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INNOVATION ACROSS EUROPE»

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BLOCKCHAIN TECHNOLOGY IN EDUCATIONAL PERSPECTIVE

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The dynamics of the process of education informatization points to the formation of a new vision of the idea, mission and tasks that are facing modern educational institutions. The main educational trends are the expansion of the distance education sector, the introduction of blended learning technology, scaling of computer adaptive learning, gamification of learning and more.

Certain aspects of the future development of education relate to the methods of obtaining knowledge, but they do not exhaust the multi-vector process of informatization of education. A new, and therefore poorly understood, but relevant research niche in modern educational philosophy is the question of the use of blockchain technology in the academic environment of educational institutions.

The purpose of the study is to identify promising ways of using blockchain technology in education.

Universal in terms of its practical use, technology of working with information in the Internet has already found its application in the field of providing various financial services, logistics, energetics, medicine, copyright protection, IoT and more. Education is also one of those socio-cultural fields in which blockchain can be applied and benefit. According to researcher Melanie Swann, this is a blockchain 3.0 model that extends to a variety of areas, except financial transactions and the market [1]. Nowadays, we cannot testify to the high level of popularity of technology in the educational and scientific segments, but they require an information system that has characteristics such as invariability, verifiability and traceability of data.

Dynamism and transparency of blockchain technology make it a resource for further development and legitimization of online learning. The high level of demand for massive open online courses, due to the opportunity to obtain the desired knowledge at low prices, actualizes the process of combining individual courses from around the world into blocks of copyrighted courses and integrating the intellectual property of professionals around the world.

Plagiarism is an acute problem in the modern academic world, the destructive content of which is offset by the banalization of the process of improperly borrowing others' ideas and inventions. Blockchain technology can be used to control the distribution of copyrighted material through the Internet. The main function of the technology is the secure storage of information recorded in the chain data, which is achieved by the inability to make changes to the blocks manually due to the high degree of encryption.

The application of this technology will make academic materials accessible but controlled by the owner, as they will be aware of their use by another person as the information is stored in the chain. In addition, this technology will resolve the issue of the legitimate owner of the material, as their name will also be included in the data block chain. A team of experts from the Singapore Ink Labs Foundation (<https://ink.plus>) works in this direction to develop an online platform that will allow

blockchain technology to verify the copyright of any content uploaded to the platform.

The use of blockchain technology in the educational process allows us to move in the direction of overcoming another pressing problem of modern civilization - ignorance. This is largely due to the fact that in some countries only primary and secondary education are compulsory, and higher education is a matter of purely private interest for individuals and their family. The saddest picture is in countries with high levels of poverty, where the lack of higher education in the younger generation is due to both financial distress and illiteracy of their parents.

Not only does blockchain technology make education more accessible to the public, it also encourages students to gain more knowledge and skills. In the terminology of cryptography, it is called the tokenization of education, and essentially characterizes the process of obtaining by students (and teachers) tokens for success in learning (teaching), with their subsequent conversion into funding a scholarship programs. Currently, in the education tokenization market there is a Spanish educational model called Tutellus (<https://www.tutellus.com>), which has its own tokens and attracts not only students and teachers but also employers. The purpose of the project, according to their founders, is to solve numerous problems in the educational segment, such as students' lack of motivation to study, high cost of education, unemployment caused by a significant «separation» of the education system from the labor market.

Blockchain technology can also help with the problem of fake diplomas. In this direction, there is already some experience of three Greek universities in the cities of Thessaloniki, Athens, Komotini, Massachusetts Institute of Technology, Singapore Polytechnic Institute, which produce digital diplomas on different blockchain systems, thus overcoming the problem of fake diplomas due to the fact that each diploma is registered in a single database with a single owner, and the absence of a specific diploma on the blockchain system indicates that it is fake.

Thus, in our opinion, blockchain technology is one of those innovations in education that can make substantial changes in the traditional education system in various aspects of its functioning. Today, most of them are at the experimental stage of implementation, which is why research into the prospects for their implementation in the educational environment is ongoing, and they will be the subject of our further scientific exploration.

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