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Examining Cognitive Load and Information Systems Security Compliance

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Getting employees to comply with information systems security policies (ISSP) is a herculean task for organizations as security breaches due to non-compliance continue to soar (Verizon 2022). To improve this situation, researchers and practitioners have employed the use of fear appeals which are based on the protection motivation theory (PMT) to induce compliance behavior. However, extant research on fear appeals has yielded mixed findings (Schuetz et al. 2020). While there has been consistency in the effectiveness of fear appeals to stimulate threat appraisals, most studies have reported contradictory findings on the effectiveness of fear appeals on individuals' efficacy and coping appraisals. To help explain these mixed findings, we contend that efficacy formation is a cognitive process that is impacted by the cognitive load exerted by the design of fear appeal messages. We draw on cognitive load theory (CLT) (Sweller et al. 1998, 2019) to examine the effects of intrinsic cognitive load, extraneous cognitive load, and germane cognitive load on stimulating fear and efficacy as well as ISSP compliance. Our initial findings show that intrinsic cognitive load is positively associated with fear, response cost, and maladaptive response, but negatively associated with self-efficacy. Further, extraneous cognitive load is positively associated with response cost and maladaptive reward but negatively associated with response efficacy and self-efficacy. While germane cognitive load is positively associated with fear, self-efficacy, and response efficacy but negatively associated with response cost and maladaptive rewards. This research will contribute to explaining the mixed findings in the fear appeals and ISSP compliance literature. It also will have implications for practice by showing that carefully designing fear appeals with cognitive load in mind will improve efficacy and ISSP compliance.

References

- Schuetz, S. W., Benjamin Lowry, P., Pienta, D. A., and Bennett Thatcher, J. 2020. "The Effectiveness of Abstract Versus Concrete Fear Appeals in Information Security," *Journal of Management Information Systems* (37:3), pp. 723–757. (<https://doi.org/10.1080/07421222.2020.1790187>).
- Sweller, J., Merriënboer, J. J. G. van, and Paas, F. 1998. "Cognitive Architecture and Instructional Design," *Educational Psychology Review* (10:3), pp. 251–296.
- Sweller, J., Merriënboer, J. J. G. van, and Paas, F. 2019. "Cognitive Architecture and Instructional Design: 20 Years Later," *Educational Psychology Review* (31:2), New York, Netherlands: Springer Nature B.V., pp. 261–292. (<http://dx.doi.org.libproxy.uncg.edu/10.1007/s10648-019-09465-5>).
- Verizon. 2022. "2022-Data-Breach-Investigations-Report-Dbir.Pdf," *Verizon.Com*. (<https://www.verizon.com/business/resources/reports/2022/dbir/2022-data-breach-investigations-report-dbir.pdf>, accessed August 1, 2022).