

## A Team-Based Learning Game Guided by a Social Robot

**Authors :** Gila Kurtz, Dan Kohen Vacs

**Abstract :** Social robots (SR) is an emerging field striving to deploy computers capable of resembling human shapes and mimicking human movements, gestures, and behaviors. The evolving capability of SR to interact with human offers groundbreaking ways for learning and training opportunities. Studies show that SR can offer instructional experiences for fostering creativity, entertainment, enjoyment, and curiosity. These added values are essential for empowering instructional opportunities as gamified learning experiences. We present our project focused on deploying an activity to be experienced in an escape room aimed at team-based learning scaffolded by an SR, NAO. An escape room is a well-known approach for gamified activities focused on a simulated scenario experienced by team-based participants. Usually, the simulation takes place in a physical environment where participants must complete a series of challenges in a limited amount of time. During this experience, players learn something about the assigned topic of the room. In the current learning simulation, students must "save the nation" by locating sensitive information stolen and stored in a vault of four locks. Team members have to look for hints and solve riddles mediated by NAO. Each solution provides a unique code for opening one of the four locks. NAO is also used to provide ongoing feedback on the team's performance. We captured the proceeding of our activity and used it to conduct an evaluation study among ten experts in related areas. The experts were interviewed on their overall assessment of the learning activity and their perception of the added value related to the robot. The results were very encouraging on the feasibility that NAO can serve as a motivational tutor in adults' collaborative game-based learning. We believe that this study marks the first step toward a template for developing innovative team-based training using escape rooms supported by a humanoid robot.

**Keywords :** social robot, NAO, learning, team based activity, escape room

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