Computer games in IT Security education

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ABSTRACT

The aim of this research is to investigate whether computer games are more effective as teaching methodology to people with holistic learning strategy than traditional teaching strategies e.g. books.

Today, we have technologies to solve most of the security functions that are needed to guarantee the requirements of a secure information structure in a modern IT environment. Unfortunately, this is not enough if the user of such information is not using or understanding these technologies. People learn in different ways – we need teaching strategies that correspond with individuals’ learning strategies in such manner the individual will understand why, when and how to use security functions. I am trying to find effective methods to raise the common IT security awareness within organisations.

People tend to understand and become aware of IT security issues in several different ways of which some tend to be more efficient. One reason for this may be that most of the didactic methods e.g. books, multimedia, and front-end teaching, are performed in a serial fashion, i.e. teaching several details in hope the student eventually will understand the overall picture, rather than in a holistic fashion. There is evidence that mismatched teaching and learning preferences between holists - also called bricoleurs - and serialists will produce as poor result for both groups, whereas correct matching of teaching and learning preferences will produce as good results for both groups.

Our tentative hypothesis is; a person with holistic learning strategy will increase his/her understanding within IT security related issues more efficiently when using interactive computer games instead of traditional teaching strategies.

To be able to evaluate the hypothesis, an experimental research approach was chosen.

Seventy-eight students participated in the test. However, fifteen of these tests were incomplete and removed from the study. Sixty-three students completed all the tests. The results from the study shows that a person with holistic learning strategy will achieve a better understanding within IT security when computer games are used, as a teaching strategy (197%), in contrast to text material.

Additional findings indicate differences in how people best acquire information, depending on his/her learning strategy. Furthermore, there are connections between teaching strategy and acquired understanding. Surprisingly was that even serialists acquired more IT security understanding through playing than reading.