An Empirical Study of Authentication Methods to Secure E-Learning System Activities Against Impersonation Fraud

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Purpose of Research
The main goal of this research study is to empirically investigate what levels of authentication methods and strength users perceive to be most suitable for activities in e-learning systems based on the threats of impersonation (Helkala & Snekkene, 2009; Jalal & Zeb, 2008).

Research Questions
- RQ1a: What e-learning activities are perceived by users to have a high potential for impersonation?
- RQ1b: What e-learning activities users perceived that their peers will identify to have a high potential for threats of impersonation?
- RQ1c: How do the e-learning activities perceived by users to have a high potential for impersonation differ than those of their perceived peers?
- RQ2a: What levels of authentication strength are perceived by users to be most suitable against the threats of impersonation for these assessed e-learning activities?
- RQ2b: What levels of authentication strength are perceived by users that their peers will identify to be most suitable against the threats of impersonation for these assessed e-learning activities?
- RQ2c: How do the levels of authentication strength perceived by users to be most suitable against the threats of impersonation for these assessed e-learning activities differ than those of their perceived peers?
- RQ3a: What are the significant components of the levels of authentication strength perceived by users to be most suitable against the threats of impersonation for these assessed e-learning activities?
- RQ3b: What are the significant components of the levels of authentication strength perceived by users that their peers will identify to be most suitable against the threats of impersonation for these assessed e-learning activities?
- RQ3c: How do the significant components of the levels of authentication strength perceived by users to be most suitable against the threats of impersonation for these assessed e-learning activities differ than those of their perceived peers?
- RQ4a-c: Are there significant differences of perception of high potential for threats of impersonation based on (a) gender, (b) age, and (c) prior experience with e-learning?

Research Problem
Identity and authentication controls do not reliably secure the diverse activities in Web-based systems against user impersonation fraud (Apampa, Wills, & Argles, 2010; Flior & Kowalski, 2010; Levy, 2008; Prince, Fulton, & Garsombke, 2009).

Methodology
This study proposes to conduct an exploratory research design to empirically investigate what levels of authentication methods and strength users perceive to be more suitable for activities in e-learning systems based on the threat of impersonation. Following the development of a survey instrument, expert panel feedback will be gathered for construct validity. Following a Delphi process of expert panel feedback consensus, the finalized survey instrument will be used to collect quantitative data for analysis.

Status of the Research
The next milestones for this proposed study include identifying committee members, revisions of the Idea Paper based on feedback from committee members, and move to a formal Research Proposal development.

Selected References