



# LEARNING LEARNING

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Teaching Yourself to Read

**SUGATA MITRA:** Hole in the Wall

**IDIT HAREL CAPERTON:**  
Kids as Designers

**MARK NIEKER,**  
Pearson Foundation, moderator

4:30-5:45 Back Bay Events Center

FREE ADMISSION

Session sponsored by Pearson Foundation.

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# ***Learning to Read/Write STEM through Videogame Making*** ***Essay Presented at the Boston Book Festival, October 15, 2011***



**Overview:** On October 15, 2011, the [Boston Book Festival](#) hosted a panel called **LEARNING LEARNING**. Three panelists were invited to discuss their provocative ideas about education, in and out of school, by focusing more on learning than on teaching. [Nicholas Negroponte](#), founder of MIT Media Lab and One Laptop per Child, presented his newest experiment to determine whether millions of children in the developing world can teach themselves to read using OLPC's new tablets (scheduled for spring 2012). [Sugata Mitra](#), computer scientist and education researcher at UK's Newcastle University, whose Hole in the Wall project inspired Slumdog Millionaire, discussed his research on how children in India self-organize to learn reading and other concepts by connecting to instructors on demand via Skype.

[Idit Harel Caperton](#), an education entrepreneur, Harvard Ed School and MIT Media Lab alumna, and founder of the World Wide Workshop, demonstrated how her Globaloria Social Learning Network transforms America's schools by helping kids in underserved communities self-learn STEM and Civics through developing their own computer games. This session was sponsored by the [Pearson Foundation](#), and moderated by the president of the Pearson Foundation, [Mark Nieker](#). The following is Idit Harel Caperton's text and slides for her short talk entitled, ***Learning to Read/Write STEM through Videogame Making***.

**GLOBALORIA**  
**Learning to Read/Write STEM through Videogames Making**

Select Your Character | Game Map | Global Factors | Character | The Wave of Change

**Idit Harel Caperton**  
**Boston Book Festival**  
**October 15, 2011**

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For many years now, I've been dedicating myself to helping kids to self-learn with technology, and learn to love learning. Today, I'm going to tell you about how Globaloria works to do just that. Globaloria is a live example for a social learning network, designed to help youth drive their own learning and become engaged learners through making videogames. Sounds strange. But here is how it works...

Take a bunch of kids—not just the top learners, but for example, kids from the most challenging areas; kids from poor rural school districts, or from underfunded inner-city neighborhoods. Kids who don't own a computer at home, who know nothing about Gmail, Wikis, Google docs, Blogger, Twitter,

YouTube, or programming Flash. Kids who landed web pages when they had a chance to fiddle around the internet, but don't really know what "web design" means. Surprisingly, we have millions of kids like these in America's Schools.

Now, put them in a Globaloria classroom, and put that classroom on the **Globaloria Network**.<sup>1</sup> Start by letting kids play some good videogames, educational webgames, or scientific simulations. Then, ask them to think and write about what makes a game good. Divide them up into small teams, give each team a digital space to control on Globaloria--their own sandbox with model games, amazing resources, a few virtual tutorials, and a gaming





Go play these games, and while playing, think about the rich process of making them.

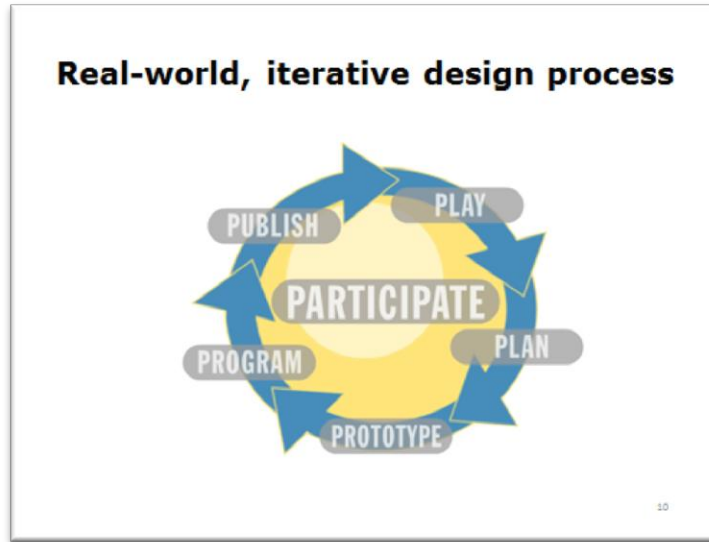
**That's Globaloria.** Or at least, that's one aspect of Globaloria. But Globaloria has many aspects, and the more aspects you see, the better Globaloria looks.

[Meet Charles](#). He lives in one of the poorest counties in the nation...



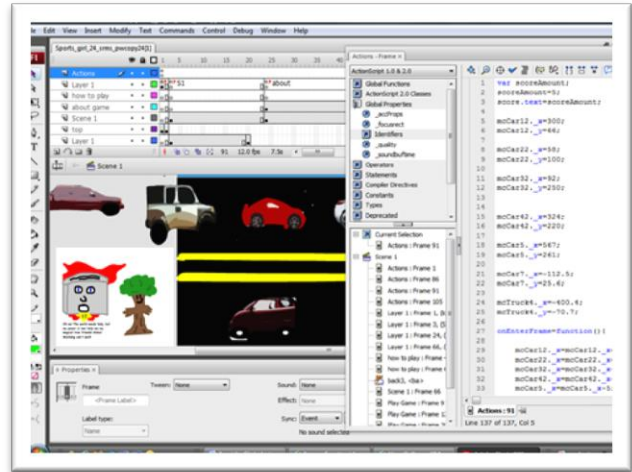
Globaloria creates this kind of weird experience, a “Collective Learning Culture,” that we have found suitable for youth of all ages at all educational levels, in all kinds of schools everywhere. It teaches youth how to imagine and create educational webgames—step-by-step, from start to finish—by putting them at the driver’s seat and giving them the best, most pervasive industry-standard tools, so they can do it by themselves for real.

This is the year-long, highly-participatory Learning Cycle that students go through:

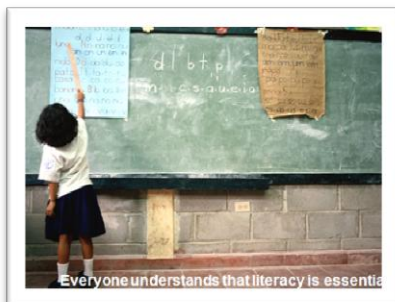


**Why games?** Because we see games as the language of today’s digital literacy. So to develop a literate, system-thinking brain, kids should practice both the reading (playing) AND the writing (coding) of games, learning it like any other language, from a young age.

**Why computational tools?** Because learning and epistemology research<sup>ii</sup> tells us that children learn best by doing, and they end up learning more, and learning it more deeply and completely, by designing, constructing, and simulating by themselves the reality of their worlds in the form of a game – a media format that they know and like.



This is the new language arts. Learning to read text may not enough these days. We must learn how to write well and how to use writing to communicate over the net. Moreover, we must learn to read/play games but also learn to write games, which is the media that is becoming heavily used across all generations and industries, becoming today’s most pervasive language for expressing stories and communicating big ideas.



Along the way, Globaloria students learn how to learn the technical and computational thinking skills, and problem decomposition skills that are increasingly-essential for participation in the economic and civic life of their society. They can also gain the kind of STEM and Digital Civics content knowledge that can prepare them for college-level courses and today's workforce. They sharpen their faculties of analysis—and thereby may even perform better in their other courses and learning activities as well.

Also, by building an educational game over a hundred and twenty days (an hour or two a day during the entire school year) kids get to learn how to work with others—how to listen and how to contribute, how to ask for help, troubleshoot with others via Skype, and integrate a team member's solutions into their own work.

### What is Globaloria?

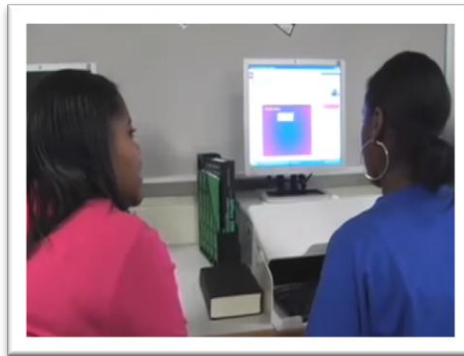


**Globaloria** is the first social learning network where youth learn to make original, educational web games, in schools.



**Students drive** the design and programming of their games, moving through the digital curriculum at their own pace, working in teams, taking an original idea to final product.

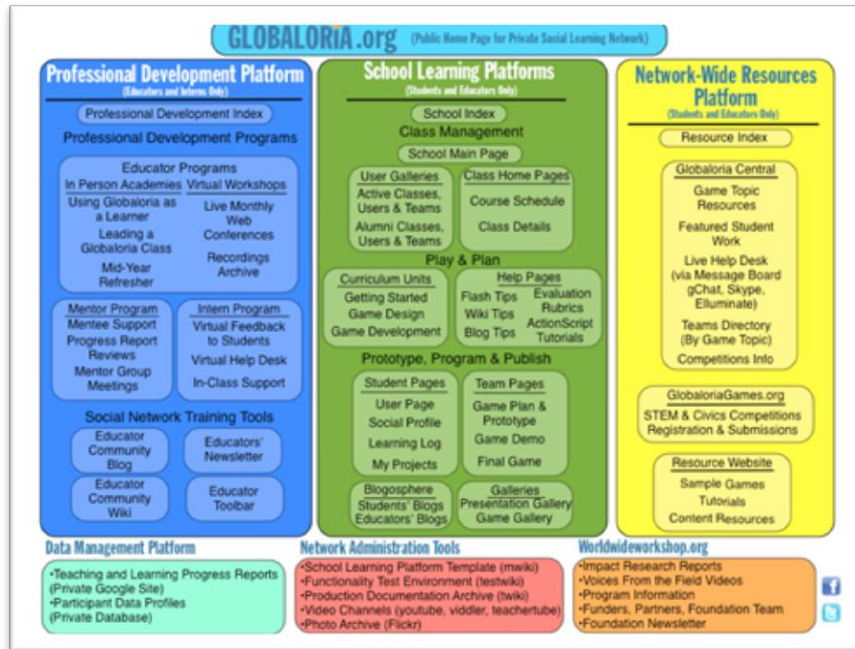
Let's watch another video about a team of two 14-years-old girls, [Alexia and Quiana](#). They worked very hard to create this interesting game, back in 2008, about a hugely-troubling issue in their community, teenage pregnancy...



A year after this game was produced in West Virginia, and featured in the Globaloria community's Games Gallery, a younger boy and his team were inspired... [Here is the story of Chris](#), a 6<sup>th</sup> grader from a new charter school in a low-income Hispanic community in East Austin, Texas



To make all this happen, Globaloria is structured as a *scalable turnkey package* containing everything a school needs for implementation: five interconnected platforms and a year-long curriculum of 100 hours of stuff to do, game design and programming tutorials, game-content resources, and virtual support systems for educators and students alike.



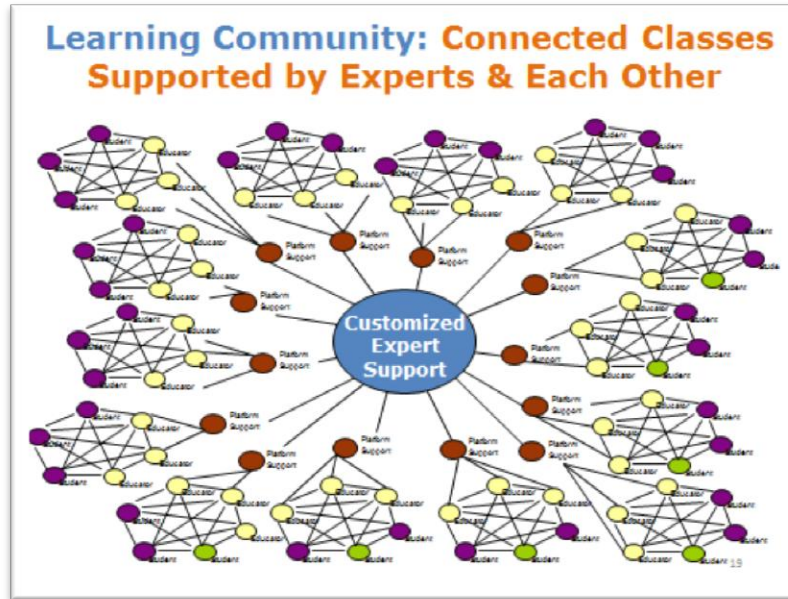
It also comes with a *comprehensive professional development platform* of training and support, both online and onsite, for educators and facilitators, whatever their level of technical knowledge is (including none at all). The fun thing is that there is a great deal of expert support that can come from the “cloud,” to facilitate just in-time learning.

The *game development platform* is designed to accommodate the realities all teachers face on a day-to-day basis. It enables educators in all kinds of schools to facilitate their students’ self-learning (not interrupt it), since it guides teachers on how to master and manage a **“blended-learning” environment** that integrates virtuality with reality, and computing and game design with school’s content studies and state standards.

With summer training programs, monthly webinars, online resources, a daily help desk, and bi-weekly check-ins by fellow educator-mentors, teachers new to Globaloria are given all they need to help their students succeed.

Most important, the professional development platform does *not* ask teachers to be perfect tech instructors; rather, it helps them become expert coaches who can learn and innovate along with their students.

I remember from my young days as a gymnast on Israel’s national gymnastics team, how my coach was able to explore with me and choreograph me on amazing moves and stunts that she was not able to perform herself. So that idea, it is not new.



Finally, ancillary to this implementation package—and independent World Wide Workshop which created Globaloria—there is a set of **research and evaluation** studies that have tracked the various impacts of the program from its inception. These research efforts in the past 4 years have been exploring, among other things, the impact of Globaloria on students’ performance in STEM; its effect on technology understanding and students’ habits—particularly among girls; and the impact on overall teaching style of educators.

Meet [Nyssa and Teresa](#). Let’s Watch Two Globaloria Teachers in Action...

### Professional Development

**Constructionist Model for Creating Leaders**  
Educators learn by doing, and grow by mentoring others on the Network

**“Hands On” Training Sessions**

- *Summer Academy* – In-person training days (4)
- *Monthly Webinars* – Monthly one-hour workshops (8)

**Globaloria Mentors Program**  
Experienced educators take on a leadership role by supporting other educators

**“24/7” Virtual Support**

- *Expert Support* via wikis, blogs, email, live chat
- *Educator Community Development* – private educators’ community wiki, peer-to-peer mentoring, newsletter, sharing of teaching & learning reports

**Rewards and Recognition**

- Stipends, Graduate Credits and Certificates





To summarize, with Globaloria we have been introducing a platform and a learning culture of creative self-learning into schools. It is not easy. But we made it easier. And also affordable.

Starting only 5 years ago, Globaloria is now in action engaging students in [five states](#), in locations embracing a [variety of implementation models](#):

A state-wide model in West Virginia's public schools

A school-wide model in Austin, Texas

A district-wide model in Hillsborough County Florida

A community-wide model in San Jose, Silicon Valley California

A school's curricular-enhancement in Brooklyn New York

A summer-workshop model at the National Jazz Museum in Harlem



I hope I convinced you today that Globaloria is a special social learning network for learning how to fall in love with learning. If you know anyone who is interested in participating show them [www.Globaloria.org](http://www.Globaloria.org), there is a downloadable **application** (on the top right). Help us help America's kids drive creative learning into their communities, because our research shows that those kids we thought we lost, *do open up*, and they become engaged and informed citizens through making videogames that drive change in their classrooms and communities.

A screenshot of the Globaloria Games website. The header reads 'GLOBALORIA GAMES INVENT-BUILD-SHARE'. Below the header, there are several sections: 'Play Educational Web Games Made By Students!' with icons for 'MUSIC' and 'Recycle Mania'; 'Transform Learning At Your School!' with a list of features like 'What is Globaloria', 'Educational benefits', 'Inspiration Rewards', 'Competitions', and 'Newsletters'; 'How it Works' with a circular diagram showing 'DESIGN', 'PARTICIPATE', 'PUBLISH', and 'REVIEW'; 'Hear From Globaloria Students, Principals, and Educators' with three video thumbnails; and a 'MISSION' section with three bullet points: '1) To engage millions of students in digital learning for mastering the knowledge and skills they need to succeed in school, college and careers in the global innovation economy.', '2) To empower educators and their communities by providing them 21st-century capabilities and 170K+ learning and teaching opportunities.', and '3) To power up classrooms and youth with innovative design studios that motivate students to work harder and dig deeper into complex and complex projects.' At the bottom, there is a blue banner with white text: 'VISIT WWW.GLOBALORIA.ORG'. To the right of the screenshot, there is a white box with blue text: 'To download an application visit our website.' and 'Thank You!'.



<sup>i</sup> Globaloria ([www.Globaloria.org](http://www.Globaloria.org)) is the nation’s largest social learning network that connects classrooms and schools within a county, district, or state offering a comprehensive curriculum and professional development programs for teaching students how to design and program educational videogames. Developed by the [World Wide Workshop](http://www.WorldWideWorkshop.org), Globaloria cultivates and supports multi-year, STEM-rich teaching and learning for middle-school and high-school levels. Students develop advanced digital learning skills and scientific thinking, while mastering content in engineering, science, civics, or mathematics. Globaloria enables kids to improve their analytic and critical thinking, teamwork and problem solving, thereby preparing them for college and beyond, to thrive in the global knowledge economy. The Globaloria turnkey solution is now being used in a variety of schools, including: rural, suburban, and urban public schools, technical schools, and charter schools. Since it launched in 2006, Globaloria was tested and upgraded its scalable platforms in multiple contexts, and is now used by more than 2,000 students in 60 schools, in 5 states--in West Virginia as a statewide program; in a charter school in Texas as schoolwide program; in NYC in an enrichment program; in Florida as a STEM program within a 190K student county; and in California in a community-wide program connecting schools and clubs, parents, youth and community leaders.

<sup>ii</sup> There are many examples from the past 2 decades of learning research about the value of constructionist learning and the impact of blending content learning with computer programming in schools. See for example, Papert (1993), *The Children’s Machine*; Harel (1991), *Children Designers*; Harel and Papert (1991), *Constructionism*, and the World Wide Workshop Foundation’s Research Reports Series (2006-2011) ([www.WorldWideWorkshop.org/reports](http://www.WorldWideWorkshop.org/reports)). See also, Pearson’s Report “*Pathways to Prosperity*” in collaboration with the Harvard Graduate School of Education. It calls for establishing a national multi-level strategy to help millions of young American students get onto a productive path to employability through expanding STEM and computational education in schools.