

DCCD 2020**Dialogue of Cultures - Culture of Dialogue: from Conflicting to Understanding****SEMANTIC MEANING OF PHENOMENON OF THE “NETWORK
EDUCATIONAL INTERACTION”**

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Abstract

The invasive nature of the ICT revolution has seen a changing landscape across many industrial sectors, with adoption of new technologies and, increasingly, artificial intelligence applications. The education sector has not been immune from the influences of the ICT revolution with the uptake of various student learning management system platforms used to supplement, augment, or sometimes replace face-to-face interactions. However, these technological changes have also had ramifications for teachers and students alike. The new information society environment has forced changes onto teachers and students that have shifted the way they interact with each other and how instructional material is made available, accessed and used. This paper discusses the findings of a narrow empirical study conducted in 2019 among teaching professionals, to gain an insight of the content of terms such as “educational interaction” and “network personality”. Analysing the results in the aspect of culture of dialogue enabled the identification the semantic content of the above terms, an understanding of which is necessary for organizing the process of preparing teachers for dialogue with various individuals, in complicated socio-cultural conditions. This study aimed to find mechanisms to solve the problem of organizing the process of preparing teachers for educational interactions with a new figure (network personality) in a new sociocultural environment (environment of the information society). The paper assumes that special teacher training may be warranted to overcome the problems identified in this research.

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1. Introduction

Network educational interaction is not a new term, but as a phenomenon, researchers have been actively studying it only since the second half of the 20th century. It has great potential for improving the educational practices of various fields and levels of education, and has been the subject of previous investigations in Russia (Lopuga, 2007; Sheblovinskaya, 2015; Trofimova, 2016) and elsewhere (Aldahdouh et al., 2015; Dlouha et al., 2018; Downes, 2010; Liu, & Ma, 2019; Silva et al., 2017; Tal et al., 2019). Notwithstanding numerous scholars' papers, this scientific concept is not clearly defined and, therefore, there is terminology confusion, not only in the minds of the general public, but also within the pedagogical community.

In this regard, it is of particular importance how often and what a particular concept (or group of concepts) is reflected in the consciousness of both the "network" public group (general internet users) and the pedagogical group.

The issue with the first group can be clarified by analysing the frequency of use in internet word formation that is part of the concept in this area, in our case, this is interaction-educational-network. The procedure comprises an analysis of the "semantic field", a technical term describing a set of words grouped by meaning and the nature of representation of sources revealed on the Internet for general public attention at the specified period of time. The "semantic field" method is important for researches as it represents the interest of the general public, not just the academic society, towards a chosen area of research, which in this particular case is the Internet). Such an attempt has previously been made in relation to the concept of "educational interaction" (Sazonova, 2016).

We attempt to clarify the situation with the pedagogical community via the use of a questionnaire. Before discussing the results from this questionnaire, we need to review existing literature to determine whether the "network interaction" phenomenon is rapidly entering modern life and becoming part of many social processes, including economic, political, cultural, social and educational.

Recently, the definition of network interaction can be found in a variety of academic publications, that highlight general trends and ideas, such as:

- This is a collaborative effort to use a variety of resources (Lopuga, 2007);
- It is an "event interaction and mutual support in the implementation of individual ideas of a certain group of homogeneous organizations and institutions" (Sheblovinskaya, 2015, p. 243); and
- It is a means of interaction used by educational institutions to organize the educational process, collaborate, share experiences, implement a variety of techniques, technologies and other pedagogical tools (Uvarova & Ribalkina, 2016).

The definition of the "network interaction" phenomenon can be found in the methodological recommendations for organizing such an approach among general educational organizations; supporting education organizations; professional educational organizations; industrial enterprises and business structures in the field of scientific and technical creativity (including robotics), where it is designated as a system of horizontal and vertical connections ensuring the availability of quality education for all categories of citizens, its variability, openness, professional development competencies in the use of ICTs and in the organization of interaction (Guidelines, 2016).

Another definition is given in the work “Models of network interaction of cluster type institutions of pedagogical education for additional professional development”, which may be classified as a document providing methodological recommendations. In this paper, network interaction in the field of education is designated as horizontal interaction between educational organizations, in order to distribute functionality and resources (Guidelines, 2017, p. 15).

The need for a methodological approach has developed to a stage where practical approaches and solutions are required. Initially, this should aim to expand current pedagogical knowledge about network interaction and the high-quality organization of professional activity.

The recommendations made at different levels such as: ministerial, university, general education and others, on how to organise network interaction, suggests that there has been some understanding of the network interaction phenomenon and understanding of its essence by practitioners.

2. Problem Statement

Recently, there is a rapid change in various spheres of life, including education. New phenomena appear that need to be studied, and existing phenomena need to be rethought. Surveying the pedagogical community was an essential step in identifying differences and understanding of "network educational interaction" among respondents with different attributes, such as age, length of service, and field of activity, to clarify the semantic content in terms of the culture of dialogue when a new subject (network), new tools of interaction (ICT), and a new educational space (open) are introduced. The scope of our interest also includes the concept of “network personality”, that is, the attitude of those within the pedagogical community, and this aspect was also explored in the questionnaire.

3. Research Questions

Differences between cultures result in the fact that representatives of different cultures have different perceptions and understanding of the messages received. This can be explained by the personal social and psychological characteristics (status, age, cognitive, emotional ones) of communicants, and the difficulties determined by the features of verbal and nonverbal behavior. Differences in cultures lead to the fact that representatives of different cultures have different ways of decrypting and interpreting the messages received. In the process of organizing and conducting the study, we aimed to find answers to the following five questions:

1. What is a “network personality” in modern sociocultural conditions?
2. What characteristics should be considered by a modern pedagogue to organize joint activities and productive dialogue with subjects of education?
3. What is the content of the category "network educational interaction"?
4. What are the opportunities for networking in the field of education?
5. Under what conditions can these opportunities be maximally realized?

The answers to the above questions should assist in solving a problem such as finding the conditions for organizing the process of preparing an educator for interaction with students in modern sociocultural conditions. Many researchers are still concerned about the readiness of a teacher to carry out high-quality

professional activities in the information society (Bugrova, 2018; Lacerda & Marli, 2019; Tsitsikashvili, 2019; Vovk, 2018).

4. Purpose of the Study

The purpose of the study is to identify the semantic content of the term "network educational interaction" through an analysis of the responses to a questionnaire in the aspect of culture of dialogue. Such an understanding is necessary to search for conceptual foundations in order to organize the process of preparing teachers for educational interactions with students, for a dialogue of culture across various subjects under the new sociocultural conditions.

Dialogue culture is a component of professional culture, which largely determines the success of a specialist both in professional activities and in interaction with others. Since the culture of dialogue is a complex multicomponent phenomenon, a change in the conditions and means of interaction between students and their joint activities and communication, inevitably affect the phenomenon of "culture of dialogue". This must be taken into account when solving the problem of preparing a teacher for interaction with students in the information society.

5. Research Methods

To support the assumption that among those in the pedagogical community, phenomena, such as "network educational interaction" and "network personality" are becoming meaningful, a survey was conducted focusing on the organization of the educational process in the information society comprising a new subject, attracting new tools of interaction, and using the opportunities of an open educational space. The survey was voluntary and anonymous.

Participants were asked 20 questions, the answers to which would allow to identify the influence of following factors:

- the age of respondents;
- the impact of professional experience on their attitude;
- their attitude and perception towards "network educational interaction";
- the impact of "network personality" in the educational process;
- the semantic content of the term "network educational interaction"; and
- the relationship between how teachers perceive a network personality and the way the educational process is organized.

Correlations were detected using an Excel spreadsheet processor, and factor analysis was performed using the SPSS statistical package.

The survey was conducted in October 2019 among participants of the international scientific-practical conference "Network educational interaction in the training of the teacher of the information society", in Vladivostok. The conference was attended by over 180 people, with representatives of various regions of Russia (82%) and foreign participants (18%). In total, 129 people responded to the survey, which is equivalent to a participation rate of approximately 72%. Data related to age and experience factors are required to identify any correlations and these are summarised below.

The demographic age data of respondents is shown at Table 1.

Table 01. Age data of respondents

Age band	Percentage of respondents
Up to 25 years old	10.9%
26-45 years old	53.5%
46 years and older	35.7%

It can be observed from Table 1 that only a small proportion of respondents (10.9%) were 25 years of or younger.

The years of pedagogical experience of respondents is shown at Table 2.

Table 02. Pedagogical experience of participants

Pedagogical experience (years)	Percentage of respondents
Up to 5 years	19.4%
6 – 10 years	20.2%
11 -25 years	32.6%
26 years an above	24%
No pedagogical experience	3.8%

The number of participants representing various fields of education interested us in the aspect of the representation of members of the academic and members of the practical community. The results are shown in Figure 1.

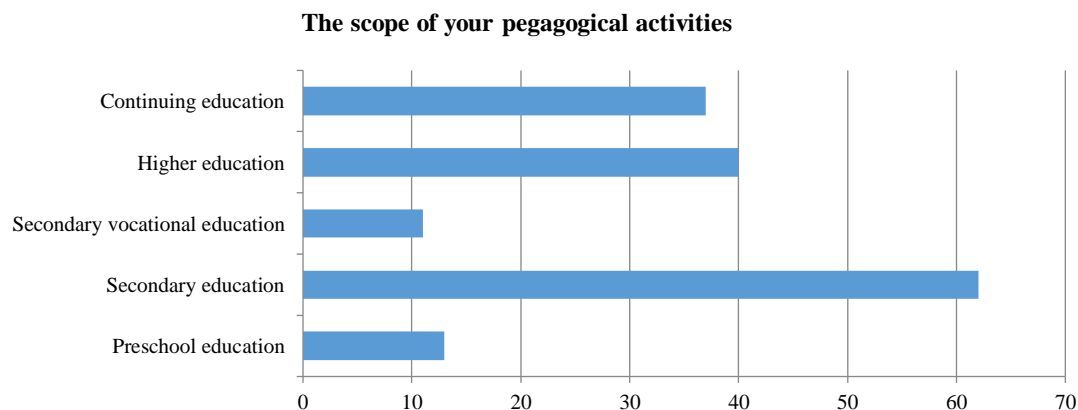


Figure 01. Responses to the question: “Scope of your pedagogical activity?”

6. Findings

In order to clarify the understanding of the “network educational interaction” phenomenon and its meaningful content by teachers and practitioners, the questionnaire asked participants to complete two tasks:

1. to describe the educational interaction (to give qualitative characteristics) using adjectives and verbs (to give “activity” characteristics); and

2. to describe the activity characteristics of the “network educational interaction” phenomenon using verbs.

For task 1, a qualitative description of the “network educational interaction” phenomenon, adjectives responses were limited to the three most significant characteristics. Respondents identified 153 adjectives and a summary of the most popular responses is provided at Table 3.

Table 03. Most popular adjectives identified

Adjective	Number of responses
Productive	14
Effective	12
Creative	9
Modern	
Communicative	
Interesting	
Productive	8
Developing	
Open	
Necessary	
Interactive	7
Helping	6
Pedagogical	
Affordable	

We observed two interesting aspects in the analysis of the results. The first was that, unexpectedly, rare but indicative characteristic words: value, hearing, clarifying and deep were used to describe “network educational interaction”. The second was that almost all respondents identified adjectives that characterize “network educational interaction”. However, 3 people used the words: difficult; cramped; complex; blurred; low; difficult; insufficient; distant; and incompetent, to describe the negative characteristic of “network educational interaction”, highlighting that not everything is necessarily positive.

For task 2, to describe the “network educational interaction” phenomenon, verbs responses were limited to the three most significant characteristics.

Respondents identified 141 verbs and a summary of the most popular responses, which were individually cited at least five times, is provided at Table 4.

Table 04. Most popular adjectives identified

Verb	Number of responses
Cooperate	16
Communicate	
Develop	14
Act	13
Interact	12
Share	11
Create	10
Work	

Help	8
Understand	
Train	
Learn	
Do	7
Develop	
Support	
To know	6
Promote	
Guide	
Think	5

An analysis of the verbs used by the respondents, as shown in Table 4, allows for some generalizations:

- Infinitive verbs to develop, train and teach were used more often. Less often, but nevertheless important for this study, reflexive verbs using the suffix -self demonstrate the action of the subject on themselves - to develop, learn, learn;

- The list contains verbs that indicate the humanistic, and thus subjective, orientation of some of the respondents: to hear/listen: help; share; understand; create; enjoy; grow; inspire give; create; surprise; and bear responsibility;

- Often synonymous verbs were used to mean the same action. For example, activate-initiate-interest; talk-communicate-converse-speak; rejoice-get high; act-participate-implement-contact; and accent-focus.

To add semantic content to the term “network educational interaction”, which is somewhat different in modern sociocultural conditions than when the concept first appeared, it was important to clarify the attitude of the pedagogical community, not only to the notion of “educational interaction”, but also to the concept of “network personality” which, in science, is still in its infant stage.

“Network personality” was defined by Akhayan (2017) as a person capable of satisfying their own cognitive or communicative needs at the time of their occurrence or at a time of peak of interest, where the right to satisfy these needs is a value for such an individual. It was encouraging to note that almost half of the respondents (49.5%) were already familiar with this definition. Others had heard of the term “network personality”, but its definition belonged to other authors (17.1%). A third of the respondents heard the definition for the first time at the conference (30.2%).

As the opinion of teachers about "network personality" was deemed to be important, a series of questions were devoted to this.

In answering the question: Do you relate yourself to a network personality? 88% of the respondents answered in the affirmative, and 12% could not identify the characteristics of such a person in themselves.

We were interested in teachers’ opinion to when, or at what age, the first “appearance” of a network personality may be possible.

A summary of responses is provided in Figure 2, which will be discussed later in the paper.

At what age is the emergence of a “network personality” possible?

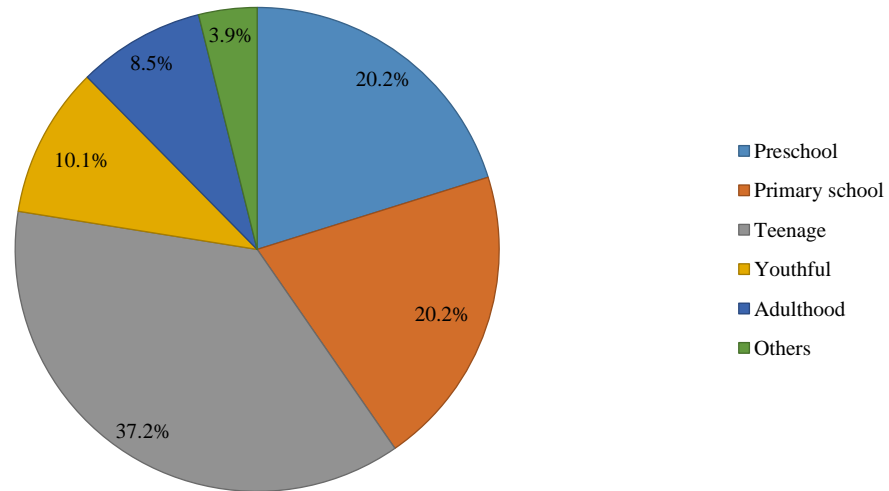


Figure 02. Responses to the question: “At what age is the emergence of a “network personality” possible?”

The question: Do you take into account the appearance of such a phenomenon as “network personality” when organizing your professional activities? How? was a free text response.

A third of respondents (38) replied that they had not yet fully understood the concept and 16 did not answer or answered incompletely. A summary of the effect of taking into account the concept of “network personality” are provided in Table 5.

Table 05. The effect of taking "network personality" into account

Effect	Number of responses
Upgraded electronic resources	27
Upgraded methods of delivering material	
Change in content of activities	12
Change in teaching methodology	7
The nature of the interaction is changing	6
The attitude towards the subject is changing	
A need to expand ideas about ICT	4
A need to expand ideas about the network	
Change resources and approaches	3
Changed professional role	
Understanding that students are not the same as they used to be	2
Taking advantage of new opportunities	
Concern about public assessment of teaching activities	
Change in the nature of interaction with parents	
Change in attitude towards information	
Change in speed	
Change in the culture of communication	1

The success of educational interaction and, consequently, the quality of the educational process, as a whole, largely depends on how participants perceive the nature of this concept by the individuals' interaction, primarily teachers. Therefore, the questionnaire included a question aimed at clarifying this perception: *How often does an educational interaction appear for you as an episode, situation, or event?*

The responses are summarized in Figure 3.

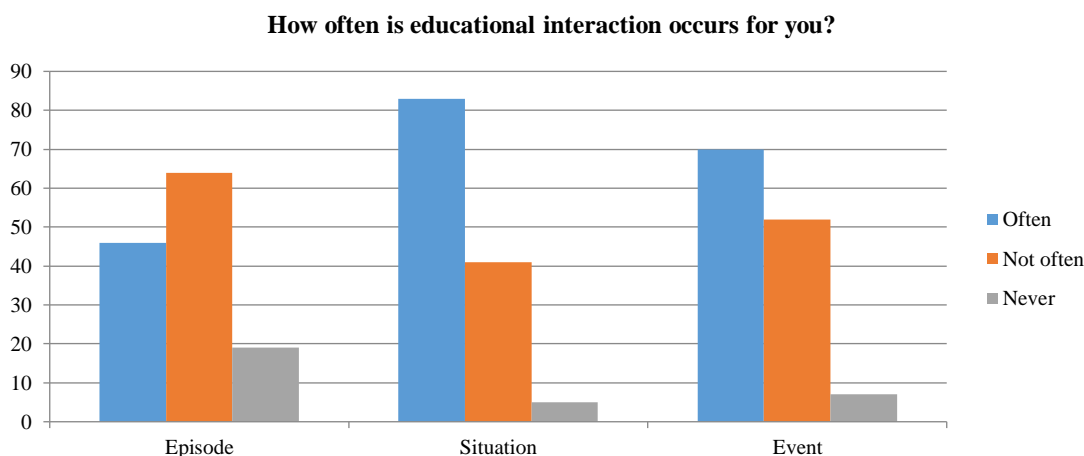


Figure 03. Response to the question “How often does an educational interaction appear for you as an episode, situation, or event?”

We propose to consider an educational interaction as an event, since it largely coincides with the essence of an educational event in the context of vocational education, with its characteristics: singleness, dialogism, probability and fractality (Frolova & Ilaltdinova, 2017) and the conditions of manifestation (Krylova, 2010).

The analysis of the terms “educational interaction” and “network personality” allows us to indicate the semantic content of the category “network educational interaction” from a pedagogical community perspective. “Network educational interaction” is such an objective phenomenon, which, in the field of education, cannot but affect the activities of students and, above all, teachers. This forces teachers to significantly restructure their own professional activities by changing tools (resources, methods, techniques) and content, but, in our opinion, even more essentially important changes in strategy and the nature of the interaction among individuals. By understanding and considering this allows one to make the educational process more productive, efficient, creative, and so on. It helps to collaborate, communicate, develop and expand, act, share, create and much more. This is also facilitated by the perception that the student is a subject of activity, the recognition of the significance and value of their cognitive or communicative needs and the right to their satisfaction.

The survey results were used to conduct factor analysis (using the statistical package SPSS) and for establishing correlations (using the Excel spreadsheet processor). Correlation analysis was used to determine the presence of dependencies between the teacher’s attitude to online educational interaction (episode, situation, event) to the characteristics of the subject of educational interaction (artificial intelligence, collective subject, individual subject); perception of oneself as a network personality; age of

first appearance of network personality; the interaction space and the age of the teacher; and the experience of his professional activity.

The results of the study showed that teachers with more experience are driven by the results of the educational process; younger teachers and those with less experience are guided by the educational process ($r = 0.196, p < 0.05$).

The younger the teachers, the more often they identify as a subject of educational interaction as an independent individual; the older the teachers, the more often they designate artificial intelligence as the subject of educational interaction (Alice, Siri, etc.) ($r = 0.282, p < 0.05$).

Teachers with longer experience allow the emergence of a network personality at an earlier age more often, whereas teachers with less experience, they allow a network personality to appear at an older age more often ($r = -0.197, p < 0.05$).

Teachers with more experience more often regards an educational interaction as an event for them, whereas the less pedagogical experienced teacher less often regards an educational interaction as an event ($r = -0.223, p < 0.01$).

When solving professional problems, teachers with the greater pedagogical experience increasingly prefer to turn to a collective or an individual subject rather than to a network library or to artificial intelligence; whereas the less pedagogical experience a teacher has, the higher the preference for turning to a network library or artificial intelligence in preference to a real subject/individual ($r = -0.192, p < 0.05$).

The more often educators turn to an individual subject to solve professional problems, the more often an educational interaction become an event for them; the more often teachers turn to artificial intelligence or to a network library to solve professional problems, the educational interaction as an event for them occurs less often ($r = 0.279, p < 0.01$).

Teachers who are focused on the result in the organization of educational interaction, more often define themselves as a network personality, whereas teachers who are oriented toward organizing educational interaction in the process are less likely to define themselves as a network personality ($r = -0.177, p < 0.05$).

Teachers who prefer to interact with colleagues when solving a particular problem, in a virtual space, are more often willing to consider themselves to be a network personality ($r = -0.328, p < 0.01$).

Factor analysis of responses was carried out, and the results are presented in the form of a matrix of components in Table 6.

Table 06. The matrix of components of factor analysis

Matrix					
Questionnaire	Components				
	1	2	3	4	5
In which space would you prefer to interact with colleagues when solving a particular problem? In real with elements of virtual or in virtual with elements of real, as needed?	,761				
Can you consider yourself a network personality? Yes/No	-,652				
How often is educational interaction an event for you? Often/Never	-,571				
To organize a productive educational interaction, would you rather choose a “live” teacher, or an “electronic” teacher?	,551		,468		

Have you seen (before the conference) the definition of "network personality"?	Yes/ No	-.463			.413	.435
Age?			.862			
Teaching Experience?			.853			
In our understanding: a person who is able to satisfy his own cognitive or communicative needs at the time of their occurrence or at the peak of interest is a network personality (the right to satisfy these needs is a value for such a person). At what age is the appearance of such a person possible? In the early age/ in the adult age			-.516	-.478		
Who, in your opinion, can be the subject of educational interaction? Individual or collective subject/ artificial intelligence						
How often is educational interaction a situation for you? Often/ Never				.752		
When organizing your professional activity, do you take into account the appearance of such a phenomenon as "network personality" today? Yes/No					.786	
The scope of your teaching activity?					-.607	
When solving professional problems, which of the subjects do you refer first? To an individual or collective subject/to artificial intelligence						
How often is educational interaction an episode for you? Often/Never						-.562
What is of paramount importance to you when organizing educational interaction? Process/ Result				-.438		-.511

The results of factor analysis made it possible to identify 4 groups among teachers (the second component turned out to be less significant, so we did not take it into account). The characteristics of the four groups identified are described below.

Group 1. When solving a particular problem, group 1 prefers to interact with colleagues in a virtual space, with elements of the real, if necessary; has the characteristics of a network personality; educational interaction for representatives of this group is often an event; to organize a productive educational interaction, they rather choose an "electronic" teacher; were first introduced to the concept of a network personality at a conference.

Group 2. When organizing a productive educational interaction, they are more likely to choose face-to-face interaction. Their speech capabilities (tonality, emotionality), charisma, erudition, their personal and professional qualities; believes that the "appearance" of a network personality is possible in later stage; educational interaction for group representatives is often an event. For group two, result is of paramount importance when organizing educational interaction.

Group 3. Consists of representatives of the field of continuing education; were first introduced the definition of network identity at the conference; understand that when organizing professional activities it is necessary to take into account the appearance of such a phenomenon as a "network personality", but so far they don't see any opportunities to change their activities.

Group 4. Learned the definition of network personality at the conference; educational interaction for group representatives is never an episode; when organizing educational interaction, the result is paramount for this group.

7. Conclusion

A significant number of teachers (88.1%) consider themselves to be a network personality, finding the characteristics of such a person in themselves. Of these, only 15.5% take into account the student's presence as a network personality in their professional activities, and only a third of teachers (33.3%) try to change something in their activities (tools, methods, content, and strategy). The remaining teachers (51.1%) do not change anything and do not understand how this can be done. Characteristics of a network personality among students were found by 67% of teachers. Consequently, we can talk about the relevance of the problem of special training of teachers for educational interaction with a new subject (network personality) in new sociocultural conditions (conditions of the information society), and about the necessity of search for mechanisms to solve this problem. There is scope for further research into this area by conducting further studies in other nations to determine whether, or if, there are impacts from cultural differences and availability of infrastructure and levels of ICT usage within educational setting. It would be useful to conduct comparative studies to develop a general code or method for addressing the issues raised in this paper.

Therefore, the results obtained from this study confirm the significance of the past international scientific-practical conference "Network educational interaction in the training of the teacher of the information society", and the importance of the issues discussed at that conference that took place at Far Eastern Federal University (FEFU), Russia. The results from this study will be further used for a high-quality research project: Designing of the scientifically methodological provision for university instruction of future teachers to pedagogical interaction with "network" personality.

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