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Blockchain technology and its potential for the higher education sector

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Abstract:
Blockchain technology has received an extensive attention recently. Blockhain-based applications are covering numerous fields including healthcare, business and education. This article covers the aspects of blockchain technology and its current and potential implementations in the higher education sector.

The technology market creates wild new opportunities for many industries, including education. Nowadays, we witness the development of artificial intelligence, smart classrooms and distanced learning supported by modern technologies. Chances are, blockchain will become an integral part of the educational institutions in the years to come. It like other technologies allows developing new directions and reaching new levels through greater transparency, enhanced security and easier traceability.

Traditional educational systems did not implement the blockchain technology entirely, this makes investigating the development, usage and potential of blockchain in the higher institutions a highly interesting topic. Crucially, however, research on the development of blockchain technology in education has not gained much attention from the researchers.

Blockchain technology is the biggest phenomenon that hit the global world since the invention of the Internet. Blockchain was initially revealed in a paper called “Bitcoin: A Peer-to-Peer Electronic Cash System” by Satoshi Nakamoto (the pen name). The concept behind the creation of blockchain is a secure, transparent and decentralised data structure that holds transactional records. Simply speaking, it is a continuously growing list of records, called blocks, which are linked together using cryptography. Cryptography is a method of using advanced mathematical principles in storing and transmitting data in a particular form, so only those for whom it is intended can read and process it.

This revolutionary solution has been compared to the early rising of the Internet (Swan, 2015; De Filippi, 2015; Wright, 2015) with comments and arguments of the technology’s potential to disrupt multiple industries, such as healthcare, supply chain and the public sector. The interest in blockchain has grown since its inception in 2008. Nowadays, blockchain is the best-known distributed ledger technology.

There is an emerging interest about the use of blockchain in education (Bartolome, 2017). This is because with blockchain, educational institutions will find applications to cut costs so that more can be spent on actual education and quality lecturers. Blockchain will also assist in adding legitimacy to relatively new forms of education that are valuable and less expensive. It may also be used to keep student records, control the dispersal of copyrighted materials and innovative learning platforms.

Nowadays, some universities and institutes have applied blockchain technology into education, and most of them use it to support academic degree management and summative evaluation for learning outcomes (Sharples and Domingue, 2016; Skiba 2017). For example, King's College in New York became the first US institution to allow digital currency payments (based on blockchain platform). The University of St. Gallen in Switzerland has launched a new pilot project for a blockchain-based system that certifies diplomas and verifies their authenticity. Currently, it can take businesses several days to check and verify a candidate's credentials. With the new system, that process could be reduced to just a few seconds. Prior to that, the University of Basel had received more than 100 students certificates registered on the blockchain platform. In 2017 Massachusetts Institute of Technology (USA) started issuing graduate certificates on a blockchain app, since then, it has delivered more than 2000 diplomas. Due to the fact that there is a large demand for people with blockchain expertise, but the supply currently is not there, several colleges all over the world have incorporated blockchain courses into their programmes of study, including Athlone Institute of Technology (Ireland), Princeton University (USA) and the University of Nicosia (Cyprus).

Nevertheless, the adoption of blockchain in education is slow at present because of associated risks and the lack of demonstrable examples. However, educational institutions and other stakeholders are very interested to understand the advantages or disadvantages of blockchain in education.

The author of this paper argues that there are still significant gaps in the current literature on blockchain technology that is due to be explored within the field of the potential of blockchain for the higher education institutions all over the world. Lastly, it can be said that the educational areas in which blockchain technology was applied are still very limited and need a more vivid discussion.

List of references

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