

Logistics Vocational Education and Training System Based on Blockchain Technology under Lifelong Education Perspective

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Abstract: The paper makes an organic combination of three aspects including lifelong education, blockchain technology application and logistics vocational education & training. Then it analyses the coupling mechanism between blockchain technology and logistics vocational education and training, and proposed the path and key for constructing logistics vocational education and training system based on blockchain under lifelong education perspective in providing a reference to improve the quality of logistics vocational education and training.

1. Introduction

"Education informatization 2.0 action plan" [1] issued by the Ministry of Education clearly puts forward strategic objectives and important tasks, such as promoting lifelong education, actively exploring the application of blockchain technology, and continuously promoting vocational education informatization. At present, the educational application of blockchain technology at home and abroad is in its infancy, and a few educational institutions have carried out active exploration, whose purpose is to transform the traditional education ecology by applying Internet thinking, technology and mode, and realize the structural reform of education system [2]. This paper combines lifelong education, blockchain technology application and logistics vocational education and training, studies the construction of logistics vocational education and training system based on blockchain from the perspective of lifelong education, promotes the reform and improvement of logistics vocational education and training system, and promotes the quality improvement and sustainable development of logistics vocational education and training.

2. Blockchain, Blockchain Core Technology and its Main Advantages

Blockchain originated from the foundational paper bitcoin: a peer-to-peer e-cash system, which was published by scholars with pseudonym Satoshi Nakamoto in November 2008. It is a data structure that combines blocks in a chain way [3]. The core technologies and advantages of blockchain mainly include: (1) distributed ledger technology: the advantages of decentralized and permanent

data storage; (2) asymmetric encryption algorithm: the advantage of security and tampering; (3) consensus mechanism: the advantages of anti-counterfeiting and authenticity; (4) time sequence data (timestamp): the advantage of traceability and verifiability; (5) intelligent contract: advantages of automated and efficient transaction completion.

3. Lifelong Education and its Main Characteristics

Lifelong education is by no means a new term added to the traditional form of education, nor is it the complete equivalent of mass education and adult education. First, education is no longer completed after graduation from any school, but should be carried out continuously through one's life. Second, the current education is school-centered, and it is closed and rigid. In the future, education will integrate all institutions and channels of education and training of the whole society, so that people can base themselves in all sectors of their existence access to education is necessary and convenient [4].

Accordingly, logistics vocational education and training has the main characteristics of sustainability, integrity, flexibility, openness, dynamic and so on.

Sustainability: it is not limited to a certain career development period and a certain age group, but throughout one's life, which is a continuous process.

Integrity: all kinds of educational activities constitute a whole, which includes the logistics vocational education carried out in schools, institutions, enterprises, communities, families and other places. In all stages and fields of life, all kinds of logistics vocational education are inseparable and interrelated.

Flexibility: logistics vocational education should break through the rigid regulations and restrictions of traditional vocational education, establish a flexible and dynamic school system, select flexible and changeable teaching methods and means, rich and diverse teaching contents and various organizational forms conducive to learning.

Openness: the door of logistics vocational education is open to the whole society, emphasizing education for all. Everyone has the opportunity to receive education and training, and everyone can get education suitable for their own development.

Dynamic: logistics vocational education should dynamically adapt to the needs of labor market in different development periods, effectively communicate vocational education and industry, and ensure that logistics vocational education actively adapts to the needs and changes of labor employment market through the integration of production and education.

4. Coupling Mechanism Between Blockchain Technology and Logistics Vocational Education and Training From the Perspective of Lifelong Education

The research of logistics vocational education and training system based on blockchain needs to systematically analyze the coupling mechanism between blockchain technology and logistics vocational education and training, that is, the coupling mechanism between the advantages of the former and the characteristics of the latter, so as to lay an important foundation for the follow-up research. First of all, we must sort out the main characteristics of blockchain core technology, give full play to the advantages of various blockchain technologies, and then combine with the main characteristics of lifelong education, in order to meet the implementation requirements of lifelong education, develop the main application fields of blockchain technology in logistics vocational education and training. Taking the application fields of "logistics vocational education and training Xuexin big database" and "logistics vocational education and training credit bank" as examples, this paper analyzes the main features of blockchain's distributed ledger technology, asymmetric encryption algorithm, consensus mechanism and time series data, and gives full play to their

technical advantages of decentralized permanent data storage, security and tamper proof, authenticity and traceability and verifiability the characteristics of "continuity" and "integrity" of lifelong education and its implementation requirements, so as to determine the technical application fields of "logistics vocational education and training credit database, logistics vocational education and training credit bank". The coupling mechanism of blockchain technology and logistics vocational education and training from the perspective of lifelong education is shown in figure 1 as follows.

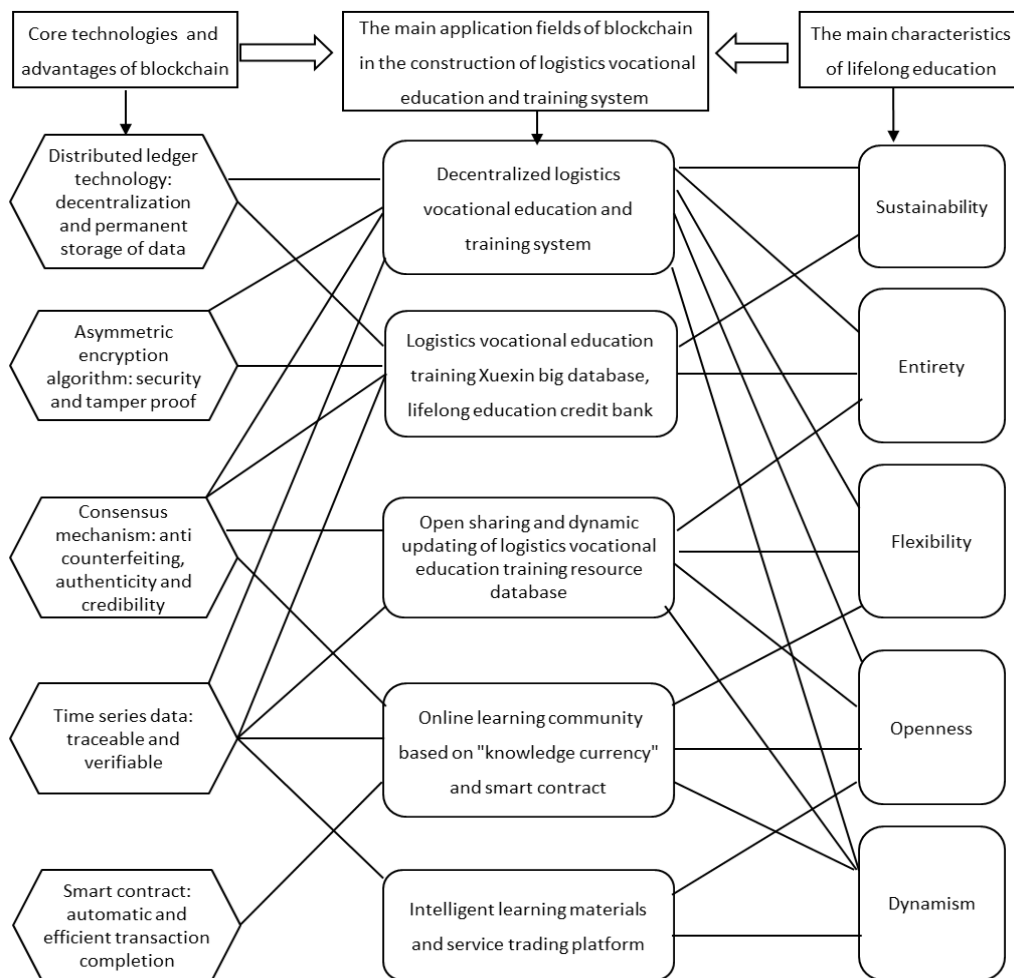


Figure 1: Coupling mechanism between blockchain technology and logistics vocational education and training from the perspective of lifelong education

5. Construction Path of Logistics Vocational Education and Training System Based on Blockchain from the Perspective of Lifelong Education

Based on the coupling mechanism model of blockchain technology and logistics vocational education and training, this paper puts forward the idea of Constructing logistics vocational education and training system based on blockchain from the perspective of lifelong education.

Construction of structural layer. In the structure layer, the block chain distributed system is used to construct the decentralized logistics vocational education training system, so as to promote the open and distributed logistics vocational education and promote its diversified and personalized development.

Data layer construction. In the data layer, blockchain distributed ledger, asymmetric encryption algorithm and other technologies are applied to build a large database of logistics vocational education and training, so as to realize the permanent storage of academic records and the traceability and verification of learning certificates.

Function layer construction. In the functional layer, we use consensus mechanism and time series data technology to construct the logistics vocational education and training blockchain functional system, establish logistics vocational education and training credit bank based on blockchain to realize the continuous accumulation and flexible conversion of credits, and establish academic and learning certification system, logistics vocational education and training resource library, online learning community.

Transaction layer construction. In the transaction layer, the technology of blockchain smart contract and time series data is applied to build an intelligent learning material and service trading platform to realize transaction automation and real and transparent transaction process.

6. The Key of Building Logistics Vocational Education and Training System Based on Blockchain

In the process of building logistics vocational education and training system based on blockchain, the key problem to be solved is to apply blockchain technology in the structural layer to establish a decentralized logistics vocational education and training system, which is also the primary problem. Only by solving the key problems of the structure layer, can we provide the strong support of the underlying architecture for the application research of the block chain technology in the following data layer, function layer and transaction layer. There are four ways to solve this problem.

Using the blockchain distributed system to build the decentralized logistics vocational education and training system, break the situation that the education is basically monopolized by the central institutions. Under the premise of strict access conditions and standardized approval procedures, further open the right to run schools, open educational resources, open online courses, open diplomas, and break through the prescribed time limit of schooling system and the shackles of prescribed educational places to make the logistics vocational education open to the outside world, flexible in time, changeable in space, and participated by all the people, so as to facilitate the lifelong education of learners.

The combination adopts blockchain related technologies to give full play to the technical advantages of decentralization, permanent data storage, information transparency, authenticity anti-counterfeiting, security anti tampering, traceability and verifiability, so as to fully ensure the transparency of the education process, the credibility of education results, the authenticity and permanence of learning records, and the certification of academic credentials and learning certificates based on blockchain system docking.

Adopt blockchain technology to establish flexible learning system, adopt various teaching organization forms, select flexible teaching contents and teaching methods, so that learners can make their own learning plans and choose courses independently, so as to maximize their learning initiative and enthusiasm.

By adopting blockchain technology, learners can safely create a personal learning resource library composed of learning content, learning process, learning performance and other information, maintain and share it, realize personalized learning and personalized resource management, improve learning process and enhance learning effectiveness.

7. Conclusion

As a new cutting-edge technology, the application value of blockchain technology in the field of education is increasingly apparent, and lifelong education is to serve the lifelong development of people and support the realization of lifelong professional value. It is of great significance to study how to apply new technologies to promote the reform and improvement of logistics vocational education and training. Based on the analysis of the coupling mechanism between blockchain technology and logistics vocational education and training, this paper puts forward the ideas and key points of constructing logistics vocational education and training system based on blockchain from the perspective of lifelong education, so as to promote the quality improvement and sustainable development of logistics vocational education and training useful reference.

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