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### Dialogue of Cultures - Culture of Dialogue: from Conflicting to Understanding

# PRINCIPLES OF PEDAGOGICAL INTERACTION IN THE DIGITAL SPACE

Vladimir P. Borisenkov (a), Olga V. Gukalenko (b)\*, Viktor N. Pustovoitov (c),  
Liudmila V. Pustovoitova (d)

\*Corresponding author

(a) Moscow State University named after M. Lomonosov, Moscow, Russia

(b) Institute for Strategy of Education Development of the Russian Academy of Education, Moscow, Russia,  
olga\_gukalenko@mail.ru

(c) Bryansk State University named after I. Petrovsky, Bryansk, Russia

(d) School 45, Moscow, Russia

### *Abstract*

The article identifies the need for interpreting pedagogical interaction as a process of direct and remote "vertical" and "horizontal" interaction of all subjects of the educational sphere: students, teachers, parents, interested institutions. The functional, informative, structural and systemic approaches in understanding the category of "information space" are revealed. The conclusion is made about the need in the educational information space to highlight the real and digital (electronic) information spaces. The basis of the difference in these spaces is the environment and means of ensuring the circulation of information: in real information space – real communities, things, processes; in digital – information and communication tools and technologies. Digital information space is defined as a space-time continuum in which the user-subject of space, in the course of interaction with other users (both individual and united into communities) for creating and processing information content, goes through its personal and cognitive development, exhibits individual characteristics. It is shown that digital information space can be considered as a complex nonlinear self-organizing system. The conditions of "pedagogical resonance" in the interaction of the pedagogical system (with incoming subsystems) and the system "personality of the user-subject of the information space" are determined. These conditions made it possible to determine the methodological principles of pedagogical interaction in the digital information space: the principle of objective necessity, the principles of integrativity and systematicity, the principle of subjectivity, the principle of multicultural conditioning of cumulative progressive development, the principle of pedagogical support.

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**Keywords:** Digital space, pedagogical interaction, pedagogical support.



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## **1. Introduction**

The modern world is not possible without a global network, information interaction. Any person in the modern society transfers a significant part of communication to the digital information space. It seems reasonable to use the potential of networking among young people for educational purposes, and to form their communicative and cognitive competencies on this basis.

## **2. Problem Statement**

This problem requires, first of all, methodological reflection and a systematic approach in its solution. An effective system of pedagogical interaction can only be built taking into account all the realities of our time. The starting point in solving the problem, we see the definition of a system of principles for the organization of pedagogical interaction of subjects of education in the digital information space.

## **3. Research Questions**

It seems rational to consider the following issues:

- identify the features of digital information space in the context of educational potential;
- identify the key principles of pedagogical support for the activities of adolescents and youth in the digital information space.

## **4. Purpose of the Study**

The aim of the article is to develop methodological aspects of the organization of pedagogical interaction in the information space: the implementation of the ideas of a systematic approach in revealing the essence of digital information space; revealing the conditions for using its potential for educational purposes.

## **5. Research Methods**

The research methods are: terminological analysis, generalization, classification, comparative analysis, system modeling.

## **6. Findings**

Pedagogical interaction as a phenomenon has long been the subject of research by psychologists, educators, and sociologists. At the same time, globalization processes in society, the processes of informatization and digitalization of education raise new questions for researchers that need to be addressed in the context of modern transformations in the world.

Traditionally, pedagogical interaction is understood in Russian pedagogy as "a process that occurs between the teacher and the pupil during the educational work and aimed at developing the personality of the child" (Bim-Bad, 2002, pp. 192-193). In foreign sources, pedagogical interaction is mainly considered from the perspective of the functional and interaction mechanisms: as a mutual influence of the components

of the pedagogical system (Weltzien, 2016); as a the most important factor "for creating an effective interactive environment that promotes the development of personally meaningful learning, allowing the formation of a relationship of trust, security and openness" (Hargreaves, 1986, p. 23); an environment that "actively engages students can stimulate the development of self-regulatory learning" through "cognitive ownership of information acquired both as a result of the individual thought process and in society" (Young, 2005, pp. 25-26).

Studies of pedagogical interaction today deal with different aspects (Bašaragin & Savić, 2019; Costa et al., 2015; Herrle, 2013; Klattenberg & Mcdowell, 2019; Kudryashova, 2016; Munarbayeva, 2015; etc.). A significant place is occupied by studies of the characteristics of the interaction of subjects of education in the digital environment (Ahrens & Molzberger, 2018; Khan & Taş, 2019; Raturi & Chandra, 2016, etc.).

Modern education has a number of characteristics: an understanding of education as a service; the inclusion in the educational process not only of trainees and teachers but also of parents, interested institutions; interaction of subjects of education in both real and digital environments, in horizontal and vertical planes; orientation of education to the future, etc. These characteristics determine the mechanisms of educational activity of modern educational institutions. In modern society, pedagogical interaction can be understood as a process of direct and remote "vertical" and "horizontal" interaction of all subjects of the educational sphere: students, teachers, parents, interested institutions.

The information space is considered today as one of the innovative educational environments (OECD, 2017). However, as an analysis of scientific research shows, the phenomenon of "information space" itself is understood ambiguously (Borisenkov, Gukalenko, Pustovoitov, & Panova, 2018). In particular, we have identified the following approaches to the interpretation of this category:

- functional approach – in understanding the information space, its functional feature of storing information and its use is emphasized (Cambridge dictionary, 2018; Gonzalez, 2011);
- meaningful approach – it is manifested in emphasizing the attention of researchers on the diversity of the content of the information space (Kalish, 2009);
- structural approach – as an essential attribute of the information space, a feature of its network structure and the interaction of information flows and systems is highlighted (Technical Translator's Guide, 2013).
- systematic approach – the information space is understood as an open system (Manoilo, 2003, p. 74).

The digital information space today is analyzed from humanitarian and technocratic perspectives (a consequence of the dualistic view of the significance of the information revolution). Today, increasing attention is paid specifically to the humanitarian aspects of the digital space. It is integrated into reality, plays a significant role in public life, serves as an environment and means of youth education. Free access to cultural values, high potential for communication "without borders", diversity and interculturalism make it possible to consider digital information space as a multicultural educational one.

In the understanding of the information educational space, there is also a multivariate interpretation. Along with the concept of "information educational space", the terms "digital educational space", "electronic educational space", and "digital learning space" are used in research (Ahrens & Molzberger, 2018; Dowling, 2012; Osmolovskaya, 2017). In the definitions, as a rule, certain key characteristics of

space are emphasized with emphasis on the goals and results of the educational process, the content and relationships of educational and information spaces.

In pedagogical research, the information educational space is analyzed mainly from the standpoint of communication and access of an individual to information content in all its variety of forms and contents.

It seems reasonable to streamline the terminology used, in the educational information space should be allocated real and digital (electronic) information spaces. The basis of the difference in these spaces is the environment and means of ensuring the circulation of information: in real information space – real communities, things, processes; in digital – information and communication tools and technologies.

We consider the digital information space as educational, because for modern youth it carries the information and educational potential, not only supplements, but also replaces the real space of communication, life in general. We mean by digital information space the space-time continuum in which the user-subject of space in the course of interaction with other (both individual and united in communities) users to create and process information content, undergoes their personal and cognitive development, shows individual characteristics (Borisenkov et al., 2019, p. 193).

Digital information space is a structured set of personal cultural spaces, spaces of social groups (based on kinship, profession, age, unity of interests, etc.), educational, social and public institutions, their values and meanings of activity, principles, traditions, models and technologies interacting in the context of a dialogue of cultures and performing directly or indirectly an educational function through information and communication technologies and information and educational environment. Digital information space is formed and developed in the process of interaction of individual entities and institutions that make up it, is the result of the interaction of various subspaces included in it.

Digital information space includes both formal (relatively controlled, specially organized) and informal (chaotic, uncontrollable) subspaces. These subspaces are distinguished by their target audience and functioning goals, structuredness in relation to educational resources, information content, ways of its accumulation and provision to the user, interaction models of subjects, methods of processing information by users, etc. The pedagogical influence of the formal subspace is obvious. However, the informal subspace also carries educational potential. Both subspaces exhibit the essence-characteristics of educational spaces: they possess axiological and subjective properties, are characterized by the presence of freedom potential, multifunctionality, versatility, a high degree of adaptability and variability, a high level of variability, etc.

Digital information space can be considered as a complex nonlinear self-organizing system, since it is "a set of ordered elements interconnected in such a way that a certain integrity, unity arises" (Filosofskaya e`nciklopediya, 2018). Indeed, the features of the digital information space correspond to the key properties of the system:

- space is integrity, it has a developed ordered structure – hierarchically interconnected (IP-, domain addressing) components – sites, portals, computer networks – each of which can be considered as a system, are distinguished. Moreover, each component is specific in its content;

- the set of sub-component of space has a property that cannot be reduced to any of the properties of its components – the result of the interaction of these components is the personal experience of interaction user in the information space, information processing experience;

- the unity of the digital information space is ensured by the interconnection of its components – any site has structurally ordered web pages, any computer network consists of orderly-interconnected sites; changes occurring in a separate substructure are reflected in other components and in the digital space as a whole;

- self-sufficiency and manageability – the digital information space is included in the structure of modern society, but it itself actively influences the processes taking place in society; each component of the digital information space is unique, relatively separate from other components, which is manifested in the relative stability of the direction of development and functioning of individual sites, portals, networks;

- adaptability and focus – digital information space (like all its components), while maintaining integrity, adapts to the tasks to be solved, changes in content, structure in accordance with changing environmental conditions and user requests.

Existing as a self-contained system, the digital information space provides of its user-entities an opportunity for self-realization, creativity, self-development. Practice shows that the informal digital information space today has the most significant impact on a young person. It represents the environment, condition and means of forming the worldview of adolescents and youth, the development of their personal and cognitive potentials.

Due to its adaptability and variability, informal and formal digital information spaces are interconnected and integrated. Thus, the informal subspace, while maintaining, in general, its external attributes, can also carry the content and means of pedagogical influence on the individual. Moreover, this influence, obviously, should be specially organized, be mostly implicit, acceptable to the user audience.

The goals of organizing pedagogical interaction in the digital information space are determined by the general goals of education – the formation and development of personality. For a formal digital space, this goal is paramount, which cannot be said for the informal subspace. The essence of pedagogical interaction in a digital uncontrolled information space is the creation of conditions for the adaptation of this space to the needs of the user-subject in the context of the formation of socially approved moral and ethical standards of behavior in real and virtual life.

Obviously, the most effective process of pedagogical interaction in the digital information space will occur if there is a "resonance" in the interaction of the system "identity of the user-subject of the information space" and the pedagogical system (with incoming subsystems). Among the conditions of "pedagogical resonance" in the interaction of these systems can be identified:

- "resonance of goals" – syncretic unity of pedagogical tasks and goals of the user of the information network; "pedagogical resonance of meanings" of the functioning and development of the digital information space in the interests of education of the user of the information network;

- "resonance of content", "resonance of cultures", expressed in the balance of the content of educational content defined by the means of digital information space, and personal culture, preparedness of the user-subject;

- "resonance of strategies" of the activities of subjects of digital information space – "pedagogical resonance of activity", expressed in the integration of user-subject activity in the information network and targeted pedagogical support of such activities;

– "resonance of relations" – comprehensive support of the relationship between the pedagogical system and the "information space" system with other systems ("society", "personality", "educational institutions", "family", etc.).

The revealed conditions of "pedagogical resonance" allow us to determine the following methodological principles of pedagogical interaction in the digital information space:

– the principle of objective necessity. The principle purposefully focuses the education system on pedagogical interaction in support of the activities of the young generation in the global network, as well as on taking into account for young people the educational potential and threats of digital information space;

– the principles of integrativity and systematicity, involving the systematic support of the activities of adolescents and youth in the digital information space based on the integration of all the possibilities of the pedagogical process;

– the principle of subjectivity, the implementation of which involves following the ideas of the axiological and anthropological approaches in the organization of pedagogical communication in the digital information space;

– the principle of multicultural conditionality of cumulative progressive development, setting, on the one hand, the requirements for taking into account the formed level of culture of users of the information network, and on the other, the requirements for organizing pedagogical support based on the selection of content and educational strategies that enrich the personal culture of users–subjects of the information space;

– the principle of pedagogical support, which involves the targeted preparation of teachers for pedagogical communication in the digital information space.

## 7. Conclusion

The revealed principles of pedagogical communication allow us to design effective methodological strategies and develop systems of pedagogical support for the educational process of adolescents and youth in the digital information space. The proposed system of principles allows us to adapt the pedagogical support of the educational process to the conditions of modern society, to take into account the digitalization realities of modern life.

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