: Trudy V-go otdeleniya: Ruchnoy trud v shkole / Pod red. V. I. Sreznevskogo. – S-Pb.; Tip. Y. N. Erlikh, 1890. – P. 72-73.

[30] Goshkevich M. I. Osnovy gigieny shkol'nogo ruchnogo truda. Posobiye dlya inspektorov, nastavnikov, prepodavateley ruchnogo truda i nablyudayuschikh za primeneniyem ego v obscheobrazovatel'noy shkole / Sostavil vrach khersonskikh muzhskikh gimnasiy, pomoschnik Khersonskogo Gubernskogo vrachebnogo inspectora M. I. Goshkevich. – Odessa: Tipolitographiya M. I. Kovalyova, 1905. – 183 p.

preserve vocational classes and to legibly differentiate them from school workshops of pedagogical manual labor.[31]

It should be noted that by the time when manual training was introduced in elementary schools of Russia there were vocational classes or branches, which were mentioned about above. Their opening was caused by the demand of peasantry, local societies, zemstvoes, statesmen to add practical training to the general elementary education.

Opening of vocational classes began in the 60s-70s of the 19th century, the legislative ground for which was "Regulations about elementary national schools" of 1864. Vocational classes and branches opened at urban and rural schools. Their aim was to provide vocational training necessary for independent labor activity.

By 1893 there were 862 vocational classes in Russia. As to the crafts, predominant craft was joinery – 294 classes, then followed shoe making – 150, wood-turnery – 134, bench work – 74, blacksmith's – 67, bookbinding – 59 and many others. The main motives in choosing crafts were requirements of the local societies, cost of the equipment, availability of a qualified teacher. By 1893, 10820 students were enrolled in such classes.[32]

Such education was not obligatory. Interested persons were enrolled in the classes, including those who finished the course of general education. Therefore, the age of students was rather different – from 7 to 20. The number of week hours ranged from 2 to 12, and for those who had already finished elementary school – from 30 up to 60. The course duration was from 1 year up to 6 years. Financing of vocational classes was made up of the means assigned by the government, zemstvoes, local societies, etc.

Though the activity of craft branches reflected the local population's needs of elementary vocational training, it appeared to be ineffective. The reasons of low efficiency of vocational classes were:

- practically full lack of syllabi, and especially teaching methodologies;
- low level of teaching;
- insufficient physical development of children;
- weak resource base;
- irregular lesson attendance because of children's employment in housekeeping and the course being not mandatory;
- uncertainty of requirements towards graduates.

Vocational classes rendered significant influence on the process of disseminating manual training as independent subject. Firstly, low efficiency of classes had revealed the necessity of revising the approaches to introduce any kind of labor in the practice of national school. Secondly, a part of vocational classes subsequently were reorganized into school workshops of manual labor that facilitated their opening. Thirdly, opening of vocational classes promoted general education and vocational training of students of national schools. In many schools, which had craft

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[31] Zhurnaly zasedaniy Komissii dlya obsuzhdeniya voprosa o postanovke remeslennogo i technicheskogo obucheniya v nachal'nykh uchilischakh. – S-Pb.: Tip. akt. o-va E.Evdokimova, 1900. – P. 3.

[32] Sbornik materialov po tekhnicheskomu i professional'nomu obrazovaniyu: Vypusk IV. S-Pb., 1895. – Chast' II. – P. 145-148.

classes, such subjects as drawing, drafting were simultaneously introduced.[33] The operational experience of vocational classes was taken into account in the work of classes of manual labor. At the same time, the process of disseminating manual training had resulted in significant reduction of the number of vocational classes and by 1913 there remained only 296 of them.[34] By that time manual training was conducted in more than 500 elementary schools of Russia.

Teaching *rukodelie*, needlework that was a version of manual training for girls should also be mentioned. The subject was mandatory both at the elementary, and secondary school for girls. It is interesting to note that in many elementary schools also boys were willingly involved in needlework, for whom it was not mandatory.[35]

The syllabi in *rukodelie* were developed by the special commission under the direction of well-known figure of female vocational training M. K. Kablukova. The basic kinds of work in rural elementary schools with a 3-year curriculum were knitting and sewing. On knitting it was allocated 30 hours per year, on sewing – 60 hours. The curricula of urban vocational schools were supplemented with a short course of embroidery.[36]

Thus, it can be concluded, that the problems of the organization of manual training at the elementary national school were solved mainly giving consideration to such factors as the subject being optional, the degree of adequate provision of school workshop with necessary materials and tools, the number of workplaces in it, teachers being engaged in other work. But not all interested students could attend the lessons of manual labor since there were not enough workplaces and equipment.

Estimating the general tendencies in the development of the contents of manual training at the national school it should be emphasized that at the initial stage the most strongly pronounced tendency was in search of compromise between the pedagogical and utilitarian orientation of the curricula. Here didactic and methodological principles of their construction were kept. As the Russian system of teaching was created own variants of syllabi on wood and metal were developed. They were adapted to the conditions of the Russian reality and supplied with kinds of technological maps. These maps contained the basic stages and the sequence of work techniques and operations in diagram and text form.

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[33] Rudolf N. F. Remeslennye klassy i professional'nye otdeleniya pri obscheobrazovatelnykh uchebnykh zavedeniyakh. – S-Pb.: Senatskaya tip., 1904. – P. 40.

[34] Vsepoddanneyshiy otchyot Ministra narodnogo prosvescheniya za 1913 god. – Pg., 1916. – P. 128.

[35] Gosudarstvenny arkhiv Kirovskoi oblasti (GAKO), f. 205, op. 4,ed. khr. 3225, and l.184.

[36] Programmy obucheniya rukodeliyu v sel'skikh nachal'nykh, gorodskikh, odnoklassnykh uchilischakh s tryokhgodichnym kursom, v progimnasiyakh i gimnasiyakh, vyrabotannye osoboy komissiey, rassmotrennye i utverzhdyennye 4 yanvarya 1896 g. VI sessiey II-go syezda po technicheskomu i professional'nomu obrazovaniyu i obyasnitel'naya zapiska k programmam, sostavlennaya predsedatel'nitsey komissii po zhenskim remyoslam pri uchebnom otdele politechnicheskogo museya v Moskve M. Kablukovoy. – Izd. 2-ye. – M.: Tov-vo tip. A. I. Mamontova, 1902. – P. 2-13.

Manual training at the secondary school of Russia

Analyzing the dissemination of manual training in secondary general education schools of Russia, it is necessary to emphasize significant distinctions in purposes and in the organization of teaching. The problem was that the elementary and secondary schools were actually isolated from each other. The elementary national school provided elementary literacy, basic religious – moral education of children from poor rural and urban areas. It enabled them to enter elementary vocational schools. The secondary school trained children of well-to-do parents for entering the university or getting advanced special education. Graduates of secondary schools were trained, usually, for state or military service.

Nevertheless, the dissemination of manual training with pedagogical purposes began also at secondary educational institutions, first of all – at military schools. At the Second Congress of Russian figures in technical and to vocational training in Russia teachers of military educational institutions – military schools – launched a debate about the role and value of manual training at the secondary school. During the debate two various approaches had been revealed. Supporters of the first approach – A. D. Butovsky, K. K. Dometti, S. V. Ul'kovsky, considered obvious the distinctions in the use of manual training with pedagogical purposes at the elementary and secondary school and, accordingly, specified distinctions in its contents and methods. Supporters of the second approach – N. V. Kasatkin, I. L. Shatalov and others – pointed to wrongful, from their point of view, rigid distinction of the purposes, orientations and values of this subject at the elementary and secondary school.

Giving reason for his position, general-major A. D. Butovsky stressed that introduction of the new subject at secondary educational institutions meets the universal needs and will promote overcoming of the main lacks of the modern to him educational system – bookish character of teaching and isolation from real life.

But, the items made at the lessons of manual labor at elementary schools should differ from those produced at secondary educational institutions. Probably, these objects will not be useful in domestic life, but they should be more expedient from the pedagogical point of view.

Besides, at the secondary school the value of manual training is not so great for intellectual development of students. If at the elementary school while producing the items children get an idea of the form, size, spatial proportions, at the secondary school these concepts are acquired at the lessons of geometry, drawing and drafting.

From the point of view of physical development of children manual labor concedes to gymnastics. At the same time, manual labor has doubtless value since it provides development of hands, a child's sense perception. Therefore one should speak about the combination of gymnastics and manual training at the secondary school.

A. D. Butovsky appreciated the value of manual training for molding the character, for moral education of students. He spoke about the importance of manual training for aesthetic education of children. Boys from rich families should understand, that the original beauty is best of all combined with simplicity, and in useful objects – with expediency of their form.

A. D. Butovsky suggested considering manual training as a rather desirable supplementary subject for any secondary educational institution.[37]

The well-known expert in labor K. K. Dometti named insufficient definition to be the main reason of distinctions in understanding the goals of the subject at the elementary and secondary school. He expressed the opinion, that at the elementary school the principal value of manual training was "practical and educational", caused by country life. The main thing here was mastering practical skills. At the secondary educational institutions in manual training on the first place there should be "moral and educational" goal.[38]

Categorically against K. K. Dometti's suggestion had acted N. V. Kasatkin He named wrongful to discriminate between the goals of manual training at the elementary and secondary school. After the debate at the Second Congress of Russian Figures on Technical and Vocational Training in Russia the decision was made, that the importance, orientation and goals of teaching general education subjects including manual training should be identical at the elementary and secondary school.[39]

P. F. Lesgaft and the well-known Russian doctor and teacher V. V. Gorinevsky (1857-1937) warned the supporters of introduction of manual training at secondary school against inclination to utilitarianism.[40]

A. Korshunov stated his own opinion concerning manual training at the secondary school. He believed, that manual training was one of a few means enabling sensual images approach the reality, develop imagination, creative inclinations of children, their design skills. A. Korshunov considered that was work with concrete substances, materials, objects that enables to form an adequate idea of their properties, proportions and to serve a basis of sensual as well as abstract reasoning.[41]

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[37] Butovskiy A. D. Ob obuchenii ruchnomu trudu v srednikh uchebnykh zavedeniyakh // Syezd russkikh deyateley po technicheskomu i professional'nomu obrazovaniyu v Rossii. 1889-1890. Trudy V-go otdeleniya: Ruchnoy trud v shkole / Pod red. V. I. Sreznevskogo. – SPb.; Tip. Y. N. Erlikh, 1890. – P. 1-10.

[38] Dometi K. K. Ruchnoy trud v nachal'noy i sredney obscheobrazovatel'noy shkole // 2-y syezd russkikh deyateley po technicheskomu i professional'nomu obrazovaniyu v Rossii. 1895-1896. XIII-ya sektsia. Ruchnoy trud v obscheobrazovatel'nykh uchebnykh zavedeniyakh. / Izdano pod red. N. V. Kasatkina. – S-Pb.: Tip."Vladimirskaya", 1896. – P. 54.

[39] 2-y syezd russkikh deyateley po technicheskomu i professional'nomu obrazovaniyu v Rossii. 1895-1896. XIII-ya sektsia. Ruchnoy trud v srednikh uchebnykh zavedeniyakh. / Izdano pod red. N. V. Kasatkina. – S-Pb.: Tip.: "Vladimirskaya", 1896. – P. 56, 128.

[40] P. F. Lesgaft Sobr. ped. soch. – T. 2. Rukovodstvo po fizicheskomu obrazovaniyu detey shkol'nogo vozrasta. – Ch. 2. – M.., Gosizdat, 1952. P. 343-346.; Gorinevskiy V. Ob otnosheniyakh umstvennogo truda k fizicheskomu. // Russkaya shkola. – 1892. – № 1. – P. 39-54; – № 2. – P. 39-57.

[41] Korshunov A. Obrazovatel'noye znacheniye ruchnogo truda // Russkaya shkola. – 1914. – № 9-10. – P. 1-31; – № 11. – P. 34-56.

An outstanding Russian educator P. F. Kapterev (1849-1922) appreciated manual training as didactic means stimulating visualization. Consideration of the problem of visual methods in teaching by P. F. Kapterev had played not the last role in acceptance of manual activity.[42]

Supporters of the so-called activism, for example A. F. Fyodorov-Gartvig, opposed a rigid regulation of the teaching process. They called for granting the teacher greater freedom in teaching. One of the central tasks of school they believed was fostering of independence, activity of students. Here manual training was considered to be universal method of teaching and upbringing. Adherents of activism insisted on inclusion of students in various kinds of activity both at lessons and out-of-class activities.[43]

The developers of another trend were well-known scientists-methodologists who were engaged in the problems of teaching natural sciences. V. V. Polovtsov (1862-1918), B. E. Raikov (1880-1966), K. P. Yagodovsky (1877-1943) tried to use manual activity in the process of teaching natural sciences. They relied on the requirements of the concrete subject, and the personal methodologies created by themselves. The aspiration to increase a share of practical lessons was typical of them. Thus, they tried to remove the lacks typical in teaching natural sciences in modern (to them) school.[44]

A dissemination of manual training at the general educational school of pre-revolutionary Russia was summed up while preparing for the overall school reform in 1915. In the materials of the reform (which were not put into practice because of the revolution of 1917) the main task of manual training at the secondary school was declared to be overcoming of one-sided teaching focused exclusively on intellectual activity, acquisition of the practical skills necessary in life, fostering of independence and creative attitude towards solving vital problems.

The recognition of the necessity to include manual training among compulsory subjects for all the students of the first five grades of all secondary education institutions was essential. In two senior classes the subject was considered optional to students on condition that the lessons were organized for all comers.[45] At developing the syllabi in manual training for the secondary school, their authors took into account a number of circumstances. To prevent the loss of interest of children in work, on the one hand, and to maintain drill of steady skills on the another hand, an attempt was undertaken to combine new techniques with already acquired ones. The major princi-

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[42] Kapterev P. F. Didakticheskiye ocherki. Teoriya obrazovaniya // Izbr. ped. soch. Pod red. A. M. Arsen'eva. – M.: Pedagogika, 1982. – P. 538.

[43] Gartvig A. Ruchnoj trud kak metod obucheniya i vospitaniya v sem'ye i shkole. – M.: Tip.Y. G. Sazonova, 1912. – P. 22-45.

[44] Polovtsov V. V. Osnovy obschey metodiki yestestvoznaniya. – Izd. 2-ye, znachitel'no pererabotannoye i ispravlennoye. – M.: Tip T-va I. D. Sytina, 1914. – P. 35, 208;

Raykov B. E. Metodika practicheskikh zanyatiy po prirodovedeniyu: Posobiye dlya rukovoditeley k "Tetradi dlya practicheskikh zanyatiy po prirodovedeniyu" togo zhe avtora. – Pg.: Izd. N. P. Karabasnikova, 1915. – P. 5-18;

Yagodovskiy K. P. O prepodavanii estestvoznaniya. Sbornik statey po metodike shkol'nogo estestvoznaniya. – Pg.: Tip. "Pechatnyi trud", 1917. – P. 38-40.

[45] Materialy po reforme sredney shkoly. Primernye programmy i obyasnitel'nye zapiski, izdannye po rasporyazheniyu g. Ministra Narodnogo Prosvescheniya. – Pg., 1915. – P. 508-512.

ple of the Swedish system was kept – manufacturing of the finished items by the students, which enabled them to develop independence.

On the whole, one can state that in pre-revolutionary years some changes began to emerge in approaches to the role and evaluation of manual training as an independent subject at the secondary school. Its general educational orientation remained the major priority. However, in view of the general situation in Russia the practical value of lessons in manual labor began to be more appreciated. Mastering skills to use various tools, general labor training were considered as very important for the future life and activity.

Thus, there were various approaches to the assessment of the role and value of manual training at the secondary school. Nevertheless, the new subject was recognized in practice of the Russian secondary school.

Manual training in the practice of the secondary school of Russia

Manual training as an independent subject was introduced, mainly, at men's secondary educational institutions. The basic types of men's secondary general educational schools were gymnasia. On the basis of their belonging, gymnasia were subdivided into state, subordinated to the Ministry of National Education, and private. By the content of education they were subdivided into classical and real. In the curricula of classical gymnasia about half of the school hours were allocated to the study of classic languages – Latin and Greek, in the curricula of real gymnasia these languages were absent but the number of hours was considerably increased to the study of modern languages – French and German.

Except for the gymnasia, the most widespread types of secondary general education institutions were real schools and commercial schools. In parallel with gymnasia of the Ministry of National Education there were private gymnasia and private secondary educational institutions.

Manual training was introduced also into military educational institutions – cadet and Pazheskiy corps that provided, along with special, wide general education. In 1892, i.e. in eight years after its introduction, manual training was taught in 4 gymnasia and 18 military schools. Among gymnasia leaders were the Second Moscow, Third St. Petersburg, Irkutsk and private gymnasium of Y. G. Gurevich.[46]

By 1911, i. e. in 25 years after its introduction, manual training was taught already in 64 civil and 33 military secondary educational establishments.[47]

In military schools manual training was introduced as out-of-class lesson. Future officers could choose from participation in the church choir, lessons of music, or manual training.[48] The goal of the lessons was declared to be all-around development of physical and spiritual abilities of the students. Originally teaching was conducted on the basis of the Swedish system, in future – according to the syllabi developed at St.-Petersburg Teacher's Institute.

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[46] Solomin E. Ruchnoy trud. Yego znacheniye, sistemy, vidy, rasprostraneniye i postanovka prepodavaniya v sredney shkole, podgotovka uchiteley. // Russkaya shkola. – 1908. – № 1. – P. 107.

[47] Pamyatnaya zapiska o vvedenii i prepodavanii ruchnogo truda v S-Pb. uchitel'skom institute: 17/X 1884 – 17/X 1909 g. / Sostavil K.Y. Cirulis' – S-Pb., 1910. – P. 70.

[48] Obschaya programma, raspredeleniye vremeni i nastavleniye dlya vedeniya vneklassnykh zanyatiy v kadetskikh korpusakh. – S-Pb., 1890. – P. 16, 163-166.

In gymnasia of the MNE the regulation of the teaching process was rather rigid. Therefore, usually own variants of organization of the new subject were developed in private and public schools, and gymnasia, for example, at the famous Tenishevskiy School – secondary general education establishment with the elements of commercial knowledge. The teacher of manual labor at Tenishevskiy School was E. K. Solomin. He borrowed a number of pedagogical principles from the Swedish system, but the contents and methods of teaching were developed independently in view of experience of the Russian and foreign teachers.

In the curriculum of Tenishevskiy school manual training was introduced as a compulsory subject in the first three Grades for which the appropriate syllabus was developed. The syllabus was founded on both the technical methods of processing materials, and the systematic account of kinesthetic activity of children. The syllabus included simple products from wood (from 6 up to 13 items per one academic year). The items were characterized by their diversity. Drafting and measuring tools were used in the process of work. The students were entrusted with sharpening of tools at all steps of training. In addition to mandatory tasks the students performed work for themselves. They also made training aids and class accessories at the request of the teacher.

Nevertheless, manual training was taught well enough at some gymnasia of the MNE. So, in the First Vilenskaya gymnasium the teacher M. Serebryakov tried to solve such problems:

"1) to promote physical development of students; 2) provide them with healthy entertainment; 3) enhance their intellectual development; 4) promote cultivating a strong will; 5) to meet the needs for special knowledge of those students who have special inclination for technical activity and suppose to enter higher technical schools".[49]

In other secondary educational institutions manual training was taught according to K. J. Cirulis's system and syllabi. For example in Vyatka Men's Gymnasium № 1 the class of manual training was opened in 1909. The lessons were attended by the students of the 3rd -7th Grades. In each class there were up to 30 persons wishing to engage in manual labor. Lessons were conducted twice a week from 15 o'clock to 17 o'clock, or from 17 o'clock to 19 o'clock. By the year 1915 there were 143 students in the class. Students not making satisfactory progress in compulsory subjects were not supposed to attend the lessons, which were conducted by teacher A. G. Popov. In his opinion, the majority of gymnasium students were engaged with desire and interest. In addition to wood processing, bookbinding was practiced. Exhibitions of student's work were regularly arranged.[50] Such was a rather typical state of teaching manual labor in men's gymnasia and real schools.

The experience of Moscow gymnasium № 1 can be given as an example of the realization of ideas of activism. A. F. Fyodorov-Gartvig, being its teacher, did not confine himself to theory, but also persistently introduced his ideas into practice. Students were engaged in drawing, photo-

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[49] Po voprosu o postanovke ruchnogo truda v sredney obscheobrazovatelnoi shkole. Zapiska prepodavatelya Vilenskoy I-y gimnasii M. Serebryakova. –Vilna: Tip. A. G. Syrkina, b/g. – P. 1.

[50] Istoria Vyatskoy gymnasii za sto let yeyo suschestvovaniya. Po porucheniyu pedagogicheskogo soveta sostavil prepodavatel'gimnasii M. G. Vasil'ev. – Vyatka: Gubernskaya tip., 1911. – P. 335-336.

graphing, molding, pokerwork, woodcarving, sawing, modeling (model building), collecting, bookbinding, and application. Here the students' work was related to the studies.[51]

In addition to usual lessons, practical lessons became more disseminated in secondary educational institutions, first of all in such subjects as natural sciences, physics, chemistry, geography. The developments of famous methodologists V. V. Polovtsov, B. E. Raykov, K. P. Jagodovskiy, who were mentioned before, and also developments of S. A. Pavlovich (1884-1966) and K. F. Lebedintsev (1878-1925), which also were approved by their authors in practice rendered serious assistance to teachers of high school in the organization of practical lessons. For instance, S. A. Pavlovich conducted lessons of manual labor according to the system of manufacturing visual aids offered by him at St.-Petersburg Freubel courses. He recommended independent manufacturing of zoological and botanical collections to the students. In his opinion, it would enable to considerably increase soundness and adequacy of students' ideas of their surroundings, to arouse interest in natural sciences.

In contrast to men's gymnasia, in gymnasia and progymnasia for girls the analogue of manual training "Rukodelie" was a compulsory subject of their curricula.[52]

In gymnasia for the first four years of study it was allocated 25 hours to knitting per year and 35 hours to sewing. The fifth year of study introduced cutting of patterns and 24 hours were allocated to cutting and sewing of linen, and 16 hours to embroidery. The sixth and seventh years taught cutting and sewing of more complicated items (60 hours per year).[53] Later the MNE issued the modified version of the syllabi, but it did not contain any fundamental changes.

In conclusion, it should be said that the most active supporters of manual training among secondary general educational institutions appeared private gymnasia and schools. Here own syllabi for teaching manual training were developed, the contents, the organization and methods of teaching were continuously improved.

Teachers training for instruction in manual labor

Already at the introduction of manual training in Russian school in 1884 the "Plan for a General Standardized System of Industrial Education in Russia " provided for outstripping training of teachers. The "Plan" specified the necessity of studying foreign experience and establishing in Russia workshops of manual training at teachers training institutions. Qualified teachers

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[51] Gartvig A. Ruchnoy trud kak metod obucheniya i vospitaniya v sem'ye i shkole. – M.: Tip.Y. G. Sazonova, 1912. – P. 22-45; Gartvig A. Radost' truda. – M.: Tipolitografiya t-va I. N. Kushneryova, 1906. – P. 6.

[52] Ministerstvo Narodnogo Prosvescheniya. I. Zhenskiye professional'nye shkoly i kursy. II. Classy rukodeliy pri obscheobrazovatel'nykh zhenskikh uchebnykh zavedeniyakh. – S.-Pb.: Izd. Otdeleniya promyshlennykh uchilisch, 1909. – P. 3.

[53] Programmy obucheniya rukodeliyu v sel'skikh nachal'nykh, gorodskikh, odnoklassnykh uchilischakh s tryokhgodichnym kursom, v progimnasiyakh i gimnasiyakh, vyrabotannye osoboy komissiey, rassmotrennye i utverzhdyennye 4 yanvarya 1896 g. VI sessiey II-go syezda po technicheskomu i professional'nomu obrazovaniyu i obyasnitel'naya zapiska k programmam, sostavlennaya predsedatel'nitsey komissii po zhenskim remyoslam pri uchebnom otdele politechnicheskogo museya v Moskve M. Kablukovoy. – Izd. 2-ye. – M., 1902. – P. 2-13.

wishing to teach manual labor were to be trained in summer courses as well. Course training was considered in the "Plan" as a provisional measure, the necessity in which disappears automatically.[54]

The Russian experts studied experience of other states. For example, in Germany teachers training in manual labor was carried out in the Leipzig seminary. In K. J. Cirulis's opinion, theoretical training in this seminary was on a rather high level. Practical training though being based on various kinds of work – paper, joinery, metal – was characterized by monotony in the organization of lessons and insufficient efficiency.[55]

In Sweden the recognized center of teachers training in manual training was Nääs teacher's seminary. In Russia the Swedish system of instruction having been taken as a basis, and K. J. Cirulis' and A. F. Kotikov having traveled to Nääs, it makes sense to characterize O. Salomon's teachers training course in brief.

O. Solomon tried to use different variants of training teachers of manual labor. First he wanted to give pedagogical training to joiners – artisans in a one-year course. But that experience appeared unsuccessful. After finishing the courses handicraftsmen had rather quickly forgotten all the pedagogical principles and began to concern in the trade only from the position of craft. Then O. Salomon came to a conclusion, that it would be more correct to provide additional craft training for teachers who already had teaching experience at school and wished to teach manual labor. Efficiency of such a solution of the problem was confirmed by the French experience.

That is why courses were opened at Nääs seminary, where interested practicing teachers could get theoretical and practical training in the field of manual labor and its teaching. The total course of training was about three months. The contents of the theoretical part included information on the role and value of manual training in education, main principles of teaching, kinds of crafts suitable for lessons, requirements to the items, tools and materials, the organization of lessons and teacher's methods of work with children. The contents of the practical part included manufacturing of a "collection of models" – a set of items which children were supposed to make later on.

In Russia, according to the "Plan for a General Standardized System of Industrial Education in Russia" on October 17th, 1884 the first class of pedagogical manual training in Russia was solemnly opened at St.-Petersburg Teachers' Institute at I. A. Vyshnegradskiy's presence. Training of future teachers initially followed O. Salomon's system, but in the process of deviating from the Swedish system lessons of drafting were introduced and the theoretical course was developed at the institute. Its contents included: 1) information on the pedagogical and utilitarian value of manual training for various types of Russian general education school; 2) history of pedagogical manual labor; 3) modern state of manual training in schools of Russia and other countries; 4) technological information about materials, tools and machine tools; 5) methodological guidelines in manual training; 6) a review of the literature and manuals in this subject.

Practical training of future teachers featured, first of all, exact and qualitative performance of those tasks which children in elementary school were to perform. The basic kinds of work

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[54] Project obschego normal'nogo plana promyshlennogo obrazovaniya v Rossii. – S- Pb.: Tip. F. Eleonskogo, 1884. – P. 18-22.

[55] Cirulis' K. J., Kasatkin N. V. Otchyot o komandirovke v Leyptsigskuyu seminariyu ruchnogo truda s tsel'yu oznakomleniya s kursami rabot po derevu i metallu dlya sel'skikh shkol. – S-Pb.: Tip. V. S. Balasheva i K°, 1895. – 12 p.

were woodworking and metalworking. Programs that trained teachers for instruction in manual training were organized in Moscow and Kharkov Teachers Institutes.

Gradually classes of manual training opened at teacher's seminaries. The analysis of archival and literature references revealed, that in most of teacher's seminaries future teachers of manual training had been trained according to the syllabi developed at St.-Petersburg and Moscow Teacher's Institutes. Besides, requirements of the special instruction of the Ministry of National Education were carried out. Practical lessons consisted of three parts: work with paper and cardboard, wood and metal. It was allocated 8 hours per week to the lessons of manual labor, 6 hours to practical lessons, 2 hours to graphic lessons with reference to the course of manual labor. The third year of study, one hour was allocated to theoretical lessons, which assumed acquaintance with the history and state of its teaching in different states. A review of special literature in methods of teaching was made, data on technology of processing of wood and metal were studied.

To drafting it was allocated two lessons a week within all three years of study. The course of drafting was to have a practical orientation and close ties with the syllabus in manual labor. In its contents it was recommended to include bases of geometrical, projective and perspective drafting, and also exercises in performing sketches and drawings independently.[56]

Teachers training in summer courses

Regular summer courses began since 1885. Only for the first ten years more than 50 courses that lasted 6 weeks on average were held. The greatest number of courses was held in St. Petersburg school district (20), then followed Odessa (15), Riga (5), Moscow (4) and other districts. The heads of the courses were, as a rule, well-known experts K. J. Cirulis', A. F. Kotikov, N. V. Kasatkin, V. S. Konoplyov, N. P. Stolpyanskiy. The courses lasted from 6 weeks to 2,5 months.

Experience of the first years had revealed that such form of teachers training could yield quite good results. Purposeful training enabled to master required knowledge and skills, to learn the theoretical material, to be convinced of the benefit and educational value of manual training by experience. Some of the course students managed to make more work with a high quality than those trained at teacher's institutes and seminaries.[57]

On the whole, 145 courses in manual training had been held throughout Russia by 1910. More than 2000 teachers had been trained there. Leaders in the organization of the courses were St.-Petersburg, Odessa, Riga and Moscow school districts.[58]

The problem of training teachers in rukodelie was also taken into consideration. The courses for women, who got secondary education and wished to teach rukodelie, were arranged, for example, in St. Petersburg, Petrozavodsk. Thorough practical training was provided in a two-year course at S. P. Dervid private professional school for women. Such subjects as Foundations

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[56] Glavneyshiye rasporyazheniya i uzakoneniya pravitel'stva, kasayuschiyesya prepodavaniya ruchnogo truda i opublikovannye s 1894 po 1903 g. / sobral K.Y.Cirulis'. – B/м., b/g. – P. 11-12.

[57] Sbornik materialov po tekhnicheskomu i professional'nomu obrazovaniyu: Vypusk IV. – S-Pb., Tip. B.S. Balashova i K., 1895. – P. 194-201.

[58] Pamyatnaya zapiska o vvedenii i prepodavanii ruchnogo truda v S.-Pb. uchitel'skom institute: 17/X 1884 – 17/X 1909 g. / Sostavil K.Y. Cirulis' – S-Pb., 1910. – P. 42-43.

of Education, Methods of Needlework, Hygiene, Drawing were studied here. The courses were fee-paying.[59]

Thus, in Russia a system of elementary school teachers training for instruction in manual labor gradually took shape. Its features were emphasis on mastering school curricula, thorough study of theoretical, methodological and technological issues, diversity of practical work, wide application of drafting.

Conclusion

At the end of the 19th century pedagogical manual training became widely disseminated in the countries of Western Europe. In early 80-s manual training was introduced as an independent subject in schools of Russia. O. Salomon's system had successfully played the role of a model in introducing manual training in general education schools. At the same time, the Swedish system of teaching insufficiently corresponded to the realities of the Russian school practice. The Russian system of teaching was created on the basis of the Swedish system in a short space of time. Here the pedagogical principles offered by O. Salomon practically were not exposed to revision. These principles were only supplemented and improved. But the technological and practical parts of O. Salomon's system were essentially changed. Nevertheless, it is necessary to recognize expediency of borrowing the Swedish system of teaching manual labor for the general educational school of Russia of late 19th and early 20th century.

[59] Kursy dlya prigotovleniya uchitel'nits rukodeliya // Technicheskoye obrazovaniye. – 1892. – № 3. – P. 13-14; Besedy o prepodavanii zhenskikh remyisel v nachal'nykh uchilischakh. – Petrozavodsk: Olenetskaya tip., 1905. – P. 5, 19-21.