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**TECHNICAL MEANS OF TEACHING AND EDUCATIONAL FILMS AS
NECESSARY METHODS OF PRESENTATION OF MATERIAL AT
SECONDARY TECHNICAL SCHOOLS IN RYUMIN'S PEDAGOGICAL
WORKS (THE END OF THE 19TH – BEGINNING OF THE 20TH CENTURY)**

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Technical means of teaching and educational films as necessary methods of presentation of material at secondary technical schools in Ryumin's pedagogical works (the end of the 19th – beginning of the 20th century)

In this article the author reveals actuality of using technical aids of teaching at the lessons of natural sciences at secondary technical schools. The matter is that at the beginning of the 20th century there appeared some contradictions in applying technical aids of teaching at secondary technical schools. These contradictions should have been didactically comprehended and solved. Not solving this problem would lead to the halt in training of technical personnel in the country and reduced their quality. The problems which should have been solved were: unsatisfactory material equipment of physics studies by visual teaching aids. This led to waste of integrity in teaching evidence visual methods of teaching. There were no methods of using cinematograph at the lessons of natural sciences there was nothing done to save teaching time. The article is written on the basis of historical and pedagogical material at the end of the 19th and the beginning of the 20th century. In this article special attention is paid to V. V. Ryumin personality in revealing above mentioned problems which were connected with using teaching equipment and cinematograph as visual aids of teaching at secondary technical schools at the beginning of the 20th century. The author of the article submitted for consideration Ryumin analysis of stated problem. Ryumin deductions and suggestions promoted to reform the system of technical education at the beginning of the 20th century.

Key words: teaching procedure, methods of presentation of material, teaching techniques, educational film, teaching time, technical means of teaching, means of teaching, practical classes.

At the beginning of the 20th century in secondary technical schools in use of training means there were some contradictions, which needed solution and didactic comprehension. To these problems we refer: poor material equipment of Physics

classrooms with visible means of education – this factor resulted in the loss of integrity, demonstrability, use of visual methods; not developed methods of using cinematograph at the lessons of Natural Sciences – it complicated the study by teachers the collected real material on the subject, it did not provide the saving of training time.

The topicality of using technical means in educational process in the end of 19th at the beginning of 20th century took an important place among the problems associated with teaching in secondary technical schools.

The purpose of the article is to reveal educational activity of V. V. Ryumin, directed to resolving contradictions associated with the use of educational supplies and cinematograph as a means of training in the educational process in secondary technical schools at the beginning of 20th century.

The use of training technical means on the lessons of natural sciences at the end of 19th – at the beginning of 20th century was studied in researches in history of the formation of secondary technical schools by A. M. Veselov [2] and M. M. Kuzmin [4]. The general characteristics of using training equipment in educational process was provided in dissertation works of V. B. Synyushyn [10] and E. N. Lutsenko [5]. The thesis researches cover the problems of formation of secondary technical schools in the end of 19th at the beginning of 20th century in Russia and Ukraine. Analysis of the application of technical means of training at secondary vocational technical schools is presented in the works by S. Y. Batyshev [1], A. M. Novikov and other scientists.

An important place in pedagogic heritage of V. V. Ryumin is occupied by the activities with organization of improving the quality of the educational process by means of the use of various training means. In analyzing the activities of V. V. Ryumin in this way, we define its basic components:

- revealing contradictions in implementation of certain types of educational supplies as training means with the purpose, content and objectives of educational material in Physics;

- using educational supplies with demonstrational qualities of the expositions of museums and exhibitions of technical creativity as a means of training at Physics lessons;

- developing the methods of using cinematograph as a modern technical means at Physics lessons.

V. V. Ryumin paid a significant attention to revealing contradictions in implementation of certain types of educational supplies as training means with the purpose, content and objectives of educational material in Physics. At the beginning of 20th century German teachers and methodologists widely proposed to carry out experiment by students without any help at Physics lessons to consolidate the theoretical positions, to produce physical supplies by students on at Physics lessons, and to conduct measuring of research devices. According to the authors of this idea, the proposed method had to stimulate: the educational capabilities of students; conscious comprehension of theoretical material; to form the skills to use educational supplies.

Speaking from the point of an experienced teacher of natural sciences V. V. Ryumin thought that the practical application of the first two positions would have low productivity in training, however, in his mind, only the third position is met with approval. Here is the sound argumentation of V. V. Ryumin.

V. V. Ryumin did not approve an independent working-out of experiments by students by means of physical devices. V. V. Ryumin supposed that an experiment, which is unsuccessfully carried out, could questioned exactly a physical law, which was not confirmed by experiment. “The accuracy of the experiment needs skills, which teachers get only after a number of years. If the experiment fails, in the pedagogical sphere, it is rather harmful than useful” – writes V. V. Ryumin [8].

The second position, which V. V. Ryumin raised in opposition to using research devices at Physics lessons, was an independent production of physical supply by students. V. V. Ryumin believed that the productivity of received skills of students within the limits of Physics training would be low. Firstly, students of secondary technical schools do not develop when making toy instruments; secondly,

when making of complex instruments in conditions of schools demands considerable costs and including these practical works to Physics curriculum. According to the V. V. Ryumin's mind, such work is directed to develop hand-labour skills than to master the necessary theoretical knowledge of the subject.

According to the V. V. Ryumins' mind, the use of measurement instruments at practical Physics lessons will have positive educational results. V. V. Ryumin thinks that independent measurement "can reinforce not only theoretical study of physics, also is of use experience for future students in technical practice" [5].

V. V. Ryumin saw that students work with measuring devices open the relation between theory with practical application of received skills, it reinforce the students confidence to theoretical knowledge. "This physics study, which is accompanied by practical exercises with measuring devices, will make it closer to technical subjects and will install confidence in students consciousness in benefit of the practical supplement of "study", which often seems wide of the science" [8].

According to the V. V. Ryumin's mind, the use of museums and exhibitions for the achievements of technical creativity as a mean of teaching and educational type, were worth attention of natural sciences teachers and technical subjects of technical secondary schools. At the end of 19th at the beginning of 20th century in Western Europe countries and the Russian Empire increased a number of museums and exhibitions, which were devoted to the achievements of science and technology. The aim was to promote technical museums of science and technology among the population, by means of making clear ways of modern development of economy sphere under conditions of capitalistic manufacturing method. Exploring the issues of cultural educational activity of Russian scientists in the field of science and technology in the end of 19th at the beginning of 20th century, the Candidate of historical sciences Stepanova K. B. in the thesis research mentions that "the beginning of the widespread museumfication of technology began all over the in the second half of 19th century. It was a period of appearing heavy industry, the increase of railways length, the aggravation of industrial competition among European countries" [11]. The basic form of organization and carrying out of excursions in

such museums become interactive display, which was reckoned on children and young people are interested in the achievements of science and technology. K. B. Stepanova mentions the main component of the demonstration displays is “the principle of broad popularization, particularly among children and young people of scientific knowledge by means of special displays, there are demonstrative means, which provided immediate playing, active contact visitors with display” [11]. In 1911 V. V. Ryumin visited the Munich Museum of technical creativity and then he had the idea of using some elements of interactive displays of production technical means under conditions in cabinets of special subjects in secondary technical schools. V. V. Ryumin supposed an indispensable condition of produced displays for cabinets of special subjects it was collection on a small scale all means of production for future professional activity of the school students school. According to the V. V. Ryumin’s mind, the complex means of production should be presented in the figures, drawings and demonstrational models. Models should be moved and are reflected the process unit in action [7]. Under this condition, according to the V. V. Ryumin’s eye, study will carry a meaningful character, providing both theoretical knowledge and practical skills of future activity.

At the beginning of 20th century the use of study technical means in the form of the movie demonstration enters in educational process. V. V. Ryumin was having the capability to assess the latest technological inventions and their application on the lessons. He was writing: “We have physical devices among the most recently used in the practical application, which will have the considerable importance in the case of the education of youth. It is cinematograph” [9]. The professor S. S. Palchevskiy, Doctor of Pedagogical sciences emphasizing the use of audiovisual means on the lessons. He writes: “Educational film has been developed in the pre-war years of 20th century. Since then, production of didactic produce has been improved considerably” [6, p. 287]. Opening the didactic possibilities of cinematograph as a source of receiving knowledge and forming skills. The professor L. P. Kryvshenko, Doctor of Pedagogical sciences, defines the purpose for audiovisual means during educational process as a “study mean, which is used to make easier immediate and indirect

cognition of the world. They perform educational and developed functions, as study methods, also they are used to waking up, managing and monitoring educational activity of students” [3].

Using the method of actualism, which aims to the study of the subject from its developed form in the past, we turn to the characteristic of the educational use film under present conditions in vocational educational institutions. Professor, Doctor of Pedagogical sciences Batyshev S. Y., well-known educational specialist in the field of vocational education emphasizes the impact of the demonstration film materials during the educational process emphasized that showing a film provides “a strong emotional impact on students and improves learning” [1].

Determining the significant educational effect in the application of cinematograph on the lessons, V. V. Ryumin stated the purpose for its use as a mean that will “make” “a lot of lives” in teaching the great range of general education and special subjects” [9].

The signature of the film during the study is connected with the object of the study may be seen in action and development, provides a wealth based on the facts material for analysis. Describing the educational film as a widespread technical mean of learning, Batyshchev S. Y. determined its peculiarity, it provides studying an object in the dynamics. It allows to get the notion about “life” of the object under natural conditions: “Educational cinematograph it is a widespread technical mean of learning, which allows to display the object and phenomena in the movement and development, to analyze and summarize them, to realize the transfer from the concrete to the abstract perception of reality” [1].

At the beginning of 20th century V. V. Ryumin saw the use of cinematograph on the lessons as a considerable factor in attraction of students for the subject: “Lessons illustration by means of the motion projection photographs will increase the interest for the lesson, will reinforce its storage in students’ memory” [9]. V. V. Ryumin believed that with the advent of cinematograph and its application during educational process will be a defining element in the demonstrational method, which will provide the best results in teaching and education. “The demonstrational

method of teaching using cinematograph will allow to develop this method”, V. V. Ryumin considered in the article “Technical mean of the future” [9].

According to the V. V. Ryumin’s mind, the use of cinematograph at the lessons is the most favorable to an audience, which does not have a developed imagination and needs visual reinforcement. V. V. Ryumin writes: “The less intelligent person, the less difficult notions and consideration a person wants to apprehend new concepts” [9]. Thus, according to the V. V. Ryumin’s mind, cinematograph can be used at the lessons to develop students' imagination and ingenuity.

With increasing application of film in all spheres of society in our days, accordingly it increases sphere of its application in the educational process. Comparing feature of cinematograph in the educational process at the beginning of the 20th century and in our days, we recognize that nowadays except traditional use in the educational process as a supplement of teacher’s lectures, we have its widespread application in students’ independent work. “Movie can be used as an illustration to the presentation of educational material, but also as a means of students’ self- study” – S. Y. Batyshev notes [1]. Determining the aim of cinematograph during lessons at the beginning of the 20th century, V. V. Ryumin allots for this only a subsidiary role during the learning process. According to his eye, cinematograph should have an accessory character of teacher’s lectures the teacher and should be a good supplement to open the theme of lesson. “Teaching, by means of demonstration of cinematograph, is the most rational” [9].

V. V. Ryumin thinks by means of cinematograph one may emphasize the topical issues of lessons theme. The purposeful reflection of study objects is more efficient than its subsidiary observation. “Projecting reflection achieves its end better than immediate observation” – V. V. Ryumin emphasizes the positive components of use cinematograph at the lessons [9].

At the beginning of 20th century, film materials for learning process were accumulated. At the beginning of 20th century the tendency of film material accumulation came close to the modernization of technical means of showing a film, as well as methods of using film material during the learning process. Defining the future

of application development cinematograph in teachers' educational activity, at the beginning of the 20th century V. V. Ryumin emphasized their priorities tendency. They are associated with the accumulation of film material by teachers of local schools, of which are formed a pool, which is available for general use in teachers' educational activity. "Taking a photograph of interesting technical processes, teachers will be able: 1. To collect local pictures. 2. To take photographs, which are made by people from other school, by dint of exchange the collection of photographs with another one for a while, or to make a copy" [9]. V. V. Ryumin supposed the most important application of cinematograph during the learning process in technical schools. "The most important application of cinematograph is in technical schools" [9].

In film material production for physics cabinets V. V. Ryumins proposed to enlist the services teachers of physics, which are mostly familiar with photographing and producing such products with their own hand. "Getting a projector will keep within the budget of their physics cabinets, and movies might be produced by physics teachers who mostly are familiar with taking photographs" [9].

According to V. V. Ryumin's opinion, having collected film library of physical phenomena and demonstration the functioning technology, will be able to open the subject teaching wider, at the same time appreciably save time and money. "For example, one drives students from Mykolaiyv to Baku for showing them oil gusher, or from Baku, or from Baku to Mykolaiyv to the armoured warrior slope in the local admiralty" – V. V. Ryumins says [9].

V. V. Ryumins believes that independent experiments are conducted and made study means toy on the physics lessons by students are methodologically mistaken and does not meet the purpose, content and objectives of the educational process.

V. V. Ryumins thought that in cabinets of special subjects in secondary technical schools all the means of production of future activities on a small scale should be collected. Complex means of production should be presented in the figures, drawings and demonstrational models. Demonstrational models should be moved and to reflect an unit in action. Presented visual methods as a teaching means will give a chance to combine theoretical knowledge and practical skills in action.

At the beginning of 20th century V. V. Ryumins determined the future of cinematograph as one of the leading teaching means, opened its didactic features: the processes are shown in action, the purposeful of object reflection. According to V. V. Ryumin's mind, cinematograph develops the students' imagination, ingenuity.

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Паскаленко В. В.

Навчальне приладдя та кінематограф як необхідні засоби навчання в середніх технічних училищах в педагогічних працях В. В. Рюміна (кінець XIX – початок XX століття)

У представленій статті автор розкриває актуальність застосування засобів навчання на заняттях з природничих дисциплін в середніх технічних училищах. Проблема полягала у тому, що на початку XX століття в середніх технічних училищах в застосуванні засобів навчання виникли певні протиріччя, які потребували свого розв'язання і дидактичного осмислення. Не вирішення цих проблем зупиняло розвиток підготовки технічних кадрів в країні та знижувало їхню якість. До проблем які підлягали вирішенню відносимо: незадовільне матеріальне оснащення кабінетів фізики наочними засобами навчання – призводило до втрати цілісності, доказовості, наочності навчання; не розробленість методики використання кінематографу на заняттях природничих дисциплін – ускладнювало опрацювання викладачами зібраного фактичного матеріалу з предмету, не забезпечувалася економія навчального часу. Стаття написана на основі історико-педагогічного матеріалу кінця XIX – початку XX століття.

В статті було акцентовано увагу на діяльності персоналії В. В. Рюміна у розкритті перерахованих проблем пов'язаних із застосуванням навчального приладдя та кінематографу, як засобів навчання в навчальному процесі в середніх технічних училищах початку XX століття. Автором статті було розкрито аналіз В. В. Рюмінім вказаної проблеми, висновки та пропозиції якого сприяли реформуванню системи технічної освіти на початку XX століття.

Ключові слова: навчальне приладдя, кінематограф, практичні заняття.

Паскаленко В. В.

Учебные приборы и кинематограф как необходимые средства обучения в средних технических училищах в педагогических трудах В. В. Рюмина (конец XIX – начало XX века)

В представленной статье автор раскрывает актуальность применения средств обучения на занятиях по естественным дисциплинам в средних технических училищах. Проблема заключалась в том, что в начале XX века в средних технических училищах в применении средств обучения возникли определенные противоречия, которые нуждались в разрешении и дидактичном осмыслении. Не разрешение этих проблем останавливало развитие подготовки технических кадров в стране и снижало их качество. К проблемам которые подлежали решению относим: неудовлетворительное материальное оснащение кабинетов физики наглядными средствами обучения – приводило к потере целостности, доказательности, наглядности обучения; не разработанность методики использования кинематографа на занятиях естественных дисциплин - усложняло проработку преподавателями собранного фактического материала по предмету, не обеспечивалась экономия учебного времени. Статья написана на основе историко-педагогический материала конца XIX – начала XX века.

В статье акцентировано внимание на деятельности персоналии В. В. Рюмина в раскрытии перечисленных проблем связанных с применением учебного оборудования и кинематографа, как средств обучения в учебном процессе в средних технических училищах в начале XX века. Автором статьи был раскрыт анализ В. В. Рюминим указанной проблемы, выводы и предложения которого способствовали реформированию системы технического образования в начале XX века.

Ключевые слова: учебное оборудование, кинематограф, практические занятия.

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