Serious Games Advancing the Technology of Engaging Information

Peter A. Smith
University of Central Florida, USA

Clint Bowers
University of Central Florida, USA

INTRODUCTION

The term Serious Games is an umbrella term that refers to any games that have goals other than pure entertainment. The term grew in popularity in the early 2000s when the Foresight and Governance Project at the Woodrow Wilson International Center for Scholars founded the Serious Games Initiative (SGI). The SGI was founded to pursue the goal of helping to organize and accelerate the adoption of computer games for non-entertainment purposes. This included exploring new applications for games in education, training, recruitment, and beyond. At this time many researchers were beginning to understand that games could have positive effects outside of pure entertainment. In Raph Koster's book, A Theory of Fun for Game Design (Koster, 2005) he described the motivating factor of fun in all games as the act of learning. James Paul Gee a well respected games researcher best known for his book, "What video games have to teach us about learning and literacy," focuses on the idea that all good video games exhibit thirty-six learning principles supported by literature in learning science and cognition research (Gee, 2007). While Serious Games are not based solely on the idea that games can teach, the principles behind good game design actually support learning. As a result, the research has shown that Serious Games are not just another media for learning through a passive act of absorbing material, but are a technology for engaging with information.

Games researchers are now moving from exploring if games can teach to how games teach. The caveat is that not all games teach but that all good games teach. Leaving a simple truth, it is hard to make a good game, no less a good game that is also educational. The real challenge is getting the people with the right design abilities to make these types of games and establish best practices and quantify what actually makes games as educational systems work. Efforts to move in that direction must begin with establishing terms and defining a framework for what goes into games for learning as formal systems.

BACKGROUND

Before the more modern notion of Serious Games took hold, the military made many attempts at using video games for training. The earliest being in 1980 when the Army commissioned Atari to build the Atari Bradley Trainer (P. Smith, In Press). This game was a modified version of the popular vector graphics based game Battlezone, also published in 1980. Only 2 Atari Bradley Trainers were ever built and shown at a trade show. It is unknown why the Army never deployed the game, but it was never actually used by soldiers.

Another military project was started by 1984, this time by the Navy, to use a video game to teach Morse Code (Driskell & Dwyer, 1984). This project also only made it through the pro-

totyping phase. The military's view of games at the time was that they were not serious enough for military training, though the problem seemed to be one of vocabulary only. This is illustrated by the Marines common use of games under the name, Tactical Decision-making Simulations (TDS) since development of the game Marine Doom in 1996 (P. Smith, 2005). Marine Doom is a modification (mod) of the popular first person shooter game Doom, and was created by the Marine Corps Modeling and Simulation Management Office (MCMSMO) developed for the training of Marine fire teams.

This prejudice against video games didn't carry over to the common practice of table top War Gaming, or the use of Flight Simulator Software on PC's, which were sold as games to the rest of the world. The military did not seem completely ready to embrace games for training until after DARPA created DARWARS Ambush, a mod to the game Operation Flashpoint, which was followed up by the Army creating TRADOC Capabilities Manager for Gaming (TCM Gaming) and deploying Virtual Battle Space 2 (VBS2) as one of many official Army Games in 2008. However this prejudice persisted after Serious Games were well established outside of the department of defense. (R. Smith, 2009)

Paralleling the emergence of games in the military is the development of the ill fated Edutainment market. In the early 1980s Edutainment games became an incredibly popular trend. These games, such as "Where in the World is Carmen Sandiego," "The Oregon Trail," "Reader Rabbit," "Math blaster," among many others flooded the market with games that contained some level of educational content. Mizuko Ito described it as a time where the developers were empowered with a "sense that they were creating possibilities for learning that freed it from the institutional constraints of schooling." (Ito, 2006).

Edutainment games succeeded in capturing an audience, and establishing itself as an accepted part of the games industry, however, they never quite got established as a credible form of education. Ito, suggests that the reason behind this is that, "edutainment embodies the challenges which reformers face in creating new genres of representation and practice…" (Ito, 2006). However, the answer is much simpler. In general the games did not achieve the dual goals of being good educational platforms while also being good games. Edutainment, along with many of the other past attempts to develop learning games, have largely been deemed failures. A sentiment best stated by Michael Zyda, the Director of the Game Pipe Lab at USC, "The game industry has already witnessed the failure of edutainment, an awkward combination of educational software lightly sprinkled with game-like interfaces and cute dialog. This failure shows that story must come first and that research must focus on combining instruction with story creation and the game development process." (Zyda, 2005)

Clark C Apt's book, Serious Games, was published in 1970 and represents the first recorded use of the term Serious Games (Apt, 1970). The term Serious Games was not, however, an instant success. In the 30 years that followed, serious games had a few false starts on the road to becoming a main stream part of the non-entertainment world, the most dramatic of these being in both the education and training arenas.

Clark C. Apt defined Serious Games as games that "have an explicit and carefully thought-out educational purpose and are not intended to be played primarily for amusement" (Apt, 1970). Apt wrote these words over thirty years before the founding of the SGI but his words are still relevant and extremely close to the current definition that most game scholars adhere to for serious games. The one inconsistency of his definition is that serious games have evolved to include more applications than just education. Serious games are commonly defined as some derivation of a game designed for a primary purpose other than

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