

BOOK REVIEW

Education and Blockchain

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Education and Blockchain is an excellent primer for educational leaders, administrators, teachers, and students. The book is divided into an executive summary, followed by four sections. These are: 1. The foundational principles and concepts of blockchain; 2. Blockchain applications in education. 3. How blockchain is being used in education; and 4. The humanistic principles to be considered when implementing blockchain. The book is well laid out and includes a glossary of terms which are clearly explained for the uninitiated. The authors also propose different applications of blockchain in a variety of educational contexts. Both the benefits and constraints related to blockchain as a de-centralised transparent ledger are explained in a manner understandable to the non-technical reader.

The authors posit blockchain as a viable alternative to current infrastructure in education, supporting identity and self-sovereignty with student control, while eliminating the need for intermediaries and third-party evaluators. How blockchain relates to disintermediation in education using technology is also explained, along with advice on the prerequisites and prospects for institutions considering embarking on blockchain implementations.

They define and describe how blockchain can be used for accreditation of institutions, teachers and students. They refer to the accumulation of credits (stackability) and credit transfer using open digital badges and other forms of micro-credentials. Blockchain secure digital micro-credentials could be the key to opening credit transfer among institutions and nations.

Besides supporting faster speeds, and increasing trust through immutability, blockchain can be used to achieve significant cost-savings like reducing administrative load and lowering the compliance costs of adhering to regulations. Blockchain can also be used to support student privacy, inclusion, and equity, helping to overcome the digital divide and increase sustainability. Blockchain is not only capable of disrupting educational processes but also could help break gender norms and empower women by shifting power from institutions to the users. The authors argue that systemic issues related to equality, such as women's lack of user ID and mobility, along with social and economic controls can all be mitigated through blockchain.

In addition, the authors explain the adaptability of blockchain in different contexts. For example, it can also be used for processing financial transactions; for educational funding, such as tuition; for student fees; and protecting intellectual property rights. They even warn of the perils of hacking and



call for data minimisation (reducing the amount and quality of the data that is stored) to reduce the motivation of data intruders.

Blockchain must be applied considering the context, culture, and specific attributes of each institution. The authors propose experimenting with different implementations, before attempting to implement a major change in their processes. There are reasons to be hesitant because of problems with the scalability and interoperability of blockchain, and especially energy consumption. They wisely point to the importance of ongoing discussions between academics, technologists, policy makers and administrators.

One minor criticism is that there is a total absence of any mention of the role of artificial intelligence (AI), which could serve as an important extension supporting blockchain. Institutions could benefit by using AI to automate transactions and increase the efficiency of blockchains. Likewise, blockchain could be useful in tethering to AI and ensuring that the 'intelligence' remains under control. While educational implementations of both blockchain and AI are just beginning, it is becoming evident that they can be effectively matched, strengthening both.

Nevertheless, *Education and Blockchain* can serve as a valuable resource for educators who wish to understand both the affordances and the constraints of blockchain in education. Dr Kanwar, in her introduction, notes how this can link to, and support, the Commonwealth of Learning's Transnational Qualifications Framework, which standardises credits for transfer and acceptance among different institutions and jurisdictions. The success of education internationally, is intrinsically tied to the development of accessible micro-courses, and the acceptance of hack-proof micro-credentials. Blockchain, because of its immutability and security along with user control could be an effective tool in accelerating the recognition of micro-credentials and other forms of accreditation internationally. By linking blockchain to micro-credentials, the authors have advanced our understanding of the expanding horizon for international education. This book provides us with a comprehensive synopsis, revealing to readers the intersection between blockchain technology and the many possibilities of its use in educational contexts.

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