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Chronometric Pressure and In-Person Gamified Learning: A Mixed Methods Study in an Escape Room

Abstract

Game-based learning is a promising teaching tool in medical education. However, the optimal methods of designing curricula in game-based learning are unclear. The goal of this project is to advance the science of simulation-based medical education by exploring how design factors of in-person game-based learning curricula affect learning and motivation. This is a mixed methods study with 2 components: 1) a randomized controlled trial and 2) a qualitative study using interpretative phenomenological analysis (IPA). Education escape rooms are a type of game-based teaching where learners must solve a series of puzzles to escape a locked space within the allotted time. We previously designed an educational escape room to teach several high stakes yet clinically infrequent procedures in anesthesiology. This escape room serves as the platform for both components of this study. Specific Aim 1: Evaluate the impact of chronometric pressure on technical skills performance and motivation in an in-person gamified learning experience. Chronometric pressure refers to setting a time limitation for learners to complete a task. This is analogous to time pressure in clinical practice. Learners will be randomized to complete the escape room either with or without chronometric pressure. We will compare motivation and improvement in procedural performance between groups immediately after the escape room and at 3 months follow-up. Specific Aim 2. Explore aspects of in-person game-based learning of procedural skills that impact core features of motivation and learning. Phenomenology is a qualitative research methodology focusing on the lived experience of a target population. IPA is a contemporary approach that explores how people make sense of major life experiences. We will conduct individual interviews with residents after they participate in the escape room. We will perform IPA on the interview transcripts to identify personal and group experiential themes that relate to motivation and learning of procedural skills. Both aims of this study will help guide educators towards optimal in-person game-based curriculum design to improve the educational experience for learners.