

Collaborative Immersive Simulations: A New Frontier for Team-based Classroom Learning: How Multi-Player Simulations and Immersing Interactive Teams in Exercises can Add Social Learning to Improve Learning in Live Sessions and Close a 20-year Gap Between Classroom and Web-based Instructional Technologies

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While web technologies have made interactive animation, realistic simulations, and other sophisticated learning instruments available for e-learning, thus improving traditional slides, classroom instructional methods seem to have taken few benefits from this evolution. When technology-enabled solutions have been tried in live activities, they often make many individuals play simultaneously, effectively only adding competition to learning solutions originally designed as single-player videogames. Key missing elements are group learning, clinical experiential context, immersion in a patient's experience, and collaboration instead of competition toward common goals.

Social learning has neurologic and cognitive sciences bases, and educators should maximize live activities by incorporating group learning dynamics. A new generation of interactive group exercises now fills the gap between live and online learning engines because they are conceived as true multiplayer games, where the gaming mechanism is intrinsically able to use interactions among learners and within teams. These methods use animation and cinematic scenarios to combine the power of simulations with the unique opportunity of a live setting for team-based learning. This can activate specific mechanisms of collaborative learning within a group, exploit the social and the emotional components that automatically arise in live activities, and reformulate traditional team-building techniques into new technology-enabled gaming rules. The expected result is to increase realism, engagement, attention levels and, above all, learning effectiveness.

Participants behave differently in groups when involved in an immersive, difficult case presented in movies or animation than they would alone to assess the context, make decisions, develop strategies, or suggest next steps. Different group dynamics can be activated: choices can be individual, team-based, or negotiated, with consensus reached through, e.g., scores-based competition, discussion, or voting. In case of uncertainty or disagreement, some methodologies can now provide further hints, compare preloaded scores, or more deeply explore clinical evidence for different choices.

New interactive engines can also offer a continuously flowing virtual environment where characters "observe" audience decisions, providing context-aware comments to simulate collaboration. These techniques increase the realism and the feeling of responsibility on the patient care outcomes to be achieved, especially where a patient was involved in educational planning and providing content. In groups, in the presence of colleagues, the reports of personal experiences and the pressure of a competitive environment make any simulation seem more real than any web-based simulation can achieve.

Interactive cinema fosters an immersive and social experience for easier, more effective learning than is seen in traditional learning techniques. More importantly perhaps to educators at GAME 2018 is the fact that emotion and visual learning are universal languages, so their application to these methods work well for international learners. Where most people are rarely excited to participate in professional education, they find enjoy the cinema; it is immersive and

emotional, and learning is natural and effortless. The brain instinctively opens itself up during the film, while it feels simultaneous relaxation and readiness to spontaneously react to events. Cinematic characters and situations are naturally (if irrationally) felt as current and true-to-life. Scientifically, the neuropsychology of learning shows that this type of immersion and engagement involves the limbic areas of the brain and uses both brain hemispheres simultaneously, obtaining a result that acts on the operation of persistent memory.

These methods ensure effective learning for both learners applying knowledge to practice and for educators reporting the outcomes. The practical benefits of using advance content preparation and pre-recorded media are many: no concerns about biased statements mistakenly entering content; uncertain individual faculty abilities or fluctuating performance; a consistent level of content delivery and gaming rules for each session if multiple teams are to be educated.

Group- and team-based serious games go beyond pre- and post-activity assessment to provide continuous lengthwise measurement, both for individual and group learning and predictive performance change. More importantly, many of these new methodologies self-adapt to learners' different baseline levels of knowledge. Data and feedback gathered throughout the virtual exercises can be shared as take-home messages where behavioral guidelines settle as hardwired rules in learners' minds.

Considering learners worldwide, the increasing translation of these European technologies to the U.S. is beginning to serve these clinicians' educational needs. American learners now expect learner-centric education, and tech-savvy and -hungry American learners, especially digital natives, expect more engaging live education. Turning traditional classroom learning into a collective immersive experience can better exploit emotional learning channels, maximize engagement, and apply the experiences of each participant. As travel budgets and time shrink or content reaches countries where clinicians travel little, this method will both draw clinicians to conferences and serve teams at care institutions.