

Knowledge of History Contributes to the Emergence of Innovations: An Anthropological Approach in the Humanitarian Block of Transport Education

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Abstract: The article deals with the issues of the content of transport education, the place and role of the humanitarian block in it. The disciplines of the social and humanitarian block have significant resources for the formation of general cultural competencies and professional moral qualities, such as responsibility, initiative, determination, and others arising from the worldview, moral and other attitudes formed by these disciplines. The question of the significance of history as a factor in the emergence of innovations has been updated. Aspects of the significance of the anthropological approach in the teaching of historical disciplines of the humanitarian block of transport education are revealed. It has been established that this approach focuses on the reconstruction of the deep program of all types of human activity, embedded in the cultural tradition of the social universe, including activities in the field of railway transport, allows you to focus on the humanistic side of history. This approach actualizes a personal approach to history, including the history of railway transport, the study of the role of its outstanding representatives – railway transport engineers, which has a direct impact on the comprehensive training of a specialist, as well as on the formation of motivation for his future professional activity. The article analyzes the practice of using the anthropological approach in teaching historical disciplines in the process of training railway transport specialists at the Chelyabinsk Institute of Communications - a branch of the «Ural State University of Railway Transport». An opinion was expressed about the effectiveness of using the project activity method in order to make the most of this approach. Scientific novelty lies both in the very formulation of the problem, and in the identification and systematization of empirical material on the topic of research and its introduction into scientific circulation.

1 INTRODUCTION

Modern requirements for the organization and content of transport education are defined as the main components – the formation of professionalism and competence of managers and specialists; responsibility for prepared and adopted decisions, proper performance of their official duties, which follows from the established basic principles of professional service in the federal railway transport, enshrined in the regulations of the Ministry of Railways of Russia (Charter of Railway Transport of the Russian Federation, 2002).

The solution of this problem by the higher educational institutions of the country in this area,

whose competence includes the training of railway transport engineers, is based on determining the appropriate content of theoretical and practical training of specialists. National practice, historically established and conditioned by accumulated practical experience, includes, along with general technical and special disciplines, also humanitarian disciplines. The share of the humanitarian block occupies an insignificant part, which does not detract from its importance in the professional training of specialists. The inclusion of this element in the educational program is determined by the need to form a number of necessary personal qualities that an engineer must possess. The disciplines of the humanitarian block contain ample opportunities for the formation of a responsible

approach to the performance of duties, creative thinking, and the desire for self-development among students. A special place among them belongs to historical disciplines, which have not only cognitive, but also educational potential.

Pedagogical science and practice have developed a number of effective methods and techniques for using historical material in the process of preparing and educating students. One of them is the anthropological approach, which focuses on the personal factor in the historical process, in the development of science and technology.

The use of this approach in the system of modern transport education is extremely important. Deep geopolitical transformations that pose new challenges to the Russian economy initiate the search for effective ways to solve them, including from the side of railway transport. Under these conditions, the importance of the personal participation of each in solving the tasks set increases. An appeal to the history of the country, the history of the country's railway transport and its prominent figures can have a significant impact on the formation of the necessary competencies of modern engineers and other railway transport specialists.

The purpose of this article is to identify the place and role of the humanitarian block in transport education and the possibility of strengthening its cognitive and educational potential based on the use of the anthropological approach.

Achieving this goal involves solving the following tasks:

1. Determine the role of the humanitarian block in transport education and the place of historical disciplines in it.

2. To reveal the educational possibilities of the anthropological approach in teaching history using project technologies in the system of transport education.

2 MATERIALS AND METHODS

Methodologically important for this study are the ideas of I. Beckman and his followers (I. G. M. Poppe, E. Hartig), associated with the idea of private and general technology as a correlation of actions and knowledge for the development of production, the need to develop the widest possible approach to definition of the concept of technology as a methodology for any human activity (Beckmann, 1806). The relevance of developing a general theory of activity was shared by the Russian scientist P.K.

Engelmeyer (Engelmeyer, 1917). In the modern philosophy of technology in the interpretation of the concept of technology, special attention is paid to the field of social engineering and related social technology, due to the need to assess the consequences of scientific and technological developments, the role of the individual in the development of the technical sphere of society. (Ropohl, 1979). A. Grunwald raises the question of the need to consider technical activity as a collective one, which implies its critical reflection, that is, its study in a historical aspect (Grunwald, A., 2002). The modern understanding of technology as an objective activity is increasingly realized in the context of the embodiment of technical artifacts in economic and social structures. This understanding of technology as social engineering actualizes the anthropological approach to its study (Gorokhov, 2011).

The issues of the content of modern engineering education in the field of transport are reflected in the publications of leading scientists and teachers of the country's transport universities. The issues of the correlation of general technical and humanitarian sciences in the system of training specialists in the field of transport were raised by Professor of the Moscow State University of Railway Transport E.S. Spiridonov (Spiridonov, 2016), candidates of technical sciences – I.G. Ovchinnikov (Ovchinnikov, 2016) and I.I. Ovchinnikov (Ovchinnikov, 2010) and other specialists. The authors are critical of the relationship between the humanitarian and technical blocks in transport education.

Representatives of the Siberian State Transport University - Yu.D. Mishin, S.M. Churikov (Mishin, 2019), N.A. Olshannikova (Olshannikova, N., A., 2018.) and others, on the contrary, actualize the importance of the humanitarian block within the framework of the problem of modernizing domestic engineering education. They raised questions of the formation of modern value orientations in technical education based on the humanities.

The presence of debatable aspects on this issue actualizes the statement of the stated scientific problem.

The direction of anthropology originates from philosophical science in the 1920s in the ideas of A. Gehlen (Gelen, 2007), M. Scheler (Scheler, 1993), G. Plesner (Plesner, 2004), as a comprehensive science about man, about the problem of personality.

In the 1960s and 70s. the anthropological turn is manifested in historical science as a shift in the interests of social historians from the study of objective structures and processes to the study of the

past in its anthropological interpretation. The subject of research is the comprehension of the subjective mental worlds of representatives of certain social groups and the elucidation of the system of ideas and concepts underlying any human action (Repina, 2006). The anthropological approach expands the use of information retrieval methods at the expense of those used by anthropology – methods of the history of life and activities of an individual or social group, analysis of an episode, events, and others that focus on the humanistic side of history.

Thus, the use of the anthropological approach, along with others, in the study of history in transport education is determined, first of all, by the fact that this approach focuses on the reconstruction of the deep program of all types of human activity, embedded in the cultural tradition of the social universe, including activities in the field of railway transport.

3 BODY: PLACE AND ROLE OF THE HUMANITARIAN BLOCK IN TRANSPORT EDUCATION

The inclusion of humanitarian disciplines in the training program for engineering and technical personnel was laid down from the very beginning of the birth and development of engineering education in Russia – the creation in 1896 of the Imperial Moscow Engineering School of the Department of Railways, which in 1913 was called the Moscow Institute of Railway Engineers. The need to form the general cultural competencies of future engineers is due to the fact that his professional activity is connected with the management of both technical objects and social groups and individuals.

Modern processes of development of scientific and technical, technical and technological and socio-cultural phenomena, due to changes in the geopolitical situation, increasing social tension, significantly increase the importance of the humanitarian component in the technical education of a modern specialist. A modern engineer needs to understand technology as an objective activity in the context of the implementation of its results in economic and social structures, which means understanding technology as a social engineering, closely related to posing the problem of social technology of consent, identifying consequences and influencing society.

The period of study at the university is of fundamental importance in the process of becoming

a student's personality. Its content is a kind of transition of a young person (a team of students), who has mainly the qualities of an object of influence, into a new quality - the subject of activity. This is largely facilitated by the fact that along with the development of their future profession, students are involved in various types of social activities that require competencies of interpersonal interaction. The content of the disciplines of the humanitarian block is largely focused on their formation. Assimilation by students of the basics of the humanities contributes to the formation of a broad approach to understanding the essence of socio-economic relations, the development of personal goals and values. We share the opinion of A.N. Popov and O.Yu. Malakhova that the study of the disciplines of the social and humanitarian cycle allows students to realize the «humanistic dimension» of their future profession, to overcome the technocratic orientation of thinking, which often accompanies the professional training of an engineer (Popov, 2020).

In this regard, the importance of forming, along with technical, also general cultural competencies of the future railway engineer, increases. The disciplines of the humanitarian block - philosophy, history, sociology, political science, cultural studies, ecology and a number of others - are oriented towards achieving this task. Their role in the system of general training of the future specialist is, first of all, in the formation of the ability to logically correctly, reasonably and clearly express their thoughts, defend their point of view without destroying relationships; treat historical heritage and cultural traditions with respect and care, be able to analyze and evaluate historical events and processes; to promote the development of theoretical, logical thinking, a creative approach to solving social and professional problems and tasks, the desire for constant self-education and self-improvement, the ability to realize the social significance of one's future profession, to have a high motivation to perform professional activities (Egorova, 2019).

Insufficient attention to the social and humanitarian block of disciplines can seriously affect the formation of professional and universal competencies of future specialists, in the performance of their duties. Researchers state the existence of this problem - graduates of railway universities, building their work, often do not take into account the «human dimension» of their field of activity, and also often have a very narrow technical thinking, act «according to a clear algorithm» (Ezhova, 2019).

The performance of professional activities within the framework of modern engineering activities, in addition to designing complex systems and performing technical calculations, requires the engineer to participate in the process of discussion and adoption of socio-cultural and managerial decisions. At the same time, he must be guided not only by technical calculations, but by all means take into account the anthropological factor: this is what determines the effectiveness of engineering activities in many respects.

The disciplines of the social and humanitarian block have significant resources for the formation of professional moral qualities, such as responsibility, initiative, determination, and others arising from the worldview, moral and other attitudes formed by these disciplines.

Systematic, creative approaches in teaching the disciplines of the social and humanitarian block are focused on the formation of a modern engineer who focuses on innovation in his work. We are close to the definition of the concept of «innovation in engineering activity», proposed by Yu.D. Mishin and S.M. Churikova, as an activity (including an advanced and creative approach) aimed at creating and developing new technologies and equipment that have a high economic effect, demand and competitiveness and are presented in the form of marketable products (Mishin, 2019).

4 THE PRACTICE OF USING THE ANTHROPOLOGICAL APPROACH IN THE PROCESS OF TRAINING RAILWAY TRANSPORT SPECIALISTS AT THE CHELYABINSK INSTITUTE OF RAILWAYS - A BRANCH OF THE «URAL STATE UNIVERSITY OF RAILWAY TRANSPORT»

The use of the anthropological approach in teaching historical disciplines is due to the cognitive potential contained in it - the reconstruction of the socio-cultural program of activities in the field of railway transport, embedded in the cultural tradition of Russia in the past and present.

Strengthen the value of this method allows the application in practice of relevant forms, techniques,

technologies and methods of the educational process in the presentation of historical material. Among them, the most relevant for the realization of the possibilities of the anthropological approach contains, in our opinion, the project technology, which includes micro and macro projects. This allows the inclusion of elements of research activities designed to integrate historical and technical knowledge. The result of the project is the proposal of a real practical result, designed in the form of a specific product of the student's activity. The purpose of the project is to deepen and expand the student's knowledge of the discipline being studied, the ability to apply the acquired competencies to solve professional problems. Mostly students who successfully master the educational material are involved in the implementation of projects.

The technology of the project method is an expedient activity of the student on an active basis. The relevance of project activity is expressed in the ability to form the student's personal qualities, which develop only in activity and cannot be learned verbally. Such personal qualities are: the ability to work in a team, take responsibility for a decision, share responsibility and analyze the results of activities. The technology of the project method makes it possible to form such a field of the educational process in which students are its active participants, and not passive extras, students develop their own analytical view of information, freedom in choosing methods and types of activities to achieve the goal (Stolyarenko, 2014).

Projects can be experimental or theoretical. In the course of teaching historical disciplines, the second type dominates. The form of its presentation can be an abstract, scientific article, oral presentation. The defense of the project can take place both during training sessions and be taken out at educational and practical conferences with the presentation of reports on the results of the project. In order to enhance students' interest in this type of activity, one should carefully consider the topics of project assignments. It should be relevant, connected with the history of the railway industry, with its regional aspect, which allows you to bring the studied material closer to the location of the educational institution, enhancing its emotional perception. Examples of some project assignments used in teaching students at the Chelyabinsk Institute of Railways - a branch of the «Ural State University of Railway Transport» are shown in Table 1.

Table 1: Approximate topics of project research for students of transport education in the course of history.

Theme of the historical discipline of the humanitarian block of transport education	Pages of the history of railway transport with the inclusion of a regional component	Topics of project assignments
Economic development of Russia in the second half of the 19th - early 20th centuries	<p>development of the railway network in the Urals in the second half of the 19th - early 20th centuries</p> <p>technical progress in railway construction in the Urals in the second half of the 19th - early 20th centuries</p>	<p>micro projects:</p> <ul style="list-style-type: none"> - photo-history of the Great Siberian Route (Photo by Prokudin-Gorsky, William Henry Jackson about the survey and construction work on the construction of the railway); - outstanding engineer N.G. Garin-Mikhailovsky in the history of railway construction in the Southern Urals; - compiling a biographical map «Engineers of Railways of the Urals»; - a creative project using photographic materials of the regional railway construction of the early twentieth century S.M. Prokudin-Gorsky, William Henry Jackson; <p>macro projects:</p> <ul style="list-style-type: none"> - features of railway construction in the Urals in the second half of the XIX century. (preparation of scientific report)
Culture of Russia in the second half of the 19th - early 20th centuries	<p>emergence in Russia of the profession of a railway engineer</p> <p>development of transport education and special educational institutions in the country and in the Urals</p>	<p>micro projects:</p> <ul style="list-style-type: none"> - which officers for the first time in the Russian army appeared Asterisks on shoulder straps (the specifics of the training of railway engineers in higher educational institutions of Russia); - architectural artifact of Chelyabinsk (city of Chelyabinsk, Svobody street, 175): what is its connection with the history of railway transport in the Urals (the former building of the male school of the station Chelyabinsk, Orenburg province)

The technology of project activity implies a high degree of student interest. To do this, such formulations of tasks can be used that cannot leave them indifferent. For example, you can invite students to interpret the following statement by N.G. Garin-Mikhailovsky about the labor feat of engineers in the construction of railways in the Urals: *«Eight percent of the prospectors left the stage forever, mainly from nervous breakdown and suicide. This is the percentage of the war. More conscientiousness, energy, enterprise - and these seemingly terrible mountains will part and reveal their secret, invisible to anyone, not marked on any maps, passages and passages, using which you can reduce the cost and significantly shorten the line»* (Nikulkov, 1989).

Such a formulation of the project activity will guide the student not only to the study of specific historical material on the development of the road network in the region, but also to the study of the

motivational side of the activities of railway engineers, the study of biographical material. Learning in this case acquires an emotional coloring, initiating the search for something new. At the stage of introspection and reflection, the student forms the basis for an adequate assessment of the significance of the work of railway engineers and awareness of personal responsibility for professional competencies and future professional activities.

The project of studying architectural artifacts related to the history of railway construction and road formation seems to be effective. In our practice, we used such an object as the building of the former Chelyabinsk two-class men's railway school, located in the immediate vicinity of the institute. The implementation of this project, in addition to the content side, revealing the history and practice of training technicians for the railway service – drivers, assistant drivers, road foremen and others in the South Urals, brings students to another problem – a

practical one – the preservation of this architectural artifact as historically valuable for the region.

Determining the topics of research projects, one should also use such potential as «upbringing by the walls» – through the traditions of honest service of graduates and teachers of the institute, using the materials of the museum complex.

In general, the examples of using the technology of project activity proposed in the article increase educational motivation, cognitive and personality-oriented activities of students.

5 RESULTS AND DISCUSSION

At present, the world's leading universities show a trend of transformational processes aimed at overcoming contradictions and improving the quality of training of engineering personnel. The principles of humanization stand out as the main value orientations of engineering education at the present stage. In order to overcome the crisis in the system of engineering education, the personal and multilateral education of a specialist is increasingly being developed, along with the pragmatic approach of the cult of «technical sciences» as the main criterion for competitiveness. The quality of engineering personnel is recognized at the state level as one of the key factors in the development of the country's economy, as well as the basis of its technological and economic independence. The purpose of this process is the formation of a cultured person, developed intellectually, spiritually, morally, aesthetically and physically, possessing dialogue and creative thinking, able to improve himself, build harmonious relations with the surrounding nature and society, able to participate in the humanization of social reality by his actions and deeds (Gabysheva, 2018).

The implementation of the humanization of educational activities in the technical profile of the specialty is carried out systematically, methodically organized, positively supplementing the educational program in order to form the versatile competencies of future railway transport specialists. Humanitarian disciplines have a historical and cultural, multifactorial saturation, which allows the student to explore the development of technical sciences in the conditions of a certain historical era, mentality.

On the example of the Chelyabinsk Institute of Railways, a branch of the «Ural State University of Railway Transport», a positive experience in the formation of professional competencies of technical students in the process of teaching history based on

an anthropological approach using project technologies was revealed.

6 CONCLUSION

Based on the analysis of scientific literature and practical experience in training railway transport specialists at the Chelyabinsk Institute of Railway Transport, a branch of the «Ural State University of Railway Transport», it can be said that the study of the disciplines of the humanitarian block allows you to activate the cognitive interest of students in the learning process, helps to expand their horizons. A special place among them is occupied by historical disciplines containing rich concrete historical material that substantiates the significant role of transport engineers in the development of the country's and region's railway transport in a historical aspect. The use of an anthropological approach to historical material makes it possible to enhance its cognitive and educational potential, focusing on the reconstruction of the motivational basis of activity inherent in the cultural tradition of the social universe, the comprehension of historical experience as a factor in the emergence of innovations. The use of the anthropological approach in the approach to historical material actualizes the introduction of the project method into the practice of teaching as one of the modern innovative teaching methods that contribute to the active involvement of students in the learning process.

The practical experience of using project technologies in the process of teaching history confirms their cognitive and educational potential. The use of project technologies contributes to the formation of research competencies necessary for the professional training of a specialist, and is oriented towards the search for innovations. Design technologies, creating an active field of student activity, contribute to the formation of his personal qualities, corporate culture of involvement in the rich and heroic history of the country and its railway transport, outstanding railway transport engineers.

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