Zora and the explorer

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Can cutting-edge technology foster a sense of humanity? A pioneering child development researcher says yes.

By Barbara F. Meltz, Globe Staff | October 22, 2007

ARLINGTON - With her youngest son, Nico, 3, hanging around her neck, Marina Bers greets guests in her backyard. She's a bundle of gracious energy, introducing strangers to one another, shepherding people toward food and cider. The occasion is Sukkot, a Jewish holiday of harvest, which involves building a small structure with a roof partly open to the sky.

For this celebration, Bers (pronounced "Beers") and her husband, Josh, have invited people they don't know, fellow members of Temple Isaiah in Lexington who, like them, live in Arlington and have young children. As Carey Brown, assistant rabbi, leads a few simple prayers, Bers surveys the scene. It's just about dusk on an early autumn day, and the air is turning cool, but Bers, in a sleeveless blue summer dress and sandals, exudes warmth.

"Isn't this great? I don't know any of these people," she says, gesturing to the group that includes a few exceptions: her mother, her father-in-law, her brother, and his future wife.

If there is one thing Bers, 37, likes to do, it is to create community. More typically, however, it is not the kind of community she can touch in the flesh. An assistant professor at Tufts University and an author whose new book, "Blocks to Robots," threatens to turn computer education upside down, Bers has set out to prove that computers can be our children's friends.

That flies in the face of current thinking in child development and education. For years we've been hearing that the computer detracts from young children's socialization because they don't learn to negotiate with real-live playmates; that it interferes with learning because it bypasses critical connections in the brain; and that it takes time away from physical exercise. As children grow older and the real world gets sacrificed even more for the virtual one, there's the risk of computer addiction and antisocial behavior.

These concerns weigh heavily on Bers. They're why her three young children - in addition to Nico, there's Tali, 7, and Alan, 4 - each spend less than an hour a week on the computer.

The risks also are what drive Bers professionally. "Today's kids use computers so much, if we don't turn that use to a positive outcome, we are lost," she says.

Bers, who last year was among 20 US scientists to receive the Presidential Early Career Award for Scientists and Engineers in a ceremony at the White House, is pioneering technology that marries two independent disciplines - child development and computer technology. From the former, she brings the widely accepted tradition of Jean Piaget, which posits that children learn best by interacting with their world. From her mentor at MIT, Seymour Papert, comes the theory known as constructionism, that if children create their own technology they will learn more than if they simply swallow information technology spits out.

The software she created is called Zora. Children's Hospital Boston is using it in a pilot project where 22 transplant patients, ages 11 to 16, log on daily from around the country to build a virtual community.

Consider the population: As teenagers, they are at a stage of development where fitting in is all-important. As transplant patients, they must take medicines to stay alive. The meds can have side effects, including physical ones, so many of them eschew their drugs.

Zora provides common ground, an online city where each teen creates a three-dimensional house and fills it with items he loves, such as family photos, or items he covets, such as fancy cars. Some houses contain movies and audio clips. A teen also chooses an avatar, a cartoon representation that wanders the virtual world. Visiting one another's houses and the public places they create together - a town hall, a pharmacy, a school, even Gillette Stadium - they post thoughts, hopes, and fears on one another's walls. Another pilot of Zora called the Computer Clubhouse launched this month, connecting 110 after-school programs around the world with the idea of discovering similarities across cultural divides.

With its social connections and avatars, Zora may sound like a cross between Facebook and Second Life. But Zora has a curriculum - and not math or science, the traditional bread-and-butter of technology education. "The curriculum of Zora is to explore issues of identity, values, and community," says Bers.

It happens subtly. Bers's research students monitor the site. One afternoon, a student noticed teens chatting about their transplants. The student suggested creating a place for their stories, so they built the Transplant House. Stories now cover the walls.

Joe Gonzalez-Heydrich, a child and adolescent psychiatrist at Children's Hospital who has been involved in Zora, says the initial appeal of Zora was to get teens to support one another to take their meds. "These were kids who loved the computer, but all they were getting on it was shoot-em-up games where all you learn is to be callous to human suffering and not care about people," he says. "Now, they're expressing themselves in ways they never did before to people who have come to matter to them. It's giving them cutting-edge technology, but also humanity."

With Halloween around the corner, some teens are creating a haunted house filled with scary thoughts. One of them is the fear of dying at college, without parents around to remind you to take your meds.

Bers named Zora after a city in a story by Italo Calvino where people find their true identities.

"When I think of Zora, I think of being in synagogue on a Friday night," she says. "You are in the middle of a room of people - you're building community - but you are also creating this private space for yourself in your head. Zora is a place you go, a spiritual place in a virtual world that connects you to yourself and to others, because it's only in relationships with others that you realize who you are."

A role model

Bers grew up in Buenos Aires, where her father was a professor and judge, her mother a high school biology teacher. Judaism was at the core of their lives; her rabbi was the source of Bers's intellectual awakening. During high school, she studied with him weekly for two years. "Everything I do," she says, "is infused with rabbinical thinking: How do we each become a well-grounded, well-rounded person, a happy, responsible person who does good in the world?" Indeed, Bers spent a year in rabbinic school. That was after she left law school and before a stint as a magazine journalist in Buenos Aires.

She may have been unsure about a career path, but she was always intrigued by computers. As an undergraduate at the University of Buenos Aires, she crafted a major that studied computers as tools of human connection. For her undergraduate thesis, she created interactive software based on the Book of Genesis.

"How can kids understand a concept like The Beginning?" she asks. "I made it interactive, so others could write about their own beginnings of things. You have to put it on their level."

It was a symbolic beginning for her, too. Years later, she had a magazine assignment that introduced her to Papert's work. "I fell in love with what he was doing," she says. They began corresponding.

She didn't get into MIT the first time she applied, so she went for a master's in educational technology at BU. After that, she got accepted into the PhD program at MIT's prestigious Media Laboratory. Mitch Resnick, one of her mentors, calls Bers a trailblazer.

"Other [researchers have] explored the idea of using technology to help children learn math patterns or science. Marina uses technology to help children get a better understanding of themselves and their community," he says.

Bers could have continued her career in any number of universities, but the offer six years ago from Tufts was a chance to have it all: family, research, and a supportive professional community. "The culture of this place appealed to me," she says. The first year, she nursed her baby at faculty meetings. "No one blinked, or at least not so I could see." Bers is the first person to hold appointments from the Eliot Pearson Department of Child Development and the Department of Computer Science.

Even now that she's on the tenure track, students and colleagues know not to contact her between noon and 8 p.m., when she is at home with her kids.

"I've learned as much from her about how to balance your professional and personal life as I have about our research," says PhD candidate Laura Beals, who met Bers as a sophomore.

Think big

In the foreword to Bers's books, retired Tufts professor David Elkind calls her work "seminal." In an interview he says, "She's helping us to see that there are healthy ways for children to use technology, ways we have not yet dreamed of. It's from Marina's work that educational reform will develop."

Bers is on sabbatical this year. In January, her family will move to Argentina for six months, a chance for some research and for the children to experience the culture of her childhood. Even in Arlington, though, there is a melding of cultures. Josh, who grew up in Arlington and is in software, speaks English to the children, Marina talks to them in Spanish.

At her kitchen table with Nico and Alan, sharing the midday meal prepared by her Spanish-speaking housekeeper, Bers talks about her book, which she hopes will be translated into Hebrew and French, languages she speaks, and about Zora's future. "My goal is to have it used by different therapeutic populations at many hospitals. For every single population you can think of, you could have an application," she says.

Think bigger, she is prompted. Can she imagine an even wider application than that?

"World peace," she says with a shy smile.

"With this technology and curriculum and some big organization taking it on? I don't know, the UN? Is that too much chutzpah, to think my technology has the capacity to help children choose good over evil? OK, so I have chutzpah."

Her smile blooms into a grin.

To learn more about Zora, visit ase.tufts.edu/devtech/clubzora .html. ∎