

FUN: A Finland – U.S. Network for Engagement and STEM Learning in Games

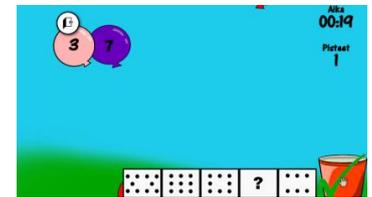
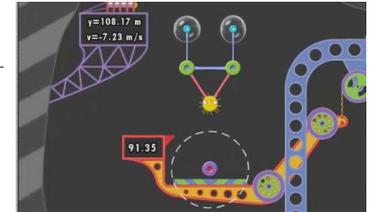
Need to develop a broad picture of how engagement and learning are entwined in the growing field of game-based learning.

Boredom and apathy are primary reasons that many students do not become engaged in school learning. Videogames have proven to be incredibly effective at engaging people in complex problem solving tasks.

Assembled a cutting edge, international, team of educators, game developers, and behavioral scientists who are using, creating, and studying game-based learning environments.

Games we are testing span learning from elementary school mathematics to university level mechanical engineering. Settings include both formal and informal learning environments.

Studying educational games from a common framework, with common instruments, and in multicultural settings may reveal generalizable features.



Project Activities: Three Foci

1. Study Engagement via Flow.

Flow is the state of focused concentration and elevated enjoyment during intrinsically interesting activities. It is measured with the Experience Sampling Method (ESM) in which students/learners are surveyed as they are playing the game.

2. Design, Implement, & Study Kinesthetic Game Interfaces.

With the development of the Nintendo Wii and the Microsoft Kinect, the ways in which players can interact with games have dramatically expanded. As a consequence, the audience and market has increased dramatically. Such kinect interfaces are being developed and tested on our educational games.

3. Evaluation & Assessment Criteria, Tools, and Methods.

Selection and adaptation (e.g. Translation, localization) of game-based solutions for comparative analysis in Finland & U.S. Expert evaluation. Design principles for embedded evaluation.

Project Status:

Developed survey instruments and software mechanisms to collect ESM data within the videogames.

Each participating project has gathered between 4 and 9 months of ESM data. Analysis to begin this summer.

Developed versions of participants' games with Kinect interface. Currently user-testing the new software.

Several rounds of software evaluations completed and continuing.

Preliminary results have been written up, submitted, and published in conference proceedings.

Need

Need to develop a broad picture of how engagement and learning are entwined in the growing field of game-based learning.

Be able to quantify engagement in the context of success/failure within the game, and learning more broadly. Hope to reveal general patterns of engagement and learning in a general sense.

NABC

Approach

Explicitly measure learning and engagement in a wide variety of educational games ranging from elementary school mathematics to university level mechanical engineering.

Studies of engagement and learning in game-based settings are rare. When it does occur, it happens in the narrow context of a single game for a single audience. Breadth makes our study unique.