

# CREATOR-BASED FUNCTIONS OF TEACHER-STUDENT INTERACTION IN UNIVERSITY INFORMATION EDUCATIONAL ENVIRONMENT

## FUNÇÕES CRIADAS NA INTERAÇÃO PROFESSOR-ALUNO NO AMBIENTE EDUCACIONAL DA INFORMAÇÃO UNIVERSITÁRIA

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**Abstract:** The urgency of the research is conditioned by the processes of permanent transformations of a student's professional training following the needs of a modern university's information and educational environment. The priority of teacher-student interaction functions in the future specialist professional training is justified by the results of the majority of this process studies. The authors of the article reveal the pedagogical aspect of innovative, creator-based functions adapted to the process of teacher-student interaction in the university information educational environment. Features of higher education institutions' information educational environment as a resource basis of the creator-based functions of teacher-student interaction are established. The structure and content of creator-based functions of teacher-student interaction in the university information educational environment have been substantiated. The effectiveness of creator-based functions has been proved through the potential and real levels of readiness of the teacher and the student for innovative interaction.

**Keywords:** teacher-student interaction; creator-based interaction functions; informational and educational environment of the University; criteria for the implementation of creator-based functions.

**Resumo:** A urgência da pesquisa é condicionada pelos processos de transformações permanentes da formação profissional do aluno de acordo com as necessidades de informação e do ambiente educacional de uma universidade moderna. A prioridade das funções de interação professor-aluno na futura formação profissional especializada é justificada pelos resultados da maioria dos estudos deste processo. Os autores do artigo revelam o aspecto pedagógico de funções inovadoras, baseadas no criador, adaptadas ao processo de interação professor-aluno em ambiente educacional de informação universitária. São estabelecidas características do ambiente educacional de informação da instituição de ensino superior como uma base de recursos das funções do criador da interação professor-aluno. A estrutura e o conteúdo das funções baseadas no criador da interação professor-aluno no ambiente educacional de informação universitária foram comprovados. A eficácia das funções baseadas no criador foi comprovada por meio de níveis reais e potenciais de prontidão do professor e do aluno para interação inovadora.

**Palavras-chave:** interação professor-aluno; funções de interação baseadas no criador; ambiente informacional e educacional da Universidade; critérios para a implementação de funções baseadas no criador.

## Introduction

Modern trends in the transformation of higher education directly impact the expansion of the functions of interaction between teachers and students in the information educational environment of the University (Galustyan, 2014). The State program of the Russian Federation (2013) Development of education for 2013-2020 contains information that views about features of interaction of educational process subjects prevailing in the traditional system of the University educational process, are determined mainly by the activities of the teacher to build the student knowledge base, develop skills of objective information perception, understanding causal – investigative links between various elements of the content of the educational material, system ideas about the problem being studied and mechanisms for applying the acquired knowledge in future professional activities.

In the information educational environment of a modern University, these functions are becoming more pronounced and fully correlate with:

1) Individual educational orientations of the student. While maintaining their constant stability, the *cognitive* aspects consistently fall into the background, setting priorities for the new content of student-teacher relationships: communication, presentation, organization, designing, forecasting, orientation (Bobrova & Nikulova, 2012; Vasilina, Nurieva & Yulanova, 2017; Romanova, 2012; Nguyen et al., 2019);

2) The priorities of the teacher, focused on the designing and implementation of the Creator functions in partnership, creative interaction with the student (Laktionova, 2010; Romanova, 2012; Slobodchikov, 2000; Masalimova et al., 2017).

The leading prerequisites for the activation of these processes have been established:

1) expansion of non-traditional types of student learning activities implemented in the information educational environment: hypertext and hypermedia structural forms of educational material, instrumental information systems and other digital innovations (Bereiter & Scardamalia, 2003; Kazantsev et al., 2012; Kushnir, 2017; Tezer et al., 2019);

2) transformation of the educational environment, determining a new didactic relationship: educational activity-information educational environment-pedagogical activity (Galustyan, 2014; Yasvin, 2001; Romanova, 2012);

3) Changing the nature of the interaction between the teacher, the student and the information educational environment as an interactive source of learning (Zakharova, 2003; Salomon & Perkins, 1996; Tyurikov et al., 2017; Ezhov et al., 2017).

The research proved that the study of the peculiarities of the process required to prepare the modern student is justified and appropriate, requiring correct and evidence-based decision's making. The research is the first attempt to determine the theoretical and methodological grounds for the transition from traditional functions of interaction between subjects of the educational process, with the leading role of the teacher, to innovative, creator-based functions of interaction between the teacher and the student in the information educational environment of the University. In this regard, the article reveals a pedagogical aspect of creator-based functions adapted to the process of interaction of teacher and student in an educational information environment of modern University; specifies the features of the informational, educational environment of the University as a resource basis for the implementation of creator-based functions of the interaction between the teacher and the student. The authors substantiate the structure and content of the creator-based teacher-student interaction functions. The effectiveness of creator-based functions is proved using the teacher and student's potential and real levels of readiness for innovative interaction.

## Material and Methods

It is established that the subject of constant interest of specialists over the past decades is the development of innovative strategies for the development of the information educational environment of the University, focused on the professional training of a new generation of students (Bereiter & Scardamalia, 2003; Galustyan, 2014; the State program of the Russian Federation, 2013; Vasilina, Nurieva & Yulanova, 2017; Laktionova, 2010; Birova, Vasbieva & Masalimova, 2017; Salomon & Perkins, 1996; Slobodchikov, 2000). A significant number of

papers devoted to the study of this problem and presented in this study are divided into three conditional groups. The first group includes research that determines the significance of designing and implementing information concepts and paradigms in the education and upbringing of a University student. Priority meaning in these studies is given to a new didactic relationship: educational activity – information educational environment – pedagogical activity, which changes the nature of the interaction between the teacher, the student, and the information educational environment, which acts as an interactive source of educational resources (Bereiter & Scardamalia, 2003; Galustyan, 2014; Zakharova, 2003; Kushnir, 2017; Laktionova, 2010; Slobodchikov, 2000; Telegina et al., 2019). The research of the second group of authors presents the results of modeling innovative interaction of subjects of the educational process, focused on the partner interaction of the teacher and the student and its representation in the changing information educational environment (Vasilina, Nurieva & Yulanova, 2017; Tyurikov et al., 2017; Romanova, 2012; Yasvin, 2001). The third group's research traces certain aspects of determining the semantic content of innovative functions adapted to the interaction of teachers and students in the information educational environment (Bobrova & Nikulova, 2012; Zakharova, 2003; Kazantsev et al., 2012; Salomon & Perkins, 1996). During the study of the research problem, the importance of expanding the traditional functions of the interaction of subjects of the educational process of higher school in the conditions of information educational environment is established; there is no doubt that it is a practical and necessary task in the preparation of the student, but there is no a holistic understanding of this process as a pedagogical phenomenon, because of the inertia of the traditional system of education, which is not in a way corresponding to the development of technological innovation of information space. To date, the aspects of determining the correct theoretical and methodological bases for implementing the creator-based teacher-student interaction functions in the university's information educational environment are of particular relevance.

## Results and Discussion

### Pedagogical Aspect of the Development of Creator-Based Functions

Initially, the concept of *Creator* appears in the fields of advertising to denote the creative functions of company employees who are responsible for: 1) creating a new company project: artwork, image, costume, musical group, individual performers; 2) the development, maintenance and control of advertising projects: writing articles, texts for trademarks, scripts for commercials, TV shows, concepts of advertising magazines. Such specialists' key function is to generate ideas necessary for the rapid promotion of the advertised product. In the context of the University permanent transformations and the re-evaluation of the main functions and capabilities of subjects in a changing educational environment, the use of creator-based functions as an innovative, creative mechanism for expanding the scope of interaction between the teacher and the student becomes a pedagogical imperative (Vasilina, Nurieva & Yulanova, 2017; Laktionova, 2010; Romanova, 2012). The initial signs of this imperative appear in the new regulations of requirements for the qualities of a University graduate, which puts the priority of know-how in the structure and content of personal abilities forwards: flexibility of thinking, well-developed imagination, impeccable General cultural and professional training, breadth of Outlook, intellectual qualities, awareness of the latest events in the world, in their country, in the latest technologies in the industry, trends and technological ideas in the fields of professional activity. The research of D.S. Vasilina, G.Yu. Nurieva and D.M. Yulanova (2017) reveal the features of new requirements' influence on the pedagogical content of the interaction functions of learning subjects in the information educational environment. The result of this interaction, according to these authors' expert estimates is not so much the increase of knowledge - reproductive subjective experience of the student generated thanks to the subject material, but the application of information received in the organization of new educational strategies, due to the interests, motives, goals of specific student and his / her value orientations in their future professional activities. The research of O.V. Romanova (2012) highlights the

priorities of educational norms, in which the student independently chooses individual forms and means of their education: classroom, distance or mixed. These individual forms of learning become for a teacher and a student the very innovative educational environment in which the interaction creator-based functions' implementation is carried out as a specific activity of subjects of educational process: diagnosis of the level of students' proficiency; coordination of the learning process; implementation of the selection of the study material's content needed for preparation; orientation of the student on the improvement of preparation's quality; correction of the training content, technologies and teaching techniques to achieve educational goals; development of various types of educational approaches based on the level of the student training, individualization of the educational process; organization and conducting of consultation meetings with the student on individual training projects; implementation of pedagogical management of educational projects; constant updating of educational and methodological support of the educational process. During the implementation of these activities, the teacher monitors and trains the student, including organizing the course of educational activities, distribution priorities and developing innovative plans. He/she organizes creative conditions and creates a new model of interaction with the student, using the functions of the creator in direct, live contact with the student.

### ***Resource Features of the Information Educational Environment of the University.***

The results of research by V.I. Slobodchikov (2000) and V.A. Yasvin (2001) substantiate the semantic essence of the modern educational environment of the University as a socially and pedagogically active space in which the student is formed as a person, as a specialist, as a citizen. At the same time, this environment is considered in their research as a separate system that can be diagnosed, predicted, modeled and designed depending on the needs of the educational process subjects. Currently, each educational institution creates its own individual educational environment by analogy with the trends in the development of the global information space. In the dissertation research by I.G. Zakharova (2003), the typical structure of resource invariants that make up the basic basis of the information educational environment of a modern University is established:

- The first level is a central server for storing a single database of the educational institution and all existing public access information facilities at the University (projectors, electronic whiteboards, multimedia centers, cameras, graphic tablets, Webcams, scanners and printers, sets of interactive equipment);
- The second level is the local network. It operates based on a specific corporate or territorial telecommunications network, depending on the status and technical resources of the University; provides remote access to computers and peripherals; stores information on a single medium with simultaneous use of information from different operators;
- The third level is a computer as a didactic tool for transforming the process of interaction between a teacher and a student and improving the effectiveness of the educational process of the University. Several computers in one office form a computer class, and in one classroom, there are automated workstations for employees, teachers, methodologists, and other specialists;
- The fourth level - author's websites of managers, administrative employees, curators, Tutors, creators, teachers, students, methodologists, psychologists.

In the work of E.B. Laktionova (2010), the content of sites is presented:

1- educational-methodical complexes of disciplines, interactive tutorials, and any other electronic educational materials; 2) universal applications and ICT tools: word processors, spreadsheets, training presentations, databases, organizers, graphics packages. In addition, E.B. Laktionova, in her work, notes the peculiarity of resource invariants: materialized in the educa-

tional environment based on the achievements of information technologies, they are transformed and become its tools. Based on new trends in their endless development, tools affect the change of the pedagogically active space of the University, modify the structure and content of the educational process, transform the interaction of its subjects, expand the boundaries of the traditional environment, and turn it into an innovative information environment.

The research of D.S. Vasilina, G.Yu. Nurieva and D.M. Yulanova (2017), M. Kushnir (2017), O.V. Romanova (2012) and E.B. Laktionova (2010) substantiate the priorities of this environment, which become:

1- Openness, which is characterized by the presence of global information technologies, availability of environmental resources, mass appeals to resources, self-development and self-organization, network cooperation and co-creation at a qualitatively new level, creating additional opportunities for correcting environmental impacts (Kushnir, 2017; Laktionova, 2010);

2- identification with the zone of actual self-development focused on the expansion of the student's worldview, the formation of new personality properties, qualities, and competencies based on the introduction of professional, cultural, ethnic, and humanistic information (Zakharova, 2003; Salomon & Perkins, 1996);

3- Multilevel, which is represented by:

\* Invariant level (laboratories, electronic libraries, document search and delivery systems);

\* Specialized level (formed by a teacher with the use of digital technologies and other special developments in a specific educational area);

\* Individual-created level is built by a student in the course of interaction with a teacher in educational activities (Kushnir, 2017; Slobodchikov, 2000; Yasvin, 2001);

1- Subjectivity focused on the implementation of creator-based functions, which are characterized by a focus on the implementation of methods and techniques of organizing a student's own model of education. In accordance with this orientation, the student, with the advice of a teacher, chooses the most optimal learning path for him/herself and organizes his/her own model of educational activity (Laktionova, 2010; Romanova, 2012).

## **Structure and Content of Creator-Based Teacher-Student Interaction Functions**

It is proved, that the main purpose of the creator-based functions' implementation in the process of interaction between teacher and student in an educational information environment of modern University is to prepare students to understand the new meanings of learning activities focused on intensification of subjectivity (autonomy, self-organization, self-transformation, self-identity, communication skills). The study established an intraspecific classification of creator-based functions of interaction between educational process subjects in the university's informational, educational environment confirmed by the results of modern authors' works.

First kind. Creator-based functions of student-teacher interaction:

- Personal-developing. Orientation to motivation, critical thinking, value orientations, self-determination, self-transformation, self-identification, self-organization, reflection (Zakharova, 2003; Romanova, 2012);

- activity-based. Orientation to understanding the accepting of managerial roles, to organizing their own innovative activities in a team, to making joint decisions in standard and non-standard situations, to appropriate behavior in competition, to using innovative technologies (Galustyan, 2014; Laktionova, 2010);

- informational. Focus on the use of modern information technologies; on predicting their own development in the information sphere with the teacher, with a team of fellow students; on conducting analysis and expertise of information projects being developed; on cre-

ating project documentation necessary for professional activities (Zakharova, 2003; Kushnir, 2017);

- feedback-based. Orientation on the ability to see yourself and your behavior from the outside, critically evaluate it, take responsibility for your actions and decisions, correct your mistakes (Bereiter & Scardamalia, 2003; Vasilina, Nurieva & Yulanova, 2017).

Second type. Creator-based functions of interaction between a teacher and a student:

- Pedagogical support. They are focused on supporting and coordinating the individual educational route of the student, presenting various options for their activities in the information educational environment. The process of pedagogical support not only nominates the student as a subject of education, but also seeks to practically ensure a subject-subject, equal, trusting relationship between the teacher and the student, aimed at solving problems of overcoming difficulties in different areas of his/her life (Zakharova, 2003; Romanova, 2012);

- orientation functions. They are aimed at activating the interests and needs of the student to navigate in the information educational environment, to master modern information technologies, processes and phenomena, to search, store, use and transmit information (Bobrova & Nikulova, 2012; Slobodchikov, 2001);

- correction functions. They make changes in the structure and content of interaction between the teacher and the student, in the trajectory of educational and professional activities, in overcoming social and professional crises, deformations and stagnations, in harmonizing the intellectual and professional – psychological profile of the student's personality (Kushnir, 2017; Kazantsev et al., 2012);

- predictive (advanced) functions. They are aimed at revealing the intellectual creative potential of the individual, forming an attitude to professional self-development, career growth, and readiness for self-transformation through innovations (Tyurikov et al., 2017; Yasvin, 2001).

The effectiveness of the classification of creator-based functions in this study is proved using the potential and real levels of readiness of the teacher and student for innovative interaction.

Potential level. It is characterized by discrete interactions between the teacher and the student in the university's information educational environment. The study proved that this level corresponds to the preparatory stage of the implementation of pedagogical support from the teacher and the organization of joint activities with the student on the implementation of basic types of creator-based functions. At the preparatory stage, the diagnostic level of creator-based functions is carried out: defining the purpose and problems of functions in the educational process, organizing the participants, determining timeline, and preliminary training. At this stage, the teacher provides pedagogical support to students in creating the necessary conditions for the implementation of subject – subject interactions. At the stage of organizing joint activities, the teacher performs corrective and predictive functions in joint discussions with the student of General ideas, specific research tasks, norms and rules of activity, and criteria for evaluating activities. The student and the teacher's activity is based on the unity of views on the definition of collective goals and objectives, norms and rules of behavior and activity, about their own role and status in this process. It is proved that in the course of joint activity, the teacher successfully performs the functions of a teacher's creator-based functions of pedagogical support, correction, and prediction of the student's actions, and students get the experience of *subject interaction* with the teacher.

The effectiveness determines the real level in the implementation of the first type of interaction creator-based functions: personal-developing, activity-based, information and feedback ones. Achieving this level is possible at the stages of implementation of interaction and presentation of its results, characterized by active interaction between students and teachers, and the intensification of resources of the university's information educational environment. At this stage, the significance of all types of creator-based functions for innovative interaction

between the teacher and the student is determined.

## Conclusion

The research confirms the theoretical and practical significance of an innovative approach to interaction between a teacher and a student in the information educational environment of a modern University. This is due to the intensity and speed of information flows in various fields of knowledge, which require creative approaches from the modern student to organize their own learning strategies, radically modifying the traditional forms of interaction with the teacher in the teacher's information educational environment University. The research results confirm the effectiveness of implementing the creator-based functions of teacher-student interaction in the information educational environment of the University as an innovative strategy for preparing a new generation of students. The research proved that the study of this process's features is necessary for the training of a modern student. In this regard, the study is the first attempt to determine the theoretical and methodological grounds for the transition from the traditional functions of interaction between subjects of the educational process, with the leading role of the teacher, to innovative, creator-based functions of interaction between the teacher and the student in the information educational environment of the University. The article reveals the pedagogical aspect of creator-based functions adapted to the process of interaction between the teacher and student in an educational information environment of modern University; it establishes the features of informational educational environment of the University as a resource basis for the implementation of creator-based functions of the interaction between the teacher and the student. The structure and content of the teacher's creator-based functions of interaction between a teacher and a student are substantiated. The effectiveness of creator-based functions is proved by using the potential and real levels of readiness of the teacher and student for innovative interaction.

As a scientific and methodological direction, this problem does not exhaust itself in solving the goals and tasks set. An important aspect for the theory and practice of professional training of a modern University student is the implementation of the creator-based functions of distance learning in a virtual educational environment

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