

## MOŻLIWOŚCI ZASTOSOWANIA SZTUCZNEJ INTELIGENCJI (AI) W NAUCZANIU STUDENTÓW W TRZECIM TYSIĄCLECIU

**Oleh Batiuk**

*doktor nauk prawnych, docent, profesor Katedry Własności Intelektualnej i Dyscyplin Cywilno-Prawnych Kijowskiego Instytutu Własności Intelektualnej i Prawa Uniwersytetu Narodowego "Odeska Akademia Prawna", (Kijów, Ukraina)  
olegbatiukmegu@gmail.com*

**Adnotacja.** Autor w artykule naukowym bada poglądy naukowe oraz wyznacza możliwości w zakresie zastosowania AI w nauczaniu studentów w trzecim tysiącleciu. Przeprowadzono krótką analizę sprawozdania NMC Horizon Report 2018 poświęconego technologiom oświatowym stowarzyszenia Educause. Autor artykułu proponuje własną definicję AI w procesie oświatowym oraz charakteryzuje współczesne alternatywne kierunki zastosowania AI w nauczaniu studentów, a także proponuje kierunki prowadzenia programów innowacyjnych na bazie AI w nauczaniu studentów trzeciego tysiąclecia.

**Słowa kluczowe:** proces oświatowy, nauczanie, sztuczna inteligencja (AI), technologie, studenci, programy innowacyjne.

## POSSIBILITIES OF USING THE ARTIFICIAL INTELLIGENCE (AI) FOR EDUCATION OF STUDENTS IN THE THIRD MILLENNIUM

**Oleg Batiuk**

*PhD, docent, professor of the department of intellectual property and civil law disciplines of Kyiv Institute of Intellectual Property and Law of National University "Odessa Law Academy", (Kiev, Ukraine)*

**Abstract.** The author investigates scientific views and determination the possibilities of using AI for education of students in the third millennium in the provisions of the scientific article. He conducts a brief analysis of the report of NMC Horizon Report 2018, which is devoted to the educational technologies of the educational association Educause. The author of the article offers own definition of AI in the educational process and describes modern alternative ways of using AI in the education of students and offers ways to introduce innovative programs based on AI in the education of students in the third millennium.

**Keywords:** educational process, education, artificial intelligence (AI), technologies, students, innovative programs.

## МОЖЛИВОСТІ ВИКОРИСТАННЯ ШТУЧНОГО ІНТЕЛЕКТУ (AI) ДЛЯ НАВЧАННЯ СТУДЕНТІВ У ТРЕТЬОМУ ТИСЯЧОЛІТТІ

**Олег Батюк**

*кандидат юридичних наук, доцент,  
професор кафедри інтелектуальної власності та цивільно-правових дисциплін  
Київського інституту інтелектуальної власності та права  
Національного університету «Одеська Юридична Академія», (Київ, Україна)*

**Анотація.** У положеннях наукової статті автор досліджує наукові погляди та визначення можливостей використання AI для навчання студентів у третьому тисячолітті.

Проводить короткий аналіз звіту NMC Horizon Report 2018, присвячений освітнім технологіям освітньої асоціації Educause. Автор статті пропонує власне визначення AI в освітньому процесі та охарактеризовує сучасні альтернативні шляхи використання AI в навчанні студентів, та пропонує шляхи запровадження інноваційних програм на основі AI в навчанні студентів третього тисячоліття.

**Ключові слова:** освітній процес, навчання, штучний інтелект (AI), технології, студенти, інноваційні програми.

**The relevance of the theme of research.** The artificial intelligence and machine learning, virtual and augmented reality, worldwide network and even 3D printing are key technologies, which should be introduced into the education system today at the present stage of development of civilization. We are firmly convinced that namely these technologies will allow building individual curricula, studying new subjects and just putting the ideas and dreams of students and young people into practice.

**An analysis of recent research of the theme.** It is worth emphasizing that several aspects of the using of information technologies in the educational process are devoted to work of V.Yu. Bykov, M.I. Zhaldak, S.A. Rakov, V.M. Kuharenko, A.M. Gurzhiy, Yu.O. Zhuk etc. Researcher O.Ye. Kravchyna examines the problem of informatization of organizational and managerial activity in a comprehensive school. V.V. Dyvak investigates information and communication technologies in the professional activity of the school principal. The researches of researchers N.V. Morze and O.G. Glazunova are devoted to the development of a model for the effective use of information and communication and distance learning technologies in higher education institution. N.A. Zinchuk investigates the informative and analytical competence of the manager: value in the professional management activity and the preconditions for formation in higher educational institutions. In scientific works of Ye.S. Bereznyak, L.V. Vasylichenko, T.B. Volobuyeva, V.G. Marmaza, L.M. Kalinina, V.V. Kryzhko, M.P. Leshchenko, V.S. Pikelna, V.D. Fedorov, G.V. Yelnykova, Ye.M. Khrykov the problems of management of educational institutions are highlighted and different aspects of the issue of professional training of leading officials of education are revealed (*Kyslyuk O.O., Kyslyuk P.V., 2017*).

However, it should be noted that there is no scientific publications, in which the possibilities of using artificial intelligence (AI) for education of students in the XXI century would be investigated.

**The goal and task of the research.** We aim clearly to identify proposals regarding modern possibilities of using artificial intelligence (AI) for education of students in the third millennium in the provisions of the scientific article. The tasks of scientific research are to determine the definition of artificial intelligence in the educational process, to describe modern alternative ways of using AI in the education of students and to offer ways to introduce innovative programs based on AI in the education of students in the third millennium.

**The statement of main material.** Today, we are increasingly convinced that education plays a major role in the process of development of humanity. Nowadays, the education is becoming a key factor for the innovative development of the individual and the economy of the future. The young people will need digital literacy, the ability to communicate not only with their peers, but also with technologies in general and AI is right around the corner, in particular, which will become an integral part of the ecosystem of modern society. Creative thinking, the ability to create original ideas and

the desire to embody them, the wish constantly to learn the new are the key principles of the future that is coming. In addition, for this we need to create conditions for pupils and students today, in which the artificial intelligence (hereinafter the AI) will not be equated with an improved calculator, but will serve as a powerful helper in obtaining high-quality modern education by young Ukrainians. The benefits will be on our side if the educational factor is strengthened with the help of innovative ideas, devices and facilities in schools and universities, which in the near future will become not only innovative to form a generation of diverse skilled professionals but will lay the foundation for a new type of learning of the future “The further homo sapiens with AI”.

It is worth mentioning that Dartmouth Professor John McCarthy invented the term “artificial intelligence” in 1956. He gathered a group of computer scientists and mathematicians to find out if machines would be able to learn like children by the method of attempts and errors, in order to develop formal thinking. According to the project proposal, they intended to figure out how to force machines to “use the language, the abstract forms and concepts, solve problems that are usually solved by people, as well as improve” (*How does machine learning and AI work?*).

Today Ukrainian and foreign youth perceive AI in several determinations, namely:

- the robots;
- the back-end algorithm that has been developed by Youtube for connecting and viewing custom videos with the involvement of the relevant audience;
- the social networks and voice assistant in the smartphone;
- the chats that provide timely service and exchange of information on different platforms;
- the cloud services for storing accumulated material.

It is worth to be asked by question, does every adult know today what AI means? The answer will be ambiguous, because for today, AI is a digital "nervous system", which, with the correct approach is able to surpass the person of any specialty. At the same time, one should not be afraid that AI would start working against people. The real AI will never work against people if its developer understands what he is dealing with. Working in symbiosis with a person, AI will provide a combination of abilities to achieve a better result in any industry. Let's ask the question again, will it help our kids – students of the future? Yes, if we take care of the quality of their knowledge today.

To prepare pupils and students for future co-operation with AI – this is the logical consequence of technological progress – schools and higher education institutions (further – HEIs) should be prepared to respond to this need.

Let's note that in foreign countries, educational ecosystems are created by combining the unique creative intelligence of a person with technologies of AI. Examples are not needed to look for a long time: at the Stanford University, the AI (AI) has been studied since 1962, and the students have access to one of the world's best profile research laboratories there; at the Massachusetts Institute of Technology, the AI has been interested earlier in the distant 1959, and now they are developing on its basis educational programs for schools. Similar works are being conducted at the Australian National University, the Carleton University (Canada) and the Nanjing University of Science and Technology (China).

The logical question arises, what needs to be understood as AI in the educational process. So note that in August 2018, the education association Educause published the

report NMC Horizon Report 2018, devoted to educational technologies. It covers the main trends, challenges and developments of technologies for higher education. In our view, it is worth to analyze a brief overview of the report.

A group of educational experts from different countries draws up the NMC Horizon Report. Technologies are evaluated according to different criteria, but the key is the potential for teaching, learning and research in higher education.

Developments in Technology	2012	2013	2014	2015	2016	2017	2018
Analytics Technologies							
Adaptive Learning Technologies							
Games and Gamification							
The Internet of Things							
Mobile Learning							
Natural User Interfaces							
Bring Your Own Device							
Makerspaces							
Flipped Classroom							
Wearable Technology							
3D Printing							
Tablet Computing							
Artificial Intelligence							
Next-Generation LMS							
Affective Computing							
Mixed Reality							
Robotics							
Quantified Self							
Virtual Assistants							
Massive Open Online Courses							

*Projections of implementation of developments of educational technologies for the last seven years in NMC Horizon Report. The squares represent the years when the technology was mentioned in the report.*

It is worth noting that initially, experts are considering a long list of technologies. They are categorized as shown in the image below. Then the experts study various materials devoted to these technologies, and eventually leave 12 developments.

The category, to which one or another development falls, is determined by its main purpose – even if not in the educational sphere. For example, Social Media is usually used not for education but for communication.

In the end, each of the 12 technologies is analyzed in detail and they write short reports. Each report is discussed and “superfluous” are rejected. This may be developments that have already been introduced into the educational process or those that will appear more than 5 years later. In addition, they refuse to technologies whose potential does not seem to be sufficiently convincing to the entire panel of experts.

Six technologies that are included in the annual report are selected on the final vote. They are divided into three categories: short-term, medium-term and long-term. The term is the forecast. It refers to the time during which technology is introduced in the higher education. Short-term technologies will become a part of higher education throughout the year. Medium-term – in 2-3 years, and long-term – in 3-5 years.

If earlier the educational data have been related to assessments at the end of the semester, today universities are collecting such information in real-time. This applies both to current assessments of students and to various activities, interests, and even displacements by campus.

But how to turn the received data into useful information? Technologies are needed that collect large volumes of data and analyze them. The obtained results allow improvement the quality of education and reduce the number of students, who drop out of the university.

For example, an online platform Lehman 360 is developed in the College of Lehman, New York. You can get a variety of information there: the grade point average, the schedule of courses and even financial opportunities - students with high academic performance receive reports of available scholarships. Therefore, the usual data about evaluations turned into useful information.

How to ensure that students use knowledge in practice? How to teach them to solve actual tasks? The answer is space for the making (from the English make – do, create).

Such spaces are peculiar laboratories equipped with a variety of devices: 3D-printers, sewing machines, laser cutters. Here students can create and implement their own ideas. In addition, work on a project is an opportunity to work in a team.

Spaces for the making have already become an integral part of many American universities and libraries. Source.

Therefore, the Hunt Library in North Carolina State is called the “library of the future”. There is also a space for making, where young people learn to work with a 3D-printer and software.

It's worth noting that in Ukraine, the making is also gaining popularity. In particular, the spaces for the making arise (for example, maker space of the American House), and there are trade fairs of the making in Kyiv.

In 2-3 years: adaptive learning and artificial intelligence will take over system education. Adaptive Learning Technologies. Namely, the adaptive learning technologies adapts the level and type of educational material (content) to the individual needs of the student. They are closely related to analytical technologies, because the educational process is corrected on the basis of data. The idea is simple: the more data are, the better the technology adapts to each student.

More and more universities in the USA are implementing adaptive technologies. So, the National University of California has invested \$ 20 million to create a personalized educational platform.

The traditional learning process is a consistent curriculum and the set dates when the results of the exam are announced. However, if a student receives feedback only at the end of the semester, then he is banally not able to keep up with adjusting the educational trajectory and improve his academic performance. Such information should be provided as soon as possible – this is what adaptive technologies are engaged in.

It is worth to ask that will we be able to interact with the computer just like with people around us? It looks like it will become a reality very soon, because technologies of artificial intelligence are beginning to be introduced in education. In particular, the report of Technavio predicts an increase in the market for artificial intelligence in education by 43% by 2022. True, this applies only to education in the USA.

AI is really gaining in popularity in America. So, the University of The Ohio State introduces ... virtual patients. Previously, students trained to diagnose patients, whose role was performed by actors. Now the function of actor was taken over by an avatar developed based on artificial intelligence.

Digital patients can express emotions and communicate almost like real people. In addition, unlike an actor, a virtual patient can be taken home and trained as much as he wants.

Also, the innovation of the educational process is that the State University of Georgia has launched the Pounce chatbot. He helps new students orient at the university. Earlier a special support group has done it, but chatbot turned out to be faster, cheaper and affordable at any time.

Long-term prospects: mixed reality and robotics are what waits us in the educational space for the next 5 to 8 years. Mixed (supplemented) reality is the so-called educational simulations for future physicians or virtual excursions by the campus of university – it is reality. Supplemented reality. Interactive and practical, it attracts educators and teachers. NMC Horizon Report 2018 promises that virtual and supplemented realities will become parts of the educational process, but this takes time.

Robotics is the next innovative method of education. Therefore, the edition Wired wrote that robots could take over their part of work places, but at the same time, they create new ones. Students, who are capable of servicing and creating robots, will not remain unemployed in the high tech future.

The University of Michigan is already building a robotic laboratory, where students from different disciplines will learn to create robots and work with them. Source.

Today there is analysis of data, and tomorrow there is an adaptive educational trajectory. Today there is the virtual patient, and soon there is the supplemented reality. Today there are spaces for making, and after 3-5 years, there is a laboratory on robotics. It seems to be the future of education (*Educational technologies 2018*).

In our opinion, we should agree with the president of group of companies Everest Mr. Yuriy Chubatyuk, who gives some impressive examples, which can be a great alternative to the traditional system of education that exists today in Ukrainian realities.

### **INTELLECTUAL COACHING**

In an era of information boom, when access to the facts is provided with a simple click on the keyboard, it is expedient for teachers to be taken out of the role of the "sage on the stage" and become those who "helps from the side".

In the USA, Japan, China, Australia and some European countries, virtual reality technologies are actively being used. For example, the American USC Institute for Creative Technologies creates prototypes of a virtual curriculum that combines AI and three-dimensional animation for such learning of children that takes into account their age category.

Children learn both with the help of teachers, and with the help of computer helpers, which help them to direct their interests in the right direction and at the same time learn skills of "communication" with innovative technologies faster. Students share impressions and thus create content for discussion. In addition, teachers can more effectively analyze the abilities and wishes of each student.

### **VIRTUAL ASSISTANTS**

The big part of the teacher's time still goes to the formation of educational content, which still needs to be built into a rigid, inflexible curriculum.

There is no time for direct contact with the children, although students, especially of primary classes, require an individual approach to reveal their talents and potential.

Already, the AI, "made out" unique software solutions, facilitates teachers routine work and analyzes the performance of the child. Such programs like Khan Academy and Thinkster Math promote students from many subjects, depending on their level of performance and abilities.

In this environment, teachers receive more time for an individual approach, the lack of which often leads to painful consequences.

### **VIRTUAL SOCIAL MEDIA**

The classic school and university environment in most countries is a learning space that closed in the four walls of the classroom. Shared virtual social media allow pupils, students and teachers to go beyond these standards.

With Brainly program and the Q&A global platform, users can communicate face-to-face with each other virtually, sharing knowledge, experience and interests; create joint creative projects, take training courses, take part in olympiads and competitions.

The program allows you to increase the success of specific subjects by visualization of the task assigned to the students. By entering a relevant request in Brainly, the child will receive its detailed description of it and a video, in which special Marvel symbols are used to explain the given question.

### **INTELLECTUAL COURSES AND INDIVIDUAL DESIGN**

The annual purchase of textbooks for studying even basic subjects in schools is not cheap pleasure. All parents know about it.

Specialized Teachable, Udemy and CourseCraft sites provide teachers with the opportunity to create complete thematic training courses for students of all classes, shaping an entire ecosystem that combines coaching, virtual, content design, group video chats and electronic spreadsheets for analysis of performance and abilities of students.

An intellectual training program can also be developed "turnkey" for a particular student. The need to purchase expensive educational literature completely disappears.

### **GLOBAL TEACHER NETWORK**

How does the domestic schools provide the development of teachers? This is usually done by the administration of an educational institution (if involved), and most often it is about no more than specialized trainings, seminars or courses.

Do teachers have time to attend such events in the conditions of outdated approaches to teaching children, which requires an individual approach and attention? The question is rhetorical.

In the West, the development of AI and of ecosystem of global education became a panacea. For example, the American virtual teacher network LearningOnAir network provides teachers with online courses for advanced training and with webinars for share experiences with colleagues. Another way out is The Global Education Conference, a project that opens access to training conferences and to hundreds of training sessions for professional growth.

The innovations described above give tremendous results. The AI for teachers became synonymous with expanding the boundaries of established practices for the exchange of experience and knowledge (*Chubatyuk Yu., 2018*).

Analyzing the foregoing, let's note that today universities must search for ways of modern alternative to higher education. First, it should be noted that current knowledge for today, you can get absolutely free. Gigabytes of information on the Internet have been published in free access. If you have good skills of work with search engines and with verification of information, you will find everything. For over a decade, private companies, nonprofit organizations and universities have been experimenting with various forms of online courses. Harvard, MIT, Oxford and other giants publish their courses on platforms such as Coursera and EDX in free access. In fact, you can listen to the Harvard professor's course, even without leaving your favorite couch. Enough research has been carried out to assert with certainty: the combination of online courses and offline discussion for meetings is as effective as usual tuition at university auditoriums. Even more, some institutions, for example, Arizona National University, provide real certificates with their own stamp to students of online course.

Over the past few years, we have seen that the old paradigm, which for centuries was determining the work of higher education, gave way to the values of optimizing time and budget expenditures.

Namely, in our opinion, the growth of automation of production made many professions unnecessary, and this is a fact. Not talking about the robots that sew jeans around the clock and collect cars. Without trade unions, health insurance and weekend. Artificial intelligence and machine learning are slowly but confidently thrown out the analysts from the comfortable office armchairs. The world economy moves from production to service provision, where most of the new vacancies do not require lengthy and complex training.

Those professions that survive in the fight against technologies will also change. The advanced software will take on a large number of routine tasks, and for people there will be continuous creativity, (whatever this fashionable word means). Such specialists will still have to spend 4-6 years of their lives for a diploma. However, whether they will wander from the corpus to the corpus - hardly. Educational institutions that will not pass technological selection will become outsiders and simply will disappear as unsuccessful business models.

In our opinion, because of a number of economic factors, higher education institutions today are struggling to survive in every possible way. Western universities, while still praying on their sponsors, are still forced to raise their tuition fees. Therefore, in the USA, students can still relatively easily get a state scholarship for studies in colleges (with universities is more difficult). However, in 2017, the amount amounted to 1.45 trillion dollars, which young Americans had already borrowed from the government. The saddest thing is that 20% of borrowers possible may not receive a sufficiently high salary to repay debt.

Let's note that state universities in Germany are completely free, even for out-of-towners. With the exception of organizational fees and housing fees, the young German can get the desired education without any problems if the contest passes. However, Europeans are not used to combine the education and work. Visiting lectures and working as a waiter in a restaurant is difficult, because of that not every employer will



be loyal to the need for flexible schedule. In the end, fast footwork is the key to success in life, but between two stools one falls to the ground.

Against this background, the arguments of university about the importance of interpersonal interaction and direct communication in the learning process look good but unconvincing. The American students, their parents more, and more they doubt the expediency of higher education. It is in our opinion that the top universities will keep their positions, because they are the fastest way to respond to the challenges of time. They sign partnership agreements, create companies that specialize in online learning or actively practice distance learning.

It should be emphasized that the Harvard Extension School is the embodiment of all modern educational trends, attracts 2000 students every year who already receive education at a specified program, as well as 13000 other students. The degree of BLA (Bachelor of Liberal Arts) can be obtained remotely. The average cost of such happiness is 49500 dollars. That is, the diploma you receive online per four years is cheaper than one year of life at Harvard campus.

However, a large part of people undergoing distance courses will never receive a bachelor's degree. They are interested only in separate subjects, which are necessary either for the improvement of knowledge in a particular field, or simply for general self-development. Many companies already work with universities to create separate programs for their employees. Still, nobody knows better than the employer, experts with what skills he needs. The world changes minute by minute, and even students from leading universities can say that much of their knowledge had not be necessary in practice. Consequently, education became an investment that had not justify itself. However, analyzing sociological researches, opinions of specialists and own experience, we come to one conclusion: Ukrainian higher education is a unique phenomenon. It is an old Soviet skeleton from the office of anatomy, wearing a fashionable T-shirt with the inscription "Bologna system". If Western educational institutions have to compete with each other, then the whole world is against us. After all, the time is right around the corner when more and more Ukrainian students will be actively involved in massive online courses and quite reasonably, they will skip university lectures. Indeed, how can one take a few academic hours on the theory of Adam Smith, and do not talk about venture capital in a one word? The only chance for our graduates to be competitive is actively work on self-education.

Summing up, it is worth making the following **conclusions**.

Under the AI in the educational activity, we understand a set of knowledge of computer linguistics and informatics that are used by a non-biological automated organism to effective organization, provision and implementation the educational process in formal and/or informal education.

In our view, it is advisable to introduce the features of using the AI - artificial intelligence in higher education institutions in the implementation of training in the third millennium, namely:

First, it is worthwhile to introduce the use of a digital tutor. AI tutors are educational programs that enable students to learn basic skills, which need routine work of repeating, memorizing, and selection the correct answer from the proposed. AI tutors can also explain the concept of exercise and describe how to correct mistakes. Chatbots are the simplest AI tutors that have been successfully applied in many schools.

Students like to receive messages from the training platform, so teachers should learn the technology of engaging students with the use of social bots. Personalized training includes collecting information about gaps in student knowledge, the help in search and defining the correct answer.

Secondly, it is expedient to use the “Personal assistant” program. In the future, the AI tutor can become a personal assistant for student, which will accompany him in a distance education throughout his life. Personal AI assistant can answer routine questions, help deepen the understanding of the topic, work as navigator in the sea of digital information, find and organize data on request. Such an assistant can make a schedule for his student and select classes at online courses at a convenient for him time, track the progress of the completion of program. An artificial intelligence will be able to be given by multitasking and you will focus on solving more creative tasks that require immersion in the topic and the mobilization of all resources.

In addition, AI assistants of different students can communicate in order to coordinate the time of joint classes, provide a better exchange of knowledge, help their own wards learn from each other. New technologies allow students to concentrate on classes even better than before, and now, with the help of the AI assistant, you will be able to get rid of the gaps in the training completely. The personalized system will track errors in the process of learning a new topic, will generate examples that based on previous experiences of training, will explain new micro concepts and will delete unnecessary ones. A similar personal online guide will help you to create a coherent picture and quickly master new skills – moreover, throughout your life.

Thirdly, it is necessary to introduce new methods of so-called “Exciting learning”. The system of education is chronically affected by inconsistencies in teaching methods and the principles of information perception by the brain. The training is perceived as boring by definition, and the brain begins to struggle with sleep, whereas artificial intelligence can turn the search for new knowledge and the entire learning process, including exercises into an exciting quest.

All studies confirm that when the process of studying is pleasant to students, then successes are more tangible and knowledge is kept in memory better, and there is always a motivation to learn something new. AI technologies can successfully support a flame of interest and engage in the study of new topics.

Artificial intelligence will inevitably lead to the transformation of teaching and the introduction of new effective methods of teaching. Therefore, for example, Scott Bolland, a doctor of neurosciences, suggests using a methodical method of interval repetition not for memorization material, but for studying a new one. In this case, it can be combined with the regular passage of tests and with techniques of active memorization.

Fourthly, it is advisable to convince a modern teacher to use the automated program “Assistant of teacher or AI assistant”. Because, according to our belief, most teachers are overloaded now: they have to constantly study and update materials for the lesson, without losing quality. Cognitive computer technology can ease routine work and save strength, offering integrated materials that tailor-made for the theme, and dynamic solutions to save time.

AI assistant for a teacher helps with professional development, as well as students with training. In addition, such an assistant will help plan lessons through online tools

and provide online coaching for improving quality of teaching. Virtual teacher support centers will help the development process and contribute to better outcomes of learning.

The online class can be even more interactive and personalized, as technologies allow students to choose when and how to move forward: those who quickly learn the material are given the opportunity to move on to the next stage, while those who are behind can, without undue pressure, to understand the obscure moments, to ask for help, to practice.

Fifthly, to use the "Objective evaluation or AI evaluation" method in the modern system of education, this is when tests are created and evaluated by the system itself, this first of all saves the time of the teacher, enabling him to communicate more with the students, to invest his forces to raising the level of teaching. The automatic generation of tests and evaluation create a similarity of objective reality, removing an extra negative from the teacher, which is formed during the evaluation by the traditional way. Similar software can not only capture the current level of knowledge of students, but also help them plan their training by providing lists of what they need to know of the program.

### References:

1. Kysliuk O. O., Kysliuk P. V. Zastosuvannia kompiuternykh tekhnolohii u roboti klasnoho kerivnyka // O. O.Kysliuk, P. V. Kysliuk Elektronnyi resurs [Rezhym dostupu] file:///C:/Users/Admin/Downloads/inuv\_2017\_5\_25.pdf
2. Iak pratsiue mashynne navchannia ta AI? Elektronnyi resurs [Rezhym dostupu] <http://thefuture.news/ai>
3. Osvitni tekhnolohii 2018 Elektronnyi resurs [Rezhym dostupu] <http://blog.ed-era.com/educational-technologies/>
4. Maibutnie shtuchnoho intelektu v osviti. Intehratsiia ta zarubizhnyi dosvid / Yurii Chubatiuk Elektronnyi resurs [Rezhym dostupu] <https://day.kyiv.ua/uk/article/ekonomika/maybutnye-shtuchnogo-intelektu-v-osviti>