GLOBALORIA

Empowering Students and Educators with 21st-Century Digital Literacy through a Game-Making Learning Network

"The status quo...doesn't need a tweak.
It needs a fundamental change."
U.S. Secretary of Education Arne Duncan[i]

West Virginia

Year 2 Executive Report

July 2008-June 2009

www.WorldWideWorkshop.org

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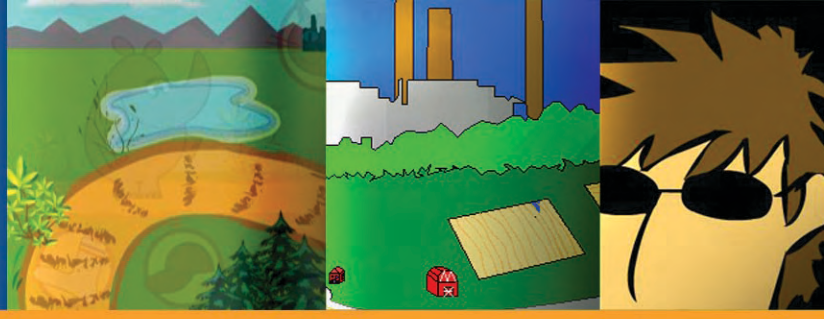

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"Globaloria is a sophisticated, technology-infused program with a unique transformational approach to the use of technology in complex teaching and learning. This is what we need to develop the talent and skills that will propel economic development in our state." – West Virginia Governor Joe Manchin III

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A Letter from Gayle C. Manchin
First Lady of West Virginia
Globaloria-WV Advisory Board Co-Chair

Gayle C. Manchin

West Virginia is proud to be the first home of the Globaloria pilot. We welcome to our rural communities its boldly innovative purpose and design. The Governor and I are grateful for the excitement and economic momentum it has brought to the state, especially in this time of recession. And we applaud its high goals and expectations. As this report makes clear, our young people—and the educators involved with them in the program—are meeting the challenge and rising to those expectations with remarkable success.

In doing so, they strengthen West Virginia's position of leadership in the forefront of educational innovation. We hope and expect that the work done here will be a beacon for the nation as a whole and will lead the way toward making all students and educators academically engaged, creative, and digitally literate.

In our state and nationwide, we seek ways to infuse students and teachers with a passion for science, technology, engineering and mathematics (STEM). Globaloria is a STEM-booster and our students and teachers love it!

Gayle C. Manchin

A Letter from Dr. Idit Harel Caperton
Founder and President, World Wide Workshop Foundation
Globaloria-WV Advisory Board Co-Chair

Idit Harel Caperton

The World Wide Workshop Foundation is pleased to present this report on the second year of Globaloria in West Virginia. The five-year pilot models a unique formula in which students become digitally literate by creating their own video games, collaborating with peers seated at the next desk or, via the internet, at a desk across the state or across the globe. In a world in which the ability to create, not just consume, digital media will define citizenship, measure productivity, and enable success, students can afford no less.

As this report goes to press, we are full swing into our third pilot year, working with the students and educators whom you will meet in the pages that follow to continue finding what works, fixing what doesn't, and improving our unique learning formula.

It is a formula that is proving, even to skeptics, its transformative power. We are proud that Globaloria is now firmly planted in the educational life of West Virginia and on-track for statewide implementation at the end of the pilot period. From there, its potential to transform education across the country is limitless. In doing so, as the West Virginia experience chronicled here makes clear, Globaloria can change lives and ignite minds, teach the skills and literacy that will be needed in the global "knowledge economy," and unleash the kind of creative expression that empowers individuals to fulfill their own potential.

Idit Harel Caperton

Dr. Steven L. Paine

"The collaboration with the World Wide Workshop is critical as we jointly transition the program from a pilot to a large-scale, systemic educational initiative capable of effectuating true educational transformation."
– Dr. Steven L. Paine, State Superintendent of Schools, West Virginia Department of Education

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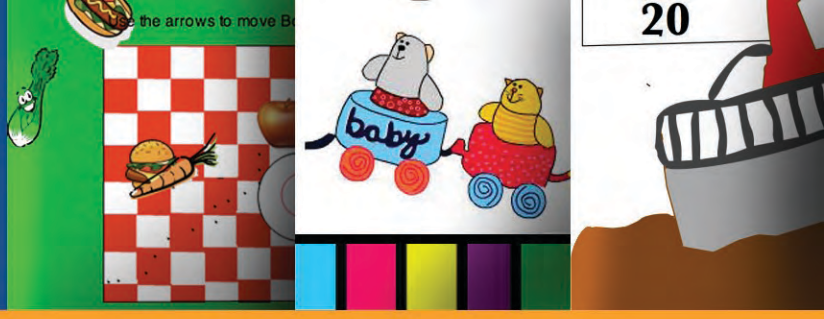
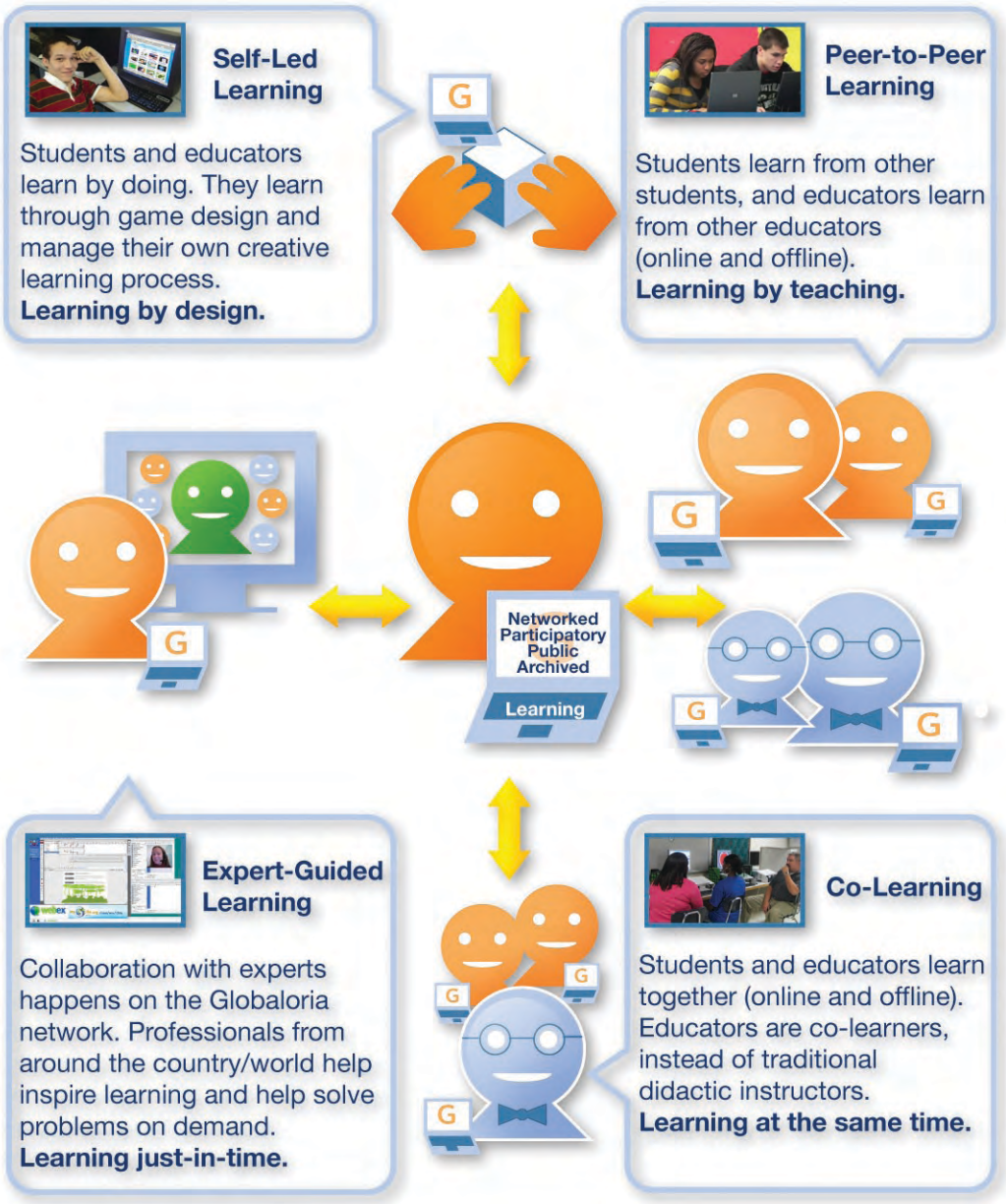


The Globaloria Learning Formula: Project-Based, Student Centered, Social Learning



"Practicing the making of games and simulations, not just playing them, within a virtual design studio embedded in a social network helps students develop those contemporary learning abilities they need to be successful in today's global knowledge economy." – Idit Harel Caperton, Founder and President, World Wide Workshop Foundation

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First Lady Gayle Manchin and former Senator Lloyd Jackson discuss Globaloria with educators, principals, and students

GLOBALORIA

1. Executive Summary

Globaloria is empowering students and educators with 21st-century digital literacy through a game-making learning network. Pilot Year 2 saw substantial success in moving the program forward on time and on track. Seven key developments define the year's achievements:

1. **Expansion.** The number of student participants and the volume of their work product deliverables—i.e., games created—was triple that of Year 1. The number of schools doubled, and the roster of educators and principals increased significantly. Moreover, this was achieved without a corresponding expansion of administrative or operating personnel. The lesson seems clear: we can scale up the program without significantly scaling up the infrastructure.

2. **Partnership.** The West Virginia Department of Education, through its Office of Curriculum and Instruction, became an official partner of the program in Year 2. This is an important signal of commitment and an essential forward step toward the ultimate goal of scaling up the pilot program and integrating it into the statewide curriculum.

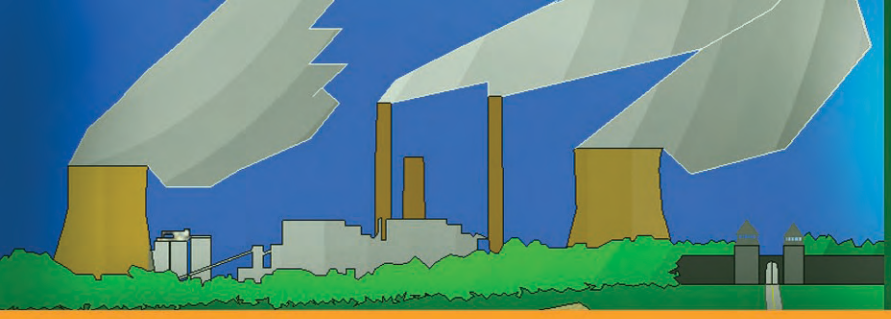
3. **Empowerment.** Through expanded leadership opportunities, increased training and mentorship, and the work of upgrading and refining the platform, we widened and deepened the role of educators as partners in both curriculum design and research, a recognition of their growing expertise in the principles of Globaloria as a learning intervention. We extended the empowerment upward as well, as principals and other administrators also took ownership of the program.

4. **Research.** In Year 2, we continued to collect data and began analyzing our data from Year 1. Research initiatives were expanded to assess outcomes, refine measurement tools, and present data at conferences and in publications. Our data analysis in Year 2 enabled us to focus our attention on the significant issues and take immediate, real-time action where warranted. At the same time, we published our findings and conclusions as a way of sharing results and stimulating discussion in the educational and policy communities and among the public as a whole.

5. **Students.** Students gained significant facility in 21st-century academic skills, including critical thinking and problem solving, communication, innovation and creativity, leadership, digital literacy, and use of Web2.0 technologies. At the same time, Globaloria helped students unleash vast reserves of creative self-expression through the use of individual blogs.

Students developed key STEM and 21st-century skills by creating original games, such as Sandy River Middle School's *Super Toaster* game to fight global warming

291 students created 95 original games, the *Globaloria Way*



6. **Educators.** Professional development efforts were enriched by a mentorship program, enhancements to the training and self-learning components, and by involving educators as researchers. In addition, principals were integrated into the Globaloria community, providing a new layer of engagement to the Globaloria mission and adding a new level of support for in-school expansion.

7. **Visibility.** Year 2 saw the publication of the first hard-data research findings, which were disseminated widely through the pertinent academic disciplines and among the educational community. We also undertook a number of outreach initiatives to carry the Globaloria message to a wider range of domains and stakeholder constituencies. The yield on these efforts is evidenced in a rising tide of invitations in Pilot Year 3 to present Globaloria at national and international forums and in other media.

Key to our collaboration with WVDE was working with the Office of Curriculum and Instruction (shown here: Dr. Jorea Marple and Marty Burke)

In Year 2, principals were integrated into the program and trained in the Globaloria platform and tools (shown here: Clinton Giles and Doug Clemons)

"When you bring Globaloria into the classroom, students spark—they are a whole different student, interested in learning and excited about learning. And when you see it, you say 'This is the next generation of learning'." – Gaston Caperton, Former West Virginia Governor (1989-97), and President, College Board

"This class is different because it's fun and interesting. It challenges you in a GOOD and POSITIVE way." – Globaloria High School Student

2. Introduction

In ushering in a new era of education reform, U.S. Education Secretary Arne Duncan has affirmed the use of technology as both a goal for the classroom and a tool for reforming the system. The government's emphasis on technology for education received even more cogent recognition when it was made a linchpin of the nation's emergency stimulus legislation. The American Recovery and Reinvestment Act (ARRA) earmarked $650 million in 2009 alone for educational technology grants, inviting initiatives that would "implement 21st-century classrooms using innovative strategies that enhance instruction, facilitate teaching and learning, and improve student achievement." Specifically, the Department of Education has designated this stimulus money for programs that will "ensure that every student is technologically literate by the end of eighth grade and to encourage the effective integration of technology with teacher training and curriculum development to establish successful research-based instructional methods."[ii]

President Obama himself has eloquently championed these goals and has long embraced the use of technology in the classroom. It is part of what he calls for when he summons educators to inculcate in our children "higher-order skills, including students' abilities to use technology, conduct research, engage in scientific investigation, solve problems, present and defend their ideas."[iii]

In West Virginia for the past two years, a pilot program in selected schools has been doing just that. It's called Globaloria.

Educators and Foundation staff provide professional guidance and feedback to students, both in-person and virtually (shown here: Capital HS educators, Bill Dorsey and Angela Cruikshank, and Foundation staff, Maitreyi Doshi)

Formal game presentations help students develop communication skills critical for the 21st-century workplace

'Team Kay-Tee-Dub' from Capital HS dedicated over 100 hours to the collaborative creation of their environmental science game, *George's World*

"I certainly regard the pilot as very successful. We have seen success in terms of engagement, success in terms of measurable skills at the end of the curriculum, success in terms of developing skills of collaboration, leadership and communication, and success in terms of learning creativity: Those are all very evident, tangible results of the program to date." –Tom Heywood, Managing Partner, Bowles Rice LLP, and Former Chief of Staff and Counsel to WV Governor (1989-93)

What Is Globaloria?

Globaloria is an innovative educational program with several components. At its core is an online social network for playing and making games that is supported by the Globaloria.org platform of programmable wikis and blogs, a resource website, and a comprehensive curriculum. It is targeted to students 12 and older—especially to those in poor, rural communities. Students create games and simulations about social, environmental, or economic issues, as the student-creators choose. Students use the wikis to collaborate in creating the games, and they individually record their thoughts and chart their progress, diary-like, on personal blogs.

What's the point? In learning how to make games, students master the how-to of the interactive platform of socially interlaced world communities that we increasingly carry with us on our laptops, netbooks, and smartphones. And as they learn how to embed Flash clips, create annotated simulations and 3-D visualizations, or undertake virtual role-playing, they are also learning how to express themselves in what is clearly the new language of a new literacy.

Games are fast becoming the dominant medium of the age. Worldwide video gaming is now bigger than the music industry, bigger than television, bigger than DVD sales, and by far bigger than in-theatre movies. Game-media formats are becoming the new literature; they are today's form of self-expression, carrying the narratives of our lives, illustrating, advocating, arguing, and persuading. Videogames are the new frontier of human creativity. Gaining fluency in writing games and not just playing them opens the door to creativity and, as learning theorists and cognitive scientists have long known, fires up the learning processes in our brains, especially in young brains.

This is what Globaloria teaches, and because it teaches it by having students do it, it also sharpens their skills in working with others, in researching and exploring, in solving problems, in unleashing their ideas and expressing those ideas to others—maybe others sitting right next to them, just as likely others somewhere else on the planet with whom they are interacting through the internet.

In other words, Globaloria teaches pretty much what President Obama was asking for when he talked about student acquisition of "higher-order skills."

Collaboration and self-directed learning are key to learning the *Globaloria Way*

Students develop Flash drawing and animation skills and awareness of social issues through game-creation

"Globaloria is really prepping young students for the 21st-century workplace because it includes all of those attributes that you hear every employer requiring: problem solving, creativity, adaptability, maturity, self direction." –James V. Denova, PhD, Vice President, Benedum Foundation

How Does It Work?

Globaloria has been structured to instill six Contemporary Learning Abilities (6CLAs) in young students—abilities essential to the "success in college and the workplace" that Secretary Duncan speaks about:

Globaloria's Six Contemporary Learning Abilities (6CLAs) with Technology
1. The ability to invent, work through, and complete an original digital project for an educational web game or interactive stimulation
2. The ability to manage a project online in a wiki-based networked environment
3. The ability to create digital media artifacts using wikis, blogs, and websites and to publish and distribute these artifacts online
4. The ability for social-based learning, participation, and exchange across age groups and levels of expertise in a networked environment
5. The ability to use information as a learning tool, to search for information purposefully, and to explore information
6. The ability to surf websites and experiment with web applications and tools

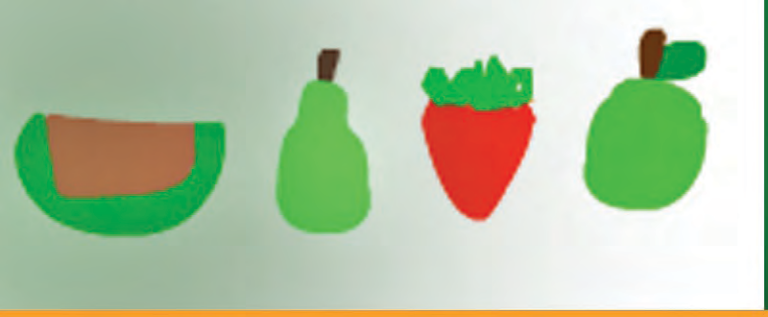
Globaloria is unique among educational digital literacy initiatives in that it is the first program to delineate and prioritize the most complex Constructionist activities.

The process for instilling these six abilities is based in Constructionist principles of learning-by-doing. Driving the Globaloria methodology are ten specific principles:

10 Principles for Integrating Social Game Production into Education the Globaloria Way
1. Learn by creating functional and representational educational games
2. Master complex subjects and social issues by constructing pedagogical games for others
3. Work on open-ended and creative design tasks on topics of choice
4. Learn in a transparent, collaborative studio setting where work is jointly constructed and shared
5. Spend significant time on a task by engaging daily in year-long, project-based learning
6. Have ample opportunities for social expression and discussion about game projects
7. Have ample time for self-learning and reflection about games, wikis, blogs, and presentations
8. Use programming and computational design tools as primary constructs and modes of learning
9. Use multiple modalities in the learning process—i.e., text, imagery, audio, video, simulation
10. Learn alongside educators and from experts, on demand

Globaloria is demonstrating a model for teaching and learning that has the power to transform our entire education system.

"The 6CLAs are guiding the design of our platform tools, online curriculum and professional development activities. In the real world of work these abilities are crucial for success. It is exciting to develop a learning platform that can help students and educators emerge as capable workers and leaders in creative knowledge industries." – Shannon Sullivan, Director of Programs and Executive Producer, World Wide Workshop Foundation



A Case Study by Lori Tate, Educator, Pressley Ridge School, Walker, Wood County, West Virginia

I have been teaching for four years, elementary through high school...working with students who have exhibited behavior disorders

"My student did her game idea presentation today," writes Lori Tate of a 16-year-old girl at the Pressley Ridge School for troubled and developmentally challenged students.

"This student had emotional issues that left her withdrawn, reluctant to make eye contact, and prone to explosive outbursts of anger. Thanks to the Globaloria project, this child broke barriers that would have taken her years to overcome. She stood up in front of her peers (never before would she do that) and began not only talking about her project but sharing her own personal experiences (absolutely not done...barely in therapy and never in a public forum!)

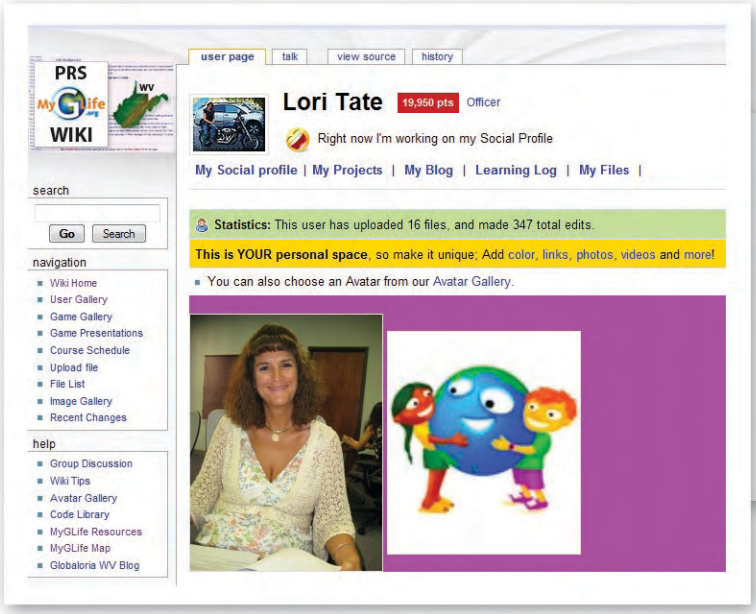
"Then she came back and thanked all of her group for being so supportive of her project relative to both the positive and constructive feedback... This is also very difficult for my children to overcome. Public speaking, peer commentary, and project jitters somehow manage to be overcome through the thoughts of sharing their information on a global platform. They want to be heard and to make a difference.

"While I know this sort of 'occurrence' is not measurable on paper, I just wanted you to know what a positive 'vehicle' Globaloria has been for my kiddos."

With her creativity unleashed by Globaloria, this student was also able to connect with others. In time, her peers began to look to her for answers, and she became a resource for others.

"I was quite simply moved to tears...What Globaloria does is sometimes hard to document quantitatively... It became a vehicle through which this child could speak... It changed this child's life..." – Lori Tate, Educator, Pressley Ridge School

Lori getting hands-on training at the January 2009 Globaloria Academy

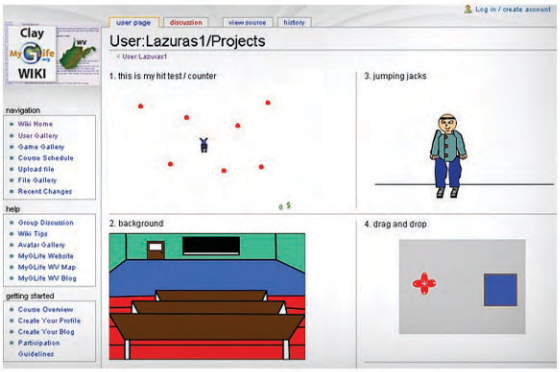


Lori's wiki page models her own learning process

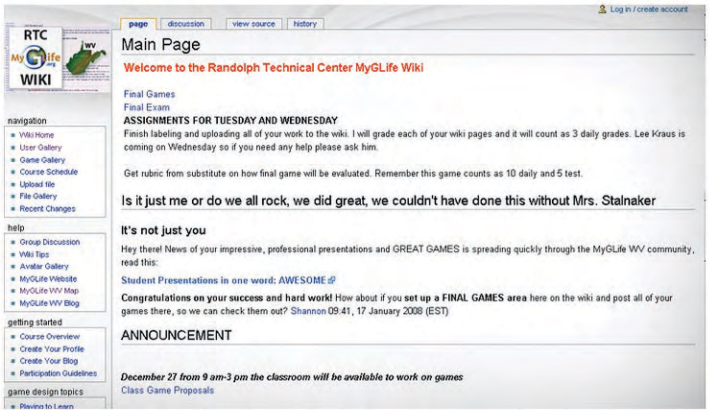
Globaloria Learning in Action

Here is how the meta-game of Globaloria works: Globaloria is both the network and the platform. On the platform are multiple social networks across which students learn to build games in collaborative virtual communities. An individual learning group in a school can form its own small community within a network and can connect with other communities across the network. Each learning group receives:

1. **A community wiki** that serves as a virtual classroom, or design studio. The wiki is a project and design space in which participants create and share their own work—they doodle, sketch, post graphics and photos, and post notes on their Flash applets—and view the work of the design community. It is where the community leader or teacher guides, coaches, and provides schedules, assignments, or support materials.

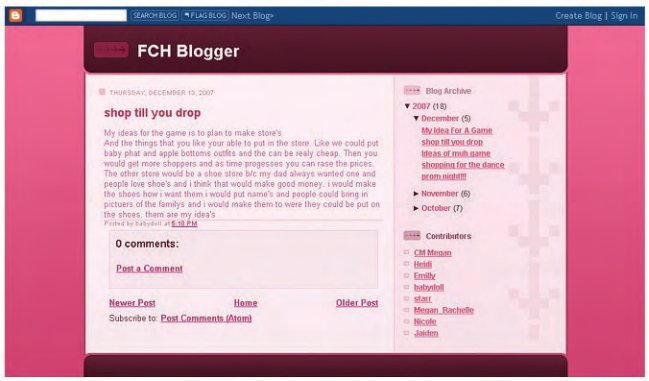


Students post and share assignments and games on the wiki



Educators and students communicate on the wiki

2. **Personal and community blogs**, which are similar to a journal an artist uses for reflection. Students and educators each create a blog for sharing their game-making experiences, personal insights and accomplishments. A Globaloria-WV community-wide blog managed by World Wide Workshop staff serves to further gel the community and encourage collaboration.

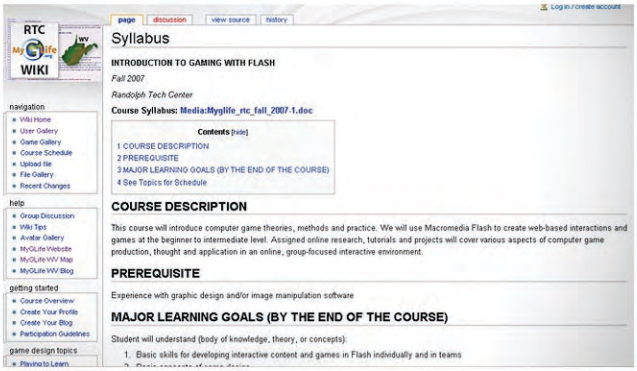


Globaloria community members blog about their game ideas

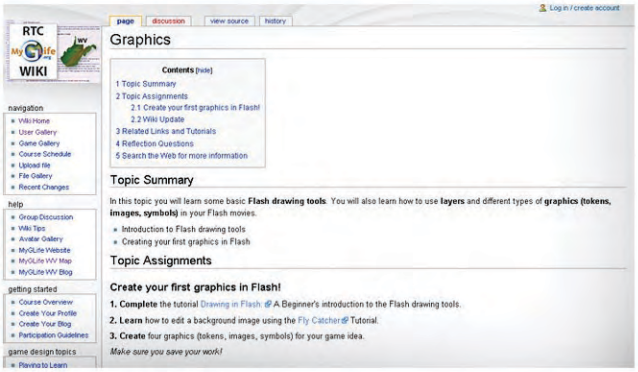
Crittenton's *Shop 'Til you Drop* game is based on an idea they first blogged about

3. **A year-long curriculum** consisting of three units:
   - "Getting Started"
   - "Game Design"
   - "Game Development"

   The self-paced curriculum is designed for everyday execution throughout the academic year, providing 150-250 learning hours. The curriculum is open-ended, dynamic, engaging, and meant to be repeated from semester to semester and year to year (i.e. the "practicum" strategy). It is also customizable and can be improved over time by the community of users.

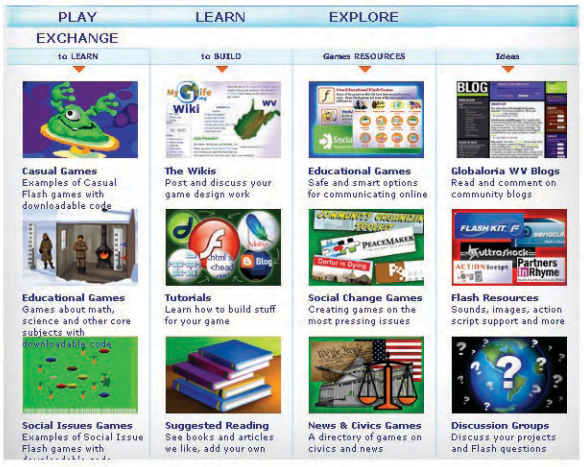


The wiki contains a comprehensive, year-long game-making syllabus



Each syllabus topic is presented step-by-step, with tutorials and assignments

4. **A resource website** with four learning channels. The channels include learning resources, such as sample games and simulations with downloadable code and custom tutorials. This library is growing and changing over time with contributions from the community of users.



The website provides downloadable games, code, tutorials, links and more

Custom tutorials feature real game code and programming tips

3. The Five-Year West Virginia Pilot

The West Virginia pilot was launched in the academic year 2007-2008 in middle schools, high schools, vocational schools, community colleges, and alternative education programs across the state. The pilot program, which runs concurrently with the academic year, will continue through 2011-2012.

The aim is to create a model educational program that advances the 21st-century skills of both students and educators and that can be implemented quickly and effectively statewide, and ultimately across the country. To that end, the pilot focuses on four core initiatives:

1. Developing and testing a robust and scalable Web2.0 platform and social network with open-source, virtual learning tools, including a resource website, wikis, blogs, tutorials, and virtual support tools

2. Creating, testing, and continually improving the program's comprehensive game-design curriculum, originated by expert professionals of the World Wide Workshop Foundation, using Flash programming software

3. Training educators and school administrators in all aspects of this complex and innovative educational program so as continually to move ownership of the program outward to the wider community

4. Assessing the impact of Globaloria on the cognitive, affective, and behavioral processes of students and educators, with a focus on its ability to improve student performance in the core content areas of mathematics, science, reading, and writing and in 21st-century skills.

"I'm so proud that we have this project in West Virginia. It gives us an opportunity to go to the forefront and prove that West Virginia students can in fact compete with students from all over the world."
– West Virginia First Lady Gayle Manchin

For many girls like Courtney and Emily from Randolph Technical Center, Globaloria marks their first experience as programmers and game designers

Why West Virginia?

1. **Fertile Ground**
   West Virginia's longstanding commitment to education makes the state fertile ground for planting the program. The state was the second in the nation to join the *Partnership for 21st Century Skills*, focused on inculcating in young people those skills that can "ensure every child's success as citizens and workers in the 21st century," and the state has twice been cited by the Partnership for its "outstanding work in combining 21st-century skills and groundbreaking teacher professional development."[iv]

2. **Closing Divides**
   In 2007, the state ranked 50th in median household income and had more people living in poverty than all but four other states. It is also a predominantly rural state that is not widely wired for high-speed internet access.

   Globaloria can help West Virginians bridge both the access and the participation divides while educating students in the competencies that are critical for the state's economic development—and for their competitive posture in the world of tomorrow. Moreover, Globaloria's use of such industry-standard tools as Flash, MediaWiki, Webex, Blogger, and Google tools can prepare students for careers in software development and the game industry.

3. **Statewide Leadership**
   Thanks to forward-thinking readiness at the very top of the political and academic establishments to act on reasons one and two, West Virginia has been quick to provide seed funding and visionary leadership for the pilot program. The seed funding was mandated by Governor Joe Manchin III in 2007 and was soon supplemented by grants from the Benedum Foundation and, in 2008, from Verizon West Virginia and from the West Virginia Department of Education (WVDE) in 2009. Additional sponsorship also came from the World Wide Workshop Foundation and from Dr. Idit Caperton and her husband, former West Virginia Governor Gaston Caperton (1988-1996).

   Continuing the commitment from the top, First Lady Gayle C. Manchin has consistently championed the pilot program, and the West Virginia Center for Professional Development (WV-CPD) has hosted the program's professional development activities at its Charleston facilities. WVDE became a formal partner in spring 2009, with Dr. Steven L. Paine, State Superintendent of Schools, joining the Globaloria-WV Advisory Board and appointing a WVDE-Globaloria liaison. A local Advisory Board, made up of leaders from the state's government, business, policy, research, technology, and education communities, works closely with our team and our partners to ensure that the program is planted statewide.

Governor Joe Manchin's commitment to transforming education through innovation makes WV a perfect state for the first large-scale Globaloria implementation

"Programs like Globaloria are exactly what we hoped would come to West Virginia as a result of our investment in the state's infrastructure. It is the model for innovation and deep learning that helps us continue to make the case for computers and broadband in every school."
– B. Keith Fulton, President, Verizon West Virginia, Verizon Communications

4. What Happened in Pilot Year 2

13 locations, 13 principals, 291 students, 21 educators, 24 learning groups, 95 original games

	2008 - 2009				Semester 1		Semester 2		
Location	Type of Educational Institution	Total # of Educators Trained	Student Grade Levels	Total # of Unique Student Participants	Type of Program Offered	Ind. or Team Work	Type of Program Offered	Ind. or Team Work	Total Number of Games
Capital HS, Charleston, Kanawha Co.	Standard Public High School	1	10-11	6	After School (HSTA) 2 mtgs/wk 90 min/mtg	Team	After School (HSTA) 2 mtgs/wk 90 min/mtg	Team	8
		1	10-12	19	For credit (Business Curriculum) 5 mtgs/wk 45 min/mtg	Team	For credit (Business Curriculum) 5 mtgs/wk 45 min/mtg	Team	
Clay County HS, Clay Co.	Standard Public High School	1	11-12	5	For credit (Business Curriculum) 5 mtgs/wk 90 mins/mtg	Ind.	--	--	10
		--	11-12	8	--	--	For credit (Business Curriculum) 5 mtgs/wk 90 mins/mtg	Team	
Eastern Greenbrier MS, Ronceverte, Greenbrier Co.	Standard Public Middle School	2	8	38	For credit (Elective) 5 mtgs/wk 42 min/mtg	Team	For credit (Elective) 5 mtgs/wk 42 min/mtg	Team	9
		--	8	37	--	--	For credit (Elective) 5 mtgs/wk 42 min/mtg	Team	
Florence Crittenton Center for Girls, Wheeling, Ohio Co.	Alternative Education (At-risk girls)	3	8-GED	7	Alternate After School 2 mtgs/wk 120 mins/mtg	Ind.	Alternate After School 2 mtgs/wk 120 mins/mtg	Ind.	4
Greenbrier East HS, Lewisburg, Greenbrier Co.	Standard Public High School	2	10-12	9	For Credit (Elective) 2-3 mtgs/wk (Alt. schedule) 90 min/mtg	Team	For Credit (Elective) 2-3 mtgs/wk (Alt. schedule) 90 min/mtg	Team	2
Greenbrier West HS, Charmco, Greenbrier Co.	Standard Public High School	2	10-12	11	For credit (Art curriculum) 5 mtgs/wk 50 min/mtg	Team	For credit (Art curriculum) 5 mtgs/wk 50 min/mtg	Team	5
Kasson MS, Moatsville, Barbour Co.	Standard Public Middle School	1	6-8	9	For credit (Elective) 5 mtgs/wk 30 min/mtg	Ind.	For credit (Elective) 5 mtgs/wk 30 min/mtg	Team	8

West Virginia Year 2

	2008 - 2009				Semester 1		Semester 2		
Location	Type of Educational Institution	Total # of Educators Trained	Student Grade Levels	Total # of Unique Student Participants	Type of Program Offered	Ind. or Team Work	Type of Program Offered	Ind. or Team Work	Total Number of Games
Man HS, Man, Logan Co.	Standard Public High School	2	9-12	8	For credit (Elective) 5 mtgs/wk 50 mins/mtg	Team	For credit (Elective) 5 mtgs/wk 50 mins/mtg	Team	3
Marshall Community & Technical College, Huntington, Cabell Co.	Technical Junior College Education	1	College-year 1	4	For credit (Game Design curriculum) 2 mtgs/wk 75 min/mtg	Ind.	For credit (Game Design curriculum) 2 mtgs/wk 75 min/mtg	Ind.	20
			College-year 2	25	--	--	For credit (Game Design curriculum) 2 mtgs/wk 75 min/mtg	Team	
Pressley Ridge School, Walker, Wood Co.	Alternative Education (At-risk girls)	1	9-12	9	For credit (Elective) 5 mtgs/wk 60 min/mtg	Team	For credit (Elective) 5 mtgs/wk 60 min/mtg	Team	
Randolph Technical Center, Elkins, Randolph Co.	Technical Vocational Education	1	9-12	18	For credit (Business Curriculum) 5 mtgs/wk 90 mins/mtg	Team	--	Team and Ind.	11
			9-12	6	--	--	For Credit (Independent Study) 5 mtgs/wk 90 mins/mtg	Ind.	
Sandy River Middle School, Avondale, McDowell Co.	Standard Public Middle School	2	8	7	For credit 5 mtgs/wk 82 min/mtg	Team	For credit 5 mtgs/wk 40 min/mtg	Team	4
			8	7	For credit 5 mtgs/wk 40 min/mtg	Team	For credit 5 mtgs/wk 82 min/mtg	Team	
Spring Valley High School, Huntington, Wayne Co.	Standard Public High School	1	10-12	37	For credit (Drafting) 5 mtgs/wk 45 min/mtg	Team	For credit 5 mtgs/wk 45 min/mtg	Team	11
			10-12	21	For credit (Game Design) 5 mtgs/wk	Team	For credit 5 mtgs/wk 45 min/mtg	Team	

Pilot Year 2 Results: Platform and Curriculum

Central to the concept of Globaloria is that the platform package may be, and is, continually refined. The World Wide Workshop team is consistently on call to respond to feedback from students and educators with curriculum updates and platform modifications aimed at improving user experience and supporting learning. In Pilot Year 2, the team implemented a number of important refinements that have proven particularly effective:

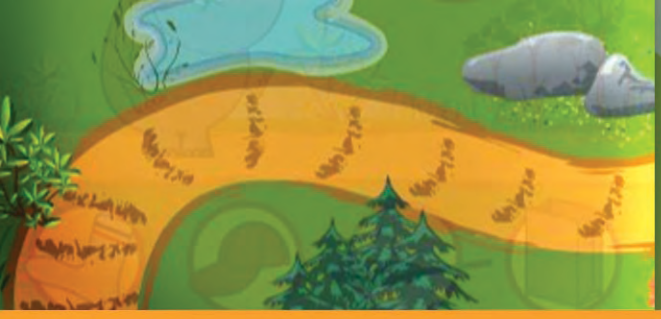
- Shifted the focus of the curriculum from acquiring Flash skills to learning through game development from the get-go to engage students early on in the learning-by-doing game-design process;
- Created a new set of tools to foster enhanced collaboration, sharing, and learning within the educators' wiki;
- Introduced individual student blogs to improve student reading and writing skills while empowering students to enter the blogosphere as game-designers;
- Developed upgrades for August 2009 launch in preparation for Pilot Year 3 including:
  - More social networking tools,
  - Stronger wiki structures to improve students' and educators' abilities to organize and find one another's work,
  - The addition of a mini-Flash game as the first assignment of the curriculum to help students master complex ActionScript and game-design skills.

Here are the major modifications carried out in real-time during Pilot Year 2 and the upgrades implemented in August, 2009 for Pilot Year 3:

Game-Design Curriculum	
Implemented in Year 2	• Curriculum shifted from focus on Flash technical skills to learning through game development, fostering learning-by-doing and increasing student engagement • Learning topics focused around user's game concept • Blogging established as an element of each topic assignment • Game content focused on education and/or social change • Use of video tutorials substantively increased • Tutorials revised and reorganized for ease of use • Game Evaluation and Game Presentations formalized as curriculum topics
For Implementation in Year 3	• Mini-Flash game project added as first assignment to teach basic ActionScript skills from the get-go • Educators asked to map Globaloria skills onto WV content standards and objectives • Drawing and design tutorials added • Connecting with other blogs added • 'Light' curriculum developed for alternative education locations • Collaborating with educators to develop customizations for integration with core school content

Students develop the Flash and design skills needed to develop original games

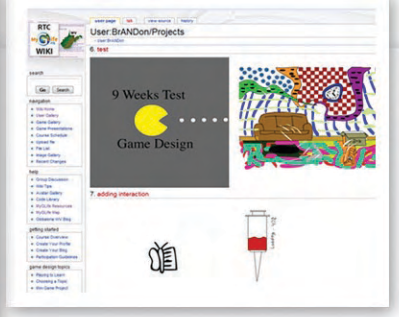
" This course is different because there are more resources to help me complete my assignments than in other classes. If I need help I can ask any number of people who are on the wiki or look at a hundred different tutorials and if that fails then I can always read help on the flash program itself."
– Globaloria College Student



West Virginia Year 2

Community Wiki

Implemented in Year 2	• Content substantively redesigned for greater clarity, simplicity, and ease of use—especially in the "Getting Started" unit of the curriculum • Navigation tools added, layout made more "visual" • User gallery featuring all student work, projects, blogs, and talk pages created • A number of administrative improvements made to facilitate and secure account opening, privacy and participation standards, and sysop activity • Educators' wiki upgraded with additional community and organizational tools
For Implementation in Year 3	• Game Presentations page added • Additional "Wiki Tips" created • More robust auto-populate features designed for user galleries, game galleries, and other pages • Social media extensions added and customized • "Class" admin system created for easy updating and management by educators • Wiki structure systematized using templates to facilitate organization and searching



The wiki acts as a virtual design studio for students to work collaboratively and transparently

Student and Educator Blogs

Implemented in Year 2	• All participants asked to set up an individual blog and post to it regularly • RSS feeds added and enhanced to encourage greater collaboration, sharing, and community
For Implementation in Year 3	• Use of blogging expanded in scope and advanced in sophistication • Educators asked to create peer-to-peer blog and educator-to-students blog • Increased use of Google Reader, Blogrolls, and multimedia content • Reading of related "outside" blogs encouraged

Personal blogs act as a journal for students to reflect on their leaning and game creation

Resource Website

Implemented in Year 2	• Number of sample games, sims, and tutorials created by students and experts increased in the 'Play to Learn' and 'Learn to Build' channels • Content of 'Explore Game Resources' channel updated and expanded • 'Exchange Ideas' channel modified so participants could post and respond to messages inside the community wiki
For Implementation in Year 3	• Moved to a single site for all communities to share • Content of all four channels updated, resources and links added • Blog tutorials enhanced and updated • "News & Civics Games" resources added

Sample games and simulations created by students inspire others

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Pilot Year 2 Results: Students

On a daily basis in the classroom, as students immerse themselves in the game design and creation process, they originate digital content, write and read digitally, and interact across a networked community collaboratively, using social networks and social media technology.

In doing so in Pilot Year 2, students:

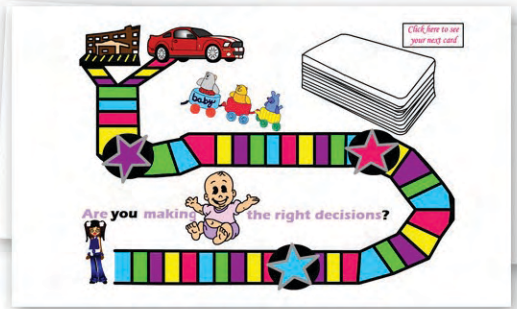
Globaloria takes what students already love to do, playing games and using social networking tools, and turns it into a learning opportunity.

- Participated in an open-source community wiki in which they read and wrote, pulled and pushed data, surfed and posted information and messages, received and contributed ideas
- Joined constructive knowledge-sharing networks online
- Designed and produced original web-games and simulations on educational themes or social issues
- Engaged in positive virtual communications among diverse age groups, skill levels, and interest communities
- Gained cross-cultural understanding, self-determination, and self-reliance
- Practiced such 21st-century skills as digital creativity and innovation, virtual collaboration and teamwork, media literacy, and computer fluency

"I have learned how to figure out a problem on my own. To never give up. How hard games are to make." – Globaloria High School Student

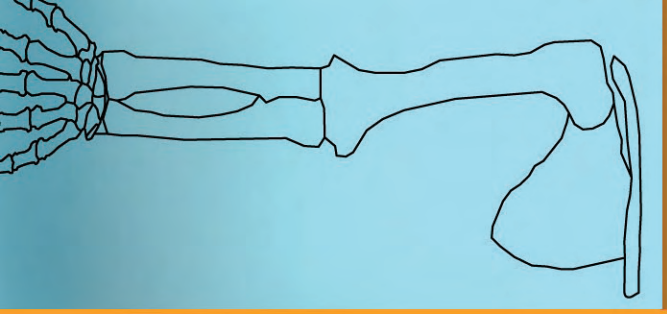
- Practiced the values of democracy on a global basis through the use of social media technology
- Developed presentation and communication skills
- Took what they already love to do and are comfortable doing—using social media technology and playing web-games—and turned it into an opportunity for 21st-century learning
- Built and raised awareness about issues of importance to them—locally, nationally, and globally
- Created their own individual and highly personal blogs, registering more than 4000 blog posts.

"The real success of Globaloria is student engagement." – Bobbi Nicholson, Professor, Graduate School of Education, Marshall University



Game creation enables students to learn core content and hone computational skills

Two second year Globaloria high school students work on their game, *Girls' Choice*, about teenage pregnancy



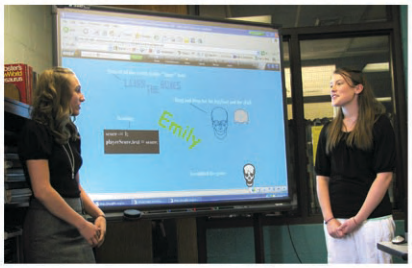
A Case Study by and about Courtney, a High School Senior at Randolph Technical Center, Elkins, Randolph County, West Virginia

When she first entered the Globaloria classroom, Courtney, a high school senior, didn't know much about computers—or about games. Of game design, she had "no idea" at all. "I thought that game design would be fun and interesting—to learn how to make and play games." But she "hadn't really thought about any ideas."

...and then she learned by doing:

"Drawing in Flash is really fun. Certain items that you do are a little hard until you realize how it works. I think by using this, our game will work a lot better.

"Today I went on the wiki and learned how to add sound to a slide. I put sound on my start clip; the sound was of a mouse being clicked on. Sound is going to help in the game a lot."



Courtney and her 'Cosmic Energy' teammate, Emily, present *Learn the Bones* to their class

Her teacher said Courtney worked independently and "rarely needed help from me. She redid some lessons to refresh her coding skills." Her teacher also said Courtney mastered the first three Contemporary Learning Abilities: that is, she learned to publish and distribute self-created digital media artifacts, to manage a project online in a wiki-based network environment, and to turn an original digital idea into a workable drag-and-drop educational game on an issue of social concern. Moreover, in mentoring younger students, Courtney demonstrated facility in the fourth Contemporary Learning Ability—participating in a networked environment for social-based learning and exchange.

Until Globaloria, technology and computers weren't even part of Courtney's experience. Programming and computational thinking were for other people. But she surprised herself with her quick mastery of game design and increased confidence as a game developer: Courtney came a long way in a short time.

For the complete case study: www.worldwideworkshop.org/reports/

Smart Factor:

While the students are dragging, they are remembering where the bones go and their scientific names. They answer questions, and if they get it wrong, it will tell them the correct answer.

Style Factor:

The style factor is a blend between cartoon and realistic. If you get a question right we have a clapping sound, but if you get a question wrong we have a "buzz" sound.

Originality Factor:

Learn the Bones is original because we found some other bone games online, but they didn't cover scientific names.

Courtney

"Our game is made to teach people about recycling and to show them how important it is." – Courtney, High School Senior at Randolph Technical Center

Pilot Year 2 Results: Educators

For educators new to Globaloria, it all tends to be new: game design, Web2.0, using a wiki, posting to a blog, and using social networking as a professional tool. For educators, therefore, professional development is central. In Year 2, the training and self-learning components were greatly amplified and enhanced by a mentorship program in which educators who had experienced Year 1 counseled colleagues new to the program. Principals were also integrated into the Globaloria community through training sessions and colloquia; their participation provided educators with critical support and set the foundation for in-school expansion and long-term engagement.

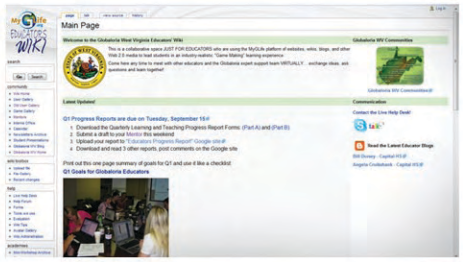
Here's what the educator professional development program comprised:

- Eleven training workshops, three multi-day in-person and eight virtual, which enhanced the capacity of teachers to implement Globaloria effectively and independently
- Two principal workshops, one hands-on training and one colloquium
- Collaboration and community-building, online and in-person, through mentorship and with World Wide Workshop experts

> *"I think I'm a better teacher, but I'm doing less teaching!"* – Globaloria Educator

- Self-reporting using quarterly teaching and learning progress reports to reflect on personal and student progress
- Stipends for self-learning and reporting
- An educators' blog and private wiki for sharing resources and learning together
- A requirement to comment on each other's wikis, blogs, and progress reports, thus turning reports into learning tools
- Activities focused on using web games, social media technology, and social networks for their own learning and independent development—i.e., doing what they ask their students to do
- Increased leadership and empowerment opportunities within the Globaloria community to include a mentorship program and mentoring, and the recruitment of educators as professional consultants for research support, report writing, and piloting new implementations
- New virtual support tools: Skype and GTalk for instant support sessions, Skype and instant messaging for virtual office hours
- Bi-weekly educators' newsletter highlighting important milestones, opportunities, and updates to the program and platform
- Mapping of the Globaloria curriculum onto state Content Standards and Objectives (CSOs).

In-person and virtual training help educators develop Flash skills



The Globaloria Educators' Wiki supports sharing, collaboration, and peer-to-peer learning across the community

A bi-weekly newsletter keeps educators abreast of events, opportunities, and deadlines

A Case Study by Ingrida Barker, Educator, Sandy River Middle School, Avondale, McDowell County, West Virginia

I have been a Language Arts teacher of 7th and 8th graders since 2004...Joined the Globaloria pilot in the second pilot year...First used a virtual network and online curriculum in regular school teaching in 2008 with Globaloria...

"The students don't have to 'power down' to work in this class, in comparison to other classrooms where they often feel disengaged and bored, because with Globaloria they get a chance to use Web2.0 tools to learn, share, and collaborate in a way that is meaningful to them. Throughout this year of implementing Globaloria in my school with 14 8th grade students every day for 90 minutes, I have seen them develop their creativity, critical and analytical thinking skills, and reading and writing skills through blogging, displaying their daily work on the wiki, and by working together on a common goal: creating educational games...

"This diverse group comprised typical middle school students who never before expressed interest in graphic design or game animation. It was amazing how fast and easily the students adapted to learning online, from each other, and from the experts in Flash.... Their familiarity with Web2.0 tools facilitated the acquisition of Flash skills in addition to honing critical thinking, collaboration and creativity skills needed for successful communication within their own groups, students in other Globaloria schools, and Flash experts.

"One team in particular, 'The Alliance of Super Tr33 Stumps,' comprised four students with diverse backgrounds, academic achievement level, and personalities... Every member had an input and was allowed to veto a really outlandish idea without fearing rejection. The roles assigned to the group members started to make sense after a careful observation of student interactions...and the students were able to involve every member in the creation of the game and build their creative project around each other's strengths. Their character, 'Super Toaster' (a great example of collaboration, cooperation, and thinking outside the box), is trying to save the world from global warming.

"Collaboration and communication were the keys to their success. The students also frequently used instant messenger to talk to Flash experts to solve the problems with ActionScript when nobody in class could figure out the specific issue. ActionScript was probably the hardest concept to grasp for the students because there was so much to learn..."

For the complete case study: www.worldwideworkshop.org/reports/

Ingrida Barker

Ingrida uses blogging to model her own self-learning from students and other educators

"I believe that this class has made my students ready to take on challenges that require flexibility, collaboration, and tolerance for diversity of views, backgrounds, and cultures. Living in McDowell County does not mean isolation for these students who will find ways to succeed by effectively utilizing the technological and life skills they have learned throughout their journey with Globaloria..." –Ingrida Barker, Educator, Sandy River Middle School

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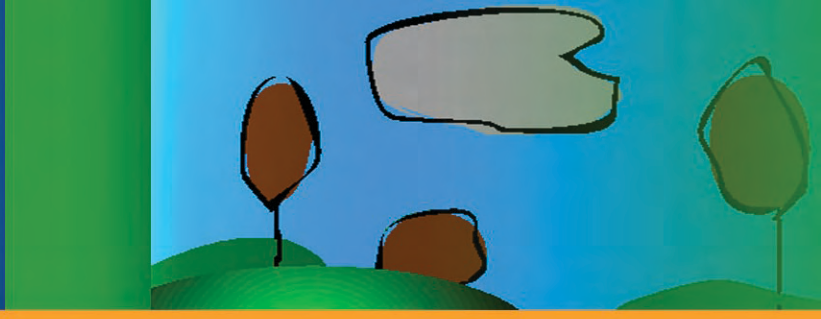

Pilot Year 2 Results Year-Over-Year

Globaloria Pilot Year 1 Compared to Pilot Year 2

Number of...	Year 1	Year 2
Schools	7	13
Middle school	1	3
High school	4	7
Alternative/at-risk	1	2
College	1	1
Pilot Year 1 schools returning in Pilot Year 2	n/a	7
Students	89	291
Globaloria learning groups	8	24
Globaloria learning groups working for grade or credit	4 (50%)	18 (75%)
Total games created	30	95
Social issue and educational games created	21	84
Games created in teams	17	51
Formal student game presentations	12	17
Wiki edits by students	7,735	20,329
Files uploaded by students	1,799	6,285
Individual blog posts by students	0	4,255
ExpertLive web videoconferencing sessions	5	12
Globaloria interns	3	5
Students participating in more than 62.5 hours of Globaloria learning per semester (the time required for a core curriculum class)	17 (19%)	88 (30%)

Number of...	Year 1	Year 2
Schools dedicating as much or more time to Globaloria as to a core curriculum class	2 (29%)	6 (46%)
Principals	7	13
Educators	18	21
Total educator training hours	990	1,512
Educator stipends disbursed	$30,000	$63,000
Educator mentors	0	2
Educator consultants	0	5
Educator newsletter issues	0	26
Educator stories	0	3
Progress reports submitted	42	84
Surveys collected	321	695
Research reports undertaken	8	20
Research reports published in journals	0	3
Doctoral students studying Globaloria	0	2
Presentations at conferences and forums	15	25
Articles in West Virginia newspapers	6	6
Video case studies and testimonials	8	22
Foundation newsletter issues	0	12
WVDE Members of Advisory Board	0	1
Funding secured	$330,000	$500,000

Pilot Year 2 Month by Month

July 2008
- Globaloria Academy 1
- Pre-program educator surveys

August 2008
- Launch of Mentors Program
- Launch of customized curriculum, websites, and wikis
- Globaloria Academy 2
- Pilot Year 2 begins at select locations
- Pre-program student surveys

September 2008
- Pilot Year 2 underway at all locations
- 2 educator mini-workshops via WebEx
- First quarterly educator teaching and learning progress reports

October 2008
- 2 educator mini-workshops via WebEx
- 2 ExpertLive sessions, 1 with students and 1 with educators, via WebEx
- Flash installations completed at all locations

November 2008
- 3 ExpertLive sessions with students via WebEx
- 1 educator mini-workshop via WebEx
- Filming of Voices from the Field mini-documentaries
- Advisory Board meets in Charleston at WV-CPD
- Principals' Colloquium held in Charleston at Governor's Mansion

December 2008
- 1 educator mini-workshop via WebEx
- Second quarterly educator teaching and learning progress reports
- Student game presentations begin for 1-semester students

January 2009
- 4 ExpertLive sessions with students via WebEx
- Mid-program student surveys for year-long participants
- Post-program student surveys for semester-long participants
- Principals Academy at WV-CPD
- Globaloria Academy 3
- Student game presentations completed for 1-semester students

February 2009
- 1 educator mini-workshop via WebEx
- Globaloria presented to WV school administrators at WV-CPD Stonewall Conference
- Fall 2010 new learning group and school applications

March 2009
- State Superintendent of Schools, Dr. Steven Paine, joins Advisory Board and commits West Virginia Department of Education (WVDE) funds
- 1 educator mini-workshop via WebEx
- Third quarterly educator teaching and learning progress reports

April 2009
- New participating groups and schools for 2009-10 announced
- 2 educator mini-workshops via WebEx

May 2009
- Student final game presentations begin
- Planning meeting with WVDE Office of Curriculum & Instruction
- Post-program student surveys

June 2009
- Student final game presentations completed
- Advisory Board meets
- Gaming Concentration brainstorming with WVDE
- Fourth quarterly educator teaching and learning progress reports

5. Research and Findings

Research is an essential component of the Globaloria pilot program. Its immediate use is to enable ongoing adjustment of the program to make it more effective. Longer term, the research is aimed at helping us both chart and understand the program's impact on student achievement and educator professional development. To that end, an equally important goal of the research is to publish findings and share information as a way of informing and inspiring the field—i.e., stimulating discussion among those communities and within those academic disciplines engaged in educational innovation.

With the active collaboration of partners from four key research institutions—West Virginia University, Marshall University, and the private research firm Edvantia Inc. in West Virginia itself, and, from out of state, Syracuse University—both the immediate and longer-term goals of our research efforts advanced markedly during Pilot Year 2. In fact, the overall finding of the research thus far, a finding first circulated publicly in Year 2, is that Globaloria affords students and educators a rich and intensive learning experience that is unlike anything else, even as it inculcates expertise in 21st-century project-based technology and design.

"At WVU we are behind the curve. I want to be ahead of it. Our research on the Globaloria program is what we need to get there."
– Pam Whitehouse, Assistant Professor of Technology, Learning and Culture, West Virginia University

In-person and virtual trainings gave educators the skills for success

Comparison of Year 1 and Year 2 Student Games by Focus and Team Size	Year 1	Year 2
Total Game Projects Created	30	95
Student Games by Focus		
Games on Traditional Education Subjects *(spelling, mathematics, science, financial management)*	13 (43%)	36 (38%)
Games on Global Social Issues *(climate change, pollution, poverty, health, complex life choices, community)*	8 (27%)	48 (51%)
Entertainment Games *(puzzles, trivia, humor, action, adventure)*	9 (30%)	11 (12%)
Individual vs Team Games		
Total Games made by a Team	17 (57%)	51 (54%)
Total Games made by an Individual	13 (43%)	44 (46%)

In Year 2, an enhanced Globaloria curriculum resulted in 18% more students choosing to create social issue and educational games

Globaloria affords students and educators a rich and intensive learning experience that is unlike anything else.

What Was Done

The aim in Pilot Year 2 was to refine the theoretical framework for studying this unique learning intervention and to develop assessment methods and tools for measuring its impact. The basic question was how well students learned the skills and acquired the abilities and whether the skills and abilities transferred to other curricular or co-curricular work, thus broadening their value. The research focused on three areas:

- The six CLAs—i.e., the theoretical framework of the pilot
- Traditional and longitudinal measures of student engagement and achievement
- Teacher professional development in a networked learning environment—a new component to the research.

Data was drawn from a number of sources:

- Surveys of students—pre-program, mid-program, and post-program
- Mining the wikis to analyze activity and content
- Focus group discussions
- Field notes and transcripts from site visits and student presentations
- Evaluation of students' final games
- Quarterly progress reports by educators
- Videos and video transcripts.

Mini-documentaries act as living student and educator case-studies

Research papers were published in journals and conference proceedings during the year with another seven manuscripts submitted for publication in 2010. Research findings were discussed at 25 professional conferences in keynote addresses, presentations, or as part of panel discussions. Another six research papers were published as part of the World Wide Workshop Foundation's own reports series and are available on the Foundation's website. A new educators' reports series was launched, an innovative approach positing educators as researchers and offering findings and conclusions available within the educators' community.

An essential goal of Pilot Year 2 was to communicate results from our research both to pertinent educational communities and to a wider public. In so doing, we are able to stimulate discussion, inspire others in the field, and identify new research partners and potential funders. We have made substantial progress on disseminating our results during Pilot Year 2. This is being evidenced now, in Pilot Year 3, in invitations to participate in a number of influential conferences and events—among them the Technology, Entertainment, Design (TED) Global Conference, Harvard's Initiative in Innovative Computing (IIC), the National Academy of Sciences (NAS), and the American Educational Research Association (AERA). In addition, a mini-documentary series, *Voices from the Field*, presented student and teacher experiences in their own words and was made available to the public on the World Wide Workshop website. We also redesigned our website to make our research easier to find and access.

A list of all completed papers and publications as well as those still in progress may be found in the appendix at the end of this report, and all are available online at www.worldwideworkshop.org/reports.

The *Voices from the Field* mini-documentary series can be found on the Foundation website at www.worldwideworkshop.org/programs/globaloria/voices-from-the-field.

> *"Our partnership with the World Wide Workshop Foundation offers us an excellent opportunity to explore the education, policy, and research potential of a cutting-edge 21st-century learning program."* – Doris Redfield, President, Edvantia

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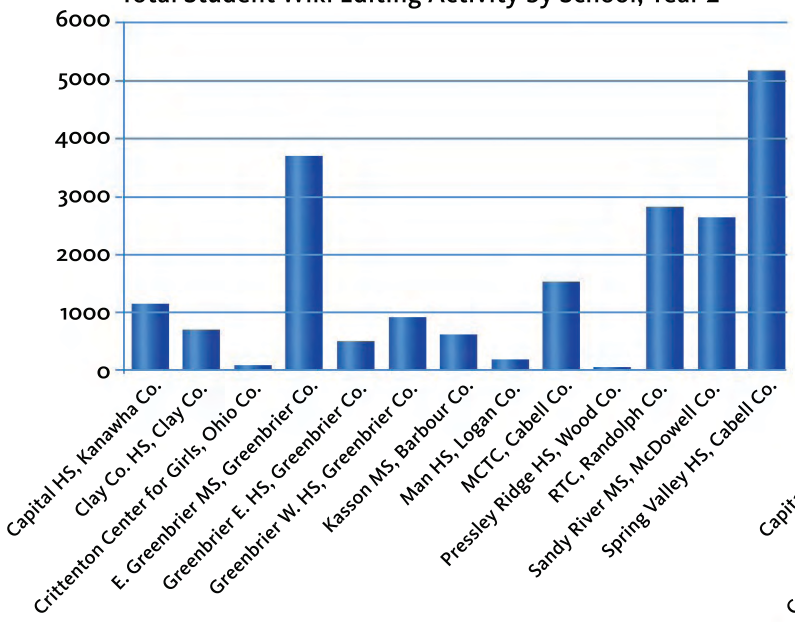
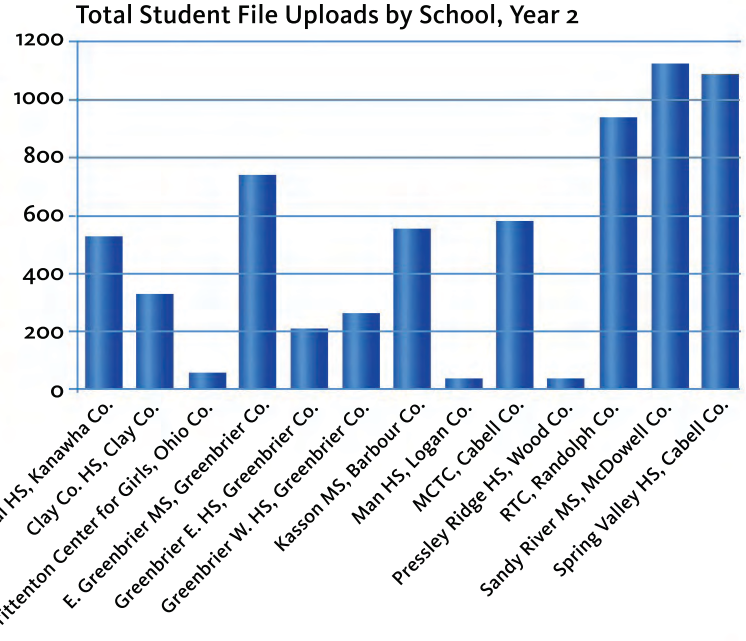
Sample Pilot Year 2 Results

Total Student Wiki Editing Activity by School, Year 2



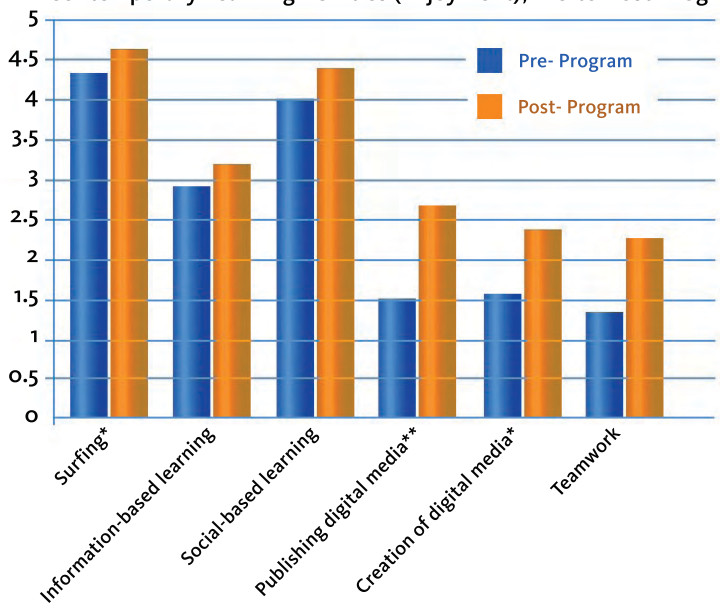
Total Student File Uploads by School, Year 2



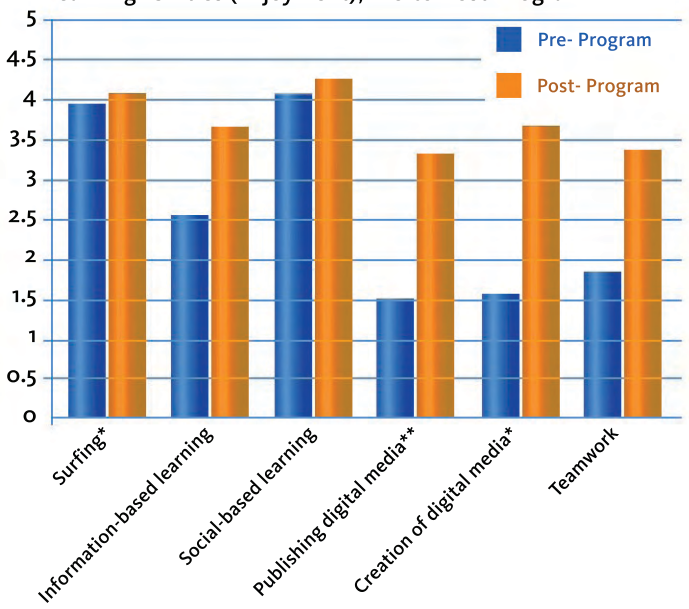
Students posting, sharing, and editing their work on the wiki resulted in 20,329 wiki edits across pilot locations, more than three times the number in Pilot Year 1

Daily participation in 90-minute blocks results in greater mastery of the Globaloria program and online tools and a higher rate of game completion

Changes in Randolph Technical Center High School Students' Contemporary Learning Abilities (Enjoyment), Pre-to-Post-Program[1]



Changes in Sandy River Middle School Students' Contemporary LearningAbilities (Enjoyment), Pre-to-Post-Program[1]



[1] 5-point scale. *Statistically significant change p<.05 N=19. **Statistically significant change p<.01 N=19. *** Statistically significant change p<.001 N=19.

Across the board, students' enjoyment of technology for learning increased as a result of the Globaloria program

Younger students show the greatest increase in their enjoyment of the 6CLAs after participation in Globaloria

What Was Learned: Student Performance

Hypothesis tested: Participation in the Globaloria Program increases and improves students' contemporary learning abilities

Learning Outcomes

Although results vary by location, the research tells us that the Globaloria program has achieved statistically significant increases in students' engagement in, motivation towards, and grasp of CLAs 1 through 3:

1. The ability to invent, work through, and complete an original digital project for an educational web game or interactive stimulation
2. The ability to manage a project online in a wiki-based networked environment
3. The ability to create digital media artifacts using wikis, blogs, and websites and to publish and distribute these artifacts online.

Behavioral measures—attendance, wiki and blogging activity, game creation, motivation—further confirm these gains in aptitude.

Students also said they believe they have gained learning outcomes beyond the CLAs—namely, critical thinking, self-reflection, emotional regulation, ethics, and perseverance. In one study, students asserted that they had improved their skills of organization, management, presentation, interpersonal relations, and collaborative processes.

Learning Behaviors

Collaboration was up; an increased number of students worked in teams—due to the tripling in the number of program participants—yet the teams created games at the same pace as in Pilot Year 1— about one game for every three students.

Students appeared to be increasingly at ease with the tools of the program and at home with the videoconferencing help sessions, file uploading, wiki editing, and making of presentations—i.e., public speaking. This latter is particularly important in teaching skills of synthesizing, organizing, and of course communicating.

Particularly significant in Pilot Year 2 was the launch of the individual student blog posts. The high number of these posts—4,255—is evidence of improved reading and writing skills; clearly, when students have an opportunity to express themselves about a subject that excites them, they can do so with fluency.

Case studies indicated that the program may be particularly well suited to creative, expressive students who thrive in the "unusual" setting but may not receive support in a traditional curriculum.

Changes suggested by the experience of Pilot Year 1 and implemented in Pilot Year 2 to improve the program's effectiveness worked as hoped:

- The program proved to be well suited to middle school students as well as to high school, college, and alternative education students
- Creating an initial test-game in the first semester and a new game in the second resulted in higher second-semester game scores than when students worked on a single game for the entire year
- Consciously creating opportunities at the outset for girls to assume programming leadership works; otherwise, boys tend to appropriate this role.

Institutionalization of the Program

The year saw mounting evidence that the program's presence in West Virginia's academic life is becoming "institutionalized." It was notable that those schools that participated in Pilot Year 1 remained with the program in Pilot Year 2. Several key measures showed how "accepted" a part of the curriculum Globaloria has become in just the first two years of the pilot program:

- 75 percent of learning groups were working for credit in Year 2 versus 50 percent in Year 1
- 30 percent of students participated in Globaloria for more than 62.5 hours—the requisite number of hours per semester for core curriculum courses—versus 19 percent in Year 1
- 46 percent of schools dedicated as much time to Globaloria as to core courses, if not more, versus 29 percent in Year 1
- The Globaloria curriculum was successfully mapped onto state CSOs.

Noteworthy Difference

By their own assessment, students discern a marked difference between the Globaloria style of learning and traditional schooling. When asked to explain the difference, 32 percent said the Globaloria class was "fun, not boring." Sixty-one percent went deeper, declaring Globaloria "hard-fun" learning—difficult, but engaging. Results from the mid-program survey suggest that Globaloria participation is different because it leads students to "shared experience, language, artifacts, histories and methods" through engagement in a social learning system (Wenger, 1998) in which they interact with each other, with their educators, with online resources and tools, and with World Wide Workshop staff.

What Was Learned: Teacher Professional Development (TPD)

Hypothesis tested: Embedding TPD in a networked environment can improve student learning outcomes

Despite challenges, teachers report substantive changes that point the way to a 21st-century model of TPD, as research into their skills, teaching, and learning style documents. Both research targets—skills and style—reflect understandable teacher concerns over two profound shifts: having to acquire unfamiliar skills—in both technology and games—and being asked to move from the comfort of direct instruction to teaching by facilitation and interaction.

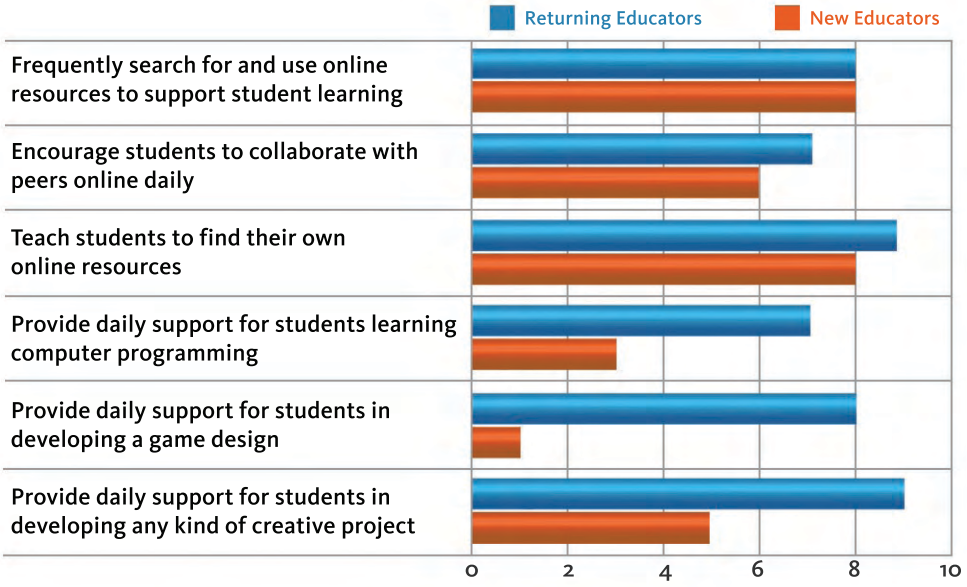
Skills

Increased wiki activity, web surfing, digital media creation and publication, and personal blogging reflected advances in educator skills, as did an increase in the number of educators serving as mentors and expert consultants. Educators were more comfortable with virtual support tools and with integrating Web2.0 tools into the learning process for themselves and their students. They increased their own contemporary learning abilities, although not as dramatically as students.

Style

The evidence points to a clear shift in teaching style toward self-led learning, co-learning, peer-to-peer learning, and expert-guided learning based on the more communal facilitator/adaptive expert model of education. Key to this, in researcher Pam Whitehouse's phrase, was "making teaching and learning visible from design process to final product." With student input a part of teacher planning, teachers could "allow the students to take ownership of their learning," as one said. Collaboration among students was encouraged. Teachers gave students learning and performing goals in advance and often encouraged students to self-evaluate their progress toward goals. Teachers cited the power of the networked environment to enable opportunities to learn from other teachers and for professional growth.

Moreover, the research found that this style change had seeped into the educators' non-Globaloria classes—an example of the viral nature of their new skills—and had affected educator thinking about their own professional development. Specifically, educators now see TPD as a process of which they need to be an integral part, rather than a workshop where they passively take notes.



Globaloria stimulates and guides educators to use technology in the classroom and adopt a teaching style that is collaborative and interactive

The World Wide Workshop works closely with educators and Dixie Billheimer (front left) of WVCPD to ensure TPD success

A Case Study by Jeremy Reed, Educator, Spring Valley High School, Huntington, Wayne County, West Virginia

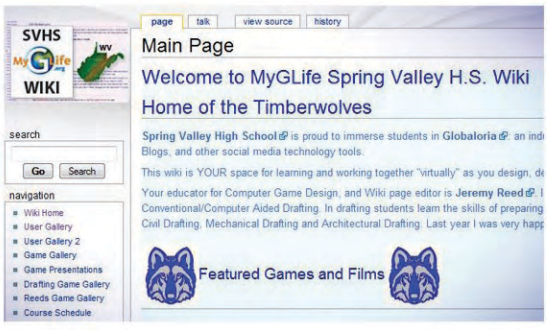
With a degree in Engineering, worked in architecture before following his passion and becoming a teacher...five years in the profession started with teaching Computer-Aided Drafting ...completely at home in technology and Web2.0...joined Globaloria program in Pilot Year 2, teaching 10th, 11th, and 12th graders...

From the teacher's point of view, "the platform has all the resources we need online plus a whole online community to talk with... I don't need a book; the platform is a resource that is all online. It is a resource that is constantly changing and updating. It doesn't need to be replaced in a few years, and it can't be forgotten at home or lost. I would love to see the demise of the school textbook, replacing it with online teaching tools that work like Globaloria....

"Gaming has been a huge part of my life, and being able to teach students how to make games is just a big thrill; it's really not work to me...I did have the best year ever...I think that the reason for it was really connecting with the students...The kids who are gamers want to be in this class, but when they get here, they get a whole lot out of it because they don't realize how much they're putting into it..."

Jeremy (left) self-learning at a Globaloria Academy

Jeremy facilitates learning in classroom and co-learns alongside his students



Jeremy's class wiki

"The kids get a whole lot out of it because they don't realize how much they're putting into it...Globaloria is the single best teaching tool I have seen throughout my schooling as well as my teaching career..." –Jeremy Reed, Educator, Spring Valley High School

What Was Learned: Empowerment of a Community

Although not a targeted aim of the research, the evidence compiled throughout Pilot Year 2 has made it clear that the Globaloria program and its positive outcomes can be scaled up without a corresponding expansion of the administrative or operational infrastructure—through the approach of the bottom-up empowerment of a Globaloria community. This is shown dramatically in the impact of the mentorship program, in which educators with a year of Globaloria experience were able to counsel and guide the subsequent "class" of educators. Moreover, as Marshall University doctoral candidate Bill Chapman has documented in his ongoing research into Globaloria, Year 2 of the program saw the reach of the empowerment shift up to principals. Similarly, we expect the empowerment to extend in Year 3 to superintendents, as this next level up takes ownership of the program.

By thus building and consistently expanding the reach of a Globaloria community, we make the community and the program self-sustaining and facilitate the community's investment in the program's ongoing success.

First Lady Gayle Manchin and Idit Caperton present a certificate of recognition to Globaloria Principal, Don Johnson

"We now have 2 teachers teaching it; however, we'd like to see as many teachers on our staff of 83 as we possibly can to have those types of skills...You can't have too much of a good thing." – Globaloria Principal

"This research is particularly critical given the widespread interest among educators, policy makers and researchers on the potential power of technology to revolutionize our education systems to effectively prepare our youth for the 21st century." – Bobbi Nicholson, Professor, Graduate School of Education, Marshall University

Updated weekly by Foundation staff and educators, the Globaloria-WV blog acts as a central blog-space where educators interact and collaborate at the community level

A Case Study by and about Josh, an Eighth Grader, Sandy River Middle School, Avondale, McDowell County, West Virginia

Josh was one of four team members working on a game about global warming. A good student who always got on well with others, Josh nevertheless presented a complex and sometimes puzzling picture in the Globaloria program. With his independent mind, Josh had to work extra hard to get through the basic tutorials, and he was often frustrated at the time and effort required and particularly at what he saw as a lack of teacher help and direction.

Even when he expressed frustration with learning Flash, Josh was an avid blogger and a wiki editor. Inspired by learning GarageBand and thus how to create music, Josh gained enthusiasm along with new skills, and his blog reveals his growing satisfaction with the tools he is acquiring:

"Our cast of characters are Super Toaster, magic trees, sheep, and penguins... We hope to have a cute, cartoon-like feel to the game even though the issue [global warming] is complex..."

"I have created my wiki and found it easier than it seems. However, it is still a challenge and I am looking to overcome that. We have also started our blogs. I am having a good time... A lot of the others in the program are also having the same problems as me, so it is good to know that we can share ideas and help.

"I would just like to announce that I have made a new flash animation and... it is a totally awesome, totally cool, totally mind-boggling dancing robot! I used everything I have learned so far to make it!"

Josh made excellent progress, said his teacher, in Contemporary Learning Abilities 1, 2, 4, and 5—invention and completion of an original data idea, plus project-based, social-based, and information-based learning. While he also demonstrated basic knowledge of CLA 3 (publishing online), he opted not to engage in publishing as extensively as the average student in the program. But he thrived in the workshop setting, where his creativity, energy, humor, and style could be openly expressed. All in all, for Josh, it made for a good start to high school.

For the complete case study: www.worldwideworkshop.org/reports/

Josh's user profile image

Josh's first Flash projects demonstrate his newly acquired game-making skills

"We were doing these little things with the animation and I thought, 'Hey! Look what I did'... It was super hard at first until we all joined together and figured it out."
-Josh, an Eighth Grader at Sandy River Middle School

Acting on What Was Learned: In the Classroom

The findings of the research performed in Pilot Year 2 and the conclusions drawn from the findings have prompted adjustments and new initiatives being carried out now in Pilot Year 3. Here are the areas targeted by Year 2 research for improvement and the resulting solutions enacted for Year 3:

Students

1. Collaboration and sharing was not as frequent as hoped; result: the enhancement and introduction of new social networking tools.
2. Learning Flash skills proved particularly challenging; result: more frequent real-time contact with Flash experts via video-enabled Virtual Office Hours and the introduction of a mini-game project at the start of the curriculum.
3. Wiki learning environment needed to be better organized and managed; result: improved features, administrative tools, and auto-populate capacity to facilitate finding and sharing of work.
4. Research concluded that more classroom time meant deeper learning; result: more learning groups adhering to a daily schedule of 90-minute blocks.

Educators

1. Research shows a direct correlation between level of support and educator success; result: an expansion of the principals' role in educator selection and the inclusion of superintendents into the Globaloria community.
2. Use of new virtual tools and services needs to be encouraged; result: additional mini-workshops and greater opportunities for mentors and staff to engage directly with educators.
3. The mentorship program proved particularly successful, providing professional development for both mentors and mentees, and ensuring program growth with minimal infrastructure expansion; result: a relative scaling up of the numbers of mentors alongside program growth.
4. Support specifically for more advanced educators who participate in Globaloria year after year will be critical to ensure their continued growth and opportunity for leadership; result: development and implementation of new training sessions and programmatic enhancements.
5. Greater numbers of educators seeking to make Globaloria a core course, not an elective; result: need for additional curricular support and guidance.

Formal game presentations, such as this one at Capital High School, inspire students to do their best

Educators learn to use blogging as both a teaching and community-building tool

"Globaloria does not compete for classroom time with science and social studies lessons, on the contrary, it's the tool and glue that engages and enables students to construct and deeply understand the concepts behind the facts – in their science, mathematics, health, or civics education." –Idit Harel Caperton, President and Founder, World Wide Workshop Foundation

Acting on What Was Learned: New Research

Ongoing research will focus on measuring and analyzing the impact of Globaloria on students in terms of Science, Technology, Engineering, Mathematics (STEM) learning and the acquisition of the six Contemporary Learning Abilities that define 21st-century skills. We will also continue to search for research partners in the certain knowledge that, as researcher Pam Whitehouse stated , "the rich amounts of data available offer multiple entry points for educational researchers from a number of theoretical perspectives" and from varied academic disciplines.

Research in Pilot Year 3 will continue to explore how students' experience with Globaloria may lead to:

- Student achievement in traditional measures of academic success, including standardized tests and classroom grades
- Enhanced computational thinking (e.g., Wing 2006; Bundy 2007; Guzdial & Soloway 2003; Guzdial, 2009)
- Greater career interests in STEM and particularly in computer science (e.g., Rich, L., Perry, H., and Guzdial, M. 2004; Guzdial, 2009)
- Generalized digital literacy development transferable to other domains
- Defining variables that may predict the self-sufficiency the program encourages and/or a student's need for more learning supports
- Improved student attendance, retention, and graduation.

Another research variable to be added is test-based "actual knowledge" as derived from participation in Globaloria.

Also in Pilot Year 3, we hope to make arrangements to interview our case study students annually, beyond the program context, to explore possible longitudinal impacts of the Globaloria experience.

On the educator front, one research effort in Year 3 will assess educators' growing expertise and how they may be using the skills learned in Globaloria in other contexts.

Globaloria educators are empowered to transform their teaching and learning styles, and trained to do a lot of self-learning and co-learning

Globaloria interns gain leadership and professional skills that will help them in school and beyond

"We partnered with Globaloria because it directly contributes to the achievement of our mission to increase student learning by advancing the quality of teaching in the schools of West Virginia. Globaloria has opened the imagination, creative thinking and the technology skill base of today's teachers and students and the Center is proud to be a part of that achievement." -Dixie Billheimer, Chief Executive Officer, West Virginia Center for Professional Development

6. Funding the Globaloria Pilot Program

The program has attracted funders committed to demonstrating, through practice and research, the enormous potential benefits of the Globaloria network and its unique learning formula to both students and educators. In this challenging economy, our funding sources represent an entrepreneurial collaboration among a range of partners—a state government, private corporations, and not-for-profit foundations.

All Pilot Year 1 funders continued in Pilot Year 2 and have re-committed for Pilot Year 3. Pilot Year 2 saw the notable addition of the West Virginia Department of Education—a move that evidences interest in a statewide implementation of Globaloria at the policy level.

	Pilot Year 1 2007-2008	Pilot Year 2 2008-2009	Pilot Year 3 2009-2010	Totals
WV Governor's Office	$ 55,890	$ 100,000	$ 100,000	$ 255,890
Benedum Foundation	$ 183,000	$ 250,000	$ 250,000	$ 683,000
Verizon WV	$ 50,000	$ 50,000	$ 50,000	$ 150,000
West Virginia Department of Education		$ 50,000	$ 100,000	$ 150,000
John S and James L Knight Foundation			$ 227,500	$ 227,500
The Caperton Fund		$ 50,000	$ 50,000	$ 100,000
Gaston and Idit Caperton			$ 50,000	$ 50,000
World Wide Workshop (in-kind and cash)	$ 532,891	$ 81,328	$ 75,000	$ 689,219
West Virginia Center for Professional Development (in-kind and cash)		$ 63,466	$ 80,000	$ 143,466
TOTAL (without in-kind)	$ 313,001	$ 506,328	$ 827,500	$ 1,646,829
TOTAL (cash and in-kind)	$ 821,781	$ 644,794	$ 982,500	$ 2,449,075

In Pilot Year 3, the Knight Foundation joined our funders with the aim of perfecting the West Virginia pilot as a model for nationwide replication. A portion of the Knight funding was earmarked for launch on the Globaloria platform of a civics game-making track in collaboration with OurCourts.org, an organization led by former Supreme Court Justice Sandra Day O'Connor.

On a separate note, the AMD Foundation, impressed with the Globaloria pilot in West Virginia, recently funded a replication of the Globaloria model in a new charter school in Texas. The East Austin College Prep Academy will in turn serve as a model for other schools as we expand Globaloria nationwide, particularly for schools with low-income, technologically underserved students.

"World Wide Workshop captures the best of academic experience and practical application in the real world of an Appalachian school system. The leadership and the background that Idit and her team bring to this project is the best of both worlds. And one doesn't always get those combinations in an institution." – James V. Denova, PhD, Vice President, Benedum Foundation

Funding efforts in Pilot Year 2 were supported by expanded work to publicize the Globaloria-WV program and to communicate the Globaloria mission. Our participation in 25 conferences, the publication of numerous papers, a website re-design featuring our mini-documentary series, *Voices from the Field*, and other initiatives all helped carry the Globaloria message and spread the word of the success of Globaloria in West Virginia to multiple new audiences. Invitations to a number of prestigious conferences and events in Pilot Year 3, as well as the program having been listed as an exemplary case for the "Development of 21st Century Expertise in Learning" as part of the National Education Technology Plan[vii] all attest to the expanding Globaloria "buzz" and should greatly help us in our efforts to raise funds. We are becoming known to the new administration in Washington and to its Department of Education's Office of Science & Technology Policy.

These acknowledgments ratify our funders' commitment and demonstrate their strong belief in our nation's urgent need for innovation in education. Nevertheless, we are confronted by a real funding challenge—one exacerbated by the current economic crisis. Fortunately, we now have the necessary experience and research findings to apply for Federal grants, and given our government's emphasis on funding technology and innovation in education, we have grounds for hope that our funding appeals may be successful. With grant-makers giving top priority to those programs that can offer matching funding, however, the support of our current funders in this highly competitive process is crucial.

Monica Beane, the WVDE-Globaloria liaison, exploring a game by high school students

"As the global economy develops, it is imperative that all West Virginia students possess the knowledge and skills that will help them participate in that economy. Globaloria is designed to provide those skills. West Virginia needs to make programs like this available for every student in every corner of our State." – Lloyd Jackson, Former West Virginia State Senator (1987-91, 1995-2003), and Chair of the Senate Education Committee (1995-2003)

Article Excerpt: *The State Journal*

Here are excerpts from an article in the Charleston, West Virginia-based *The State Journal*, reported and written by staff writer Paul Darst and published May 28, 2009:

THE STATE JOURNAL

Global Connection

Pilot education project takes aim at teaching students through interactive Web tools.

Before this past January, Andrew Coad had never written a computer program.

Just a couple of weeks ago, the Clay County High School senior demonstrated a Web game he designed as part of a class project.

"I didn't think I would get mine done, but I did, and I think it's pretty good," he said.

Now he is considering attending DeVry University to earn a degree in video game design. Coad is one of more than 300 students who took part in Globaloria West Virginia this school year. The pilot program has changed the minds of students and educators alike around the state and the country. The plan is for Globaloria to be adopted statewide by the 2010-11 school year.

The Globaloria program is about much more than just designing video games, Coad said.

"This has helped me in my other classes," he said. "It involved a good deal of math. You have to use coordinates and graphing to plot where you want things to be."

21st Century Learning

...The program fits well with other initiatives already under way at the state level, said Steve Paine, state superintendent of schools.

"As part of our 21st century learning model called Global21, West Virginia public school students are focusing on core subjects, as well as performance skills like critical thinking, self-directed learning, collaboration and creativity," he said.

"Globaloria supports this 21st century learning environment with alignment to the public school curriculum and technology standards."

Clinton Giles, principal at Capital High School in Charleston, has witnessed how Globaloria can prepare students for the 21st century. technology standards."

"It can be utilized across the curriculum," he said. "It lends itself well to facilitating the development of 21st century learning skills. The whole concept emphasizes communications skills.

"The kids are able to communicate. The kids develop interpersonal skills. They are able to establish goals, establish objectives and systematically work toward achieving their goals."

...During the pilot project, Globaloria has included schools of every type from every corner of the state... It has included urban schools, such as Capital, and rural schools like Clay. Marshall Community and Technical College also is part of the program. And it has involved a variety of students as well. It is not just for students who make the best grades or have an interest in becoming video game designers.

At Clay County High, Coad demonstrated his game about bullying.

"I myself used to be a bully," he told the class. "Being in detention hall wasn't much fun. You can make more friends by being nice to people."

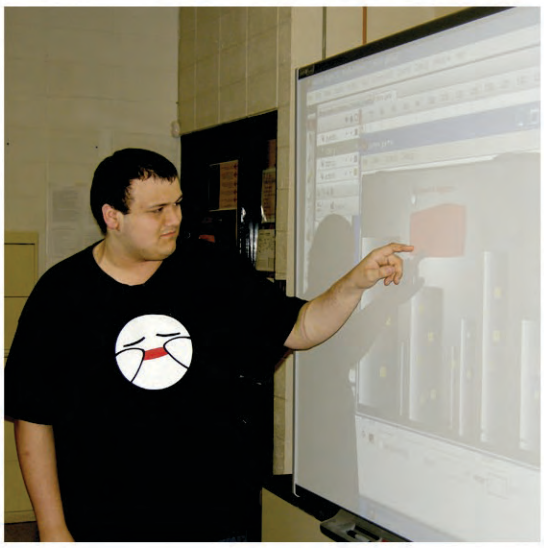
Although the Clay students worked together, they each did their own projects. Students at Capital High worked in teams. Each team gave a PowerPoint demonstration outlining how they developed their games. They included the successes for each team member and the frustrations they encountered.

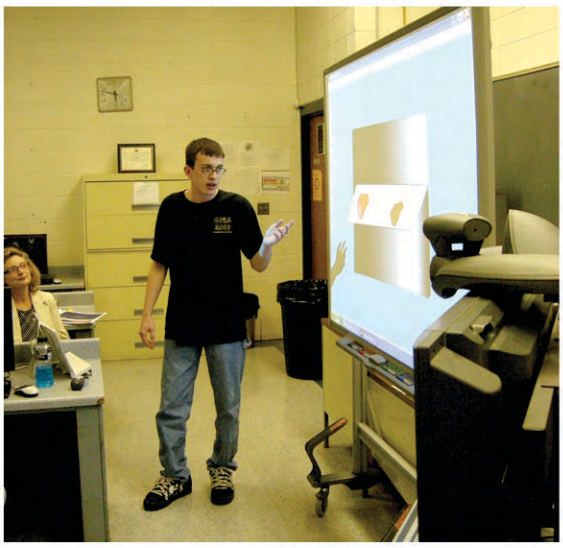
One team created a game in which players could practice throwing kunai, which are knives used by Ninjas. Another team developed the WVU Pittbreaker trivia game. It involves using a paddle to bounce a ball and break University of Pittsburgh bricks. That was an idea some school officials thought might be marketable.

At Clay High, John Moore developed a game called "World of Gray," which teaches users about art.

"I'm passionate about art," he said. "... I thought it would be an interesting topic."

Read the complete article on the Foundation website at: www.worldwideworkshop.org/press/





Clay County High School students present their original games
Photo Credit: PAUL DARST / The State Journal

7. Conclusions

Two important conclusions about the Globaloria program were evident in Pilot Year 2:

1. Foundational elements of the year 1 program were strong and were further enhanced in year 2 with the support of the Governor's Office, Benedum Foundation, Verizon WV, The Caperton Fund, and the World Wide Workshop Foundation.

2. Educational outcomes, statistics, case studies, educator stories, and anecdotal evidence indicate a very positive and direct impact of Globaloria on students' learning abilities and on the professional development of educators.

Of course, not every action nor every initiative scored a bull's eye. But this is a refining process, and we continue to fix or drop what doesn't work and implement what does work to advance 21st-century education.

Based on what we learned in Pilot Year 2, here is a summary of improvements we are making in Pilot Year 3:

The Platform

Raising level of virtual collaboration, networking, and interaction
Implementing mini-game project to develop core coding techniques as a way to ease into applying flash skills
Creating new wiki features to encourage work-sharing
Modifying curriculum for at-risk students

The Program

Principals joining the selection process
Further integration of Globaloria into core curriculum
Focus on in-school expansion vs. new school expansion

Educator Training/Professional Development

Increasing educator leadership opportunities by recruiting educators as trainers, mentors, and curriculum experts
Expanding the mentorship program
Expanding professional development for more advanced Globaloria educators
Creating new training modules for integration into core curriculum
Modifying curriculum for at-risk students

"We now have Globaloria, which takes us to the next stage and makes us continue in West Virginia to be a real leader in using technology in education. Which I happen to believe is the next generation of teaching and learning." – Gaston Caperton, Former West Virginia Governor (1989-97), and President, College Board

Support

Expanding use of virtual support tools to more educators

Research

Seeking increased funding, including Federal grants
Creating virtual database for data collection
Improving clarity of consent forms and survey questions to ensure that both reflect educator and student learning
Participating in national research conferences and events

Learning

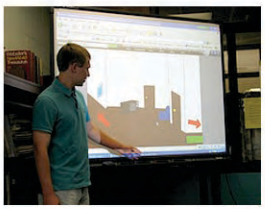
Implementing daily block scheduling as widely as possible

Local Ownership

New, highly skilled State Director in place
Ongoing collaboration with WVDE
Integrating superintendents into the Globaloria-WV community

Public Outreach

Intensifying efforts at national level: Office of Science & Technology Policy, USDE
Website refinements
Video documentaries



Globaloria uses a project-based, student-centered, social approach to learning that helps students master key 21st-century skills

The program is well suited to middle school students, as well as to high school, college, and alternative education students

Creating opportunities for girls to engage in STEM learning at the outset works

Responding to Challenges

Eight challenges were prominent throughout Pilot Year 2; we responded with agility to those we could control, and where necessary, we improvised. We left no challenge unmet; each either has been resolved or is being addressed in year 3. That is how we ensure the program's ability to scale sustainably.

Technology Infrastructure

The inadequacy of the technological infrastructure at some schools was frustrating, especially because all the schools had initially indicated that the required infrastructure was in place. Without daily access to working computers and a high-speed internet connection, students can neither do the work of game design nor connect with others in the Globaloria community, while educators are stymied in their efforts at both teaching and professional development. Two schools have had to defer their participation in Pilot Year 3 until the spring of 2010 while they address infrastructure issues.

Statewide Implementation

The possibility that WVDE may take ownership of the Globaloria program and expand it statewide is key to ensuring that West Virginia students continue to advance their 21st-century skills; yet to date, this remains only a possibility. Pilot Year 3 will focus on raising additional funds to help WVDE dedicate more time and resources to the program in the remaining years of the pilot.

Research Leadership

While our collaboration with local and national research partners has increased the volume and quality of our research efforts, we still lack a leadership organization or individual that can strategically manage this essential component of the program. In Pilot Year 3, we are recruiting a manager of research to lead research efforts and help ensure achievement of our short- and long-term research goals. We are also applying to numerous Federal grants to support these goals.

Visibility

In Pilot Year 2, despite limited resources, we managed to enhance the research and information sections of our website, write and publish more reports, increase our broadcast and print media coverage, and appear at more conferences and forums. In Pilot Year 3, we will make a concerted effort to further raise our visibility—especially at the national level.

Software Installation

The installation of Flash software was late for Pilot Year 2 but will be handled in future by WVDE, which has the resources and expertise for this effort. But infrastructure inadequacies may continue to plague installation at many schools.

Adequate Time

Educators and students repeatedly express frustration at not having enough time for the Globaloria program—for the self-learning, game creation, collaboration, research, and creativity that are inherent in the program and essential to its purpose. We continue to encourage at least 90 minutes per day, five days a week, of "classroom time" for students and eight to ten hours per week for educators to spend with students and to develop their own skills. We continue to explain to educators, principals, and administrators that investing this time in Globaloria also facilitates learning in core content areas.

"The major problems are 1. Slow computers throughout the school. 2. Too short to do a lot of work." –Globaloria High School Student

Personnel Change

A personnel change at the very top of the program was handled gracefully by all involved. In October 2008, the West Virginia manager of the program left the role to serve instead as an Advisory Board member. His duties were assumed seamlessly by the New York-based Director of Programs for the rest of Pilot Year 2 while a new statewide director was recruited and trained to take the leadership in Pilot Year 3. With ongoing responsibility for the program's excellence, the statewide director is also charged with raising the program's national visibility, expanding funding, and scaling the program for replication nationwide, thereby building on our work and demonstrating West Virginia's leadership in using technology to reform education.

Funding

In Pilot Year 2, the insufficient funding meant that we were unable to accept all the schools and educators that had applied to the program. It also impeded our research and evaluation efforts, thus making it difficult to demonstrate the transformative potential of Globaloria. Without an increase in funding, we will be unable to expand, develop, and test the program according to our five-year plan.

As with all the challenges we face, we are meeting this one head-on—and we are not alone. We are fortunate in our strong Advisory Board, in our partnerships with West Virginia-based leaders, researchers, and funders, and in our collaborations with universities—West Virginia University, Marshall University, Syracuse University—and with such third-party researchers as Edvantia, Inc. We are grateful for our long-term funding relationships with the West Virginia Governor's Office, the Benedum Foundation, Verizon West Virginia, The Caperton Fund, the WV-CPD, and the WVDE acting as both a funder and an implementation agent. Backed by these resources, we are aggressively seeking Federal funding and looking to other sources of dollars as well. We expect that, with the strengthening support of these colleagues, collaborators – and with the incredible commitment and dedication of our educators –Globaloria West Virginia will achieve its purpose and fulfill its promise.

"Something that really sets the World Wide Workshop apart is its commitment to the students and educators. Idit and her team recognize that Globaloria is really about the young people and cultivating their success, and they will go the extra mile to listen and make sure everyone is supported, nurtured. Ready to shine." – B. Keith Fulton, President, Verizon West Virginia, Verizon Communications

Students learn better, and are better prepared to continue learning, when they can read and write games

8. Looking Ahead to Pilot Year 3

As this report goes to press, Pilot Year 3 is in full swing. The goal of this year is to formalize the model for a larger scale implementation in Pilot Year 4. Our focus in 2009-2010 is as follows:

- To incorporate WVDE's active participation and leadership into the model
- To continue expansion of the Globaloria program in West Virginia schools
- To continue expansion of professional development for West Virginia educators, principals, and superintendents
- To align the Globaloria program with WVDE academic content standards
- To align the Globaloria program with WVDE 21st-century standards and skills
- To develop and implement new assessment methodologies for the program's impact on teaching and learning
- To raise the visibility of Globaloria West Virginia at the national level so as to influence policy toward the national adoption of the Globaloria model.

Strengthening partnerships, like that with the WVDE, will be critical for Pilot Year 3 (shown here: Idit Caperton presenting to WVDE's Office of Curriculum and Instruction)

"I am personally biased towards STEM education. All children should have an opportunity to experience science, technology, engineering and mathematics in exciting and meaningful ways that lead them to say "Yes, I like that! And I want to do a lot of that in my life."
– Idit Caperton, Founder and President, World Wide Workshop Foundation

It is instructive that Pilot Year 3 will see the Globaloria program reach 1,000 students and educators in 22 schools—middle schools, high schools, colleges, and alternative education programs across the state—with a focus on in-school growth and expansion at the middle and high school levels. These numbers constitute a powerful testament to the contributions of our funders and to the countless hours and immeasurable hard work contributed by our pioneering educators. The numbers evidence what we well know—that the Globaloria learning formula is an essential model for our time.

And the time is exactly ripe for the West Virginia program that is proving the model every day. In Washington, a new administration is committed to technology as a tool for reforming how we learn and how we teach. In education, the watchword is STEM. In our increasingly global culture, game-making is becoming the new literacy—a universal language that is unleashing a whole new means of self-expression. All of these fresh realities converge in Globaloria. That is why our challenge for Pilot Year 3 is to capitalize on this moment. Right now, the stars are aligned for precisely the kind of change Globaloria represents. The world is catching up to where West Virginia's Globaloria students have already arrived. With the right support, Globaloria West Virginia can show the world the way.

Continuing to increase visibility will lead to additional partnerships, research and funding (shown here: Idit Caperton and Shannon Sullivan of the Foundation after an interview with WOWK-TV)

Together with our current partners, including First Lady Gayle Manchin, we will achieve our great vision for WV students and educators

"Globaloria encapsulates what is much more relevant to our students: intersecting science, math, history, design, computer programming and social issues. These are the kinds of skills that students will need for those jobs that are on the horizon, that aren't even invented yet." – First Lady Gayle Manchin

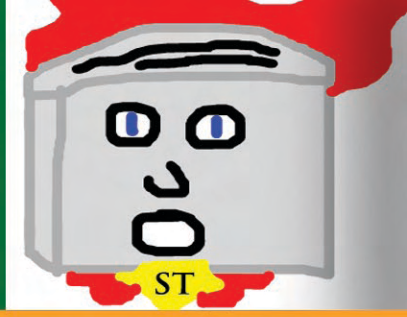
Globaloria Year 3: Who, What, Where

24 locations, 24 principals, 937 students, 35 educators, 53 learning groups

Pilot Location (School)	Type of Educational Institution	Total # of Educators Trained	Student Grade Levels	Total # of Unique Student Participants	Type of Program Integration (All taken for credit)
RETURNING SCHOOLS (participated in '07-08 and/or '08-09)					
Capital HS Charleston, Kanawha Co.	Standard Public High School	1	10-12	20	Global Advanced Biology 5 mtgs/wk 45 min/mtg
			10-12	20	Global Biology 5 mtgs/wk 45 min/mtg
Clay County HS Clay, Clay Co.	Standard Public High School	1	11-12	20	Game Design (Social Issue Games) 5 mtgs/wk 90 mins/mtg
Eastern Greenbrier MS Ronceverte, Greenbrier Co.	Standard Public Middle School	1	8	80	Game Design (Social Issue Games) 5 mtgs/wk 45 min/mtg
		2	7	25	7th Grade Math Enrichment 5 mtgs/wk 84 min/mtg
Florence Crittenton Center for Girls Wheeling, Ohio Co.	Alternative Education (At-risk girls)	1	8-GED	7	Game Design (Civics Games) 2-3 mtgs/wk 120 min/mtg
		1	8-GED	16	Game Design (Civics Games) 2-3 mtgs/wk 120 min/mtg
Greenbrier East HS Lewisburg, Greenbrier Co.	Standard Public High School	1	10-12	20	Game Design (Social Issue Games) 2-3 mtgs/wk 90 min/mtg
		1	10-12	20	Game Design (Civics Games) 2-3 mtgs/wk 90 min/mtg
		1	10-12	20	Game Design (Social Issue Games) 2-3 mtgs/wk 90 min/mtg
			10-12	20	Architecture 2-3 mtgs/wk 90 min/mtg
Greenbrier West HS Charmco, Greenbrier Co.	Standard Public High School	2	10-12	15	Digital Art (Social Issue Games) 5 mtgs/wk 90 min/mtg
Kasson School Moatsville, Barbour Co.	Standard Public Middle School	1	6-8	10	Game Design (Social Issue Games) 5 mtgs/wk 40 min/mtg
Man HS Man, Logan Co.	Standard Public High School	1	9-12	20	Game Design (Social Issue Games) 5 mtgs/wk 50 mins/mtg
Marshall Community and Technical College Huntington, Cabell Co.	Technical Junior College Education	1	College	20	Game Design 1 (Social Issue Games) 2 mtgs/wk 75 min/mtg
		1	College	54	Game Design 2 (Social Issue Games) Spring: 2 75-min mtgs/wk Summer: 3 75-min mtgs/wk
Pressley Ridge School Walker, Wood Co.	Alternative Education (At-risk girls)	2	9-12	51	21st C. Skills /Social Studies 5 mtgs/wk 120 min/mtg
Randolph Technical Center Elkins, Randolph Co.	Technical Vocational Education	1	9-12	30	Game Design 1 and 2 5 mtgs/wk 90 mins/mtg

Pilot Location (School)	Type of Educational Institution	Total # of Educators Trained	Student Grade Levels	Total # of Unique Student Participants	Type of Program Integration (All taken for credit)
RETURNING SCHOOLS (participated in '07-08 and/or '08-09)					
Sandy River MS Avondale, McDowell Co.	Public Middle School	2	7	20	Game Design (Civics Games) 5 mtgs/wk 82 min/mtg
		1	8	15	7th Grade Math Enrichment 5 mtgs/wk 82 min/mtg + 40min activity period
Spring Valley HS Huntington, Wayne Co.	Standard Public High School	1	10-12	60	Game Design 5 mtgs/wk 45 min/mtg
			10-12	60	Drafting 5 mtgs/wk 45 min/mtg

Pilot Location (School)	Type of Educational Institution	Total # of Educators Trained	Student Grade Levels	Total # of Unique Student Participants	Type of Program Integration (All taken for credit)
NEW SCHOOLS (Starting in 2009-10)					
Braxton County HS, Sutton, Braxton Co.	Standard Public High School	1	10-12	22	Digital Imaging (Social Issue Games) 5 mtgs/wk 45 min/mtg
Bridgeport MS Bridgeport, Harrison Co.	Standard Public Middle School	2	8	25	8th Grade Math Enrichment 5 mtgs/wk 35-45 min/mtg
Liberty High, Glen Daniel, Raleigh Co.	Standard Public High School	1	11-12	40	Digital Imaging (Social Issue Games) 5 mtgs/wk 90 min/mtg
Oak Glen HS New Cumberland, Hancock Co.	Standard Public High School	1	9-12	24	Digital Imaging (Social Issue Games) 5 mtgs/wk 90 min/mtg
Riverside HS Belle, Kanawha Co.	Standard Public High School	1	9-12	25	Computer Graphics 5 mtgs/wk 90 min/mtg
Shepherd University, Shepherdstown, Jefferson Co.	State Supported University	1	College	40	Communication Dept classes: Game Design, Advanced Internet Media 2 mtgs/wk 90 min/mtg
Southern Community College Mt. Gay, Logan Co.	Technical Junior College Education	1	College	40	Intro to Game Design 1 2 mtgs/wk 75 min/mtg
South Harrison HS Lost Creek, Harrison Co.	Standard Public High School	1	10-12	22	Digital Imaging (Civics Games) 5 mtgs/wk 45 min/mtg
Wheeling Park HS Wheeling, Ohio Co.	Standard Public High School	1	9-12	20	Digital Game Design 6 mtgs/wk 45 min/mtg
Woodrow Wilson HS, Beckley, Raleigh Co.	Standard Public High School	1	9-12	24	Digital Imaging (Social Issue Games) 5 mtgs/wk 45 min/mtg
WV Northern Community College Wheeling, Ohio Co.	Technical Junior College Education	1	College	32	Web/Game Development 2 mtgs/wk 75 min/mtg



Appendix: Research in Pilot Year 2

Keynotes, Conference Papers, and Reports about Globaloria
June, 2008 to August, 2009
www/worldwideworkshop.org/reports

Conference Keynotes and Presentations

Harel Caperton, I. (June 2008). *The Transformational Power of Social Media Technology in Learning*. Closing Keynote at the ISTE National Education Computing Conference (NECC). San Antonio, Texas.

Harel Caperton, I. (July 2008). *The Globaloria: Youth Designing Web-Games for Learning*. Panelist presenting paper at the Games, Learning and Society (GLS 4.0). University of Wisconsin, Madison.

Nicholson, B., & Chapman, W. (Marshall University). (August 2008). *Principals' Viewpoints on a Multi-Site Technology Project*. Panelists presenting paper at National Council of Professors of Educatonal Administration Conference (NCPEA). San Diego, CA.

Nicholson, B. (Marshall University). (October 2008). *Globaloria: Theory, Implementation, and Progress*. Panelist presenting paper at Southern Regional Council on Educational Administration (SREA). Charleston, WV.

Alley, R., Green, J., & Lawson, D. (Marshall University). *Developing Collaborative Researchers: Doctoral Students Evaluate Globaloria-WV Progress*. Panelists presenting paper at Southern Regional Council on Educational Administration (SRCEA). Charleston, WV.

Harel Caperton, I. (Oct/Nov 2008). *The New Digital Literacies and Didactic Web Production for Constructionist Learning in Web 2.0 Era*. Opening Keynote at the Edunov@ Institute, Omar Dengo Foundation. San Jose, Costa Rica.

Harel Caperton, I. (Oct/Nov 2008). *Walking through the Globaloria Networks: Experience first-hand new and innovative digital web and wiki tools for Constructionist learning among students and educators*. Working for 100 educators at the Edunov@ Institute, Omar Dengo Foundation. San Jose, Costa Rica.

Harel Caperton, I. (Dec 2008). *Internet Safety in the Age of Social Networks: Can Our Students and Educators Use Social Media Technologies for Productive Learning in the Context of School?* Opening Keynote at the Education Technology Leadership Conference 2008 (ETLC). Virginia Tech., Roanoke, VA.

Harel Caperton, I. (March 2009). *Designing Learning Environments and Digital Tools for Children to Learn, Think, and Innovate*. Opening Keynote at the 5th Annual Design, Art and Technology Symposium (DATS). Center for Design Innovation at Piedmont Triad, High Point, North Carolina.

Harel Caperton, I. (March 2009). *Hacking Education: Exploring the Intersection of Web2.0 and the Education Business*. Panelist at Hacking Education (HackEdu). Union Square Ventures. New York City, NY.

Whitehouse, P., (West Virginia University). (March 2009). *Globaloria Pilot Year One: New Directions for 21st-Century Teacher Professional Development*. Panelists presenting paper at the Society for Information Technology and Teacher Education International Conference (SITE). Charleston, South Carolina.

Reynolds, R. (April 2009). *Development of High School and Community College Students' Contemporary Learning Abilities in Globaloria*. Panelist at the American Education Research Association (AERA), Applied Research in Virtual Environments for Learning (ARVEL SIG). San Diego, CA.

Reynolds, R. (April 2009). *The Emergence of Six Contemporary Learning Abilities (6-CLAs) in High School Students as They Design Web-Games and Use Project-Based Social Media in Globaloria*. Panelist at the American Education Research Association (AERA), Advanced Technologies for Learning (ATL SIG). San Diego, CA.

Harel Caperton, I. (April 2009). *Towards a Comprehensive Definition of Game Media Literacy: Playing and Building like Reading and Writing*. Panelist at the American Education Research Association (AERA), Applied Research in Virtual Environments for Learning (ARVEL SIG). San Diego, CA.

Harel Caperton, I. (April 2009). *The Globaloria Social Media Networks for Learning Game Production. Interactive Symposium: In Search of the Forgotten Piece of the 'Gaming and Literacy Puzzle*. Panelist at the American Education Research Association (AERA), Media, Culture, and Curriculum (MCC SIG). San Diego, CA.

Oliver, A., Sullivan, S., Gray, J., & Doshi, M. (May 2009). *Inspiring and Educating the Next Generation: Students Designing Games for Change*. Interactive exhibit at the Games4Change Festival 2009 (G4C). New York City, NY.

Harel Caperton, I., & Sullivan S. (June 2009). *Students' Development of Contemporary Core Competencies through Making Educational Web-Games*. Panelists at the Games, Learning and Society (GLS 5.0). University of Wisconsin, Madison.

Harel Caperton, I. (July 2009). *The New Literacy is Game Literacy*. Speaker at TEDGlobal. Oxford, University. Oxford, UK.

Nicholson, B. (Marshall University). (August 2009). *An Analysis of the Effects of a Technology Program on Students' Academic Performance: Are These Vygotsky's Children?* Panelist presenting paper at National Council of Professors of Educational Administration Conference. San Antonio, TX.

Barker, I., (McDowell County), Beane, M. (WVDE), & Lowenstein, D. (August 2009). *Globaloria in Public Education*. Concurrent session speakers at West Virginia Statewide Technology Conference (WVSTC). Charleston, WV.

Nicholson, B., (Marshall University). (October 2009). *The Effects of Globaloria on Students' Academic Performance*. Panelist presenting paper to the Southern Regional Council on Educational Administration (SRCEA). Charleston, WV. October 2009.

World Wide Workshop Foundation Reports

Harel Caperton, I., Sullivan, S., & Oliver, A. (December 2008). *The Case for the Globaloria Network in West Virginia: Empowering West Virginia youth to create and collaborate online with a 21st-century game-making curriculum*. (Year 1 Executive Report). New York, NY: World Wide Workshop Foundation.

Knestis, K. (December 2008). *Understanding Globaloria as the Subject of Research: An Agenda for Future Study*. Charleston, WV: Edvantia, Inc.

Whitehouse, P., (West Virginia University); Reynolds, R., (Syracuse University), & Harel Caperton, I., (World Wide Workshop) (December 2008). *A Research Framework to Examine Educator Experiences in Globaloria from Pilot Year 1: Preliminary Findings and Future Directions*. New York, NY: World Wide Workshop Foundation.

Lawson, T. (July 2009). *The Impact of Globaloria on Collaborative Problem Solving Skills: Working Toward Designing a Skill-Transfer Experiment*. (An Exploratory Pilot Study). New York, NY: World Wide Workshop Foundation.

Reynolds, R. & Harel Caperton, I. (September 2009). *Comparison of Middle School, High School and Community College Students' Wiki Activity in Globaloria-West Virginia* (Pilot Year Two). (Accepted to the October, 2009 Annual WikiSym Conference, Orlando, FL.) New York, NY: World Wide Workshop Foundation.

Whitehouse, P. (August 2009). *Making Teacher Learning Visible: Networked Professional Development in Globaloria-WV Pilot Year 2*. Morgantown, WV: West Virginia University.

Educator Stories Series

Barker, I. (June 2009). *Globaloria at Elkins: Learning to live in a flat world through Globaloria experiences in my classroom*. New York, NY: World Wide Workshop Foundation.

Cantrell, R. (June 2009). *Globaloria at Clay: 10 Months, 8 Students, and 8 Games*. New York, NY: World Wide Workshop Foundation.

Stalnaker, D. (June 2009). *Globaloria at Avondale: Cultivating teamwork and discovering my students' hidden but impressive intellectual talents through a game design curriculum*. New York, NY: World Wide Workshop Foundation.

Publications in Journals and Conference Proceedings

Whitehouse, P., Reynolds, R. & Harel Caperton, I. (March 2009). *Globaloria pilot year one: New directions for 21st Century teacher professional development*. In C. Crawford et al. (Eds.), Proceedings of Society for Information Technology and Teacher Education International Conference 2009 (pp. 1590-1597). Chesapeake, VA: AACE.

Reynolds, R., & Harel Caperton, I. (April 2009). 4 papers presented at AERA-09 are published on the www.AERA.org website.

Harel Caperton, I. (June 2009). *Toward a theory of game-media literacy: Playing and building as reading and writing*. In press (2010), International Journal of Gaming and Computer-Mediated Simulations, 2(1).

Whitehouse, P. (July 2009). *Networked Teacher Professional Development: The Case of Globaloria*. Manuscript conditionally accepted to Journal of Interactive Learning for 2010 publication.

Doctoral Dissertation

Chapman, N. (2009). *Administrative Perspectives on Technology Integration: The Globaloria Program in West Virginia*. Unpublished Dissertation for Doctorate Degree in Educational Leadership. Marshall University Graduate School of Educational and Professional Development. Charleston, WV.

Papers in Progress

Reynolds, R., & Harel Caperton, I. (2009). *The Development of Rural Middle-School Students' Contemporary Learning Abilities as They Design Web-Games in Globaloria-West Virginia in (Pilot Year 2)*. New York, NY: World Wide Workshop Foundation. Submitted to annual convention of the American Education Research Association (AERA), 2010.

Reynolds, R., & Harel Caperton, I. (2009). *Development of Vocational High-School Students' Contemporary Learning Abilities as they Design Web-Games in Globaloria*. New York, NY: World Wide Workshop Foundation. Submitted to Annual Convention of the American Education Research Association (AERA), 2010.

Reynolds, R., & Harel Caperton, I. (2009). *Development of Rural High-School Students' Contemporary Learning Abilities in Globaloria*. New York, NY: World Wide Workshop Foundation. Submitted to Annual Convention of the American Education Research Association (AERA), 2010.

Reynolds, R., & Harel Caperton, I. (2009). *Middle-School, High-School, and Community-College Students' Self-Reported Impressions about Learning Game Design and Programming, and Web2.0 Skills*. New York, NY: World Wide Workshop Foundation. Submitted to Annual Convention of the American Education Research Association (AERA), 2010.

Redfield, D. (2009). *The Relationship between Globaloria Participation and Test Performance: A Pilot Study in West Virginia*. Charleston, WV: Edvantia.

Whitehouse, P. (2009). *Developing Digital Literacies Among Educators: Teaching and Learning in a Networked Environment*. Morgantown, WV: West Virginia University. Paper submitted to Annual Convention of the American Education Research Association (AERA) 2010 (Division K, Technology as Agent of Change (TACTL).

Whitehouse, P. (2009). *Making Teacher Learning Visible: Networked Professional Development*. Morgantown, WV: West Virginia University Paper submitted to Annual Convention of the American Education Research Association (AERA) 2010 (Division K, Section 9).

Endnotes

[i]Quoted in 'Will Arne Duncan Shake Up America's Schools?' by Kathleen Kingsbury, Time Magazine, December 16, 2008

[ii]U.S. Department of Education fact sheet on State Educational Technology Grants, July 2009, http://www.ed.gov/programs/edtech/factsheet.html

[iii]2008 campaign website barackobama.com

[iv]Partnership for 21st Century Skills Route 21 press release, June 11, 2008, http://www.21stcenturyskills.org/route21/index.php?option=com_content&view=article&id=179:six-states-receive-21st-century-skills-practice-of-the-year-awards&catid=10:west-virginia&Itemid=190

[v]Nicholson, Bobbi. "An Analysis of the Effects of a Technology Program on Students' Academic Performance: Are These Vygotsky's Children?"

[vi]Whitehouse, Pam. "Networked Professional Development: The Case of Globaloria." Manuscript conditionally accepted to Journal of Interactive Learning for 2010 publication.

[vii]https://edtechfuture.org/?page_id=5494

Learning to work as a team

Monica Beane, WVDE Liaison, and Amber Oliver, Director of Partnerships and Operations, World Wide Workshop

Dixie Billheimer, CEO, WV-CPD and Clinton Giles, Principal, Capital HS

Attending year-end student games presentations

We thank the following funders and partners for their generosity in supporting Globaloria Year 2 with the World Wide Workshop Foundation

Funders

West Virginia Office of the Governor
Claude Worthington Benedum Foundation
Verizon West Virginia
West Virginia Department of Education
The Caperton Fund

Partners

The West Virginia Office of the Governor, and the First Lady
West Virginia Department of Education and the Arts
West Virginia Center for Professional Development
Marshall University
West Virginia University
Edvantia

Pilot Participants

Capital High School, Charleston, Kanawha Co.
Clay County Schools, Clay, Clay Co.
Eastern Greenbrier Middle School, Ronceverte, Greenbrier Co.
Florence Crittenton Center for Girls, Wheeling, Ohio Co.
Greenbrier East High School, Lewisburg, Greenbrier Co.
Greenbrier West High School, Charmco, Greenbrier Co.
Kasson Middle School, Moatsville, Barbour Co.
Man High School, Man, Logan Co.
Marshall Community & Technical College, Huntington, Cabell Co.
Pressley Ridge School, Walker, Wood Co.
Randolph Technical Center, Elkins, Randolph Co.
Sandy River Middle School, Avondale, McDowell Co.
Spring Valley High School, Huntington, Wayne Co.

Credits

All project images created by Globaloria Year 2 participants for use in original games.

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For more information, please contact info@worldwideworkshop.org

Report Design: Rich Goehl

GLOBALORIA

Empowering Students and Educators with 21st-Century Digital Literacy through a Game-Making Learning Network

In the summer of 2007, the World Wide Workshop Foundation partnered with Governor Joe Manchin III of West Virginia and First Lady Gayle C. Manchin to implement Globaloria, the Foundation's unique technology-based learning formula as a pilot program in West Virginia schools. Seven schools in counties across the state pioneered the experiment, which uses an innovative game-making curriculum to empower students in the use of Web2.0 technology and digital literacy—teaching 21st-century skills and accessing untapped resources of creativity.

In year 2 of the pilot, the program tripled in size, reaching 291 students in middle schools, high schools, community colleges, and alternative education programs across the state. The scope of educator participation and leadership in the program also grew, as did the program's visibility among a range of audiences, both in the state and elsewhere. Of particular note, in year 2 the list of partners extended to include the West Virginia Department of Education.

This report tells the story of year 2. It tells about the benefits Globaloria is bringing to students and educators. It shows how an entrepreneurial collaboration among a small non-profit, a state government, corporations, and both public and private organizations is advancing STEM and 21st-century learning. And it makes clear, through concrete examples and academic research, that this visionary and innovative program has the potential to transform public education—both in West Virginia and around the country.