Abstract: One of the most important tasks of innovative language education and language policy of Russia is to comprehend the Russian language as a powerful factor that forms a sense of human involvement in the socio-cultural creation, as well as the civilization transformation of Russia and the world. The Russian language and culture preservation, development, and dissemination (both in arts, the cultural sector, as well as science and technology) is according to the authors an imperative of stability, security, and competitiveness of Russia in the globalizing world. A special role in determining strategies and tactics of teaching the Russian language in the paradigm of a new lifestyle of mankind and the global educational environment belongs to electronic, digital, and telecommunication technologies.

The subject of the present study is the educational language process, organized based on computer (digital) technologies and the optimal implementation of the linguistic and didactic qualities of electronic learning tools.

The objective of the study is to determine the goals, subject matter, methods, forms, and means of computer linguodidactics, aimed at substantiating the laws and determining effective ways of language learning by means of info-communication resources.

The paper outlines the research methods of the innovative language education system as well as linguo-didactic abilities of computer tools in the formation of multilevel Russian-language communicative competence and its individual components in students. The authors suggest the ways and means of updating and enrichment of professional-pedagogical competence of the Russian language teachers in the use of information and communication technologies, as well as in defining the prospects in the educational interaction (electronic, network) of teachers and students, contributing to maintaining the competitiveness of domestic language education and the pedagogical community.

Keywords: computer linguodidactics, electronic learning tools, information resources, innovative language education.

I. INTRODUCTION

The necessity and relevance of the development of the electronic linguodidactics theory, based on the practical experience of using electronic means in teaching the Russian language, is due to a number of existing and observed contradictions. Millions of teachers in the world everyday work with only a few dozen students, not unlocking their pedagogical potential fully. The low efficiency of language learning is manifested, among other things, in the fact that, despite the declared personality-oriented, individual approaches, the language education system still cannot effectively recognize and take into account the learning options adjusting directly to each student [1, 2]. Intercultural and interethnic barriers are poorly overcome in psychological, pedagogical, and substantive aspects [3-5].

The systematic transition to interactive teaching methods, recreating and directly demonstrating instead of individual components of the language learning environment, their totality (for example, in the form of an educational event), correlated with the prospects of vocational or other practical activity of students, has not been fully implemented [6].

It is necessary to pay attention to the fact that in terms of structure and content, language education at the moment resembles outdated industrial methods of production, namely, standard, conveyor training programs, transmitted in blocks, divided into classes, stages, and phases; controlling only student’s academic achievements by means of standardized tests, rather than real capabilities and acquired skills of students [7]. At the same time, the new realities and requirements of society are obvious: the rejection of the flow system, where everybody keeps up, the development of self-directed learning based on the principles of cognitive science and the natural desire to learn, where everyone can become a manager of their own educational paradigm.

Teaching a foreign language, which is understandable to representatives of different cultures and traditions, including academic ones, becomes increasingly relevant.

Pedagogical conditions of providing language educational services require changes. Thus, for the convenience of users, and to achieve maximum motives and incentives, it is necessary to provide localization of educational language materials and events that can work in 24-hour zones. Moreover, high-density information storage facilities should provide the opportunity to learn the language everywhere: in the office, during a trip, when doing sports, or household chores, etc. Modules for such training should be short and concentrated, exhaustive and complete, presenting the material in the mode optimal for the user. They should be interruptive, adaptive, and competitive, because they may have to compete with other attractive ways for students’ pastime, as well as compete with the development of foreign authors – creators of electronic educational content on the Russian as a foreign language (RFL), nonnative, and new [8].
The specificity of contemporary language education, affecting the quality and content of the originality of educational facilities is its independence, associated with the emergence of independent learners, i.e. those, who want to learn the language, but on their own terms, as well as independent certification of materials and results of learning foreign language (in this case – Russian).

Innovative language education develops in the context of the dynamic development of the networked world that in turn generates problems associated with the modern linguistic status of the global information environment and increasing language competition on the Internet [9]. There is a need in the scientific development of the concept of disseminating the Russian language through the network that will enable a professional advancement in the global space of the Internet of its richness and uniqueness, as well as the values of Russian literature and culture, promoting thereby the interests of Russia, both humanitarian and economic, because professionally and systematically organized network learning system will benefit to increase the number of the Russian language learners, as well as will broaden geographical coverage.

Another issue that makes this study relevant is the issue concerning training and adaptation of language teachers to work in a new information environment, electronic and distance learning, using new tools, as well as objects and subjects involved in the learning process.

II. PROPOSED METHODOLOGY

A. General description

The following research methods are used in the present work:
- theoretical analysis and synthesis when studying and generalizing literary sources, electronic publications, computer and network resources for educational purposes, and visual editors for the development of applied and educational programs;
- system analysis when studying the interdisciplinary nature of electronic linguodidactics;
- object-oriented method when designing and implementing a new generation of electronic learning tools (ELT) and information environment of teaching the Russian (foreign) language;
- probabilistic forecasting method;
- expert assessment methods, questionnaires, and interviews used in the course of identifying priority areas to implement computer and network technologies when teaching the Russian language;
- expert-analytical method of quality assessment of electronic means for educational purposes created with the authors’ participation;
- method of comprehensive modeling of information environment designing for teaching Russian (foreign) language;
- method of educational activity process monitoring when working with electronic means of teaching Russian to foreign students;
- methods of surveys and questionnaires of foreign students and conversations with teachers;
- a series of pedagogical experiments on the proposed models.

B. Algorithm

Theoretical bases of electronic linguodidactics in the context of increasing informatization of contemporary language learning.

In recent years, a large-scale modernization of education in accordance with the processes caused by the transition of civilization to a new level of consciousness is ongoing in Russia. The world education system is being reformed under the influence of key processes of globalization, informatization, liberalization, and internationalization. In this context, transnational higher education is formed crossing the borders of national educational systems, functioning in parallel with the higher education system of another country, and actively applying the achievements of electronic, digital, and telecommunication technologies for this purpose [10]. Training of new highly qualified specialists is carried out in new information and educational environment which is based on computer training. The implementation of computer training requires not only the integration of pedagogical or technological approaches into the university strategy but also the provision of services that contribute to this integration [11].

Many years of experience show that multiple professional and pedagogical skills should include the ability of the teacher to participate in research and development to create systems of intense information-based learning, as well as to implement such systems in the real educational process. In turn, the named complex of professional-pedagogical skills and competences can be acquired by the teacher as a result of studying and mastering didactic bases of effective training with the use of information and communication technologies, i.e. computer linguodidactics.

The term electronic linguodidactics is understood by the authors of the present study as a field of linguodidactics that studies the theory and practice of using electronic means in language teaching [12]. The essence of the scientific discipline consists in developing a methodology, searching for effective innovative ways of teaching the language in pedagogical conditions that meet the needs of prospective scientific knowledge and best practice. The term computer linguodidactics appeared together with the subject and disciplinary changes caused by the contemporary necessity to transform analog information into electronic forms and the creation of innovative pedagogical technologies on their basis.

Interdisciplinary essence of electronic linguodidactics is implemented in interrelation with fields of knowledge such as informatics, pedagogical technology, pedagogical design, developments in the field of artificial intelligence, design of training programs, applied and mathematical linguistics, as well as theory and practice of computer training in general.

The computer technology of training is a set of methods, forms, and means of influence on the person in the course of his personal enhancement. Training technology is built on the foundation of certain content and should correspond to it. It involves the use of adequate ways to represent and assimilate different types of knowledge by means of modern computer
technology.

The characteristic properties of computer linguodidactics are innovativeness and openness. They are associated with acceleration of the renewability and relevance of the learning material (teaching language and oral aspects can be carried out based on cultural-historical and contemporary realities in their dynamic development), using the creative potential of educational process subjects, and forming tolerant linguistic consciousness in students [13]. Innovativeness and openness are also due to the use of electronic learning tools, which give learning process new qualities and opportunities, such as interactivity, which allows expanding the field of independent learning and implement active forms of language learning; multimedia, which provides an opportunity to make the learning content universal (to represent fragments of the real or imaginary world through the visualization); hypermediality, which provides the creation of hypertext based on nonlinear interrelation of information learning environments; mobility, allowing the teacher to quickly adjust and supplement educational materials in the desired direction, maintaining the relevance of the learning course, the interest, and motivation of students in language acquisition; adaptability, which solves the problem of taking into account different learning trajectories depending on the level of training, intentions, psychophysical and other characteristics of students; versatility, giving the opportunity to use electronic learning tools both in the development and consolidation of different aspects of language and speech, and when addressing them to different target and age groups of users; as well as remote accessibility, which removes the barrier of remoteness not reducing the quality of the educational process.

Computer linguodidactics needs to develop new solutions for the organization of the language learning process. This is due to the changing nature of relations between its subjects: the teacher has ceased to be the main source of knowledge for the student, and the chain consisting of teacher-textbook-learner has transformed into a triad of student-learning tools-teacher, which reflects the primacy of motives and goals of those wishing to learn a new language, and a variety of channels and learning tools, among which the Internet occupies a significant place [14].

**The method of electronic simulation of the language environment for teaching the Russian language through the network.**

The key to the successful development of computer linguodidactics and methods of teaching RFL in the new conditions of the information society is the systematic production and permanent update of electronic means of teaching of a next generation for all levels and aspects of language teaching based on constantly improving digital and communication technologies [15].

One issue important for linguodidactics and language teaching methods through the network is the creation of such conditions where the teacher becomes an active subject of organization, management, improvement of the learning process, and promotion of the Russian language into the global network. The authors proceed from the fact that despite the change in the forms of education, the teacher remains the key participant in the learning process, organizing and directing its course. Information technology is only a means of learning, that is, it is only a system component, rather than the system itself.

For the successful construction of the information environment for learning RFL, the teacher needs to participate in the process of creating a substantial and meaningful product of interest to both himself and the students. The approach, built on the principles of constructionism, is based on the understanding of the fact that learning is especially effective when the student in the learning process creates something for others. In other words, in the new development conditions of the information society, the contemporary teacher is as much a teacher as a student.

As known, the specificity of the foreign language as a subject is its special substantive essence. Language occupies an intermediate position between disciplines that form knowledge of the basics of sciences (biology, chemistry, physics, etc.), and subjects that teach people various activities (sports, drawing, singing, etc.), because for practical language proficiency one needs both to possess knowledge of the language system and to be able to use them in the course of oral activity [16]. The network can be used most effectively to train the following language skills:

- language system elements at the phonetic, lexical, and grammatical levels, which results in the acquisition of knowledge about the language system;
- receptive types of speech activity (listening, writing, translating from foreign to native);
- reproductive types of speech activity (translation from the native language into a foreign language).

Many Russian and foreign universities are working to build an effective environment for teaching the Russian language online. One basic element of online learning is the portal. For a long time, the main efforts of the project were spent on solving technical issues, which were mainly dealt with information technology specialists. In such a system, the subject teacher was very confined to the management of educational resources of the portal and in interactive interaction with students [17].

Over time it became clear that the role of the teacher in a common information system is expected to increase due to his involvement not only in the creation of the content of the learning environment but also in construction and management of the portal structure, and implementation of interaction with users (students) of the portal [18].

To solve this problem, a new architecture of an electronic product containing multimedia interactive educational content with nonlinear navigation and affordable management by the teacher is needed. Among the necessary requirements for the portal was the problem of taking into account the individual approach to each student and the variety of requests and opportunities of teachers.

Experience in the information systems development shows that a special architecture defined as an open educational modular multimedia system allows solving the tasks successfully. This system represents an electronic educational resource of modular architecture. This means that each module is an autonomous, meaningful and functionally complete educational resource.
designed to solve a specific educational and methodological problem. Currently, to solve this problem, there are numerous tool systems or platforms, which are used as a basis to build a modular object-oriented interactive learning environment.

**Methodical system to train Russian language teachers to use teaching computer means**

New areas of professional activity arise and become popular every five or six years, while obsolete ones fade into the background and gradually disappear. This requires people to be highly mobile. Today, a Russian language teacher should be ready for the fact that he will have to study the growing didactic qualities of electronic technology, new technologies for working with information, modern methods of communication, pedagogical features of web design, methods of remote control and protection of pedagogical content, as well as daily improve their skills, and periodically receive additional education [19].

Currently, countries with developed economies consider the problem of improving the quality of education based on electronic, digital, and network technologies as one of the main tasks of state policy.

Today, there is a very favorable situation for the dissemination of the Russian language through the network. In fact, for the first time in the history of pedagogy, it became possible to disseminate the Russian language globally in real-time mode by professional teachers using new working methods on the creation, editing, transmission, management, promotion, and protection of educational information without direct contact with software programmers, administrators, designers, etc. In the resource segment of the problems concerned teaching the RFL, teachers of the Russian language, who own modern techniques of creating electronic learning tools and managing them on the Internet, can work most efficiently.

In order to fully prepare teachers of the Russian (foreign) language to work in the new information and educational environment, a two-stage professionally-oriented program aimed at the adaptation of teachers for effective work in the environment of electronic, digital technologies, and the network has been developed.

The formation of key competencies of the RFL teacher, as well as mastering by the teacher of new ways of acting, and optimizing his main activity, is carried out based on an occupational course entitled "Computer and network technologies in language teaching: Theory and practice". In the course of professional development in the frameworks of the above-mentioned course, the teacher acquires the following key competencies:

- readiness to solve problems;
- technological competence, i.e. readiness to understand instructions, technology description, and activity algorithm;
- readiness for self-education;
- readiness for professional use of information resources;
- readiness for social interaction;
- communicative competence.

New educational technologies aimed at the formation of key competencies of the RFL teachers differ by the fact that the following important principle is a necessary condition for their implementation: within the framework of this technology, the student (the course listener) should be an active subject of his activities. This provision is considered not as an ultimate goal, but as a prerequisite for compliance with the technology. The authors proceed from the fact that in the transition to a higher level of consciousness, at which the society is now, for the teacher, examples are more useful than rules; concrete examples are more valuable than any general reasoning; skill is more important than mere theoretical knowledge.

**III. RESULTS ANALYSIS**

Currently, the role of the Russian language in the world is constantly increasing. This is due to Russia's active participation in international life from trade to the fight against terrorism, from science to art, and from tourism to education.

The importance of the Russian language is growing with the development of network technologies. The network world is conditionally divided into zones depending on the language as the most real distinctive feature. From a scientific standpoint, the Internet can be considered as a global multilingual, cross-cultural environment of human interaction and interinfluence with specific laws of coexistence, which are within the research focus of contemporary foreign and Russian linguists and methodologists [20].

Since the computer network, and then the Internet in its modern form appeared in the USA, where the English language is most common language country-wide, as well as the only official language in the most states, at first it was English that was the predominant, if not the only language of Internet sites, as well as communication language of most users. However, after entering the world stage, the proportion of English websites began to decline rapidly due to the fact that there are several languages in the world, spoken by people whose number either exceeds the number of English-speakers (Spanish, Hindi), or is growing more rapidly (Arabic, Turkish, and Thai languages). Besides, the active use of the Internet on government websites at all levels brings forward the languages of the largest countries in the world (Russia, China, and Brazil). The top five most popular languages on the Internet currently include English, Russian, which since 2013 is ranked 2nd, Japanese, German, and Spanish [21]. It is also noteworthy that among the most popular languages, only Russian, and, to a much lesser extent, Spanish is at the same time one of the fastest-growing in the number of native-speaker users, occupying respectively the 2nd and 5th places in terms of the growth rate of language-based sites. Arabic is the fastest-growing language, although the overall proportion of Arabic sites is still small (0.7%). Further, the highest growth rates in the number of users are demonstrated by sites in the Russian, Chinese, Portuguese, and Spanish languages.

The Russian language is used by 89.8% of sites on .ru domain, and 88.7% on .su domain. In 2013, 79.0% of sites in Ukraine, 86.9% in Belarus, 84.0% in Kazakhstan, 79.6% in Uzbekistan, 75.9% in Kyrgyzstan, and 81.8% in Tajikistan were also in Russian. In 2013, of the thousand most visited sites in the world, six had predominantly content in the Russian language.
As of 2011, the main Internet users were native speakers of English and Chinese (26.8% and 24.2% of all users, respectively). In terms of the number of native speakers, the Russian language ranked 9th, and Russian speakers made up 3% of all users. However, Russian-speaking users have managed to create an extensive Runet, covering more than 6.5% of the world's sites. This is partly due to the fact that Russia is the largest state in the world, having a large number of government websites of various levels in Russian [23].

Over the past ten years, the largest increment in the number of users had Arabic (2,501.2%), Russian (1,825.8%), Chinese (1,478.7%), Portuguese (990.1%), and Spanish (807.4%) websites.

In the networked world, competition is unfolding for the impact on the public consciousness of different categories of consumers of information products in different languages. It is important to know the reasons and criteria for choosing the first or second foreign language to study in order to create a new generation of linguo-didactic products necessary for consumers of a particular market segment.

According to the researchers, the main reasons to study foreign languages include the following:
- emigration;
- work;
- internationalization of families;
- scientific research;
- travels;
- training;
- culture;
- religion;
- linguistic interest.

Most people from different categories when choosing a foreign language as a second or third language to study consider the following criteria as determinant [24]:
- availability of training materials;
- usefulness;
- the difficulty of studying;
- demand for proficiency in language from employers.

Today, there is a very favorable situation for the dissemination of the Russian language through the network. In fact, for the first time in the history of pedagogy, it became possible to disseminate the Russian language globally in real-time mode by professional teachers using new working methods on the creation, editing, transmission, management, promotion, and protection of educational information without direct contact with software programmers, administrators, designers, etc. [25].

In the global space of the Internet, it is possible to develop only if hosted e-learning tools will have a growing demand from a wide range of users. In the field of language teaching, only lively resources can be of real interest, i.e. constantly improved, promptly updated, and based on the use of multimedia and interactivity with enhanced functionality. Such resources can be created only by highly professional specialists with a long experience of practical classroom work, owning subject theory and able to take into account the features of their (resources) functioning in the new format of the web page. Such professionals can appear only as a result of practical work on the creation of adequate, really demanded disciplinary-oriented pedagogical products based on the long-term program having certain stages of its implementation and using a
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method of visual editing.

When expanding the functioning zone of the Russian language in the world network, it is very important to use the fundamental experience of the scientific and methodological school of Russian studies [26]. The methodology of teaching the RFL is a unique phenomenon in the theory and practice of teaching foreign languages, as only in Russia it is regarded as a science.

The Internet, including the Russian-language domain, is already divided into professional sectors, such as economic, financial, trade, social, educational, linguistic, etc. In the resource segment of the problems on teaching the RFL, teachers of the Russian language, who own the modern technique of creating electronic learning tools and managing them on the Internet, can work more efficiently.

IV. CONCLUSION

This article presents and summarizes the results of longstanding research of the authors in the field of theory and practice of teaching the RFL using a computer and network technologies based on growing the theoretical and practical experience of computer linguodidactics.

The change of the national and world educational paradigm is influenced by the unprecedented rapid development of electronic, digital, and telecommunication technologies. This objective factor becomes decisive in innovative pedagogical processes, while the need for them is its systemic property, a means and a way of development [27]. Currently, innovative approaches to learning are considered to be those that prepare a person for future activities using a wide range of information and communication technologies, adapt existing pedagogical ideas to them, and develop new ones, revise views on the forms and content of language education, and look for a set of adequate educational tools for them.

Principle results of the conducted study can be formulated as follows:

1. The most important and promising innovative qualities of contemporary language education are: a) self-directed learning based on the principles of cognitive science, and didactics of teaching foreign languages; b) independence of learning (liberation of the student from the dependencies associated with various restrictions of the university or the country of study); c) competitiveness of language learning in relation to other types of pastime.

2. As the research has shown, the previous analog system of scientific cognition methods does not allow solving effectively the linguo-didactic and methodological problems of teaching the RFL in the context of modern digital information and educational environment. The developing networked world and the growing potential of e-learning in foreign languages open wide scientific and educational prospects for computer linguodidactics in terms of the following: a) studying the global didactic and methodological experience in e-learning of foreign languages; b) studying the specifics of the network environment (multilingualism, multiculturalism, etc.) from the perspective of teaching RFL; c) giving the competitive qualities to network resources for the RFL taking into account communicative-educational and vocational communication needs of students; g) promoting Russian linguo-didactic educational resources in the global network of Internet, etc.

3. The change in educational paradigm under the influence of an extremely dynamic development of electronic, digital, and telecommunication technologies, the explosive growth of the data arrays, the emergence of new technologies of dealing with information, e-learning tools, the digital formation of information educational environment, transition to a new (web) presentation format of educational material, and the development of innovative methods of foreign language teaching put forward new requirements to professional competence of a Russian language teacher, as well as training programs aimed at adaptation of teachers to work in the new information society. The philosophy of the info-communication technology development consists in the creation of such innovative means of production which allow any specialist to solve the basic vocational tasks independently.

Further scientific and practical development of electronic linguodidactics will contribute to a) didactic and methodological improvement of electronic means of teaching a next generation; b) strengthening the status of the Russian language in the world network and expanding its global influence; c) improving the methodological and technological (competitive) levels of Russian humanities through the use of the latest technological achievements of world science in info-communication technologies; d) increasing the qualification of Russian language teachers.

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