THE journal

From Instruction to Construction: Rethinking the Classroom Model with Globaloria

Schools in two states are piloting a game development program that weaves Web 2.0 skills, such as blogging, advanced social networking, and wiki contribution and use, with the full range of 21st-century skills, including collaboration, problem solving, decision making, and digital citizenship.

- By Scott Aronowitz
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Sitting and listening can be boring. Really boring. Thirteen years of mandatory education, followed, for many, by four or more years of higher education. Then company meetings, professional seminars, continuing education so you can get promoted and go to even more, even longer meetings and seminars. You're getting bored just reading about it, aren't you?

Most people don't give much thought to all the years they spent sitting and listening as children. They're just glad it's over. But if we're trying to educate children who have at their disposal an ever broadening spectrum of consumer technology, even as they contend with ever decreasing attention spans, the time-tested methods are no longer sufficient.

After three decades conducting research into hands-on computer learning, including software and game design, with the MIT Media Lab, Idit Harel-Caperton launched the World Wide Workshop (WWW) in 2005 with the goal of applying the results of her research to the broader field of K-12 education.

Look at What I Made!

A student of education pioneer and Media Lab founder Seymour Papert and his theory of "constructionism," which maintains that students learn more effectively by creating and/or building an entity for public consumption, Harel-Caperton sought to build and grow a program around applying the theory in an active school environment. Also a longtime advocate of 1:1 learning environments, in which each student has access to his/her own computer and broadband connection, she also wanted to bring such opportunities to economically disadvantaged districts. She explained, "We know that children naturally learn as they play. And while most play is good, there is some play that engages the child more strongly." She said Papert placed a high value on "social learning processes and having children activate their own minds and also make or construct things to shape their learning."

And about a year after its launch, WWW spawned Globaloria, a program that partners with public schools, along with a variety of public and private financial sources, to bring the organization's vision to fruition. By having member schools offer the program as a two-semester course covering all of its components, educators "teach" Globaloria, and students "learn" it, as a path to practical knowledge

and skills that can be applied in virtually in any professional field, as well as higher education.

With funding from state agencies, charitable foundations, non-profit organizations, and corporate partners interested in keeping American students STEM-competitive in the global arena, WWW has launched pilot programs in West Virginia and Texas, as well as an international program, a summer camp in Louisiana, and a pilot program in the Middle East focused on the peacemaking process.

The Globaloria course weaves Web 2.0 skills, such as blogging, advanced social networking, and wiki contribution and use, with the full range of 21st-century skills, including collaboration, problem solving, decision making, and digital citizenship, all of which have become widely recognized as integral to success in businesses and professional environments.

More significant, though, is the way in which the program integrates these skills. On the surface, and perhaps most appealing to potential enrollees, Globaloria teaches how to design, develop, and program online video games with an educational or socially conscious slant.

They Educated Me When I Wasn't Looking!

Working backward from the lofty goal of creating original computer games, however, we find Globaloria has a great deal to offer across the entire spectrum of 21st-century skills.

Over the course of two semesters, an academic year in most cases, students embark on a learning process that ultimately allows them, and in fact requires them, to create their own online computer games that are both educational and fun. But that's how the course ends. What it takes to get there is what makes Globaloria unique, one of a growing number of programs that are helping prepare K-12 students for a changing professional world while redefining the educational environment they already occupy.

David Lowenstein, director of Globaloria West Virginia, the first successful venture at establishing the program in schools throughout a state in the United States, laid out what a school and its students must provide in order to make the program available. "Students and educators must be first and foremost ready to commit six to eight hours a week to learning, creating and collaborating online using the Globaloria curriculum, tools, and networks. It also means each student having access to a laptop/PC with high-speed Internet and the necessary software (i.e., Browser, Flash, Photo Editing, MediaWiki) to develop their own original STEM and social-issue Web games."

As an introduction, Lowenstein explained, students actually play professionally designed and developed games oriented toward education and/or current social issues. "Then they have to blog about their top two or three favorite games, what they liked, what they didn't like, and the game mechanics they might want to incorporate when they start creating [their games]."

From there the students brainstorm and do some preliminary research, and each chooses the topic of the game he/she plans to design. "It has to be an educational or social issue, but that's very broad," he noted. "It could be a science or engineering concept. They could do a game about robotics, about energy independence." The point is to get them thinking about their respective topics, what resources they might employ to research them, and where they expect to find those resources. Obviously the Web will provide an important entree via search engines, but it's up to the students to do the legwork in order to understand which are the most useful sources, which ones might provide specialized

information that can help elevate their knowledge, and which ones may be completely unreliable. The process teaches them the benefits and drawbacks of wikis, blogs, dedicated but possibly biased sites, and even academic research that may offer solid data and peer-reviewed methodology but may also be masking someone's personal agenda (e.g., a journal article written by a biology professor and nutrition expert with a grant from a major soft drink manufacturer). The students must pursue in-depth knowledge as they design their games, and the finished product must, in turn, educate the player.

Finally, there's the game development itself. Globaloria teaches the building blocks of game design, including the aforementioned preliminary research, creating a detailed, written project plan, and prototyping the elements, visuals, and operation of the game on paper. Once these steps are complete, all that's left is to create the actual computer game, which involves knowledge of Adobe Flash for creating interactive graphics, HTML, CSS, and other technologies. Students can enroll in Globaloria with any level of knowledge about Web programming and enhancement design, from none at all to years of experience publishing their own Web sites. Globaloria is designed to teach it all, quite often with the relative experts helping the novices get up to speed.

In this student-developed game, called Infinity Quest, players use their green auras of knowledge to destroy a robot who is apparently a loser, judging by the "L" decal on its forehead. Failure to answer any of the three multiple choice multiplication table questions (onesies) correctly in 10 tries results in a somewhat generous grade of F+, along with a clip from an instrumental rock track and an opportunity to retake the test. Developed by "he Serial Experimenters, Randolph Technical Center" [sic], it is possibly the best game ever written.

Getting Ahead of the Game(s)

Globaloria undoubtedly requires an adjustment from both students and teachers used to the conventional style of classroom teaching, which generally focuses on one particular subject and

involves lectures, reading, homework, papers, tests, etc.

Denise Stalnaker, a business education and technology instructor at Randolph Technical Center, a vocational and technical high school in Elkins, WV, has been teaching Globaloria for three years. She acknowledged the differences in the course from traditional subject teaching, but, she said, the results she has seen indicate that, once everyone makes the adjustment, there's nothing but upside to the approach.

"It is not a lot of direct teaching. Direct teaching is a minor part of it, but encouraging, facilitating, and management are the skills we [primarily] use for this course," Stalnaker explained. "I also think it includes a wider range of skills; because students problem solve, they have to write, they learn to do research on a particular topic, they learn Flash, they learn coding, they practice presentation. There's a such a vast array of skills they learn."

Bill Dorsey has incorporated Globaloria into one of the biology classes he teaches at Capital High School in Charleston, WV. He said he recognized early on that the approach is not suited to all students. "At first, most of them were really reluctant. Many thought it was just more [work] they had to do. And obviously at the beginning of the program they're all novices at using Flash and ActionScript (a programming language for Flash), and they all want to refer back to Paint and PowerPoint. I was busy a lot, going around answering the same questions. I had some of the kids complaining, 'I don't want to do this. How do I get out of this class?'" He admitted it wasn't exactly the science class his students had signed up for. "I just picked this class to try it out."

But, Dorsey said, peer learning has its obvious advantages over having a room full of kids sitting for an hour trying to absorb facts and to keep their minds from wandering. "A number of those same kids, eventually I'd be asking, 'Can you help him or her? I'm kind of busy right now,' and they'd run over and show [another student] how to do something. It was a pretty quick turnaround." He said it brought out leadership skills in a number of them, and that as a direct result of the regular, productive interaction, they are demonstrating natural abilities in such important 21st century skills as collaboration and effective communication of concepts and content.

Stalnaker also said that her students find the diversity and in-class interaction refreshing. "There's always a few, if they don't know how to do something and they ask me and I say I don't know, they're frustrated. They're used to the teacher always having the answer available." However, she continued, "the majority of them, this is a natural environment to them. There is a lot of peer learning. And a lot of them feel comfortable, once we get started, with the teacher saying, 'I don't know how to do that.' So they'll think, 'She doesn't know how to do it, and we figured it out! This is pretty cool!' They like that."

Enough Talk! Let's Play!
Of course, while students receive the "where did that come from?" education and develop the incredible range of both traditional and 21st century skills, Globaloria wouldn't be the first heir to constructionism without a finished product for the students to show off.

At the end of each school year, the program has given its students the opportunity, through the WWW Web site, to offer their newly developed games for public consumption. And at the end of the 2009-2010 school year, for the first time, Globaloria West Virginia will hold a competition among its

students to spotlight the best games developed in the program this year. Harel-Caperton said WWW has recruited a panel of judges, made up of educators, scientists, and professional game designers. "We're evaluating the whole game creation process, how it was created, the wikis and the interaction, all aspects of the game-making experience."

The end results of a year of Globaloria instruction are available for the education and entertainment of the game-playing public. Several examples of student-created educational and social issue games are accessible for online play at the game page located at MyGLife.org, the public Web site for all things Globaloria.

For now, the focus is primarily on schools serving economically and, as a consequence, technologically challenged communities. But Lowenstein was emphatic that there should be no lower or upper limits on the opportunity Globaloria offers schools to integrate people skills, technological skills, traditional academic subject matter, and the chance to have some fun. And even if it's just one state, or possibly just a few districts, at a time, Harel-Caperton said, she aims to spread her vision for a new education model to all 50 states and eventually, if it's not obvious from the name, to go global.

About the Author

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