Chain Reaction

Emerging peer-to-peer technology could help elementary and high school records become more portable.

Imagine a world in which a fifth-grader could take a class at a museum and a teacher could access his attendance information from a digital repository to grant appropriate class credit.

That type of unified approach to tracking and rewarding learning could someday become a reality, thanks to the emergence of blockchain technology, according to Jason Swanson, director of strategic foresight at advisory learning organization KnowledgeWorks Foundation. People often associate the technology with the cryptocurrency bitcoin.

A blockchain system relies on a global online database to validate information. Each action is recorded, identities are encrypted, and information is automatically entered, potentially providing considerable security.

"As a new action ends up on the ledger, a verification process bundles it into blocks, chains them together and continues as a train of transactions," Swanson says. "It relies on the network to continually say, 'This is good.'"

SEQUENTIAL LEARNING

Two years ago, the software engineering–focused Holberton School, an early blockchain adopter in San Francisco, began using staff-built software and bitcoin's publicly available blockchain to help employers access students' academic certificates.

"When someone graduates, the software pushes the information to the blockchain," Holberton co-founder Sylvain Kalache says.

K–12 settings could support a similar use. Higher education institutions could access blockchains to obtain K–12 standardized test scores or acquire home-schooled students' progress.

A blockchain containing students' academic histories might also make relocating an easier process, says Jim Flanagan, chief learning services officer at the International Society for Technology in Education. "The ability to have portability and greater trust would be hugely beneficial," Flanagan says. "When a family travels to another country, shouldn't they be able to have ready access to those records?"

Schools also can program automated smart contracts stored on blockchains to carry out additional tasks, such as automatically scheduling a tutor in response to a student's academic issue.

Teachers, too, could utilize the technology to receive credit for completing professional development requirements.

GAINING ACCEPTANCE

Blockchain technology does present a few challenges. As a relatively new technology, the biggest obstacle it faces may be its young age.

"A lot of educators don't really get it, but we already have the IT infrastructure," Swanson says. "Blockchain technology could change the future of K–12 education and be the backbone for creating a true learning system." ∎

$20 billion

The estimated value of the global blockchain market by 2024[1]

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