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Networking in the WorldSkills Format as a Driver for the Development of the Teacher Training System

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Abstract

Currently, in the field of teacher training, there is an increasing understanding of the importance of networking as an effective innovative technology that allows educational organizations to develop dynamically and improve the quality of professional training of prospective teachers. The authors of the article, having analysed the main characteristics of networking, show that networking within the framework of the WorldSkills movement, on the one hand, has all the advantages of a "classical" network association, but on the other hand, has its own specifics. The effective principle of networking is translated to the level of each specific Worldskills competence. In this regard, successful network projects implemented since 2016 by the competence *Primary School Teaching* R21 are of great interest. One of the most successful network projects of the competence R21 was the creation of one of the largest and most active professional communities, which currently has more than 800 experts at various levels. The expansion of the professional community is facilitated by the implementation of educational projects within the framework of the Academy of WorldSkills. At the initiative of the regions, the competence R21 develops new championship lines aimed at young participants (schoolchildren) and representatives of the older generation. In general, networking in the WorldSkills format can be considered as a driver of the development of the teacher training system at the level of secondary vocational education in the specialty 44.02.02. *Primary School Teaching* with the possibility of further transferring positive experience to the level of higher education.

Keywords: teacher training, competence, quality of professional training, networking, WordSkills.

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Introduction

Since its official appearance in Russia in 2014, the WorldSkills movement has gradually become a powerful driver for the development of secondary vocational education, orienting it to the best world training practices. Currently, it has been reflected in the Federal Project _Young Professionals_ of the National Project _Education_, in the framework of which by the end of 2024 35 thousand teachers, masters of vocational training will improve their qualifications according to programs based on the experience of the WorldSkills Russia Union.

Being part of the global network interaction (84 countries within WorldSkills International, WSI), Russia not only effectively uses the international experience of organizing professional competitions, but also significantly expands the potential of the national movement, integrating its technologies into new areas. The national competence framework is much broader than the international one. Within the seven Competency Blocks (Creativity and Design, Services, Manufacturing and Engineering Technologies, Information and Communication Technologies, Construction and Construction Technologies, Education, Transport and Logistics), there are 95 main and 63 presentation competencies, while only 45 are represented in WSI.

In 2015, the first pedagogical competencies appeared in the movement, and in 2019 a full-fledged block _Education_ of 8 competencies was formed: Additional Education for Children and Adults, Preschool education, Remote English Teaching, Primary School Teaching, Primary and secondary school Teaching, Music Teaching, Technology Teaching, Physical Development Technologies.

One of the effective tools for the successful start and development of the movement in our country is the networking of the Young Professionals Union and the Regional Coordination Centers (RCC) of the constituent entities of the Russian Federation. This contributes to the involvement in the movement of 85 regions of the Russian Federation and the holding of large-scale National Championships. So, in 2020, in the conditions of a pandemic, one of the most massive Championships in the history of our country was held in a hybrid format, bringing together more than 3 thousand participants. Among them were about 1 thousand juniors, as well as foreign contestants. More than 700 people represented the expert community. Since February 2020, the status and name of the Union have changed. Its successor was the autonomous non-profit organization _Agency for the Development of Professional Excellence_ (WorldSkills Russia), the founder of which is the Government of the Russian Federation (2020). From this moment, networking in the field of implementation of competitive movement programs has become global.

The Agency of Strategic Initiatives (ASI), the Ministries of Labour, Education, Science and Education of Russia, more than 180 companies of different sectors of economy, such as the petrochemical company SIBUR Holding, Rostec, Rosatom, R-Pharm group of companies are integrated into him. This made it possible for the WorldSkills Russia to participate in the implementation of the national project *Demography*, within the framework of which 171 competencies of 110 thousand people from 85 regions of the Russian Federation were trained in 2020.

Purpose and objectives of the study

The effective principle of networking is translated to the level of each specific Worldskills competence. In this regard, successful network projects implemented since 2016 by the competence *Primary School Teaching* R21 are very interesting. It will be logical to consider the forms, tools, conditions and effects of network interaction in general, and how this is implemented in the activities of the professional community of the competence R21, contributing to the modernization of teacher training at the level of special vocational training in the specialty 44.02.02. *Primary School Teaching*.

In the framework of the study, we set ourselves the following goal: to identify and systematize the main areas of network interaction of teacher training colleges of the Russian Federation within the competence of *Primary School Teaching*; to analyse the factors that influence the definition of a teacher training strategy for primary school at the level of special vocational training.

Literature review

Networking, in our opinion, is a reflection of the processes that are currently taking place in the education system as a whole. Networking as a social phenomenon attracted attention of such researchers as Bugrova (2009), Goncharova (2009), Makoveeva (2013), Neterina (2013), Pankratova (2011), Akimova (2014). In particular, they studied the history of the term "networking" emergence, components, conditions, forms, results and effects of networking in the field of education. Research on the problems of educational institutions networking and modeling networks in the process of educational space building was conducted by Adamsky (2002, 2006).

Let us consider the concept "networking" and concepts close to it. The general concept of "network" refers to a group of elements (people, organizations, etc.) connected to each other. The term is metaphorical (comparison with a fishing net).

Vasilevskaya (2007) supposes that a network organization is a form, a decentralized complex of interconnected nodes of an open type, capable of expanding indefinitely by including more and more new links (structures, associations, institutions), which gives this form flexibility and dynamism. Each element, a network node, has its own content regarding the overall network issue, its own resources, and the infrastructure to implement its content. The content of each network node has the opportunity to acquire additional resources at the expense of other nodes.

In practical pedagogy, the beginning of the use of the concept "network" dates back to the 70-80s of the previous century. Then the network planning method was borrowed from economic science and transferred to teaching practice. Over the past few years, social and human sciences have been developing the theory of networks. The methodological significance of this theory lies in the establishment on the study of social relations, which include objects connected by them and the structure itself, which is created from these relations (Zayakina, 2013).

The concept "interaction", close to "networking", has become independent in pedagogy in the last two decades. In the *Dictionary of New Pedagogical Thinking* by Bezrukova (1992), it is defined as "a special form of communication between people, processes, actions, phenomena, as a result of which their original qualities or states change. It leads to the synthesis, integration of objects, to a single action."

In pedagogical practice, the idea of networking of educational institutions arose in the late 1990s. The impact of Adamsky (2002), the educational network that he created, was great. He noted the special nature of relations, connections, interactions of educational institutions, the purpose of which is to model the nature of relations, connections and types of interactions inherent in civil open society.

Networking is a communication system that allows you to develop, test and offer the professional pedagogical community innovative models of the content of education and the management of the education system. It is also a mode of activity for resource sharing (Glubokova & Kondrakova, n.d.).

In relation to the field of education, Adamsky (2006) identifies a number of characteristics of "networking" that distinguish it from other forms of interaction. In his opinion, in the center of networking there is not information, but a person and an event. Persons can act as authors' teams, carriers of innovative pedagogical technologies. The second component - "event" assumes an orientation to solve a certain problem, for which the event is triggered. Moreover, the event is initiated by persons who thus declare the current need to solve this problem. (Adamsky, 2006). Networking of educational institutions differs from the hierarchical interaction, which is still more typical of the modern educational system.

As Glubokova & Kondrakova (n.d.) note, an important feature of network interaction is that there are no organizations in the traditional sense in the network. The primary element of the network association is the precedent of interaction, a network event (project, seminar, meeting, exchange of information, etc.).

Networking (or network partnership) in the field of vocational education can be considered from different perspectives: as an additional resource of an educational organization; as a way to integrate innovation and educational activities of partnership participants; as a certain type of relationship in which different social groups, educational organizations and the State as a whole are interested; and as a mechanism for the development of socio-innovative processes. (Khusnutdinov, 2017). Networking is a self-tuning and self-perfecting communication system that includes a direct and inverse relationship between the participants in the interaction (Sheblovinskaya, 2015).

Based on the Federal Law "On Education in the Russian Federation" (Ministry of the Russian Federation, 2012), federal State Educational Standards for Professional Teacher Training, the National Framework for Qualifications and Professional Standards, the directions and principles of network cooperation in the field of vocational education have been determined, and a network model for the training of vocational and teaching staff has been developed. The model assumes possible levels of interaction: point, local, regional, interregional (with Russian regions), international (with foreign vocational and teacher training systems) (Akimova, 2014). The vector on the network forms of educational programs implementation can also be traced in the updated standards of the special vocational training, including the enlarged group of specialties 44. While the demonstration exam becomes mandatory as a practical-oriented component of the state final certification of teachers, the emphasis is on consolidating the material and technical conditions of educational activities in the network.

Chuchkevich (1999) identifies five main characteristics of a network organization: 1) the independence of network members (they themselves can determine priorities both in nature and in the direction of their activities); 2) multiplicity of leaders; 3) unifying goal (in the network organization it is based on the individual progress of each network member, unreachable outside the network); 4) voluntary ties; 5) multiple levels of interaction (each network member can interact with both members of its node (layer) of the network and representatives of other levels located as far or close as possible to the corporate center of the network).

Based on studies of recent years, it is possible to determine the following organizational and pedagogical conditions of educational institutions networking: forming an order for training specialists, improving the content and structure of educational programs with a customer orientation, developing various forms of information support for students in vocational education institutions, encouraging teachers to network, supporting teachers in the field of using ICT in pedagogical activities in the mode of networking, using remote technologies to improve qualifications of teachers.

There are different models of educational networks that can conditionally be combined into two main types: concentrated and distributed networks. The first involves the presence of a powerful resource center. In a distributed network, there is no resource center as such, and each participant has an opportunity to create his own trajectory of life and development.

Makoveeva (2013) highlights the following advantages of network interaction: lack of territorial limitations, focusing participants on the development of key competencies, involving competent partners in joint activities, the possibility of forming associations for the implementation of complex projects with many participants, a high level of innovative activity, etc.

Among the positive effects of network interaction there are the following: improvement of the quality of information exchange, transfer of knowledge, experience; increased access to diverse resources (ideas, knowledge, technology, human, financial and other resources); possibilities of using objects of innovation, production, information and communication, social infrastructure of participants of network interaction; making important decisions faster; improving the image of network participants, increasing the prestige of educational organizations. The experience of participating in the network interaction allows each participant to critically analyze their activities and make appropriate adjustments, to make something new that contributes to the effectiveness of further work.

A network organization is an installation to overcome the autonomy of its participants; social partnership; building strong and effective links not so much between institutions as between professional teams working on common problems; when the order is set not by established rules, but by general actions, their logic (Shvetsov & Aldar, 2012). Networking is possible only between those elements of the network that are subjectively autonomous and not subject to the code of relations imposed from above, which is inherently contrary to the network approach (Serkova, 2012).

All networks should be based upon some essential components. Parker performed an important early study of networks. He described five key components of networks, which he drew up after studying over sixty networks for educational improvement.

These five key components are those that members of networks should have: 1) a strong sense of commitment to the innovation; 2) a sense of shared purpose; 3) a mixture of information sharing and psychological support; 4) an effective facilitator; 5) voluntary participation and equal treatment (Moonen & Voogt, 1998).

Thus, by networking, the interaction of independent subjects carried out on the basis of network technologies, one can distinguish the following features: the autonomous status of each subject; the voluntary nature of participation in the overall task; the continued availability of collaborative materials to all actors in the network; availability of appropriate technical support - the possibility of using telecommunication networks online (Adamsky, 2006).

In the future, learning is expected to be more personalised, collaborative, informal, competence-based and supported by flexible and dynamic virtual environments and a range of tools which facilitate learning within and outside schools. As a result, the role of teachers and instructors is also expected to change. Not only the way of teaching and learning will change but also the training and professional development of teachers, as well as their use of online networking and collaboration tools (Vuorikari et al., 2012). The teachers "love to engage in and lead professional development . . . they like to present and share with each other" (Gerdeman, Garrett, & Monahan, 2018).

Networking of teachers within the network pedagogical communities has become common in recent years both abroad and in our country. However, the process of creating and methodically supporting networks of pedagogical communities to jointly solve problems and organize collective activities of an educational nature on the Internet has been little studied, the existing practice requires theoretical reflection.

The problem of preparing teachers for networking and joint activities is urgent. This problem is now partly solved in the system of advanced training. However, there are other ways to build networking skills. Among them, of course, should be called involvement in networking within the framework of the WorldSkills Russia movement.

Methodology

During the study, theoretical research methods (analysis of scientific and methodological literature on the topic of research, systematization and classification, fact-based synthesis) were used, ensuring the reliability and validity of the results.

Thus, the Internet chat of certified experts regularly discusses issues related to various aspects of the competence activities, including:

- documentation concerning policy, regulations and competitions within the framework of the competence lines (main, junior, university), as well as the championship *Skills of the Wise*;

- training programs for different categories of citizens (including those within the framework of the Federal Project *Employment Promotion*) and advanced training programs for experts;

- organization and conducting of the competence demonstration examination, preparation of students for it.

Surveys and questionnaires of all categories of members of the network community of the competence *Primary School Teaching R21* are conducted on an ongoing basis within the championship year of the WorldSkills Russia movement. Certified experts participate in surveys related to the preparation of competitive task modules of the championships and the development of evaluation criteria. Twice a year, a questionnaire is organized for participants in the qualifying and national championships of the Russian Federation (at least 80 people are asked), which provides for an assessment of the complexity of the proposed competitive tasks and the degree of professional and psychological readiness of students to fulfill them.

Every year, a survey of methodologists and expert masters of teacher training colleges is held on the preparation of graduates for the demonstration exam. The systematization of the best practices of preparing students for the demonstration exam in the competence *Primary School Teaching R21* has made it possible to develop appropriate methodological recommendations.

Results

Network interaction within the WorldSkills movement, accumulating all the positive characteristics and advantages of the "classical" network combination listed above, has its own specifics.

The WorldSkills agency, being the core and unconditional leader of the network in Russia, relays to the national level the understanding of the WSI global mission as "The global hub for skills excellence and development," which consists in increasing "prestige and recognition of qualified people." For all national entities without exception, the basic documents are the Constitution of WorldSkills International, Standing Orders, Competition Rules, Code of Ethics and Conduct, which do not conflict with basic national values.

The agency initiates the development of the national line of competency standards within the framework of the National Championship, organizes an audit of the correct use of WS technologies. The number of participants of networking in WorldSkills is steadily expanding in order to launch new network projects, including thoses within the framework of federal programs.

At the same time, this organization has an extremely limited staff of managers and fundamentally does not have its own permanent technological infrastructure. However, in terms of the pace of broadcasting innovations in professional training, it currently has a leading position in Russia. Summing up the ten-year activity of the movement in Russia, the general director of the Agency Robert Urazov in one of his interview said that it "has changed the landscape of special vocational training, giving rise to its own system of standards and offering the labor market of college graduates a completely new, international level".

Russian know-how was the appearance in 2015 of the first pedagogical competencies in the movement of WorldSkills aimed at teacher training colleges - 475 educational organizations conducting training in the enlarged group of specialties 44.00.00. This initiative was supported by the regions of the Russian Federation interested in maintaining subordinate pedagogical education, which prepares targeted personnel who are invariably in demand on the labor market. It was in 2015 that the issue of the advisability of maintaining the training of teachers at the level of secondary vocational education as a whole was acute. The main argument was based on taking into account global trends in the predominance of teacher training at the level of higher education. At the same time, neither the national characteristics of the country (geographical and economic), nor the achievements of the field of vocational pedagogical education (strong personnel, a constant practical-oriented approach to training, the continuity of secondary and higher education in terms of implementing basic educational programs) were taken into account. The reform, which could lead to irreparable results in the labor market in the field of education, did not take place, and teacher training colleges had an additional development tool taking into account WorldSkills technologies.

After 5 years, we can conclude that the pedagogical competencies of WorldSkills not only contributed to the preservation of this level of vocational education, but acted as a kind of driver of its development in general.

Currently, 76 regions of the Russian Federation (89%) support the competence R21, hold regional competitions and participate in all-Russian qualifying competitions.

One of the most successful network projects of the competence R21 was the creation of one of the largest and most active professional communities, currently uniting more than 800 experts of various levels: certified experts for the right to hold regional championships, experts of the demonstration exam, and since 2020 also expert masters. The professional community of any competence of WorldSkills Russia, although in its essence it is a self-organizing community, has a clear structure and management in the person of the competence manager. Since 2020, due to multitasking, the competency management system has become more complicated. The management includes deputy managers of competence in the main strategic areas: development, methodological work, championship movement, training. The core of the professional community of R21 consists of 35 certified experts who have passed all stages of training, professional tests and have extensive experience in organizing championships, demonstration exams. Certified expert status is to be confirmed every 3 years of activity. Most of them are teachers of teacher training colleges of professional cycle disciplines, methodologists, organizers of production practices.

The expansion of the professional community is facilitated by the implementation of educational projects within the framework of the Academy of WorldSkills. Training is conducted according to standardized reference programs, which are based on the basic principles of WorldSkills. In developing programs, the emphasis is always on new trends in the industry, taking into account the needs of employers. From 2018 to 2020, about 657 teachers of teacher training colleges were trained within the federal project *Young Professionals*.

With the participation of the professional community, it was possible to develop adequate substantive and evaluation tools, initially exclusively for the holding of regional, qualifying and national championships. In the standard of specification of the profession (WSSS), which is the main element of the Technical Description (TD) of the competence of R21, a balance of requirements was retained, on the one hand, from the perspective of WSI technologies, on the other hand, from the perspective of the Federal State Educational Standard in the specialty 44.00.02 *Primary School Teaching* and the professional standard of the Teacher. Annually, the Competency Competition Task is updated by an average of 20-30%, taking into account new labor functions and skills in demand in the industry.

The key goal of the application of networking in professional teacher training is the quality of the results of the implementation of professional educational programs in the specialties "Education and Pedagogical Sciences," the quality of training of specialists that meets modern requirements in accordance with the agreement on network cooperation between participants in the network interaction, events are being implemented for students to organize methodological assistance for college students in preparation for participating in professional skills competitions, including in the Regional Championship *Young Professionals* of WorldSkills (Lukyanova, 2018).

The development of the infrastructure of educational organizations has a significant impact. According to the infrastructure sheets of the National Championship of WorldSkills, including innovative equipment, workshops are equipped as part of the federal project *Young Professionals* (in 2019 - 18 workshops, in 2020 - 24). The Network Standard works to equip 7 accredited Specialized Competence Centres of the R21 and Demonstration Examination Centres (Yakovleva, Voiteleva & Krasilova, 2018). A record number of them were created in 2019 - 115.

Successful network projects of competence include successful testing in 2017 and the introduction of a demonstration exam on WorldSkills standards. Each year, by order of the Union, on the basis of the competitive task of the national championship, each competency develops unified sets of evaluation documentation (SED). The largest number of graduates who passed the demonstration exam using the SED of the competence R21 was in 2019 - 2762 participants from 65 regions of the Russian Federation (Yakovleva, Voiteleva & Krasilova, 2019). The number of participants in the demonstration examination will constantly increase, since in the updated standards for teacher training, a demonstration exam is planned as a state final certification along with the diploma project. Preparations in accordance with the Unified Network Requirements for demonstration examination have led to an increase in the number of experts eligible to evaluate the demonstration exam. Moreover, school teachers are actively involved in this activity, who, having mastered the assessment technology, can act as independent experts.

In a number of territories, educational organizations face a number of difficulties preparing a demonstration examination. Firstly, this is a lack of logistics, a lack of personnel resources, as well as the inability to bear the costs associated with paying experts, training experts. For the independent implementation of this project, they do not have the opportunity. The only possibility of implementing this direction is the organization of network interaction between educational organizations and potential employers.

Issues of network interaction are regulated by the Federal Law "On Education in the Russian Federation" (Ministry of the Russian Federation, 2012), as well as Methodological recommendations for the organization of the educational process in the network forms of implementation of educational programs. However, despite the emerging base, network interaction within the framework of the demonstration exam does not develop at the proper level, as many experts note, this is also due to the lack of infrastructure, insufficient use of interaction technologies, lack of interest of network interaction actors (Matyashov, 2018).

At the initiative of the regions, competence develops new championship lines. Teacher training colleges actively use the technology of WorldSkills professional samples in school competitions. The steady growth of participants from the regions of the Russian Federation (in 2018 - 10, 2019 - 30, 2020 - 37, in 2021 - 40 regions) in the All-Russian qualifying championships of the line of 14-16 years old indicates the interest of schoolchildren in this practical-oriented format and the pedagogical profession as a whole.

Due to the presence of professional competitions for experienced teachers, the competence R21 did not plan to launch a separate line of the national championship "Skills of the Wise," but the first championship of this age category was held in 2020 in a hybrid format with the participation of representatives of 32 regions. However, mature professionals showed interest in the movement in 2020.

Discussion

The active integration of educational organizations into the network projects of pedagogical competencies WorldSkills Russia is currently gaining special relevance. This activity contributes to the strengthening of practical-oriented training of students, taking into account the requirements of employers; the development of the infrastructure of educational organizations; further training of teachers; positioning colleges as sought-after centers for the further training of teachers in the regions; the introduction of common approaches to assessing the quality of education in the demonstration examination; the use of new career guidance formats in order to attract the most capable school graduates to the profession; ultimately contributes to the competitiveness of the organization as a whole. In connection with the prospects for the introduction of the demonstration examination as a mandatory element of the State final certification, integration ties within the movement will be strengthened.

Due to the understanding of the research problem, it is assumed that a developed and scientifically based model of networking of educational institutions will be able to solve the following pressing problems:

improving the quality of training; the formation of unique competencies that are in demand in the labor market; opening of new educational programs; increased mobility of students and teachers; increasing research and development activities; ensuring the relevance of scientific research; increased demand for graduates; attracting additional resources.

Conclusion

It is a recognized fact that the Worldskills movement has an effective networking that has a significant impact on the improvement of teacher training. Networking is one of the most important characteristics of the current unified educational space, and networking will only be strengthened with the inclusion of a demonstration exam in the Federal State Educational Standard for special vocational training as part of the State Final Certification; successful experience can be broadcast to the level of higher pedagogical education. The success of the movement as a whole and of a specific competence is ensured by effective networking of regions, support of professional communities and educational organizations.

The results of the study can be used in the development of plans for the development of network interaction of professional educational organizations within the WorldSkills movement in order to improve the quality of teacher training.

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