

Shutenko Elena Nikolaevna

PhD in Psychology, Associate Professor

Belgorod National Research University

Belgorod, Belgorod region

Shutenko Andrey Ivanovich

Ph.D. in Pedagogy, Associate Professor

Belgorod State Technological University named

after V.G. Shukhov.

Belgorod, Belgorod region

DOI 10.31483/r-103927

IMPERATIVE MODEL OF USE INFORMATION TECHNOLOGIES FOR DEVELOPMENT OF STUDENTS' PERSONAL POTENTIAL IN THE PROCESS OF UNIVERSITY EDUCATION

***Abstract:** in the model proposed in the article presents a psychological-pedagogical construct of information technologies introduction in university training. The construct is aimed at implementing the principles of using these technologies (targeting, accessibility, redundancy, diversity, dialogueness, sensitivity, synergy, updateability, systematicity, scientificity, etc.), adherence to which makes it possible to deploy a full-fledged educational communications that ensure the development of students' personal potential.*

***Keywords:** university training, information technologies, students, personal potential, principles of digitalized learning, educational communications.*

The reported study was funded by RSF according to the research project No 22-28-01029 "Psychological-pedagogical models and mechanisms for the development of students' personal potential through the use of modern information-communication technologies in university education" (2022-2023) on the basis of the "Belgorod National Research University" (Belgorod, Russia).

Шутенко Елена Николаевна

канд. психол. наук, доцент

ФГАОУ ВО «Белгородский государственный национальный
исследовательский университет»

г. Белгород, Белгородская область

Шутенко Андрей Иванович

канд. пед. наук, доцент

ФГБОУ ВО «Белгородский государственный
технологический университет им. В.Г. Шухова»

г. Белгород, Белгородская область

ИМПЕРАТИВНАЯ МОДЕЛЬ ПРИМЕНЕНИЯ ИНФОРМАЦИОННЫХ ТЕХНОЛОГИЙ ДЛЯ РАЗВИТИЯ ЛИЧНОСТНОГО ПОТЕНЦИАЛА СТУДЕНТОВ В ПРОЦЕССЕ ВУЗОВСКОГО ОБУЧЕНИЯ

Аннотация: в предлагаемой в статье модели представлен психолого-педагогический конструкт внедрения информационных технологий в вузовскую подготовку. Конструкт направлен на реализацию принципов использования данных технологий (адресность, доступность, избыточность, разносторонность, диалогичность, сензитивность, синергичность, обновляемость, систематичность, научность и др.), соблюдение которых позволяет развернуть полноценные образовательные коммуникации, обеспечивающие развитие личностного потенциала студентов.

Ключевые слова: вузовское образование, информационные технологии, студенты, личностный потенциал, принципы информатизации, образовательные коммуникации.

Исследование выполнено при финансовой поддержке РНФ в рамках научного проекта №22-28-01029 «Психолого-педагогические модели и механизмы развития личностного потенциала студентов посредством применения современных информационно-коммуникационных технологий в вузовском обучении» (2022–2023 гг.) на базе НИУ «БелГУ».

Introduction. The digitalization of education is becoming today an inalienable attribute of the functioning of a current university. Special studies have revealed a lot

of advantages and possibilities given by implementing ICT in higher education [3; 6; 8; 9]. Meanwhile, the drastic reduction of classroom work and transition to online training has revealed a range of psychological and pedagogical challenges [5]. A decrease in educational motivation, thinking independence, stress tolerance, self-control, ability to target-setting and independent decisions as well as information dependence, training depersonification and weakening of social skills due to self-isolation have been noted [2]. These issues have stipulated the necessity to develop certain efficient models and methods of scientific and psychological support by introducing ICTs into the educational process of a high school [1].

The primary experience of education informatization and research data show that modern ICT cannot be directly transferred and integrated into university educational environment [12]. They must undergo the necessary psychological-pedagogical adaptation to the educational and professional tasks of the real educational process in a particular university. Known difficulties and problems of informatization of education are caused mainly by the technical way of implementing ICTs with no relation to psychological-pedagogical requirements and demands of building the educational process itself [7].

The main part of the study. As practice and studies of the education digitalization convince, to use of modern ICT in university, they should go through a kind of a “psychological and pedagogical filter” implying their scientific and methodological support and adaptation to educational, training and professional goals of a high school [6; 8; 10]. To design such a "filter", we developed the *imperative model* of ICTs application in the educational process. This model implies certain principles and requirements for modern ICTs application as an integral part of a university educational space aimed to develop a personality. Schematically, this model is reflected at Figure 1.

As shown in Figure 1, this model includes several constituent spheres that determine the process of introducing ICT into the university environment.

The *sphere of psychological-pedagogical principles* constitutes that imperative basis for ICT use which reflects the essence and purpose of the proposed model. This

sphere represents the structural and normative framework of university informatization, which draws up the supporting contour of the presented model (see Figure 1).

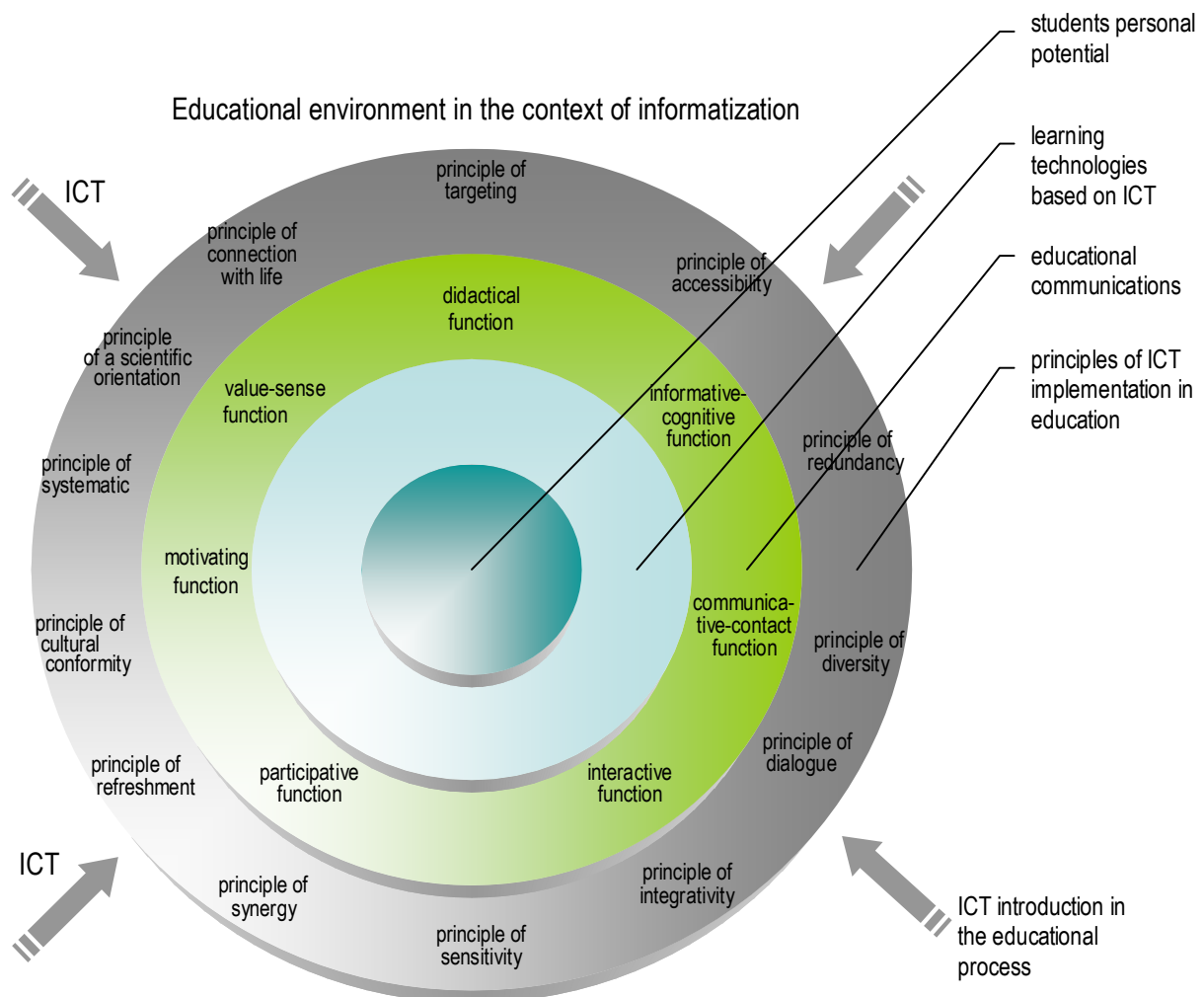


Figure 1. The project of the imperative model for use ICT in university education

Those ICT, which satisfy the requirements of the key principles, go through this “membrane” undergoing definite changes and adaptation for the specific tasks of a particular university. Otherwise, those ICTs that do not respond to these principles get stuck in the membrane, being sorted out as unsuitable [6; 8]. Therefore, this sphere protects the educational process from psychological-pedagogical dysfunctions.

This sphere assumes the implementation of the following series of principles for ICT implementation in higher education.

1. *The principle of targeting* the use of ICT implies their compliance with the content of education and personal competencies of students (age specificities,

individual characteristics and inclinations, mental and volitional abilities, level of proficiency and professional interests).

2. *The principle of accessibility* of ICT means that these technologies should be accessible to all students and provide everyone with the opportunity to use various information resources, programs, applications, devices, etc. for solving educational, scientific, professional tasks in the process of university training.

3. *The principle of redundancy* obliges to provide students with the full range of necessary information and resources for successful learning through ICT. At the same time, it is important to observe the measure of this information in order to avoid mental overload of students.

4. *The principle of diversity* of ICT acquirement means the implementation of a wide range and variety of information media and digital devices to provide a flexible and diverse palette of educational-information tools.

5. *The principle of dialogueness of ICT* provides for the predominant use of dialogue and interactive technologies to maintain interpersonal communication in the educational process. ICT should not isolate, but should bring students and teachers closer to each other for fruitful and continuous educational cooperation.

6. *The principle of sensitivity* of ICT implementation requires the provision of constant feedback from students in order to respond sensitively to their requests and learning needs.

7. *The principle of synergy* implies an organic combination of ICT with the actions of students, weaving these technologies into their educational activities to enhance their achievements due to the synergistic effect of multiplying opportunities.

8. *The principle of ICT updateability* assumes the timely constant refreshment of information tools and technologies used in training in the logic of implementing innovative approaches and training programs based on advanced achievements in science and technology.

9. *The principle of systematicity* requires the progressive and logically connected application of ICT to develop full cognitive competencies of students.

10. *The principle of scientificity* of learning with ICT-assisted requires that new ICT use reliable and fundamental scientific knowledge, facts and samples of experience, as well as general scientific concepts and theories.

11. *The principle of cultural-conformity* prescribes the selection and introduction of the latest ICT into the learning process in accordance with the traditions and values of the native culture and civilizational norms. The use of ICT should contribute to the formation of a cultural worldview picture of students' consciousness.

12. *The principle of reliance on practice* and connection with life means that the latest ICT should link the acquired knowledge with practice, reflect and refract the life experience of students in comprehending courses of disciplines, and highlight the practical manifestations of the knowledge gained.

In addition to the principles noted above, it is also important to comply with such classical principles as: the principle of matching learning to natural inclinations, the principle of humanism, the principle of taking into account age characteristics and other traditional requirements for the functioning of the educational process.

The next sphere in the model, which follows directly from the contour of the principles of ICT application, is the *sphere of educational communications* (see Fig. 1). It is in this sphere that various ICTs are being deployed and applied [11]. Within the digital dimension, educational communications are a complicated, multilevel, flexible, open net of searching, perceiving, exchanging and processing information (educative, scientific, methodological, personal, etc.) including interactions and contacts of educational system actors related to professional training [7].

Forming a pedagogical space for the correct ICT use in a university, educational communications perform some of important *functions*:

– *the didactical function* means that educational communications on base of ICT should act primarily as teaching aids, as tools for the implementation of didactic models, forms and methods of teaching, should help teachers to implement their pedagogical methods and techniques for working with students;

– *the informative-cognitive function* is to provide the entire volume of learning content through ICT. Effective application of these technologies allows more accelerated and diverse representation of the knowledge that is necessary for students to assimilate, in addition, the entire range of educational information and sources can be directly disclosed at the request of students in the learning process;

– *the communicative-contact function* is aimed at maintaining and developing a system of various connections between the subjects of the educational process at different levels of communication (interpersonal, group, institutional, etc.);

– *the interactive function* follows from the previous one and involves the development and expansion of the space of educational interaction and cooperation through the use of ICT;

– *the participative function* complements those noted above and aimed at increasing personal participation in the learning process and developing more informal relationships between teachers and students in order to achieve trust and mutual understanding;

– *the motivating function* reflects the possibilities of creating attractive educational content and forms of training based on new ICTs that arouse cognitive interest and learning motivation of students;

– *the value-sense function* implies the influence on students consciousness and mental sphere, the development of an adequate identity, a holistic and sustainable worldview and moral principles (see Figure 1).

As can be seen, the listed functions are closely related and mutually complement each other, reflecting a holistic range of developmental impacts of educational communications, in which the latest ICTs are woven.

The next segment of the model reflects the *sphere of learning technologies* based on ICT (see Figure 1). The use of the latest ICT in a personal-developing logic of constructing teaching methods can significantly enhance the advantages and strengths of these methods associated with the activation of the subjective position of students and the expansion of opportunities for cooperation in the educational process. Among such methods, it is necessary to highlight the following: problem-

based learning, dialog teaching methods, active and interactive technologies, contextual learning, study-search technologies, modular training, project, quest, game, task-centric and other teaching methods. With the use of ICT, these technologies and methods acquire greater intensity in terms of the possibilities of attracting and immersing students in the ways and modes of mastering the course of the studied disciplines offered by the university.

Lastly, the final and central part of the proposed model, which acts as the value-target center of the entire construction of digitalization of university education, is the *sphere of students' personal potential*. The ICTs application imperative model developed in the study was aimed at the implementation of a personality oriented approach in teaching, which certainly affected the construction of this model. The sphere of a personal potential is considered to be the core of the model (see Figure 1) that is no wonder as the entire process of modern ICTs implementation into the educational environment is to expand the opportunities for developing personal resources and the potential of students as future qualified specialists [6; 10].

Conclusions. The study presented the imperative model of ICT implementation in learning implies that the process of introducing the latest information technologies should be aimed not so much at technical re-equipment of the educational infrastructure as at the development and intensification of various educational communications. At the psychological level the entire and interrelated functioning of these communications serves as a ground for students' personal potential activation.

Список литературы

1. Гречушкина Н.В. Онлайн-курс: модели применения в образовательном процессе / Н.В. Гречушкина // Высшее образование в России. – 2021. – №4. – С. 120–130.
2. Иванова А.Д. Онлайн-образование глазами студентов и преподавателей (по итогам педагогического исследования 2019 года) / А.Д. Иванова, О.В. Муругова // Открытое образование. – 2020. – Т. 24. № 2. – С. 4–16.
3. Красильникова В.А. Информационные и коммуникационные технологии в образовании / В.А. Красильникова. – М.: Директ-Медиа, 2013. – 231 с.

4. Личностный потенциал: структура и диагностика / А.Ж. Аверина, Л.А. Александрова, И.А. Васильев [и др.]; под ред. Д.А. Леонтьева. – М.: Смысл, 2011. – 679 с.

5. Минина В.Н. Цифровизация высшего образования и ее социальные результаты / В.Н. Минина // Вестник Санкт-Петербургского университета. Социология. – 2020. – Т. 13. № 1. – С. 84–101.

6. Роберт И.В. Теория и методика информатизации образования (психолого-педагогический и технологический аспекты) / И.В. Роберт. – М.: БИНОМ. – Лаборатория знаний, 2014. – 398 с.

7. Шутенко А.И. Применение информационных технологий как средств развития образовательных коммуникаций для реализации личностного потенциала студентов вуза / А.И. Шутенко, Е.Н. Шутенко, Ю.П. Деревянко // Сибирский педагогический журнал. – 2020. – №6. – С. 81–92.

8. Bates A.W. Teaching in a Digital Age: Guidelines for Designing Teaching and Learning for a Digital Age / A.W. Bates. – BCcampus. – 2019. – 779 p.

9. Bowen W.G. Higher education in the digital age / W.G. Bowen. – Princeton University Press. – 2015. – 232 p.

10. Crumly C., Dietz P., d'Angelo S. Pedagogies for Student-Centered Learning: Online and On-Ground / C. Crumly, P. Dietz, S. d'Angelo. – Fortress Press. – 2014. – 120 p.

11. Handbook of research for educational communications and technology (Vol. 2). / D. Jonassen, M. Driscoll (Ed.). – Routledge. – 2004. – 1232 p.

12. Mishra L. Online Teaching-Learning in Higher Education during Lockdown Period of COVID-19 Pandemic / L. Mishra, T. Gupta, A. Shree // International Journal of Educational Research Open. – 2020. – Vol. 1. Art. №100012.