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Become a Security Monopoly: Gamification to Learn Cyber Defense Matrix

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Abstract

The shortage of security professionals is the critical issue around the world. In worldwide, millions shortage need to be fulfilled. To bridge the gap of the shortage, security education is a indispensable issue. Therefore, in order to educate both student, blue team and even manager levels, we developed a Monopoly-style boardgame - CyberCans. CyberCans applies CDM (Cyber Defense Matrix),which is the industry-accepted framework for inventory their defense mechanisms, as the main concept. Based on the CDM, the participants play the role as the the decision maker, which need to design the strategy and deploy their defense mechanisms. Players should ensure their defense mechanisms could successful guard their enterprise against encountered attacks during the Monopoly-style game. The participants could learn the knowledge of diversity position of defense mechanisms, e.g. antivirus, firewall, SOC(Security Operation Center) and CTI(Cyber Threat Intelligence), according to the CDM. The proposed boardgame has the following contributions. First, we propose the first board game integrating with industry-accepted framework - CDM to ensure the technique soundness and completeness of CyberCans. Second, using in 10+ education events, CyberCans is proven to be effective across diverse education levels - from new entry students, security staffs, to even the CISO level. This indicates that CyberCan is not only the game, but a war-game for enterprise's security strategy. Third, the art design is usually overlook but the crucial factor for gamifications. We will share the art design guideline of CyberCans for tailor-made user experience. Last, the experiment is conducted with more than 100 participants. The score of multiple choice questions is rising from 41.85 to 69.23, while assay questions score is rising 0.04 to 11.15. These experiment highlight a substantial improvement to the participant's security knowledge.

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