

Tutorial Proposal – Agile 2009

Playtesting in the Game Industry

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Overview: This tutorial introduces the concept of *playtesting* – a central component of software development processes in the game industry – which is the process through which players inform the ongoing evolution of a game's design. The importance of this process is derived from the fact that in the game industry, the quality of the software produced is measured in terms of the user's subjective experience of it. In contrast, the quality of most software is measured in large part by how well it performs certain objectively definable operations. In the tutorial, the participants explore the benefits, pitfalls and relevance of playtesting for their business, be it a game company or any other software development operation.

The tutorial is based on the cumulative knowledge acquired by 2D BOY (<http://2dboy.com/>), a San Francisco based game company founded by Ron Carmel and Kyle Gabler in 2006. Its first game, World of Goo – a physics based puzzle/construction game – is the winner of two Independent Game Festival awards (Design Innovation, Technical Excellence), and 7 IGN awards (Best Wii Game, Best PC Puzzle Game, Best Wii Puzzle Game, Best Artistic Design, Best WiiWare Game, Best New IP, Most Innovative Design), is named #2 Game of the Year by gamasutra, the leading online trade publication for the game industry, and is GameTunnel's Game of the Year for 2008. It was released on PC and Wii in October 2008.

Rational: The 2007 PriceWaterhouseCooper report titled “Global Entertainment and Media Outlook” forecasts that the game industry will see a compound annual growth rate of 9.1% between 2007 and 2011, resulting in a \$48.9 billion global video game market in 2011, up from \$37.5 billion in 2007¹. The same report suggests that the game industry has already overtaken the music industry. Game sales in 2007 grossed \$18.85 billion while DVD sales grossed \$16 billion. Music revenues dropped by 10% from 2006 to 2007, movie revenues rose 1.8%, and gaming revenues rose 28.4%². As a form of both art and entertainment, games are an interactive medium and this sets them apart from music and movies. As the number of people who were born into an age of video games grows, the potential growth of the game industry is self evident.

¹ See: <http://arstechnica.com/news.ars/post/20070623-report-video-game-spending-to-surpass-music-spending-this-year.html>

² See: <http://arstechnica.com/news.ars/post/20080124-growth-of-gaming-in-2007-far-outpaces-movies-music.html>

Game development differs from many other forms of software development in several important ways. First, it is design-heavy; second, the goals of development are subjective – to create an emotional experience; third, it requires a multi-disciplinary team. Normally, only about half of the development team is software centric.

The importance attributed to *playtesting* arises from the recognition that unit testing can cover only limited functionality in games. Many bugs are visual bugs or “feel” bugs that cannot be quantified and thus cannot be automatically tested for or verified. This is a dominant trait of software bugs within the game industry. Additionally, the very nature of many games is the infinite interaction space which makes it difficult and sometimes impossible to create grouping of similar test cases. This is most noticeable in “sandbox” games, ones in which the player interacts within a system of rules that can create emergent behavior that might not have even been considered by the developers. Physics based games are good examples for this. Playtesting can be used to testing areas that cannot be covered by unit testing as well as informs the design of the game during its development. It is important to note that unlike traditional playtesting procedures, the 2D BOY procedure for playtesting (see <http://2dboy.com/2007/11/>), which is introduced and practiced in this tutorial, is almost entirely based on the observation of the playtest session, rather than direct feedback from the player.

Despite the dramatic growth of the game industry, it received almost no attention in the Agile community. The tutorial aims to partially close this gap, by focusing on playtesting. Beyond its contribution to quality aspects of game development, playtesting can also contribute to risk management (implying cost reduction) in game development. Quick iterations of rapid prototyping and playtesting allow game teams to select from among the most promising game ideas and eliminate games that "don't work" early in the development process before significant amounts of time and money have been invested. Cost savings has become a highly discussed issue in the game industry when the current generation of consoles came out about 2 years ago and with it, a significant increase in development complexity and costs.

Tutorial Timetable – 90 minutes: The tutorial is based on active participation of the participants, as can be seen in the following timetable.

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| 5 minutes | Introduction |
| 10 minutes | Sharing participants' positive and negative experience with games |
| 10 minutes | Presentation of 2D BOY's playtesting methodology |
| 40 minutes | Two playtesting sessions of 20 minutes each (in pairs, alternating the roles of player and tester) |
| 20 minutes | Reflection, lessons learned and applications of playtesting in other settings |
| 5 minutes | Conclusion |

Resume of Tutorial Presenters

RON CARMEL is one of the two founders of 2D BOY, the independent game studio behind the critically acclaimed World of Goo. Ron is a veteran software developer with 15 years of experience in a variety of sub-fields: games, immersive simulations, visual effects for film, and business applications. His primary interests are designing and developing games and establishing the "indie way" of game development as a practical alternative for game creators to earn a living.

DR. ORIT HAZZAN is an associate professor at the Department of Education in Technology and Science of the Technion – Israel Institute of Technology. In May 2004 she published her first book *Human Aspects of Software Engineering*, co-authored with the late Jim Tomayko. Her second book – *Agile Software Engineering* – co-authored with Yael Dubinsky, was published by Springer in 2008. In parallel to her research work, she is a consultant for several software projects in the Israeli software industry. She presents her research at computer science and software engineering education conferences (e.g., SIGCSE), as well as at conferences that deal with software engineering in general (such as, ICSE) and agile software development in particular (e.g., the XP and the Agile Conferences). Since 2002, she has presented her work (research papers, practitioner reports and tutorials) in all the Agile conferences.