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EFFICIENCY OF DIGITAL EDUCATION: FROM GOALS TO RESULTS (BASED ON THE XIII SUMMER SCHOOL FOR TEACHERS-2023)

Faina L. Kositskaya

Tomsk State Pedagogical University, Tomsk, Russian Federation, fainak@list.ru

Abstract. More than 3,000 people from 333 cities and 1,039 educational institutions participated in the next Summer School for Teachers-2023, organized by Yurait Publishing's educational platform and held in webinar mode from June 26 to 30, 2023. 75 speakers gave presentations and panel discussions on the following topics: the effectiveness of digital education, the quality of digital education, the strategic goals of universities, the choice of the goal of an educational program, youth in Russia: demographic situation and prospects, evidence-based education based on digital data, rational management (analytics in educational management), storytelling and development of educational cases, use of ChatGPT by students in educational activities, personality in the digital reality of the virtual world: from Homo Sapiens to Homo Digital, digital educational environment: shared resources and individual paths, psychologically comfortable educational environment, digital scientific environment (current risks and new opportunities), ChatGPT for the teacher (free tools and digital activity of teachers, students), consideration of personal achievements as a path to student success, technological entrepreneurship (engagement, training, support). As a result of XIII Summer School for Teachers, we note that digital education is not a substitute for traditional education but is necessary for working with today's youth. Digital technologies will not replace live communication with the teacher; they will become the most important tool for shaping the individual educational path; individualization will become the sign of quality education. The digital transformation of education should consider the best practices and provide the teacher with a wide range of technologies, services, and content to choose from because variability and flexibility are more important than standardization at this stage. It is necessary to update legal and ethical standards in the context of changes in the digital education and science environment and the development of artificial intelligence. It is necessary to develop teachers' digital literacy, introduce hybrid learning models, and develop educational effectiveness assessments; the assessment system should move from learning assessment to the development of student's analytical skills and systemic thinking. Artificial intelligence and chatGPT are a serious challenge for the levels and the education system as a whole. The educational institution of the future should become an engine for the socio-economic development of the country.

In this review, we will focus on individual topics and speeches.

Keywords: *efficiency of digital education, trend, digital education environment, artificial intelligence, digital technologies, digital literacy, hybrid learning models, assessment system, personality in digital reality*

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More than 3,000 people from 333 cities and 1,039 educational institutions participated in the Summer School for Teachers-2023, organized by Yurait Publishing's educational platform and held in webinar mode from June 26–30, 2023. Seventy-five speakers delivered lectures and participated in panel discussions.

The report by A.S. Fadeev, Vice-Rector for Digitalization at TPU, set the terminological and content paradigm for all five days of School of Teachers-2023, which was dedicated to the quality of digital education.

The speaker focused on the technologies that will change the world of preschool education in 2020. These technologies have blown up the world of education: adaptive learning technologies; AI/machine learning – pedagogical applications; analytics for learning success; increasing the level of instructional design, engineering education, and UX design in pedagogy; Open Educational Resources; XR technologies (AR/VR/MR/hapticity). All six trends were exclusively digital.

The speaker pointed out the educational trends according to the post-COVID-19 situation. These include Distance learning, the Growing digital divide, Deteriorating mental health, Rapid technological development, Widespread adoption of hybrid learning models, Widespread use of technology in education, and Developing teachers' digital literacy. In our opinion, the trends for 2022–2023 are interesting. The speaker referred to artificial intelligence in education analytics, artificial intelligence as a learning tool, microdegrees as a threat to higher education, (re)adoption of hybrid/distance learning methods, (re)training of teachers for/distance learning, and hybrid learning spaces. The speaker stated that microdegrees are a global challenge. Young people refuse to study at university, preferring to take 2–3 online courses with a continuing education certificate and enter a profession. The education community is not prepared for such a scenario. The report states that the methods and techniques of online technologies need to be revised and raises the question of whether it is not possible to provide quality teaching in a hybrid format in a regular classroom. A.S. Fadeev referred to the following approaches to evaluating the effectiveness of digital education:

1. Assessing learning outcomes achieved through digital technologies in the classroom (student progress, knowledge levels, participation in science Olympiads and competitions).

2. Analysis of the use of digital technologies to enhance learning (effectiveness of online courses, distance learning platforms, electronic textbooks, and other digital tools).

3. Survey teachers and students on the effectiveness of using digital technologies in the educational process. The effectiveness of digital education depends on many factors: the quality of educational resources, the availability of technology, and the motivation of teachers and students in the educational

process. Thus, a comprehensive analysis is needed to assess the effectiveness of digital education.

The speaker also talked about using artificial intelligence (from now on referred to as AI) in education. AI can create tests, evaluate student knowledge (test automation and saving time in creating and reviewing them), and analyze student behavior data. AI identifies the most interesting topics for students as well as the difficulties they have in learning. Using this data, teachers can plan lessons more effectively. AI creates virtual assistants that help learners comprehend material more effectively. AI can be used to develop robotic assistants that help students complete tasks (e.g., solving a math problem or explaining complex issues). AI uses chatbots to communicate with humans. They can be used in education to answer student questions and provide additional information. AI will be able to grade student work automatically (saving teacher time and making the grading process more efficient).

Digital and traditional education have their advantages and disadvantages. Digital education allows learners to access information and materials anytime, anywhere, facilitating learning and improving quality. At the same time, learners interact less and less with teachers and each other, which can affect their socialization and communication skills. On the other hand, traditional education provides closer interaction between students and teachers and the opportunity to gain knowledge from experienced teachers. Traditional education is more expensive and less flexible than digital education. In general, the choice between digital and traditional education depends on the specific needs and goals of the education. If learners need anytime, anywhere access to information, digital education may be the best choice. Traditional education is preferred for close interaction between teachers and students and to gain knowledge from experienced teachers.

The speaker pointed out the digital skills that teachers need to be taught: the ability to work with different platforms and services to organize the educational process (Google Classroom, Moodle, Zoom), knowledge of the basics of programming and website development to create interactive lessons and assignments for students; the ability to create and use multimedia materials (video tutorials, presentations, interactive assignments); skills in using social networks and blogospheres to share experiences and information with colleagues and students; ability to use cloud services for storing and sharing files and documents; knowledge of the principles of security on the Internet and protection of personal data of students and colleagues; communication and cooperation skills with colleagues and other participants in the educational process; the ability to adapt to new technologies and teaching methods to constantly improve the quality of the educational process. Analysis of data from the online platform makes it possible to determine the effectiveness of a course or training program (success in student mastery of material, evaluation of effectiveness of teaching methods, evaluation of student satisfaction, identification of problems and deficiencies, identification of best practices and trends in education, effectiveness of marketing campaigns, effectiveness of advertising methods, improvement of marketing strategies, research of student

behavior patterns, student activity on the LMS website, identification of the most popular website features, improvement of the user experience).

The speaker pointed out the problems in the educational systems of the world: Division into subjects, i.e., there is no unified picture of the world, lack of individuality, lack of system to measure the quality of education, lack of independent evaluation system (one teaches, another evaluates), lack of personification of responsibility, i.e., the leader of the educational program, lack of responsibility of the professional community, lack of engagement (hobbies) in learning, lack of conformity to the demands of the market/life, learning technologies, not creativity and its creation.

One of the panel discussions on the first day of the school was devoted to the strategic goals of universities. There are 717 universities in Russia today, each unique in its history, scientific school, faculty, and student body. Strategic goals allow each university to chart its course and performance benchmarks. University leaders from Moscow, Orel, Novgorod, and Novosibirsk participated in the discussion on the following topics: positioning of the college, long-term strategic planning, analytics for setting goals, relationship between pedagogical, scientific and educational activities, updating strategic goals, openness and publicity of goals, balance between feasibility and ambitious goals, tracking the achievement of set goals.

Experts participated in the panel discussion on "Choosing the goal of the educational program: getting a job or finding a dream": candidate of historical sciences O.G. Savka and vice rector of research and innovation of the Arctic State Technical University K. Nifontov. They spoke about the following topics: Goal setting in the context of developing and promoting an educational program, the impact of program goals on program popularity and motivation to learn, stakeholders of educational programs, employment and career goals of graduates, personal development and growth goals, academic goals, measurability and achievability of goals. Modern educational programs tend to have two poles. Some are very practical, focusing on specific useful skills in finding employment. Others are more general, have a liberal arts framework, and focus more on soft skills.

The panel discussion "Digital scientific environment: current risks and new opportunities" addressed the following topics: digital transformation of scientific activity, digital solutions for managing scientific activity at universities, access to databases of publications, data, scientific citations, specialized software, remote access to scientific equipment, distributed computing, services for coordinating the activities of scientific teams, artificial intelligence tools, machine learning and Big Data analysis, popularization of scientific achievements and involvement of young people in scientific activities. In Russia, over 300,000 scientists publish more than 100,000 scientific articles per year. Scientific activity requires an effective digital infrastructure to ensure the availability of scientific information, the efficiency of research, and the acceleration of the implementation of developments in production.

In this School of Teachers, a discussion was held on "Digital educational environment: shared resources and individual paths," which raised the

following issues: the concept of a digital educational environment, investment in the development of a digital environment, individual educational paths in a digital environment, the requirements for a digital environment of teachers, students, and administrators, the organization of the digital educational process and the collection of reports, digital educational content. Various programs to develop the digital education environment aim to accelerate the digital transformation of the education system, upgrade equipment, and improve digital services and educational content. The environment is unthinkable without those who teach and learn in it – teachers and students.

In the report of Professor Doctor of Pedagogical Sciences M.E. Vaindorf-Sysoeva on the topic: "Accounting of personal achievements as a way to teachers' success," the following topics were covered: Methods and criteria for diagnosis of individual abilities, online digital diagnostic services, digital portfolio of students, analysis of personal achievements of students, construction of individual educational pathways.

The main goal of individual ability diagnosis is to determine the student's individual characteristics and help him or her choose the most appropriate educational path for skill development and effective employment. For students to succeed, the teacher must find in them what they do not know about themselves. According to the speaker, digital education is not a substitute for traditional education, but it refines the process and allows individual, personalized, and, at the same time, massive work.

Doctor of Physical and Mathematical Sciences V.A. Antonets presented a report on the possibilities of artificial intelligence available to the teacher. The explosive interest of society, business, and the state in the possibilities of artificial intelligence, triggered by the spread of ChatGPT and similar services, has not bypassed the academic sphere. Some teachers fear the displacement of face-to-face forms of education by artificial intelligence, the decline in the quality of education, and various ethical conflicts. Enthusiasts, on the other hand, emphasize the advantages of AI in creating teaching materials and assessing competencies. The speaker talked about the adaptation of teaching methods to the advent of AI and the technical, psychological, and ethical limitations of AI in the academic environment.

In a conversation with a doctor of economics, E.A. Kameneva, and a doctor of history, O.V. Pavlenko, on the topic: "Competence audit: objective diagnostics, assessment and certification of knowledge in the digital age," the following topics were discussed: the goals of diagnostics and certification of students, the impact of assessment on motivation to learn and work, the objectivity of assessment, independent assessment of the quality of education, mutual assessment of students among themselves, academic fraud and proctoring, the digital bank of assessment tools, the assessment of practical skills. The digital transformation of education has challenged the effectiveness of traditional assessment. New messengers and ChatGPTallow students to bypass traditional deadlines for completing current and midterm exams, leaving employers in doubt about graduates' qualifications.

Candidate of technical sciences I.V. Belyanin presented a report on visualization in teaching. Students can better understand and remember information by visually linking it to certain images and associations. It can also control the flow of information and highlight the essentials, which is especially important in the media oversaturation of the modern world. Visualization should serve the set methodological goal and not distract from the learning process. During the presentation, the speaker addressed the following topics: Preparing a presentation for teaching, developing infographics for teaching, recording and editing educational videos, animation in teaching, VR/AR, its possibilities and limitations, and intellectual property rights in visualization.

Candidate of Pedagogical Sciences A.D. Ivanova presented a report on personality in the digital reality of the virtual world. The report talks about information bubbles. The author understands an information bubble as a personal micro-internet – a personalized information space that includes Network algorithms that analyze reposts, requests, likes, and comments; Internet services that store and form a separate newsfeed for each account. A person "sees" only what he or she is interested in.

The danger of "information bubbles" is that they can be adapted not only to the interests of a particular person but also to please external forces. Today, each generation has its own information field. A distinction is made between generations: Baby Boomers born 1944–1962, Generation X 1963–1980, Generation Y 1981–1995, Generation Z 1996–2009, Generation Alpha 2010-to date.

The report notes the digital characteristics of modern life:

• Information (unlimited access and the main product of consumption); transparency (physical: geotagging, video surveillance, social networks; internal: subscriptions, likes, reposts, reviews, comments, social networks; financial: transactions, online transfers, social networks).

• Internet (borderless search field for like-minded people); transition: from the economy of production to the economy of impressions; proliferation of video games: resettlement in game worlds and virtual universes.

The speaker pointed out the digital possibilities of modern life: mobile technologies (Internet and social networks), the creation of a parallel super life (a sign of success: Likes, Views, and a Wikipedia page), unlimited possibilities (self-realization and self-development), cryptocurrency and gray information, ChatGPT. The report said that in the presence of the Internet, memorization and rote learning lose their meaning.

The speaker enumerated the digital features of the mental development of modern youth: the amount of information increases, and the concentration of attention decreases (ideal text: 280 characters + image, clip thinking, reading headlines). People who grew up with the Internet are susceptible to manipulation; they have simple and superficial judgments about the world. Philodoxy and the self-replicating spiral of dilettantism: a casual eyewitness's opinion is synonymous with a specialist's opinion.

A.D. Ivanova points out the existence of post-truth (emotional pumping). It is not important what they say, but how they say it (behavior, mannerisms,

intonation, and gestures). In modern media, everyone raises their voice, shouts, interrupts each other, and expresses emotions unnaturally and violently. The more colorful and expressive it is said or written, the more confidence the audience has. The post-truth is that personal emotions and beliefs are more important than objective facts. The speaker raises the issue of communication on the Internet. It implies equality (there are no "shoulder straps" on the Internet), simplicity and ease of entering into a dialog, anonymity (abnormal self-exposure and openness, trying on another self), a sense of impunity (atypical and inappropriate behavior, insulting interlocutors), compensation for insults, complexes, and problems of real life, an easy way to feel important and exclusive.

Reference is made to the "dark" side of the Internet: Trolling and cyberbullying.

The pursuit of easy and dubious fame, the de facto legitimization of obscenities (especially among teenagers and adolescents), and non-religious Internet sectarianism are common. Teenagers are the largest target group on the Internet. Personal self-esteem is calibrated by communicating in a circle of "personified" people – among like-minded people, Internet users have a sense of "power." The report notes that people have always gathered in groups: Work, interests and hobbies, advantages, convenience and comfort, and the desire to stand out and compete. There will always be people with similar interests, despite the radical or "wrong" views. The speaker defines the following characteristics of Internet communities: they are formed by interests, without geographical reference, it is easy to search for like-minded people, unwanted comments are easily deleted (banned), groups "pupate" and close themselves, the fear of desocialization, ostracism or condemnation for "wrong" views disappears. The influence of pseudoscientific ideas and sectarianism on the Net is rising. Many Internet sects have formed around reasonable ideas but have become radicalized in isolation: Veganism, Vedic femininity, animal welfare, feminism, HIV/AIDS denial, bioenergy, voluntary childlessness, anti-vaxxers, and body positives. The speaker notes that the gameization of work and education is a new trend. Video games are a sociocultural and psychological phenomenon of the twenty-first century. The report raises the question of the transformative psychology of personality in the digital world. The creators of the Internet associated it with the noosphere, which unites humanity on the path of progress and development, but at the same time, it is also a way to distinguish and isolate people from each other. According to A.D. Ivanova, young people are at risk because their passionate nature, youthful maximalism, impressionability, and lack of life experience are bait for experienced "puppeteers."

Doctor of Sociological Sciences E.A. Kranzeeva presented a report on "Youth in Russia: the demographic situation and prospects," in which she addressed current issues related to the sociological and demographic characteristics of young people, the dynamics of the number of young people, regional features of youth sociology, the impact of demographic changes on education policy, and the impact of demography on graduates employment.

The speaker pointed out serious differences in the living standards of young people depending on the region and social group. The differences depend on two factors: the social status of their families, their financial situation, and their willingness to pursue higher education, as well as the place of residence, their familiarity with modern life and customs, and the degree of sociability. The speaker noted that access to quality education points to the technical orientation of education reform, which focuses more on market demand for acquired knowledge and skills than on broader educational goals related to life skills and social progress.

Asmontas Bronius, a candidate of Pedagogical Sciences, presented a report on the topic: "Psychologically comfortable educational environment." According to the speaker, comfort is a condition of life, residence, and environment that provides convenience, tranquility, and comfort. "Psychological comfort" means minimizing the stress-producing factors of the educational process (if possible) and creating conditions in an educational institution that allow students to feel calm. Psychological comfort in the educational environment is a condition that occurs in the course of human life and expresses the feelings of joy, pleasure, and satisfaction that students experience in an educational institution. These are living conditions in which everyone feels calm and does not have to defend themselves against anyone. The socio-psychological comfort of the educational environment is an evaluation of a person's subjective feelings towards the educational environment, which can act as a characteristic of the student's adaptation to the influences of the educational environment in the physical space of the university, affecting his or her identity with the social environment, their motivation to learn, their self-esteem, their professional orientation, and the satisfaction of their need for security against the influences of the educational environment in the physical space of the university. The speaker explains that learning is a sequential process consisting of 6 phases: remembering, understanding, applying, analyzing, evaluating, and creating. In his report, he cites Bloom's taxonomy, which helps to set educational goals properly. Based on the goals, the teacher formulates tasks for students and selects instruments for assessment. With the help of the taxonomy, the teacher builds learning, and the student not only acquires new knowledge but also learns to analyze and apply it in life. Using Bloom's taxonomy, it is possible to assess teacher and student knowledge levels using instructional materials from electronic courses, webinars, and training. Assessment according to this taxonomy concept shows which topics are difficult for students and whether they are ready to apply the acquired knowledge in practice.

Political scientist Professor A. Niklaus devoted her presentation to storytelling and the development of educational cases. Storytelling, a technique that uses stories to achieve educational goals, is widely used in the humanities and social sciences. Using case methodology helps students think critically and apply theoretically acquired knowledge to real professional situations. The speaker talked about developing scenarios for the course, stories and their methodological functions in the teaching scenario, criteria for pedagogically

effective stories, selection of educational cases, and gamification of education through storytelling.

In his presentation, D. Deulin addressed the use of ChatGPT in learning activities. The speaker pointed out that ChatGPT is a serious challenge for the level and the educational system. Artificial intelligence technology, ChatGPT, allows us to write texts from theoretical and empirical material. Students with poor academic performance use neural networks when preparing and writing assignments (term papers and semester projects). In this way, poor academic performance is concealed. The speaker pointed out that high levels of computer addiction are associated with high-stress levels, especially among female students.

"Becoming a student as a person: Education or Self-Development" – this was the topic of the panel discussion, during which the following issues were discussed: society's demand on the university to shape the personality of a student, a future graduate; what are the age characteristics for shaping a student as a person, selection of active, motivated students at the admission stage, students' motivation for self-development and personal growth, individual educational paths vs. standardization of the educational process, personal development and competency-based approach, psychological support and counseling of students, disappointments and changes in the educational path, open communication environment and student community. Each person is unique in their aspirations and abilities. Completing personality formation characterizes the age of 16 to 23: finding one's place in life, setting priorities, becoming aware of one's abilities and limitations, and growing independence and responsibility for one's actions. Of course, age-related changes also affect educational activities.

In the panel discussion on "Lifelong learning: improving the teaching profession," the following topics were discussed: regulation and freedom of pedagogical creativity, new competencies of teachers, professional development under the conditions of current workload, organization, and support of retraining programs for teachers, mutual learning, mentoring and experience sharing among teachers, teachers' practice with industry partners, effectiveness of teachers' professional development and growth, teachers' publication load. As Seneca the Younger said, "Docendodiscimus" (By teaching, we learn). Stagnation in a teacher's professional development hinders the quality of education. Therefore, with the current volume of teaching and publishing, it is necessary to find time and energy for professional development.

The presentation by O.M. Naumova describes the approaches to the design of the space in the context of the introduction of the online course, the digital educational environment at the university, the approaches to its design, an online course as part of the educational space and the factors that contribute to the effectiveness of learning in an online course: characteristics of the elements, design principles, ensuring satisfaction with learning.

A report by Professor S.Yu. Kontseva on "Pedagogical blogging: learning, communication, self-development" caused a heated discussion among the school participants. The author believes that modern student-centered

education aims to help students with self-development, self-affirmation, and self-knowledge. Self-development plays an important role in the development of a future professional. It is necessary to develop new ways of self-development and determine how to increase the effectiveness of students' personal and professional self-development. According to the author, it is interesting, dynamic, and "trendy" for a teacher to be a blogger. The use of blog technology in the educational process is necessary because it motivates students to work independently, trains the ability to lead discussions, improves writing skills, organizes independent research activities, immediately applies the acquired theoretical knowledge in practice, promotes the integration of scientific knowledge, develops critical thinking, forms a terminological culture. The use of blogs increases interest in the learning process. The novelty of technology is one of the motivating factors in learning. The teacher chooses a blog because not all textbook examples can be found on the teaching platform "Electronic Information and Education Environment." The teacher is sure that the blog will help to reflect on one's own experience and find like-minded people to share with. A content plan is a way to blog regularly, think of topics in advance, and analyze what the audience will like best. The speaker claims that educational blogging helps every teacher to be heard.

Thus, in conclusion, we summarize the findings of the XIII summer school for teachers, "Efficiency of digital education: from goals to results."

1. Digital education is not a substitute for traditional education but is necessary for working with today's youth.
2. An educational institution must provide teachers and students with the content and services necessary for digital education, create a psychologically comfortable learning environment, and relieve teachers of unnecessary work through digitization and automation.
3. Digital technologies cannot replace live communication with a teacher.
4. Digital transformation of education should consider best practices and provide teachers with a wide range of technologies, services, and content to choose from. Variability and flexibility are more important than standardization at this stage.
5. Digital technologies have become the most important tool for designing individual educational paths, and individualization has become a sign of educational quality.
6. In the context of changes in the digital educational and scientific environment, the development of artificial intelligence, and the emergence of new communication channels between teachers and students, it is necessary to update legal and ethical standards.
7. Artificial intelligence and ChatGPT are a serious challenge to the level and the education system as a whole.
8. In order to improve the quality of education, it is necessary to improve teachers' digital skills, introduce hybrid learning models, and develop educational effectiveness assessments.

9. The assessment system should move from testing memorization to developing analytical skills and systemic thinking. The assessment should express not only the comparison of the student with others but also his or her personal dynamics.

10. The educational institution of the future should become an engine for the socio-economic development of the country.

Our review examined individual trends, themes, and speeches presented at the Summer School for Teachers 2023. We believe they are very insightful and stimulate all higher education teachers.

Information about the author:

Faina L. Kositskaya, Ph.D. in Philology, Assistant Professor of the Department of Romance and Germanic Philology and Methods of Foreign Language Teaching at the Institute of Foreign Languages and International Cooperation (st. Kyiv, 60, Tomsk, Russian Federation, 634061.
E-mail: fainak@list.ru

ЭФФЕКТИВНОСТЬ ЦИФРОВОГО ОБРАЗОВАНИЯ: ОТ ЦЕЛЕЙ К РЕЗУЛЬТАТАМ (ПО МАТЕРИАЛАМ XIII ЛЕТНЕЙ ШКОЛЫ ПРЕПОДАВАТЕЛЕЙ-2023)

Фаина Леонидовна Косицкая

Томский государственный педагогический университет, Томск, Россия, fainak@list.ru

Аннотация. В рамках очередной Летней Школы преподавателей – 2023, организованной образовательной платформой издательства «Юрайт» и проходившей в режиме вебинаров с 26 по 30 июня 2023 года, приняли участие более 3000 человек из 333 городов и 1039 учебных заведений. С докладами и на панельных дискуссиях выступили 75 спикеров по следующим темам: эффективность цифрового образования, качество цифрового образования, стратегические цели университетов, выбор цели образовательной программы, молодежь в России: демографическая ситуация и перспективы, доказательное образование на основе цифровых данных, рациональное управление (аналитика в образовательном менеджменте), сторителлинг и разработка образовательных кейсов, использование студентами ChatGPT в учебной деятельности, личность в цифровой реальности виртуального мира: от Homo Sapiens до Homo Digital, цифровая образовательная среда: общие ресурсы и индивидуальные траектории, психологически комфортная образовательная среда, цифровая научная среда (текущие риски и новые возможности), ChatGPT для преподавателя (бесплатные инструменты и цифровая активность преподавателей, студентов), учет личных достижений как траектория успешности обучающихся, технологическое предпринимательство (вовлечение, подготовка, поддержка). В качестве итогов XIII Летней школы преподавателя отметим тот факт, что цифровое образование – не замена традиционному, но оно необходимо для работы с современной молодежью**,** учебное заведение должно предоставить преподавателю и студентам необходимые для цифрового образования контент и сервисы. Цифровые технологии не заменят живого общения с преподавателем, и они становятся важнейшим инструментом формирования индивидуальных образовательных траекторий, индивидуализация становится признаком качества образования. Цифровая трансформация образования должна учитывать лучшие практики и предлагать широкий выбор технологий, сервисов, контента на выбор преподавателя, вариативность и гибкость на данном этапе важнее стандартизации. Необходима актуализация правовых и этических норм в связи с изменениями цифровой образовательной и научной среды, развитием искусственного интеллекта. Следует развивать цифровую грамотность преподавателей, внедрять гибридные модели обучения, разрабатывать оценки эффективности образования, система оценивания должна перейти от проверки запоминания к развитию аналитических способностей и системного мышления студента, искусственный интеллект и Chat GPT – серьезный вызов уровням и системе образования в целом. Учебное заведение будущего должно стать драйвером социально-экономического развития территории.

В рамках данного обзора остановимся на отдельных темах и выступлениях.

Ключевые слова: *эффективность цифрового образования, тренд, цифровая образовательная среда, искусственный интеллект, цифровые технологии, цифровая грамотность, гибридные модели обучения, система оценивания, личность в цифровой реальности*

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Информация об авторе:

Косицкая Фаина Леонидовна, кандидат филологических наук, доцент кафедры романо-германской филологии и методики обучения иностранным языкам ИИЯМС. Томский государственный педагогический университет (ул. Киевская, 60, Томск, Россия, 634061).
E-mail: fainak@list.ru

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