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Beyond Play: Leveraging Serious Games for Cybersecurity Skill Development in Distributed Workforces

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TREO Talk Paper

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Abstract

Gamification harnesses the natural human inclination toward gaming by applying the same motivational techniques used in the design of video games to enhance engagement in real-world activities (Larson, 2020). Gamification concepts covers a wide array of fields in game studies, such as serious games, pervasive games or alternate reality games. Serious games are defined as games designed for purposes beyond mere entertainment (Azadegan et al., 2012). Serious games, which have been found to challenge users in both competitive and entertaining ways, have often been used by educators to increase student engagement in cybersecurity education. Distributed workforces, especially post-COVID, have become a normal arrangement in businesses today. These remote environments inherently involve several dynamics. Employees are able to enjoy autonomy over time and place because they can combine their home and work responsibilities (Asatiani & Penttinen, 2019). However, work flexibility can also lead to employee burnout and cyberslacking due to fear of missing out (FOMO). These dynamics can have derail cybersecurity compliance. As technology evolves, cybersecurity threats remain a critical concern for organizations worldwide, with human factors identified as a leading cause of security lapses (Torres & Crossler, 2024), an issue exacerbated in distributed workforces. This paper examines the potential of serious games as a tool for cybersecurity education and skill development in distributed workforces. First, we conduct a systematic review to categorize existing serious games into three domains: security awareness, network/web security, and cryptography. Next, we apply cognitive load theory (Sweller et al., 1998) to analyze how intrinsic, extraneous, and germane cognitive loads influence distributed employees—and test if serious games can moderate their skill development over a period of time. This study will contribute to the gamification and cybersecurity literature by exploring the impact of serious games on skill development in distributed workforces. It also advances practice by showing organizations how to adapt serious games for remote employees, enhancing understanding of their dynamics in remote cybersecurity contexts.

References

- Asatiani, A., & Penttinen, E. (2019). Constructing continuities in virtual work environments: A multiple case study of two firms with differing degrees of virtuality. *Information Systems Journal*, 29(2), 484–513.
- Azadegan, A., Riedel, J. C., & Baalsrud Hauge, J. (2012). *Serious games adoption in corporate training*. 74–85.
- Larson, K. (2020). Serious games and gamification in the corporate training environment: A literature review. *TechTrends*, 64(2), 319–328.
- Sweller, J., Van Merriënboer, J. J., & Paas, F. G. (1998). Cognitive architecture and instructional design. *Educational Psychology Review*, 10, 251–296.
- Torres, C. I., & Crossler, R. E. (2024). Promoting security behaviors in remote work environments: Personal values shaping information security policy compliance. *Information Systems Research*.