

**DEVELOPMENT OF NETWORKING COOPERATION FOR IMPLEMENTING  
ADVANCED PROFESSIONAL TRAINING PROGRAMS**

**DESENVOLVIMENTO DE COOPERAÇÃO EM REDE PARA IMPLEMENTAÇÃO DE  
PROGRAMAS DE TREINAMENTO PROFISSIONAL AVANÇADO**

**DESARROLLO DE LA COOPERACIÓN EN RED PARA LA IMPLEMENTACIÓN DE  
PROGRAMAS DE FORMACIÓN PROFESIONAL AVANZADA**

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**ABSTRACT:** Nowadays, Russian vocational education is overcoming a stage of profound transformations associated with the post-industrial society's peculiarities, which main characteristics are computerization and digitalization of the economy. Transformations in the digital economy determine new requirements for specialists' training, their competencies, and qualification. The rapid changes in socio-economic conditions cause the need to transform the vocational training system to meet the demands for specialists with competencies that correspond to the current technologies and methods of production. The solution to the relevant problems is facilitated by vocational education's devotion to "anticipation/advance" and "interaction" principles, which are being successfully implemented in the activities of advanced vocational training centers opened in Russia in 2019. The advanced vocational training ensures the development of new and promising professions in great demand by the regional economy. Simultaneously, the interaction principle's implementation allows ensuring interdepartmental coordination when performing the social order for vocational education made by the state,

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society, and individuals. The article considers forms and features of the interaction between educational organizations and partners, including social partnership, networking cooperation, public and private partnership, educational and technological clusters. The paper presents the Kemerovo region center's performance results for advanced vocational training concerning the creation of a regional network for educational organizations and enterprises involved in the joint development and implementation of advanced vocational training programs intended for specialist training.

**KEYWORDS:** Vocational education problems. Advanced training. Forms and features of interaction. Networking.

**RESUMO:** *Atualmente, a educação profissional russa está superando um estágio de profundas transformações associadas às peculiaridades da sociedade pós-industrial, cujas principais características são a informatização e a digitalização da economia. As transformações na economia digital determinam novos requisitos para a formação de especialistas, suas competências e qualificação. As rápidas mudanças nas condições socioeconômicas fazem com que seja necessário transformar o sistema de formação profissional para atender às demandas de especialistas com competências que correspondam às tecnologias e métodos de produção atuais. A solução para os problemas relevantes é facilitada pela devoção da educação profissional aos princípios de "antecipação/avanço" e "interação", que estão sendo implementados com sucesso nas atividades dos centros de formação profissional avançada inaugurados na Rússia em 2019. A formação profissional avançada garante o desenvolvimento de novas e promissoras profissões em grande demanda pela economia regional. Simultaneamente, a implementação do princípio de interação permite assegurar a coordenação interdepartamental na execução da ordem social para a educação profissional feita pelo Estado, pela sociedade e pelos indivíduos. O artigo considera as formas e características da interação entre organizações educacionais e parceiros, incluindo parceria social, cooperação em rede, parceria pública e privada, clusters educacionais e tecnológicos. O documento apresenta os resultados de desempenho de um centro para a formação profissional avançada, da região de Kemerovo, no que diz respeito à criação de uma rede regional para organizações educacionais e empresas envolvidas no desenvolvimento e implementação conjunta de programas de formação profissional avançada destinados à formação especializada.*

**PALAVRAS-CHAVE:** *Problemas de educação profissional. Formação avançada. Formas e características de interação. Trabalho em rede.*

**RESUMEN:** *En la actualidad, la formación profesional rusa está superando una etapa de profundas transformaciones asociadas a las peculiaridades de la sociedad postindustrial, cuyas principales características son la informatización y digitalización de la economía. Las transformaciones en la economía digital determinan nuevos requisitos para la formación de los especialistas, sus competencias y su calificación. Los rápidos cambios en las condiciones socioeconómicas provocan la necesidad de transformar el sistema de formación profesional para satisfacer las demandas de especialistas con competencias que correspondan a las tecnologías y métodos de producción actuales. La solución a los problemas relevantes se ve facilitada por la dedicación de la educación profesional a los principios de "antecipación / avance" e "interacción", que se están implementando con éxito en las actividades de los centros de formación profesional avanzada abiertos en Rusia en 2019. La formación profesional*

*avanzada garantiza el desarrollo de profesiones nuevas y prometedoras muy demandadas por la economía regional. Simultáneamente, la implementación del principio de interacción permite asegurar la coordinación interdepartamental en el desempeño del orden social para la formación profesional realizado por el Estado, la sociedad y las personas. El artículo considera las formas y características de la interacción entre las organizaciones educativas y los socios, incluida la asociación social, la cooperación en red, la asociación pública y privada, los grupos educativos y tecnológicos. El documento presenta los resultados de desempeño del centro de la región de Kemerovo para la formación profesional avanzada en relación con la creación de una red regional para organizaciones y empresas educativas que participan en el desarrollo conjunto y la implementación de programas de formación profesional avanzada destinados a la formación especializada.*

**PALABRAS CLAVE:** *Problemas de educación vocacional. Formación avanzada. Formas y características de interacción. Networking.*

## **Introduction**

A relevant and crucial task posed to the system of higher and secondary vocational education is to study and to develop the experience of interaction among educational organizations, science, industrial sectors and governmental bodies in order to determine characteristics (features), principles, forms, mechanisms that stipulate the interest and motivation of partners involved in vocational training of specialists for innovative socio and economic development of the country.

The mission of educational institutions is not only to train future specialists, but also to integrate the resources and capabilities of secondary schools, professional educational institutions, universities, additional professional education facilities and industrial enterprises to meet employers' strategic and operational requirements for the level of professional training and personal qualities, as well as satisfy the future needs of the regional labor market.

To implement the advanced training model as the most promising direction "to ensure the compliance of citizens' competences with changing technologies and production methods" (RUSSIA, 2019) in the environment of the Center for Advanced Training (hereinafter referred to as the Center), it is important to establish interaction with all participants of educational and production processes. It is necessary to emphasize the importance of involving scientific, organizational, methodological, material and technical, human, information resources of partners-participants in the design of advanced professional training programs in order to ensure their successful implementation (BAYANOVA *et al.*, 2019).

## Methodology

The solution of problems referred to the capability of the system of secondary vocational education to responding to the current challenges is based on the implementation of the idea of "outstripping / advance", which originated first in physiology, philosophy, and then was spread in other sciences, including psychology and pedagogy.

The first systematic scientific study of this problem in pedagogy is associated with the names of Zeer (2003), Novikov and Zuev (2000), Novikov (2005), who considered "advanced education" as an education that ensures the accelerated students' development and self-development with focus on forming their adaptability and mobility to rapid changes of economic, industrial and social requirements (LYSENKO *et al.*, 2020; PALYANOV *et al.*, 2018; PALYANO; LYSENKO; GAAG, 2019).

There are some more recent studies regarding certain areas of professional activity, in particular, the lifelong learning paradigm of advanced professional training for specialists in the mining and metallurgical industry, which was investigated by the group of Ural scientists (RAZINKINA *et al.*, 2010). The system of advanced professional training for the petrochemical complex was considered by Zhuravleva (2012) and Lizunkov (2018) studied the conceptual provisions for training of the personnel for territories of advanced socio-economic development. Networking cooperation of professional educational institutions and industrial enterprises (as a factor in improving the quality of student training) was presented by Lizunov (2018).

The most relevant and adequate forms, to achieve the specified goals and objectives concerning the advanced training in the Center, are as follows: social and public-private partnership interaction, cluster forms of interaction and networking cooperation with focus on creating a regional network consisting of secondary schools, secondary vocational institutions, higher education institutions, additional education entities, and industrial enterprises involved in the joint implementation of advanced vocational training programs and students' career guidance, including students and the population of the region.

To increase the effectiveness of the Center activity it is important to support science and government bodies, first of all their performance in joint planning, forecasting and monitoring of the regional labor market. The Center deals also with the solution of the regional labor market problems.

This paper considers the most essential forms of interaction among educational institutions, employers and social partners, which can be effectively used in the system of

advanced professional training. They are as follows: "social partnership", "networking cooperation", "public and private partnership", and "cluster-network forms of interaction". These and other forms of interaction are in the field of view of scientists working in different spheres of knowledge and they are also widely used in modern theory and practice of professional education.

The analysis of the vocational education systems and youth employment in Russia and abroad showed that the human development index is higher in those countries where the goals of vocational education, declared in the fundamental documents at the legislative level, correlate with the economy's strength in the country.

The aim of introducing innovations in the restructuring of the domestic education system, in general, and secondary vocational education, in particular, is to overcome a number of visible contradictions. The most significant ones are: disagreements generated by the discrepancy between the educational services and the requirements of the labor market and specific employers; insufficient motivation of young people to be included in labor activity associated with a high level of responsibility at production site; disagreement between the content of secondary vocational education and the needs of the labor market; measures for keeping the employment of professionally trained youth without ensuring structural renewal of the economy.

Another contradiction in the development of secondary vocational education observed at the current stage of the economic development (associated with technological modernization which determines the acceleration of the socio-economic development of society) is in the lack of activity displayed by employers or their almost complete exclusion from participation in the design and development of technologies for vocational training, including targeted training of specialists for "own" production.

The problem of establishing the interaction between vocational educational institutions and social partners is also due to the current challenges:

–the collapse of the system of compulsory state distribution of graduates (after leaving professional educational institutions) and, therefore, the need to be independent in search for a job and the lack of experience displayed by the overwhelming majority of young people;

–the difficulty for a graduate to become a mature and qualified professional worker due to the discrepancy between the goals of educational institutions and employers' needs, that has currently not been overcome yet;

–unavailability of the vocational education system to respond promptly to dynamic changes in the structure of employment due to the dominant directions of production and economic development.

Therefore, in the situation within which the vocational education system functions today, it is reasonable and necessary to implement the principle of interaction able to ensure:

– the interaction of governing bodies, vocational educational institutions (VEI), employers and social partners at the level of organization and structuring of the professional and educational environment through the creation of educational and technological clusters for various purposes;

– interdepartmental coordination in the process of implementing social orders placed by the state, society and the individual to vocational education;

– establishing networking cooperation in clusters and its content design: administration - vocational education governing bodies; governing bodies - vocational educational organization; vocational educational organization X - vocational educational organization Y; vocational educational organization - social partner, and etc.

Educational and scientific organizations, charitable foundations, sponsors, business community, industrial structures, and etc. also should act as social partners.

The Analytical report of the Interregional Business Center Holding Company conducted jointly with the RCPP Working Group engaged in the education reform supported by the Federal Agency for Education (RUSSIA, 2006) revealed the main reasons for the need of mutual interaction between employers and the system of vocational education. 150 enterprises and 144 vocational education institutions took part in this survey, which confirms its validity.

The main problem that is of a particular relevance is to provide the branches of the Russian economy with qualified personnel. The joint effort of the educational system and employers is the key to successful solution of the above mentioned problem (RUSSIA, 2006).

100% of employers and VEI managers interviewed by researchers support the idea of such interaction. Among the main reasons for the inconsistency of graduates with the requirements of employers are: the dissatisfaction with the quality of graduates' training; the need to create favorable conditions for constant knowledge updating and enhancement and the introduction of new technologies in constant retraining of personnel associated with staff retraining and high investment cost on corporate training (RUSSIA, 2006; MASALIMOVA; USAK; SHAIDULLINA, 2016).

From our point of view, the idea that is able to unite all the participants of the interaction is advanced vocational training of specialists ready to work at enterprises of the regional economy. The importance of this issue is also recognized by the society, regional authorities, employers, and vocational educational organizations.

Moreover, we believe that the problem of advanced vocational training is not only pedagogical, but also social, which must be solved by the whole society, and, therefore, social partnership is considered to be the one of the most effective forms of interaction.

In the course of the study, the main focus was on the features of social partnership, which can be extrapolated to the field of vocational education in general. The second issue considered in our research was to find efficient ways and tools to solve the problem of advanced vocational training in the context of interaction among professional educational institutions, employers and social partners.

Zinchenko and Rogov (2009) define the term “social partnership as 1) a jointly distributed activity of social elements consisting of representatives of various social groups, which results in positive effects (outcomes) accepted by all participants of this activity; 2) joining efforts of individuals or institutions to solve common problems and achieve a goal which is significant for all participants; 3) the way of building a civil society”.

Based on the above mentioned ideas, social partnership is defined as a joint activity of partners, the effects of which can be achieved when common goals are accepted by all participants of this interaction. It is beneficial to each participant, when all parties are equally interested in finding optimal ways to solve jointly specified tasks. Of great importance are the following signs of social partnership, identified by scientists:

- the reality of partnership between the parties;
- the interaction of two or more equal partners;
- partnership is based on an agreement signed for a certain period;
- the main goal of the partnership is to solve a specific and cohesive social problem;
- the interaction of partners is carried out until the intended (desired) result is achieved, and etc. (ZINCHENKO; ROGOV, 2009).

The selected features demonstrate that "the main goal of partnership is the solution of a specific and understandable social problem". The characteristic displaying "the interaction of partners carried out until the desired result is achieved" requires understanding and coordination of the partners' positions. In our case, it refers to achieving an intermediate, specific result

corresponding to the task specified at a certain stage. At the first stage, the adoption of the program of advanced vocational training, from our point of view, can be considered as a result of the implementation of the idea of advanced vocational training.

It should be noted, that the formulation of such "stage wise" tasks is the prerogative of a vocational education institution and, in accordance with the above mentioned, it is difficult to disagree with the opinion of the above authors (ZINCHENKO; ROGOV, 2009), that

the effectiveness of social partnership depends on several factors: a) the presence of a social need to be included in the implementation of the values of education; b) the readiness of the educational institution for such cooperation; c) the need of an educational institution for a real social partnership; d) display of initiative by educational institutions; e) support of this initiative by the non-state sector, and public structures.

Treating "social partnership" as a form of interaction, allowed us to identify its most significant features, which include:

- active nature of the interaction;
- joining the efforts of two or more equal partners to achieve a significant goal;
- the basis of the interaction is the solution of a specific social and relevant problem which positive effects will be accepted by all participants;
- the solution to this problem is more effective through combining resources and efforts of all partners, and etc.

The problem of advanced vocational training of specialists involved in the regional economy is a fairly serious basis for arranging partnership agreements among professional educational organization (in our case, the Center for Advanced Vocational Training), employers and social partners.

The distinguished features "work" as a drive for solving the problem associated with advanced training. Therefore, the social partnership is one of the most common forms of interaction among educational institutions, employers and social partners focused on training highly qualified workers and mid-level specialists, especially for the most required professions in the regional industry.

Along with social partnership, "networking cooperation" is a common practice of many educational institutions of all levels. This form of partnership is considered as one of the most effective that displays real and significant outcomes.

The networking form of educational programs implementation "provides the opportunity for students to acquire the educational program using various resources offered by several organizations involved in educational activities and other entities, including foreign ones" (RUSSIA, 2019).

The conclusions presented by the previously mentioned Analytical report (RUSSIA, 2006) regarding the absence of a regulatory framework that would specify the mechanisms for cooperation between educational institutions and employers' associations, do not correspond to the current practice of interaction. In particular, the same Federal Law "On Education in the Russian Federation" (Article 15) secures the right to participate in the implementation of educational programs using the networking form for organizations of medicine, science, culture, health and fitness and other organizations, "possessing the necessary resources to implement training, educational and industrial practice and the implementation of other types of educational activities, provided by the relevant educational program" (RUSSIA, 2012).

In 2015, the Ministry of Education and Science of the Russian Federation developed and approved "Methodological recommendations for conducting educational activities using networking forms for implementing educational programs" (INSTRUCTIONAL GUIDELINES FOR ORGANIZING EDUCATIONAL ACTIVITY USING NETWORK FORMS OF IMPLEMENTING EDUCATIONAL PROGRAMS, 2015). These recommendations, developed for universities, can be used by educational organizations of all levels, since they specify thoroughly the system and mechanisms of interaction between the educational organization and partners.

Among positive issues highlighted in the methodological recommendations are:

–the networking form expands the boundaries of students' awareness of the available educational and other resources and allows them to make a conscious choice of their own educational trajectory, which in turns increases their motivation to study, and awareness of responsibility for achieving results;

–the networking form activates the exchange of advanced training experience between educational organizations, creates conditions for increasing the level of professional and pedagogical skills of the teaching staff and using modern material, technical and methodological facilities and resources in the learning process (INSTRUCTIONAL GUIDELINES FOR ORGANIZING EDUCATIONAL ACTIVITY USING NETWORK FORMS OF IMPLEMENTING EDUCATIONAL PROGRAMS, 2015).

Upon the analysis, the following *features of networking cooperation* between partners, able to contribute to solving the problem of advanced vocational training, have been identified:

- sharing of the resources by networking partners to organize the advanced vocational training process;
- the presence of the agreement with detailed conditions of interaction, including the distribution of responsibilities among partners and the list of used resources;
- the creation of conditions for a conscious choice of own educational path by students and trainees of the Center; increasing motivation to master the competencies being in demand in the region;
- mutual exchange of innovative experience in personnel training;
- the creation of conditions for improving the level of teachers' professional skills, and etc.

Compliance with clear interaction algorithms between partners contributes to the achievement of the desired outcomes.

Networking forms of interaction and cooperation among professional educational organizations, employers and social partners are aimed at implementing the idea of lifelong education. The organization of advanced vocational training in the system of secondary vocational education is currently impossible to organize without networking cooperation among vocational educational institutions, employers and social partners.

Another form of interaction and cooperation that is gaining in popularity in the Russian practice of vocational education is the public and private partnership. It is difficult to state that “the potential of public and private partnership is fully used. However, the state could gain a lot through such a partnership: new jobs, an increase of the tax base, new intellectual property, and etc. If “the management system is qualified” in the field of vocational education, business is ready to support financially some certain investment projects, to pool all resources with vocational educational institutions, to participate in personnel training, and etc. (NIKONENKO, 2016).

The fundamentals of the public and private partnership are defined by the Federal Law of the Russian Federation, 133 July 2015 No. 224-FZ "On public-private partnership, municipal-private partnership in the Russian Federation and amendments to certain legislative acts of the Russian (RUSSIA, 2015).

To implement the plans concerning the effective public and private partnership among industrial spheres, businesses, vocational educational organizations, it is necessary to make changes in the management of the vocational training system, as well as in the content and forms of education, paying increased attention to public-private partnership as a factor in the implementation of pedagogical and informational support for students' vocational training (KVON *et al.*, 2019; BAYANOVA *et al.*, 2020). We have developed our own approach and own public and private partnership program, where we considered the current practice of established system of interaction and cooperation, and also used some elements of German dual education system (LYSENKO, 2017).

The interaction system within the framework of public and private partnership provides for

career guidance, the organization of working practice and apprenticeship; employment of graduates adapted to the modern production environment; development, approval and implementation of the requirements posed by social partners; their participation in the final graduates' state certification, the development of educational standards and monitoring and assessment tools; development of the material and technical resources; assessment of the activities of a vocational educational institution by enterprises, the main customers of specialists through their participation in the licensing and accreditation of an educational institution (LYSENKO, 2017).

Public and private partnership as a demanded form of cooperation among educational organizations, governmental bodies and business (when organizing effective interaction of all participants) can contribute to handle problems of specialists' training quality through the implementation of advanced training programs and further employment of Center's graduates at regional enterprises. The implementation of such a partnership will be able to compensate for the shortcomings of market self-regulation and administrative management and ensure a balance of interests of all concerned parties (KYAZIMOV, 2018).

*Features of public-private partnership* include:

- the attraction of private investments to solve the most relevant problems highlighted by partners;
- the development of the material and technical base through investments;
- the participation of specialists from industrial enterprises (operating in the real sector of the economy) in the VEI educational and production process, final graduates' certification, development of educational standards and assessment tools, employment of graduates, and etc.

Cluster forms of partners' interaction are currently recognized as innovative. In the context of developing an innovative economy in modern Russia, researchers distinguish the following types of clusters formed in the regions:

1) "University-oriented clusters are innovative clusters with a large concentration of intellectual forces which enables the formation of an adequate economic environment favorable for innovations.

2) Multilevel clusters with a vertically integrated structures "General educational organizations - VEI - higher education institution - employer".

3) Clusters of the pre-university level consisting of nodes of specialized multi-level institutions of vocational education, created on the basis of VEI training qualified workers and mid-level specialists who had several blue-collar occupations" (ANANYINA; BLINOV; SERGEEV, 2012)

The article "Educational and Industrial Cluster as a form of Advanced Specialist Training" presents and substantiates the idea of developing conceptual foundations for operation of an educational and technological cluster in the system of vocational training, and emphasize the importance of its development and implementation for the innovative socio-economic development of regions (LYSENKO *et al.*, 2019) and «Educational-industrial cluster as a tool for professional training of specialists» (SINENKO *et al.*, 2017).

## Results and Discussion

For organizing an effective interaction system between vocational educational institutions and partners in terms of the considered cooperation forms, it was necessary to conduct a survey among employers and secondary vocational education institutions to identify the goals and objectives of their interaction. The survey was based on the above mentioned Analytical Report made by the Interregional Business Center Holding Company and the RCPP Working Group (RUSSIA, 2006).

The survey was conducted over the period from February 2020 in 3 professional educational organizations in Kemerovo and 2 VEI in Novokuznetsk, Kemerovo region. It involved 125 specialists engaged in the secondary vocational education institutions and 49 employer's representatives.

The survey identified the main priorities and objectives of the interaction between vocational educational institutions and employers and determined the most needed partnership

models. The study also allowed us to specify some barriers that complicate the interaction organization.

Employers claimed the legal barriers (84%) and communication problems (5%) being the most typical challenges to cope with. The response of specialists representing the vocational educational entities has been distributed as follows: “the absence of long-term programs for their own development (92%); the absence of tax concession for enterprises investing their money in specialist’s training (91%); lack of traditions concerning mutually beneficial cooperation and weak contacts (87%); lack of information about the labor market's need (84%)” and etc (LYSENKO; KORNEEV, 2019).

The employers identified as the major priorities with the highest rating (100%) contributing to the interaction development "the organization of compulsory working practice and job placement at enterprises" and "internships and industrial retraining of teachers and specialists working in vocational educational institutions." However, the “organization and conduction of the State Final Certification in the form of a demonstration exam” received the least support from employers (LYSENKO; KORNEEV, 2019).

The specialists of vocational educational institutions (93%) associate the main tasks of interaction with the "training of qualified specialists who will be able to meet the requirements of modern industry", while the number of employers who share this opinion constitutes only 89%. 92% of surveyed specialists from vocational educational organizations claim “the employment of graduates and young specialists” as being one the relevant priorities, but only 62% of employers agree with them; “joint forecast generation in terms of labor market needs” is supported by 88% of vocational education specialists and 69% employers relatively (LYSENKO; KORNEEV, 2019).

These indicators demonstrate that the engagement of employers in solving these issues is lower. What concerns the issue of “involving employers in developing standards and designing training programs” received support by 81% of employers and only 78% of specialists from vocational educational institutions.

These disagreements between the specialists of vocational educational institutions and employers were revealed after analyzing the results of the survey concerning other issues, including partnership models. However, it should be noted that they are not very significant.

The results of the survey indicate insufficient coordinated efforts of vocational educational institutions and employers concerning the determination of the strategy and tactics of joint actions aimed at specialists’ professional training. The development of algorithms, mechanisms, technologies for interaction between institutions of secondary vocational

education and employers under modern conditions is one of the priority tasks in vocational education. In the context of the creation of Centers for advanced vocational training, provided with regulatory, organizational, educational and methodological support by government bodies at the federal and regional levels, the solution to this problem is quite achievable.

It should be emphasized that for the creation and development of such centers, the general trend of searching for conditions favoring optimal interaction of educational systems of all levels (institutional, municipal, regional, federal) between employers and social partners has a special meaning in the new socio-economic realities of the modern market (LYSENKO, 2019).

To solve the specified and planned tasks, a set of organizational and pedagogical conditions contributing to the implementation of the concept of advanced vocational training was determined: 1) socio-economic, 2) managerial, 3) organizational, 4) content, 5) personnel.

The effectiveness of the Center's activities in creating organizational and pedagogical conditions for the successful implementation of the concept of advanced professional training for the regional economy is confirmed by the qualitative and quantitative indicators. Let us take a look at some of them:

*1) Creation of a regional network of educational organizations and enterprises on the basis of the Center for the joint implementation of advanced training programs, vocational guidance for schoolchildren and the population of the region.*

The number of participants in networking cooperation on the basis of the Center for advanced vocational training of the Kemerovo region is constantly expanding. The dynamically and continually developing network is one of the most important outcomes of the implementation of the advanced vocational training concept. According to the data for the year 2020, 115 teachers and training officers from 29 colleges and technical schools, 20 teachers from secondary schools, 5 university instructors, 1 methodologist of the Scientific and Methodological Center, 4 specialists of enterprises operating in the Kemerovo region are involved in the activities of the Center.

Thus, the expert community of the Center consists of 80 attracted specialists in 81 specialties of the professional cycle from 32 organizations of the region.

The interaction format includes the participation in the development of advanced professional training programs, the implementation of a training (retraining) program for people affected by the consequences of coronavirus pandemic, and etc.

The results of the interaction among the expert community representatives are associated with solving urgent problems connected with secondary vocational education. They are as follows:

- mentoring;
- conducting a demonstration exam;
- development of advanced vocational training programs, and etc.

In 2020, 30087 people were involved in the career guidance activities conducted by the Center. They participated in 862 career guidance events.

*2) the development and implementation of advanced vocational training programs.*

The activity of the Center in this area was carried out in cooperation with 42 regional VEI (90 contracts and agreements), 5 universities, 11 secondary schools, 1 educational and methodological association, 2 organizations represented by employers, 3 government bodies, including federal structures (Ministry of Construction, Housing and Utilities of the Russian Federation, Federal Autonomous institution "RosKapStroy"), and 21 other organizations.

These programs have been developed and are being implemented through a digital platform and a “competency constructor” with focus on the individual needs of potential students of the Center and the competencies being in demand in the Kemerovo region. The Center of the Siberian Polytechnic School (college) (GVEI SPS) has a monitoring center in its structure responsible for analyzing the current state of the secondary vocational education system and identifying the main priorities for the development of secondary vocational education in the region. It accumulates and studies the information received from 56 VEI of the Kemerovo region.

*The interaction format between the Center and its partners* in the development and implementation of educational programs and projects was realized in the following areas:

- the attraction of teaching staff (teachers, methodologists, training officers) in the development of advanced vocational training programs;
- the use of sites and equipment for the implementation of these programs, including the training of the pre-retirees through individual educational trajectories;
- conducting classes according to advanced vocational training programs;
- joint implementation of the "Ticket to the Future" project;

- the use of sites and equipment for the implementation of training (retraining) programs for people affected by the consequences of coronavirus pandemic;
- the attraction of teaching staff as experts to review these programs;
- the attraction of personnel for developing control and measuring materials for the advanced vocational training programs;
- joint vocational guidance activities, and etc.

One of the most significant indicators of the successful Center activity in 2020 was the project aimed at training (retraining) people affected by the consequences of coronavirus pandemic in the Kemerovo region. The Center of the Kemerovo Region acted as the regional operator of the project. In cooperation with its partners, 3100 people were trained through this program.

## Conclusion

Thus, we have considered such forms of interaction as "social partnership", "public-private partnership", "networking cooperation", and "educational and technological cluster". They are able to solve the problems of mutually beneficial cooperation among vocational educational institutions, industrial enterprises and social partners in order to achieve common outcomes.

Upon the analysis, we have identified the following distinguishing characteristics of this interaction: its activity-based nature; joining efforts of two or more partners for achieving the desired goal; solution of a specific social problem satisfying all partners and positive outcomes accepted by all participants. Other characteristics of mutual interaction are: pooling of partners' resources and efforts necessary for the implementation of training, educational and industrial practices and apprenticeship; the agreement with specified interaction conditions, including the distribution of responsibilities among partners and the list of used resources; the creation of favorable conditions for the development and implementation of advanced vocational training programs; the choice of own educational trajectory for acquiring competencies by students who study at the Centre; increasing the motivation to study and responsibility for outcomes; exchange of innovative experience in personnel training; creating conditions for improving the level of professional skills of teachers and training officer. The features of social and public-private partnership include: the attraction of private investments to solve the problems highlighted by partners; the development of the material and technical base through investments

and resources pooling; employers (from the real sector of the economy) participation in graduates' intermediate and final certification using demonstration exam mechanism; the development of educational standards and assessment tools; employment of graduates.

These features of the mutual interaction of vocational education institutions, employers and social partners have been considered while elaborating joint actions for the Center and its partners in the design and implementation of the advanced vocational training concept aimed at manpower development for the regional economy.

To sum up, it should be noted that the introduction of advanced professional training model aimed at training specialists for the regional economy meets the requirements of innovative production and brings together different elements of the career guidance system. These achievements contribute to significant and distinct improvements for people of all ages (LYSENKO *et al.*, 2020).

The formation of an advanced training system based on cluster-network forms of interaction and cooperation between educational institutions and business structures contributes to establishing a flexible vocational education system for developing human potential. Moreover, the new format of advanced vocational training meets the current and future needs of the socio-economic development of the regions of the Russian Federation.

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