Educational Games: Effective learning through (inter)action

Games are a popular form of interaction, in part because they are fun for kids (and adults alike). Games, however, also offer an extraordinary possibility to educators: they offer entire worlds in which learners are central and important participants; a place where (inter)action is important and a place where what you know is directly related to what you are able to do and, ultimately, to who you become.

To make the game educational, however, requires specific design features. In traditional games, for example, a player is successful if (s)he can master interaction features, which unlock more complex challenges. In an educational game, the "levels" of the game must be associated with developing increasingly sophisticated "understanding" of the subject underlying the game.

In this talk, the general concepts underlying the design and value of educational games will be discussed. More than speculation or simply theoretical claims, this work is grounded on the extraordinary success of Quest Atlantis (QuestAtlantis.org), a virtual user virtual environment now being used by over 25,000 children and teachers, worldwide. Besides the working of the game, the underlying theory (transformational theory) and the learning benefits will be illustrated.

Sasha Barab is a professor in Learning Sciences, Instructional Systems Technology and Cognitive Science at Indiana University. He holds the Barbara Jacobs Chair of Education and Technology and is the Director of the Center for Research on Learning and Technology. His research has resulted in numerous grants, dozens of academic articles and multiple chapters in edited books, which investigate knowing and learning in its material, social and cultural context. The intent of his research is to develop rigorous claims about how people learn that have significant pedagogical and theoretical implications. His current work involves the research and development of gaming environments designed to assist children in developing their sense of purpose as individuals, as members of their community and as knowledgeable citizens of the world. Central to his work has been a focus on the understanding the value of transformational play, referring to a state of engagement that involves projection into the role of a character who, engaged in a partly fictional problem context, must apply conceptual understandings to make sense of and, ultimately, transform the context. He also gives invited talks worldwide, and is considered a leader in scholarly and practical work on games and learning.

Dispelling Myths and Changing Minds: New challenges and opportunities in designing for and with the world's children

Designing technology for children with children has helped us to understand who children are; what matters to them; what needs to be changed; and what needs to be built for the future. A decade ago, I presented the first CHI paper on our methods of co-designing with children. Cooperative Inquiry as it has come to be called, suggests on-going inclusion of children in the design process, is grounded in the HCI research, and has continued to evolve as it has been adopted in the IDC community.

My closing keynote talk will examine the origins of Cooperative Inquiry, discuss how it has changed since its original inception, and look to future changes as we develop new mobile, wearable and embedded technologies. In particular, I will discuss what future new challenges and opportunities we may have in designing these active new technologies for the world's children. Special considerations for designing with children in the developing world will be presented as well as intergenerational opportunities with grandparents and children.

Allison Druin is the Director of the Human-Computer Interaction Lab (HCIL) and an Associate Professor in the University of Maryland's College of Information Studies.

She leads interdisciplinary research teams of librarians, educational researchers, computer scientists, artists, classroom teachers and children to create new educational technologies for elementary school children. Her work has included: developing digital libraries for children (www.childrenslibrary.org); designing technologies for families; and creating collaborative storytelling technologies for the classroom.

Her approach to partnering with children as co-designers has led to numerous participatory design methods that have been adopted by a range of professionals in academia and industry in diverse countries and settings.

She is the author or editor of four books, with her newest coming out Spring 2009 from Morgan Kaufmann: Mobile Technology for Children: Designing for Interaction and Learning.” She received her Ph.D. in 1997 from the University of New Mexico, her M.S. in 1987 from the MIT Media Lab, and a B.F.A. from Rhode Island School of Design in 1985.