

Improving Decision Making under Uncertainty Conditions in Highly Dynamical Contexts

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ABSTRACT

Decision making during response to large scale disasters requires to be conducted as efficient and effective as possible in order to mitigate the multiple-domain impact of those disasters in our communities. Incomplete information and cascading effects, i.e.; one person's decisions affecting the same person or others at a future moment, limits the performance of decision makers in this context. This article presents a research effort that involves the development of a video game-based web platform, which includes wildfire, flooding, and earthquake scenarios, that in conjunction with an expert playing a facilitator role, aimed at assessing and improving trainees' decision making. The results obtained are two-fold. First, they highlight that trainees improve their decision making performance quickly using a video game based simulator with the support of an expert facilitating knowledge acquisition during debrief post-simulation sessions. Second, experts and trainees have signature decision making performance curves. The main conclusions from this research effort are that the video game-based simulator is perceived as a valid tool to support decision making training, and that this technology improves decision making conducted under incomplete information and cascading effects.

Keywords: cascading effects; decision making; incomplete information; simulator; video game