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Incorporating Blockchain into Undergraduate Cybersecurity Curriculum-Best Practices and Recommendations

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ABSTRACT

Teaching information systems (IS) and cybersecurity topics can be consistent and uncomplicated when covering foundations (e.g., networking, analytics, malware). However, when new topics begin emerging, such as blockchain, artificial intelligence, and virtual reality, covering these topics can become more difficult. In this Big Ideas in IS Research and Education presentation, we propose some best practices and recommendations for incorporating blockchain into cybersecurity curriculum. As an emerging and disruptive technology, blockchain has the potential to impact both industries and academia in the next decade. The authors have teaching experience in cybersecurity and blockchain and provide five recommendations in this presentation.

Keywords

Blockchain, Cybersecurity, IS Education.

INTRODUCTION

In 2021, the blockchain technology market size was estimated at USD 5.92 billion[1]. As one of many emerging technologies, it is important for academia to incorporate this important yet controversial topic into the IS curriculum (Tang et al., 2022). It is also challenging for instructors to prepare for teaching and incorporating blockchain into cybersecurity curriculum. Based on our current and past teaching experiences in cybersecurity and blockchain, we provide the following recommendations.

- **Raising Awareness of Blockchain**
    o Students have low sense for privacy and cybersecurity awareness for blockchain-related applications. Highlighting the applications of blockchain will be the first step in incorporating blockchain into cybersecurity education.
- **Developing Hands-on Labs and Activities**
    o It is critical to develop hands-on blockchain-based labs/practices so students will have more direct interactions and hands-on experience with blockchain technology.
- **Asking for Help from the Students**
    o Based on our experiences, some students are experts in applications like cryptocurrency and non-fungible token (NFT). In one module, we asked students to contribute to instructional materials. For example, asking students to record a short 5-minute introduction about how they trade cryptocurrency and NFT.
- **Making Sense of Blockchain**
    o Linking blockchain with real-life practice and professional development is critical. It is important to help students bridge the gaps between what we teach and what the industries need. For example, bringing working professionals from the industry for guest lecture is an excellent way to make sense of blockchain.
- **Thinking Critically**
    o It will be beneficial to add instructional materials that can help students think critically. For some questions, instructors can encourage students to provide answers from different perspectives and stakeholders.

REFERENCES

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[1] https://www.grandviewresearch.com/industry-analysis/blockchain-technology-market