



---

*Transforming professional performance through the power of human interaction*

---

## **A Reflection on the ASPE 2015 Plenary “Serious Games and Virtual Environment”**

By Angela Blood, Director of Curriculum and Education Management at Rush University Medical College

Attendees at ASPE 2015 were treated to several outstanding presentations by our invited speakers. One of this year’s plenary presentations was delivered by **Antoine Tesniere, MD, PhD**, Professor of Anesthesia and Intensive Care, Centre de Recherche Interdisciplinaire (Paris) and co-founder of iLumens, a medical teaching university laboratory based on digital technologies and simulations.

Dr. Tesniere’s talk, “Serious Games and Virtual Environment,” focused on the evolution of technology and its applications to learning and simulation. The way in which people learn and share knowledge has evolved over time, from written language on stone, to the production of books, and most recently to i-devices. Perhaps at no other time in history has technology that was invented to share and demonstrate knowledge advanced so quickly. With these new tools, we in the simulation field are prompted to think about how we can incorporate new techniques into our teaching and assessment methodologies.

In terms of virtual environments, Dr. Tesniere discussed various modes already developed or about to be introduced, including desktop computers, 3D TVs, tablets, avatars, and “caves” (or 3D projections of an environment in a given room), so that the environment specifics can be easily simulated, taken down, and projected in another setting. With this example in particular, it is easy to see how the development of technology would enhance and in some ways challenge our current models of simulation education, as many institutions have invested heavily in physical spaces to model actual clinical environments. Imagine if virtual caves instead were applied to a single space, allowing the replication of multiple clinical settings.

In addition to new technologies, Dr. Tesniere discussed developments in teaching methodologies, including the emphasis on self-directed learning and independence, the

need for experiential learning, problem-based curricula, and emphasis on relevance to clinical practice. The evolution of teaching in health professions has paralleled the changes in technology, and in some ways the two can be easily complimentary. Dr. Tesniere differentiated between games for entertainment and serious games, noting that serious games are “any computerized game whose chief mission is not entertainment, [including] entertainment games which can be reapplied to a different mission other than entertainment” (Sawyer, 2004).

Dr. Tesniere then presented a kaleidoscope of examples of virtual reality and serious game platforms with health professions education applications. While some of the examples illustrated the limitations of virtual reality in replicating affect and human interaction, there were also many benefits evidenced, such as the ability to replicate multiple settings or scenarios on-demand, and the ability to collect data on performance for every action chosen by the learner.

Just as with any teaching methodology, the use of serious games and virtual reality would ideally be part of a multi-approach teaching strategy, and one that requires additional research. In terms of validity evidence, Dr. Tesniere stated that it is too early to make a conclusion (much as the general field of simulation in healthcare was not too long ago), however, he recommends we refer to a systematic review of serious game literature in medical education to understand where the field stands at this point (Graafland et al, 2012).

While more evidence may still be needed about the validity of serious games for health professions education, Dr. Tesniere referenced research that shows that games do change people’s behavior. His specific visual example was a stairwell in a subway that has steps converted into piano keys. This was done in order to encourage more people to walk up the steps versus using the escalator. The result: 66% of pedestrians opted to take the “musical” stairs rather than the escalator, illustrating very well how an “outside the box” idea can have immediate benefits. Hopefully we as ASPE members can be part of the conversation and the scholarship that continues to examine this exciting and innovative teaching application.

## References

Graafland M, Schraagen JM, Schijven MP. (2012). Systematic review of serious games for medical education and surgical skills training. *British Journal of Surgery*, 99(10), 1322-1330.

Sawyer B. (2004). "The “Serious Games” Landscape:" Proceedings from Serious Game Days at the Game Developers Conference, San Jose, CA.