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## Digital Education as a System Strategy for Saving the Nation

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### Abstract

The immediacy of the problem research is due to the increased attention of the Russian government to the education issues, which is reflected in the National Doctrine of Education in the Russian Federation until 2025, where the digital education is defined as the general direction of the country; economic and socio-cultural development.

The purpose of the article is to identify the digital education role in supporting the implementation strategy of saving the nation. The modern education is viewed as "soft power" from the actor-network and connectivism approaches; position in the modern society integration processes; as a way to achieve the goals of the national youth development in the global space of cooperation; as a functional mechanism that develops a digital society and overcomes the digital inequality; as a new type of the subject-subject interaction, provided by the subject continuous education in the field of telecommunication technologies, as well as the communication between subjects and social institutions; as the teaching staff training for the scientific and technological development of the society, which became digital in the 21st century.

The leading method in the problem study was the educational practice reflection, which allows identifying the mechanisms of the digital education diversification and upgrading; to determine the degree of the digital product influence on the educational strategy realization; to evaluate the educational organizations; responsibility for the results, the quality of the subject education.

As a result of the study, the authors will determine the cognitive barriers existing in the education practice which actualize the situation "here and now", which contribute to the appeal to the digitalization phenomenon as a change in the thinking paradigm; to the study of the new technologies, the living projection of the virtual world with its inherent mutations and contradictions by the human subject; to creation the practice-oriented educational environment that can form competencies among students which allow the educational subject to be competitive in the labor market and in-demand in the global digital world.

*Key words:* digital education, scientific youth, network, actor, national identity, educational resources.

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## **Introduction**

The reflection of the education growing role in the informational society contributed to the emergence of

- new pedagogical concepts, determining other projections of the educational development;
- philosophical approaches, ensuring the implementation systematic strategy for saving the nation;
- ethical regulations of the subject's activities aimed at increasing the level of modern person's responsibility, at developing decision-making speed, at mastering the skills of designing one's activity in situations of the values diversity and conflict;
- requirements for the education subject of the XXI century;
- new format for the professional educational programs development (Lubkov & Karakozov, 2017).

The paradox of the modern digital education is the following

- in the organization of the subject-subject interaction in the digital education, people have no advantage over objects or tools;
- the actor-network approach rightly implies the equality of all network joints, since both are involved in the action;
- the relations between people, mediators, computer programs are completely symmetrical.

Along with the actor-network and connectivist approaches, the essential approach is applied in connection with the concepts ambiguity and eclecticism, introduced into the text of our article. We'd turn to the definition of the concepts.

1. The category "digital material" means the presentation of texts, pictures, maps, etc. in the high quality digital format to the education subject;

2. The digital education is a complex concept that does not have an unambiguous interpretation nowadays due to its application in various fields of activity. Professor MIPT Platonov considers the digital education as the education in which there are two aspects:

- digital format (digital process, digital learning, digital transmitted content, etc.);
- digital resources, digital management, digital communications, different levels of education, interaction with IT engineering, business, science, society (Platonov, 2004).

Professor Kondakov understands the digital education as a system of opportunities that opens up through the digital technologies application (2018).

According to the education expert, winner of the all-Russian contest “i-teacher” 2018 Pogodin, the digital education is the use of computer tools and information technologies in various educational contexts (2017). In our article, we’ll adhere to the last interpretation of the concept as, in our opinion, most fully reflecting the phenomenon holographic essence.

3. An actor is a person or a legal entity, a set of organizations, etc. and the relationship between them.

4. We’d consider the concept of "network". We understand the network as a complex of geographically placed computers, interconnected with data transmission channels and network software. The network is a temporary (for performing one concrete task) or permanent (for long-term work) set of certain agents (people, computers, mechanisms, etc.), interacting in a single space, whose partnership activity is aimed at solving a common problem.

5. The science of networks (the science of connectedness) is a modern scientific discipline that studies the artificial networks general features (informational, social, biological and other networks).

6. We’d turn to the concept “agent” meaning. The Explanatory Dictionary interprets this concept as

a) “A person authorized by an institution, enterprise to perform official, business assignments”;

b) A person acting in one's interests (Vajndorf-Sysoeva & Subocheva, 2018).

Comparing the etymology and the range of meanings presented in some European languages, it can be confirmed that in German and French the concept of “agent” has a narrower, applied load, and it is used in the meaning of “representative” (Bulyko, 2007). In Russian, the concept of “agent” acquires an additional coloring with the meaning of “cause”, which determines the essential meaning, the process origins.

In English, the word “agent” has, in addition to the indicated contact man (contact person), the meanings of man of business (business person) and, the most important for our study, the meaning of medium (storage medium, intermediary) (Krysin, 2005). In English, there is a definition of the concept of "agent" as an "acting force" and in Russian - "reason". In the research interest, we’ll focus on the first and the fourth meanings of the concept.

To organize the digital education complex impact on children and youth at the initial stage, it is necessary to “introduce” the subject into the digital atmosphere. This can be done by creating a digital environment. According to Bykasova, “the educational environment is a structure with the properties of connectivity, integrity, controllability, depending on the richness of its educational, educative, informational and other resources” (2013).

The digital educational environment has its own nuances: it is a set of informational systems meant to solve the spectrum of educational process problems in the logic of its quantification and qualification. Upon completion of the problem-solving process, the digital educational environment properties may undergo some changes in accordance with the network agents new goal.

The digital educational environment is, in our opinion, the space of the subject's thinking structurally incomplete practice, and therefore it is advisable to consider its genesis and evolution. The digital educational environment genesis and evolution is influenced by many factors: accessibility, unity, openness, usefulness, integration, etc. Automation and artificial intelligence are the digital education key principles, which make it possible

- to satisfy the population demand for the educational diversity;
- to develop human resources considerably;
- to reduce the educational migration through the access to various educational resources over the network;
- to motivate the subject to learning on the basis of the individual educational trajectories;
- to get the subject a high-quality education in the place, where he lives, that solves a lot of problems, among which, in modern conditions, the main one is logistics;
- to monitor the digital education results of children and youth through the network, etc.

The modern education is characterized by a high degree of the procedural foundations mutation of the everyday practices subject understanding. We'd consider that for the educational process successful implementation it is necessary to create an artificial environment. The environment's development has the following pattern: the phenomenon of problems turnover and synchronization, and it occurs due to the following principles:

1. Stereotyping and social inclusion (the subject accepts stereotypes of behavior in society and he is included in the circle of communication without conflict);
2. Subject activity (mastering the existing rules, the "spirit" of recreation, the desire to occupy one's own niche in microsocium, etc.);
3. Continuity and consistency (the relationship of sensory and logical, rational and irrational, conscious and unconscious in the subject's behavior);
4. Integrativity (in the artificially created environment, the best didactic samples are concentrated, the new techniques are practiced, the innovations are tested);
5. Communicativeness (a specially created environment is comfort and psychological relaxation, which puts the subject to sacred conversation, removing certain difficulties during socialization);

6. Meta-subject matter (a set of knowledge obtained in the artificial environment in horizontal and vertical structures).

The digital environment creation makes sense because of the communication organization at a qualitatively different level: it is a connection of the students creative activity discursive and intuitive elements in the communication process; theory and practice of the education subject.

### **Purpose and objectives of the study**

The purpose of our study: to identify the digital education role in supporting for the implementation of the nation's saving strategy. To achieve this goal, it is necessary to solve the following tasks: to determine the education subject role in the preferential culture's conditions; to identify the conditions of the education subject existence in the XXI century; to indicate clearly the new competencies that are mastered by generations Y and Z.

### **Literature review**

As part of the digital environment and digital education development, the existing advantages and disadvantages of the network are the subject of our research, which will allow us to make forecasts for the development of various kinds of public, social, physical and other phenomena.

The network research is carried out by many domestic and foreign scientists:

- the didactic potential of the local computer networks is reflected in the works by Gershunsky and Khutorskoy (2003);
- the computer networks functions in the educational process are investigated by Shurygin and Zemlyansky (2008);
- the social networks importance is studied by Kuzmina and Prokazin (2013);
- Engelbart (1994), Nelson and Kay (1980) studied the informational design problems for projecting the sociotechnical systems that support network activity;
- the joint educational activities modeling was investigated by Bespalko and Zinchenko (2010);
- the subject's behavior psychological features in the network were studied by Brushlinsky and Lomov (1986);
- the pedagogical design of the joint network activities is considered in the works by Goudier and Patarakin (2018);

- the electronic textbooks role in the modern educational process is analyzed by Tuch and Borisenko (2017);
- Rakova and Anisenkova (2017) study the domestic networks content analysis;
- the network-based reengineering of the educational activities is reviewed by Polat and Robert (2010);
- the centralized networks architecture is studied by Broydo and Kruchinin (2002);
- the neural networks became the subject of research by scientists: Hebb (2012), Rosenblatt and Simon (2016), Logovskaya (2015) and Vasenkov (2017).

With a certain degree of conditionality, the scientists' works reflection allows us to synthesize and group the network positive aspects:

1. The brain regions development that are quickly switched to different tasks (multitasking);
2. Change in the type of the individual's thinking;
3. Expanding the subject educational opportunities;
4. Using a wide range of teaching aids and narratives sources: interactive posters, virtual boards, intelligence cards, kanban boards, animated videos, etc.

The network negative sides, in our opinion, are:

1. Introduction into the education practice of certain unverified technologies;
2. Loss of the writing skills by learner;
3. Screen dependence of the education subject;
4. Lowering in students' social skills;
5. Problems with speech development and visual impairment in children, adolescents, young people (Twissell, 2018).

## **Methodology**

The modern education new paradigm as a platform for the individual's socio-cultural development, forming on the basis of the strategic audit of the main pedagogical models, methodological principles, didactic methods, educational ideas developed by the modern pedagogical science and practice, actively involves the education subject in the digitalization, for which the future of economics and education stand. The purpose of our study is to identify the digital education role in supporting for the implementation of the nation's saving strategy. To achieve this goal, we'd consider the role of the education subject in the context of a prefigurative culture (Tham & Werner, 2005). The education subject of the XXI century exists in conditions that are qualitatively different from the previous formations. So, for example, the generations

Y and Z need to master the new competencies: network competence (the ability of a person to exist in the digital environment); digital competence (subject's responsibility for the network behavior), etc. These competencies are integral parts of the forming modern network culture (personal self-realization), closely intertwined into a new type of culture – a prefigurative culture, in which the education occupies one of the leading positions.

In the format of the modern education practice development, we'll consider the digital education as “soft power”, which

- 1) provides for national security and national savings;
- 2) increases the priority of the Russian education;
- 3) accumulates the human resource that is important for the national education competition;
- 4) improves the society infrastructure;
- 5) develops the new standards of the modern educational design;
- 6) optimizes the vital activity and sustainability of the ecosystem, affecting the education subject formation (Pogodin, 2017).

The current situation imperatively and a priori aims the pedagogical community to create an educational ecosystem by 2024 – a combination of efforts to interaction between state, society, business, science in order to build up intensively the human capital and its rational, humane, economical application. For the non-conflict functioning of the ecosystem, the quantum network is expanding; the program material customization is carried out; automation and robotics are being introduced; emotional intelligence and cognitive flexibility of the subject are developing; partnerships and cooperation with the other institutions are developing (Bersin, 2017).

The modern pedagogical science focus is changing under the influence of its epistemic potential, which allows teachers to use the latest technology in education; to enhance the subject's receptive ability; to actualize the practice-oriented nature of the education. This can be achieved through the deployment of the local computer networks didactic potential. This potential is the basis for reengineering and forming of the universities' new organizational models: academic virtual universities, industrial virtual universities, regional electronic campuses, etc. (Bykasova, 2016).

The modern education role changes cardinally under the influence of the knowledge transfer and perception methods, alterations in the system of their formation (practice-oriented master classes, distance

learning courses, webinars, projects, events, reference and teaching materials, etc.). As a result, the education role in the social development is prominently displayed

- 1) the education role vector is changing: from the culture of observing the people's activities products, the modern subject of the education is moving to the culture of direct participation in the objects' creation and alteration;
- 2) the collective creativity of students in crisis decision-making is developing;
- 3) the subject has an access to the scientific information arrays for application in their activities;
- 4) the skill of navigation in competencies is forming;
- 5) the degree of collaborative creative processes is increasing;
- 6) there is a shift in the technology development (the information services socialization, the network formation is a platform for the joint activities) (Serikov, 2015).

## **Results**

The most important place in then digital education as a systematic strategy of the nation saving is occupied with such an artificially created environment that promotes the moral and aesthetic values, it has an ideological and organizational impact on the worldview and social behavior of people, and it also protects the sacred landscape of an individual from the text (media) manipulation.

The education modern subject develops an independent thinking; it seeks to cultivate an aesthetic taste; to enhance culture; to develop their own experience based on the ethnic group moral values; to adapt flexibly to society; to resist emerging cyber threats and cyber-attacks. Soft competences, acquired by the educational subject, demonstrate "reference points", contributing to updating the education content, which is necessary for the national school in connection with the pedagogical stability emerging risks in creating the digital education (Samojlov & Bykasova, 2014).

In the experience formation of the subject establishment in the digital education, an important role belongs to the teacher. A modern teacher is an architect of the transmedia products whose tasks are as follows:

1. To anticipate the influence of the media text on the education subject. This can be done with the media text preventive analysis and objective assessment by the teacher, who is able to develop the appropriate recommendations to counter manipulation and to make the media text an assistant in the self-identification of the society members, individual's adaptation to life in a rapidly changing world, and person's harmonization. Without harmony, it is difficult for a subject to perceive

comprehensively the world around him, to form himself as a personality of the 21st century (Kuznetsov, Vovchenko, Samojlov, & Bykasova, 2018).

2. To build a modern transmedia product. For this, the new soft competencies that are expanding through the use of computer, laptop, TV screen, other gadgets and the media, develop among the students (Gibson, Broadley, Downie, & Wallet, 2018).
3. To reflect the media competencies. It is known that the media competencies are capable of mutating. This process is expressed in a greater share of the subject's independence: the search for narrative, the use of the libraries electronic resources, the Internet, etc. for creating a real product. The teacher accompanies the process of education subject establishment, mastering not only multimedia (several forms and one channel is used to describe one story) and cross-media (the story of one story is broadcast through the several channels), but also transmedia (one large-scale topic includes several stories that are used to transmit various forms and numerous channels) (Gleason & Gillern, 2018).
4. To promote the non-conflict entry of the education modern subject into the digital society of the XXI century, since the modern teacher is a “didactic engineer”, collaborating with the “digital” students and schoolchildren (Krevsoun, Vovchenko, & Bykasova, 2019).
5. To create the long-lasting transmedia products. The education quality and effectiveness increase significantly in the age of the informational technology (for example, making presentations in Power Point involves the use of not only video clips, drawings, diagrams, but also animations, etc.) (Ellison, 2007).

The created modern transmedia product has a complex architecture, saturated with the various resources. This architecture is mobile; the borders are open; its development is multi-vector and controllable; the holistic content is constantly updated (Dholakia, Bagozzi, & Pearo, 2004).

## **Discussions**

According to the meeting results of the Presidium of the Presidential Council on Strategic Development and National Projects, the Passport of the National Education Project, developed by the Russian Ministry of Education for the period from January 2019 to December 2024, including 10 federal projects, was approved. The goal of the project “Digital educational environment” is ensuring the global competitiveness of the Russian education, the Russian Federation entry to the number of the 10 leading countries in the world in terms of the general education quality. Together with the regions and the interested departments, all preparatory work will be carried out to determine the parameters for introducing the education models;

the calculation of transfers; the necessary information aggregation; recording risks; defining the criteria for the universities' effectiveness (to provide the state support) (Boguslavskij, 2016).

In the format of the digital education development project, a reflection of the level of the subject's network literacy is supposed. The network literacy is not only a set of skills related to the use of the modern information computer technologies, but also the mastery of the networks science. In the education practice, the networks science is a structured education of the various academic disciplines with the aim of

- attracting the attention of students to science, engineering, mathematics;
- mastering the computer technology;
- expanding the subject's informational literacy;
- developing the competencies provided by the Federal State Educational Standard, which formation takes place in the integrated learning process on the various subjects (Barinova & Karunas, 2015).

The modern education subject network literacy involves the skills formation, necessary for life in the 21st century:

- ability to find, to analyze the network patterns in the surrounding systems;
- using a network approach to overcome the framework of the separate disciplines and to compare the processes, occurring in different fields of knowledge;
- using a discrete language to be able to display visually the computer programs data;
- knowledge of the modeling basics;
- possessing research skills, network competencies, etc. by the digital education (Mardahaev, 2016).

## **Conclusion**

As a result of the relevant retrospections review, we identified:

- the relevance of the Education National Doctrine in the Russian Federation (until 2025), which defines the digital education as one of the main directions of the country's economic and socio-cultural development through the significant changes to the entire education system based on its accelerated development and innovative technologies;
- the digital education importance, contributing to the educational migration processes; the education system transformation, based on the further evolution of the innovative technologies; building one's trajectory of educational, cognitive, creative research activity and development by the subject;

- intentions of homo cognoscens – a cognitive person living in the 21st century and possessing a set of competencies, necessary for a non-conflict existence in the informational society;
- trends in the informational society, generating the changes that significantly update the education nature, goals and place in the society, providing an opportunity for the informational and theoretical knowledge to act as a strategic resource in the post-industrial society;
- development factors of modern digital education. The most important factors are: exponential growth in the informational volumes; the available, but not fully applied potential of the Internet; a network as a community of users, the education personalization, a park of training machines and simulators; the instrumental potential formation in the informational society;
- the digital education role as a systemic strategy of the nation saving: design and experimental activities as a mechanism for the crisis management in modeling the information polygons; situational analysis as a method of obtaining the factual information; network as a tool for creating the social reality presenters;
- the absolutization of the digitalization value, modifying the methodological basis of the modern school, making information available in its various forms (textual, sound, visual). The information availability leads to the need for the constant search and selection of the relevant content, high processing speeds, indicating its complete and, most importantly, qualitative restructuring;
- imprinting the exposing apperception of the signifier as an integral part of the education modern subject strategy of the questioning, design, team, problem-oriented training with a highly developed emotional intelligence;
- socialization of the subject's knowledge due to the digitalization as a systemic strategy of the nation saving (informal knowledge translation into formalized ones, externalization, and internalization of knowledge, a combination of knowledge, etc.);
- stochastic development of the digitalization in the educational system and the society, for which the scientific community needs to develop a modern strategy of epy institutional pragmatism, where the main regulatory principle will be the development principle: socio-technical systems, the Internet and mobile devices (as fundamental digitalization technologies) of the labor market;

- the futuristic orientation of the education modern subject, which requires the information processes accelerated development, the spiritual culture improvement the educational process, further informatization, and information support;
- the meaning of the post-industrial society information, which consists that in the XXI century, the theoretical knowledge is a strategic resource, technological innovation; a key tool for the system analysis and decision making; the basis of economic, social development, as well as the human existence conditions; the dynamism of the matter and actors existence heterogeneous forms; new ethical regulations of the human activity, its innovative practices.

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