Designing Digital Experiences for Positive Youth Development
From Playpen to Playground

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PART I

The Digital Landscapes for Youth

OVERVIEW

This first part of the book looks at the question of what children and adolescents are currently doing with new technologies and how this is having an impact on their development. It is made up of three chapters that take on a developmental span of children's relationship with technology: early childhood, the elementary years, and high school. Leveraging the concept of landscape, or a space purposefully designed with a goal, each chapter has a central metaphor to illuminate the role of new technologies for promoting the core developmental milestones of each age group. The goal of these metaphors is to help the reader understand the digital world as a developmental space. The hope is to show possible ways for adults to become design partners in its creation. Each chapter is interspersed with vignettes describing children's personal experiences with technology. Some come from my own research projects over the last 16 years. Others come from observing young people's interactions with popular technologies. A summary at the end highlights key ideas visited in this first part of the book.
CHAPTER 1

Digital Playgrounds vs. Virtual Playpens in Early Childhood

Think about a two year old. She is ready to explore the world. She is fearless. She is curious. Everything she finds, she touches, she opens, she closes, she sorts, she hides, she moves, she pushes. She plays. Everyone she encounters, she tries to communicate, she pretends, she asks, she tells, she shows, she gestures. She interacts. Although each child is unique and is influenced by different factors in her environment, research shows that children develop through a generally predictable sequence of steps and milestones. These may not happen in the same way or at the same time for all children, but generally speaking, most two and three year olds enjoy using their senses, their emerging language, and their motor skills to explore the world around them. They can solve simple problems by trial and error. They engage in pretend play by using sticks as swords and puppets as babies. They have a blossoming vocabulary and the ability to understand instructions and situations. They like to play alongside other children, but they do not yet have the capabilities to problem solve in social situations and manage their emotions. This is the age of the “terrible two’s,” a time in which a child learns how to say no to assert her own sense of self but doesn’t yet have the flexibility to take into consideration other people’s perspectives or to be aware of her own tiredness.

The American developmental psychologist and psychoanalyst Erik Erikson would describe a two- to three-year-old child as engaging in the developmental task of mastering the physical environment while maintaining self-esteem. Erikson, who was born in Germany in 1902, pioneered the study of the process of identity formation in healthy personalities. Instead of looking at pathologies, he focused on the growth and crises of identity during the different stages of the life cycle. He postulated that every human being goes through eight stages to reach his or
her full development, from birth to death. Each of these stages of psycho-social development is marked by a conflict. When there is a successful conflict resolution, there will be a favorable outcome or virtue. The conflict in the preschool years is centered on developing a sense of autonomy while avoiding shame and doubt. When a child can successfully explore this tension, the resulting positive outcome or virtue is willpower, or volition, the process by which an individual decides on and commits to a particular course of action.

For example, a child who learns how to dig a big hole in the backyard on a primary spot next to the flower bed that gave so much work to Mom is very proud of her autonomy to do it by herself. She was able to choose a highly visible and much appreciated place in the yard, to find the right tools and use them effectively, and to carry a project from initial idea to finished product. However, when Mom shows her anger for ruining the flower bed, instead of her praise for the task accomplished, shame and doubt about her own abilities take over this child. She becomes vulnerable. This is an example of the tension that Erikson describes as autonomy vs. shame and doubt. As children grow and enter into kindergarten, this tension intensifies, and Erikson's theory talks about initiative vs. guilt, with the resulting virtue as purpose and a sense of accomplishment for intentionally doing an act. For the purpose of this book, I have decided to bring these two stages together and talk about early childhood as a time that extends from preschool into kindergarten. This is a time when playing is an important aspect of healthy child development. As we will see later on, one of the many positive things that technology can do is to support, facilitate, and augment play. As Erikson (2000) writes, "Play is to the child what thinking, planning, and blueprinting are to the adult" (p. 195).

Playgrounds are one of the most popular spaces where young children play. Playgrounds are specifically designed to support the exploration of the physical environment and the development of motor skills, as well as social interactions. They are also probably one of the few spaces where children of this age can be autonomous. They can go on the slide. They can climb up a structure. Next, they can move to the sandbox and build a castle with another child, and when they get bored, they can run around and ask Dad to push them on the swing. Playgrounds offer a space with controlled autonomy. Parents can sit on the benches and carefully observe what is going on while engaging in conversation with other adults. They don't worry about children running out of sight, as most urban playgrounds are surrounded by a fence. Playgrounds are generally safe, but, as with any space that encourages physical activity and social exchanges, there are some risks involved. A child can fall off the slide, can bump her
head on the structure, and can get into a fight in the sandbox. All of these
events can drive her to shame and doubt about her own skills. However, if
risks did not exist, the child wouldn't develop in a healthy and positive
way and wouldn't be ready to move to the next developmental stage.

Now, think of a playpen. These pieces of furniture, big or small, made
out of rubber and mesh, wood or plastic, serve to corral children into a
safe confined space. Playpens and play yards are in sharp contrast with
playgrounds. They are risk-free, as long as they are used within their con­
straints and children do not try to climb out of them. However, there is no
room for autonomous exploration. Children can play with the limited
toys that Mom or Dad has decided to put inside the playpen. There is no
room for imaginative play. Of course, a playpen that is used for half an
hour so Mom can prepare dinner is not harming the child in any way.
We are focusing here on the playpen as a metaphor that conveys lack
of freedom to experiment, lack of autonomy for exploration, lack of
creative opportunities, and lack of risks. And I am opposing this meta­
phor to the one of the playground, where we can find all of these funda­
mental activities for growing up. The playground promotes, while the
playpen hinders, a sense of mastery, creativity, self-confidence, and open
exploration.

As a reader who is interested in the role of technology in children's
lives, you might be asking yourself why we are talking about playgrounds
and playpens. I am responding with a bold claim. From a developmental
perspective, most of today's technologies for young children are playpens
and not playgrounds. The most obvious thought is that computer games,
like playpens, deprive children of physical activity. But the metaphor goes
further than that. Most computer games are marketed as educational
because young children can develop pre-academic dispositions and learn
about shapes, colors, letters, sounds, and numbers. However, from a devel­
opmental perspective, those are not the most important milestones for
children in this age range. This is a time for free exploration, for testing
boundaries, for socializing, for taking risks in a safe way, for engaging in
pretend play, for solving problems, for engaging in creative acts that can
display children's autonomy.

If we consider the developmental tasks of a two year old, there is no
need to buy software marketed as educational for this age range. This soft­
ware usually limits the types of interactions that children can have with it.
Most software provides tasks with right and wrong answers and thus
don't encourage problem solving and logical thinking or exploration and
creativity.

From a developmental perspective, this kind of interaction in a techno­
logical space is more similar to what happens in a confined playpen than
to what happens on an open playground. Although the graphics and the cartoon characters of many edutainment software products are appealing, in terms of developmental value, the child can benefit as much by using open-ended, grown-up software. The challenge of navigating the computer screen provides children with an opportunity to make autonomous choices. For example, playing with a word processor allows children to observe a direct link between cause and effect, such as typing letters and seeing them displayed on the screen or changing their color, size, and shape. But using grown-up software, such as a word processor or a paint program, requires parental assistance and supervision—just like on the playground. Instead, edutainment software can be used like a playpen, and parents can leave their children unsupervised. But there might not be a lot of value added from a developmental perspective.

Don’t take me wrong. I do not see any harm in having young children play with “edutainment” for half an hour, as I do not see any harm in having them stay in a playpen while dinner is being prepared. However, if we want to know the impact of children playing with these kinds of computer games, we need to ask questions such as, What kinds of developmental tasks are accomplished through the interactions promoted in this digital landscape? Are children given opportunities to explore and experiment, interact and create, in an autonomous way without following prescribed play patterns restricted by the design of the toys adults choose to give them?

For example, on a playground, although the play patterns dictated by the slide are clear—you should climb up the ladder, sit down, and then slide all the way down—children are able to come up with their own creative uses. They can walk up the slide, they can slide facedown, they can slide with others in a train, and so on. Most important, when children get bored, they are free to move on to the next structure or activity and use their imagination in many different ways. They can control the pace of their choices; they can choose what to do, how, when, and with whom.

Developmentally, this might be similar to the kinds of interactions that young children can have with software such as Kid Pix. This multimedia drawing program allows children not only to create their own artwork but also to animate it and display it as a slideshow. Imagination and open exploration drive the types of interactions that happen in this digital space. The child is showing autonomy by deciding what to make and how but, at the same time, is not sheltered from failing in her attempts. Kid Pix, like other software along the constructionist lines, provides a safe playground, as children cannot go outside its boundaries but, within them, can explore as much as they want. Other examples, such as JumpStart 3D
Virtual World, blend adventure with education. While the tool offers activities to master skills based on national educational standards in math, reading, and critical thinking, the most interesting activities in this digital space, from a developmental perspective, are those that invite children to design a unique avatar, decorate a house, create artwork to display, nurture virtual pets, or choose their own missions to complete. Of course, in this three-dimensional environment, although the avatar can move around, the child is still sitting in front of the computer screen, although she might benefit from physical activity.

Preschool-age children have the cognitive and fine motor skills required to understand that the movement of their hand triggers the mouse movement on the screen. They can also coordinate dragging and dropping and clicking functions. Thus they can engage with current computer interfaces. So, why the need for software such as the programs mentioned above specifically targeted at young children? We can ask a similar question about playgrounds in suburban areas: Why do we need those artificially crafted spaces if children can play in the woods? I am sure you can think of many reasons, but safety and autonomy probably come at the top of the list. While in the woods young children need to be constantly supervised and helped; on the playground children can run free. Parents and caretakers are there, but they can relax and sit on the benches. Also, there are structures already built for them; there is no need to start from scratch every time. Children can subvert their use of the slide and climbers and still engage in creative activities in the sandbox, but someone has thought about landscaping the space with structures that are developmentally appropriate.

The same is true with software specifically designed for children. For example, although from an interface perspective, a child can use Photoshop and PowerPoint as well as Kid Pix, the level of support needed is very different. It is very likely that preschool-age children cannot read: Thus parents might not want them using grown-up software on their own, as the risk of finding parts of the operating system in the recycling bin is too great. Children need pictures and sounds and big objects that can be easily manipulated on the screen. Constructionist types of software such as Kid Pix provide a fence, very much in the way that the playground provides a fence. Parents don't have to supervise or assist their children's every click. They can give them autonomy and promote free exploration. Children can take risks and learn how to learn.

Virtual playgrounds are on the rise for the preschool crowd. For example, Panwapa (http://www.panwapa.com/) is a virtual floating island that travels the five oceans of the world. The goal is to expose children to other cultures. Launched in December 2007 for a target audience of three to
five year olds; it was developed in collaboration between Sesame Workshop* and Merrill Lynch. Within the first five months, 50,000 children signed up to the site (Shore, 2008). Since most preschoolers don't know how to read and write, traditional text-based communication mechanisms found in virtual worlds are not feasible. Instead, alternate means of communication are necessary, such as using symbols to convey feelings (e.g., icons representing different facial expressions) or having spoken messages. In the Panwapa world, children can communicate with each other by exchanging Panwapa Cards with a pre-scripted simple message chosen by the sender, such as, "We like some of the same things; and some different things!" and "I like your house. Please visit mine!" (Beals & Bers, 2010). The messages can also be played out loud. Panwapa is an example of a virtual playground that supports the child in her developmental quest to take on an autonomous role to express her willpower and sense of accomplishment—the developmental milestones that Erikson identifies for this stage.

While some virtual playgrounds involve software, others are physical. For example, at the Rosengårdskolen in Odense, Denmark, a public primary school that serves around 650 students, high-tech learning is not limited to the classroom. The school features a high-tech playground that is linked via the Internet to other playgrounds like it around the world. The structures in the playground call out to students to play games that focus on teamwork and academic skills while incorporating physical activity and fun into the activities. Some of the games are scored, and students can compete with others around the world. My student Jennifer Iassogna spent a semester at the school and observed the many different games children play:

There is one game that features a set of buttons built into the ground that students jump on. The buttons have to be jumped on in a certain pattern following a game directed by a screen. Based on time and accuracy, students are awarded points, and they can be scored against other students at their own school or on other continents. When it comes to teamwork, there is another game that is played on a large climbing structure where different buttons light up and as a group, the students need to climb and tap them all. The students really enjoy these features on the playground.

This high-tech playground is an example of the different ways in which innovation is happening in early childhood education. In recent years the demand for kid-friendly laptops has been on the rise. Electronics makers are exploring that life period in which parents might not want their young children playing with their own computers, due to their messy habits and their underdeveloped motor skills, which might result in missing
keyboard keys and scratched screens, but do want to expose them to the digital world. They want a safe playground for their children. This is not the same as a playpen: that is, mess-proof toys that look like computers but do not offer open-ended possibilities in terms of software, only limited gamelike applications.

In 2006, the In-Stat market research firm found that 46% of consumers purchased a high-tech gadget for a child three to five years of age, the highest spending level on behalf of any children's age group. There is in the market a growing trend to sell hardware that engages the child in physical activity. But this doesn't necessarily mean that we are getting closer to the playground metaphor. For example, Fisher-Price's Smart Cycle is a beautifully designed stationary bike. As children pedal they are immersed in different games that teach about upper- and lowercase letters, numbers, and shapes. The goal is to reinforce academic skills in a fun and active way. Although there are motor skills involved, in terms of the developmental tasks that are fundamental at this age, this bike is a playpen. It might be useful to burn some energy on rainy days and to entertain little Johnny when Mom is on the phone, and it can also teach him letters before he encounters them at school, but there is little opportunity for creative exploration in an autonomous way—the fundamental developmental task of a preschooler. However, the good news is that the nature of technology is to constantly change. As innovative hardware is developed, we will see more digital playground experiences that involve the use of both fine and gross motor skills.

For now, robotic kits that enable users to make and program "smart" objects that move around and sense the world around them can serve as playgrounds for young children (Bers, 2008a). Children are physically active while playing with them. They use their little hands to build them and their logical thinking to program them. Although most commercially available robotic kits require the child to sit in front of the computer to program the robot's behaviors, some experimental prototypes are exploring a different approach by using tangible programming. Tangible languages, instead of relying on icons and words on a computer screen, use physical objects to represent computer code. Children can arrange and connect these physical elements to construct programs.

Tangible languages exploit the physical properties of objects, such as size, shape, and materials, to express and enforce programming syntax. The idea of tangible programming was first introduced in the mid-1970s (Perlman, 1976) and was revived nearly two decades later (Suzuki & Kato, 1995). Since then several tangible languages for children have been created in different research labs around the world (e.g., Horn & Jacob, 2007; McNerney, 2004; Smith, 2007; Wyeth & Purchase, 2002). At Tufts
we have taken a hybrid approach by developing the Creative Hybrid Environment for Robotic Programming (CHERP) system, which enables young children to transition back and forth between the screen-based language and tangible interlocking wooden blocks. Both the on-screen programs and the wooden blocks use the same icons to represent actions for the robots to perform. This hybrid approach allows children to work with multiple representations (Horn, Crouser, & Bers, 2011). Later on in the book, several vignettes and one case study of young children building and programming robots with CHERP will be presented.

To be consistent with the playground metaphor, robotic kits for children must involve two elements: the possibility of creative open-ended construction in the physical world and the possibility of programming the behaviors of the constructed object to be interactive and respond to stimulus via its sensors. Over the years the LEGO company has developed different robotic kits, and several universities and research labs have also implemented their own robotic prototypes (Martin et al., 2000; Rogers & Portsmore, 2001; Rusk, Resnick, Berg, & Pezalla-Granlund, 2008). However, most of these robotic kits have been developed for children who are seven years old and older. Their use is becoming widespread in high schools and middle and elementary schools.

In my own DevTech research group at Tufts University, with funding from the National Science Foundation, we are experimenting with developmentally appropriate programming languages for early childhood education such as CHERP (Bers, 2010b; Bers & Horn, 2010; Horn et al., 2011). Along with LEGO™ bricks, children can build with recyclable materials such as feathers, pipe cleaners, paper, yarn, string, googly eyes, popsicle sticks, water bottles, tissue boxes, straws, and Velcro. Over the years, four and five year olds have built LEGO towns with robots that stand upright and wave their arms to greet town visitors and ballerinas that can sing and dance. Some have created robotic flowers that grow out of the ground when there is light and plants that spin as people approach. Many children have made soccer players that can kick a ball and cars, trucks, and trains that can race with each other and transport animals to the zoo. The possibilities are unlimited (Bers, 2008a).

In a playground approach to working with young children and robotics, there is playful learning, autonomous decision making (even if as adults we know that they will lead to initial failure), and risk taking. Children engage in social interactions and negotiations while playing to learn and learning to play (Resnick, 2003). The Eriksonian tension of "autonomy vs. shame and doubt" that characterizes this stage of development is played out. When making robots, children become engineers...
by exploring with gears, levers, motors, sensors, and programming concepts. They also become storytellers as they create characters that can move in response to input from the environment (Bers, 2008a). Children work on the floor, on the table, and on the computer and navigate among those physical spaces. They use their hands, struggle to connect small LEGO pieces, glue fabric onto their projects, and run around to test the speed of their cars (Bers, 2008b). Children are physically busy. In the preschool years, development of motor skills is fundamental for later growing.

While robotics can be used as playgrounds that serve the fundamental developmental needs in early childhood, they can also be a gateway to learn applied mathematical concepts, the scientific method of inquiry, and problem solving (Rogers & Portsmore, 2004). Educational robotic kits have been described as a new generation of learning manipulatives that build on the tradition of Montessori and Fröbel (Bers, 2008a; Resnick, 2007a): Those early “manipulatives” and “gifts” were designed for children to develop a deeper understanding of mathematical concepts such as number, size, and shape (Brosterman, 1997). Today most early childhood settings have Cuisenaire rods, pattern blocks, Digi-Blocks, and other manipulatives carefully designed to help children build and experiment. More recently, “digital manipulatives” have expanded the range of concepts that children can explore. For example, researchers at MIT have embedded computational power into toys such as blocks, beads, and balls, so young children can learn about dynamic processes and “systems concepts,” such as feedback and emergence, that were previously considered too advanced for them (Resnick, Berg, & Eisenberg, 2000).

However, although robotics support learning about these new concepts and ideas, this is not a fundamental developmental task for young children. Neither is learning letters and numbers, taught by playpen-style educational software. Robotic kits can be wonderful playgrounds for young children because they encourage problem solving and logical thinking, creativity and love of learning, through playful explorations. Teaching the ABC’s, numbers, or computational concepts earlier might be appealing but might not make a difference in the long run. While these are activities that can pave the road for later academic transition, the mastery of new practices and knowledge is the fundamental developmental task for the next stage, the elementary school years. We will explore this in the next section.

First, the following three vignettes showcase examples of young children using technology with a digital playgrounds approach as discussed in this chapter. Playground technologies support children in using their creativity and imagination, discovering and inventing, while making their
own projects in a playful way. For example, the children described in the
next pages used technology by fostering their imaginative play, from
creating digital monsters to making fantastical creatures out of robotics
to playing make-believe in the Panwapa virtual world.

Vignette 1

A PLAYFUL TOOL FOR LITTLE FINGERS

By Elizabeth R. Kazakoff

Madeline, 2.5 years old, Boston, Mass.

Madeline is a two and a half year old from Boston, Mass. She is the only child
of an elementary school teacher and a computer programmer. Madeline's par­
ents love reading to her and playing with her and her toys. Madeline's favorite
toys include blocks and stuffed animals. She only watches one TV show—
Sesame Street.

About six months ago, Madeline's dad bought an iPad. Madeline's parents
had heard about educational apps that could be purchased for the iPad but were
nervous about giving a young child an expensive piece of technology. One
weekend, however, they decided to download a few apps they had read about
online and show Madeline.

The first time they showed Madeline the iPad, she climbed onto her moth­
er's lap and looked curiously at the device. "Bella!" she exclaimed, pointing to
the photo on the screen of the family's cat. Madeline look at the screen, seem­
ingly puzzled but still very curious. She then touched the screen, her finger
landing on an icon. Wheels on the Bus, an interactive book, appeared. Madeline
looked, at first startled, but then grew very excited, realizing that her little finger
had made something appear! Madeline then began touching different objects
on the screen. To her amazement, the objects she touched produced actions
and corresponding sounds while playing the classic "Wheels on the Bus" song.
She sang along to the song, and as she made the horn honk and wipers swish,
she looked up at her mother and giggled.

When the song was over, they played it again and again. Eventually, Madeline
handed the iPad back to her mother and requested "more photos." Madeline's
mother showed her how to press the button at the bottom of the device and
how to swipe her finger across the screen to move back to the initial screen.
"Now me!" said Madeline. Madeline then swiped her finger back and forth,
moving the screen view until she noticed the camera icon and touched it. "More
Bella!" she said as she used her finger to scroll through pictures of the cat.
"Mommy! Daddy! Me!!!" she continued to shout as she excitedly scrolled
through family photos stored on the iPad.
When she was done scrolling through all the photos, she pushed the round button at the bottom of the iPad to return to the main screen. As she did this, something red caught her eye. “Elmo!” Madeline tapped the Elmo button, and Elmo’s Monster Maker appeared. Madeline began touching the “monster” on the screen. With each press of her finger, new eyes appeared. She moved her finger lower, and a new nose appeared; higher, and a hat appeared. She quickly moved her finger back and forth, trying to make a silly monster. With each new combination, she would look up at her mother and giggle.

This first experience with the iPad was not her last. Like many young children, Madeline found the iPad intuitive. Madeline loves playing with her mom and dad, singing “Wheels on the Bus,” taking and looking at photos, drawing with the paint application, reading along with her parents to her many stored storybooks, and playing vocabulary games. Her parents have created a special folder for Madeline’s photos (mostly of Elmo’s monster friends) and favorite children’s songs.

Madeline’s parents had several discussions about how much time she should be spending with the iPad. She typically uses it for a story or game before bed. Her mom or dad is always there to play along with her. They frequently read and draw, sometimes they dance to the stored music, occasionally they build monsters, and often they discuss the memories associated with the stored photos. In Madeline’s home, the iPad is just like any other toy or book, except this one can take on a thousand forms in just one small piece of equipment, perfect for little fingers.

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**Vignette 2**

**FANTASY PLAY COMES TO LIFE THROUGH A ROBOT**

By Louise Flannery

Katerina, five years old, Cambridge, Mass.

Katerina is a kindergartener who lives with her parents and older brother, Gabe, who is eight. She is never shy with adults; has lots of energy, curiosity, and humor; and loves to experiment and learn about new things. Never bored, she creates numerous drawings and other projects with arts and crafts materials. She also builds with blocks at school and with sand, twigs, and water in her yard. Until last week, however, Katerina had never built with Gabe’s LEGOs. She had seen Gabe build towers and cars, but those things didn’t interest her. How could she play with him? But now Katerina has an idea, because last week she attended a robotics summer camp specially designed for kindergarteners.
At camp, Katerina and the other children learned how to build and program robots to make a robotic town. The robots were made from LEGO robotic parts, LEGO bricks, and arts and crafts materials. The group brainstormed all sorts of possible robots for a town. Many children thought of vehicles (garbage trucks, cargo ships, and army tanks) or buildings with moving parts, like a drawbridge and a door that opens when you push a button. The camp counselors also helped children think of people who live and work in a town, and Katerina decided to try that out. She found a buddy, Elsa, who was also interested in making a robotic person.

Making the robotic person was challenging for several reasons: the girls needed to make the materials work, and they had to collaborate successfully. As they talked about what to do and tried building their person—a farmer—in different ways, they decided that the farmer would greet anyone who walked by. Katerina wanted it to wave its arms, but the motors kept falling off. Their creation did not look as much like a person as they wanted. What could they do? Elsa felt that the farmer should move in some other way or just sing, but Katerina really wanted to fix the waving arms. Finally, after trying out many ideas and getting advice from one of the camp counselors, Katerina and Elsa's robotic farmer had all the necessary parts connected so it could wave its arms, flash its eyes, and sing whenever it sensed someone passing by.

After they completed building it, the girls programmed instructions for their robotic farmer to do all of these things. After a week of hard work, they were ready to show off this project to their parents during the final day of camp. Though the process of making and debugging their robot and program had not always been easy, when they were done, Katerina was proud of their accomplishments. Feeling confident that she could make other projects if she tried, she wished robot camp would last another week. She also felt happy that she had worked with Elsa; she had made a new friend.

Now, a few days since the end of the robotics camp, Katerina is thinking busily about all the challenges she and Elsa had to solve to make their robotic farmer, and she is imagining other robots she'd like to make. While she doesn't have her own robotics set at home, she has been proactive about joining her brother's LEGO play and building all sorts of creatures with paper, tape, and stickers. She now feels confident to connect with Gabe in LEGO play and in her ability to imagine and make interesting objects. She spends time each afternoon building these creations and giving them fantasy robotic capabilities. Someday, she hopes, she will have her own robotics set at home and make robots really come to life.
Vignette 3

A SAFE ONLINE PLAY SPACE FOR A PRESCHOOLER

By Laura Beals

Emma, four years old, Boston, Mass.

Emma is an only child who is very shy. She takes a while to warm up to new situations and people and makes friends slowly, though she has two best friends from school, Jane and Charlotte. Even though she is shy, Emma really enjoys playing make-believe. At school she loves the dramatic play area of the classroom—her teachers notice that when she is pretending to be someone else, she becomes less shy. At home, she spends hours in her playroom with her play kitchen, her play workbench, and her favorite: her play veterinary kit, with her dog, Sammy, being her preferred “patient.”

Both of her parents have technology-based careers, thus Emma has been exposed to computers, smart phones, and other technologies from birth. However, her parents are cautious about what technology she is allowed to use; she had very little exposure to television or computers until she was over two years old. They do feel, however, that in today’s world it is important for children to be competent with technology in order to be successful in school, and so they are open to her experiencing technology that they feel is age appropriate and which they can explore with her.

Emma had been requesting to “play on the ’puter,” and so her parents began researching options for preschoolers and asking other parents at Emma’s preschool what their children were using. Her parents had heard about a virtual world created by Sesame Workshop, called Panwapa (http://www.panwapa.com/), and so they explored the Web site in more detail. Her parents were confident in its educational value and appropriateness for their daughter, as Panwapa was developed by the same experts behind Sesame Street, using research-based principles. In addition, they appreciated that the Web site had easy-to-find materials for caregivers to better understand the experience and engage in the program with their child. Also, they thought that the five educational principles of the program—Awareness of the Wider World, Appreciating Similarities and Valuing Differences, Taking Responsibility for One’s Behaviors, Community Participation and Willingness to Take Action, and Understanding of and Responsiveness to Economic Disparity—were ones to which they felt Emma should be exposed: Finally, they thought that the make-believe basis of the world, and the fact that Emma would be able to interact with other kids in a safe manner, would be an ideal play experience for their daughter.

Panwapa, developed in collaboration with Sesame Workshop and Merrill Lynch and intended for children ages four to seven, is based on a metaphor of a virtual floating island that travels the five oceans of the world. As of November 2010, there were over 313,000 Panwapa kids. Panwapa’s child-friendly interface and activities allow children to be active participants in becoming members of
the community via their own initiative. For example, children are encouraged to create their own characters, flags, and houses as well as gather collections of cards such as World Cards (gathered by visiting new places), Rare Animal Cards (gathered by encountering the animal in its native country), Panwapa Islander Cards, and Panwapa Kids Cards. It is through these activities that the Panwapa developers aim to achieve their overarching purpose:

Technology is drawing people across the world closer together, creating opportunities, and bringing about change. This interconnectedness is also demanding that children develop greater awareness and skills to navigate and thrive in the world. We believe that today, more than ever, learning how to be a global citizen is fundamental to a child’s healthy development.

Emma needed her mom’s help when she first joined Panwapa, as she had to request a user name and select a password. She also had to design her character, her house, and her flag—officially called Panwapa Kids, Panwapa Homes, and Panwapa Flags, respectively—before she could enter the world. A Panwapa Kid can be customized with different body colors, eyes, mouths, hairstyles, shoes, and outfits. The shape, building materials, and surroundings can be chosen for a Panwapa Home. To customize a Panwapa Flag, a user chooses one favorite item from each of six categories: food, animals, sports, musical instruments, activities, and crafts. While children can customize each of these three items, their choices for doing so are limited. This limitation is another reason why Emma’s parents felt comfortable allowing her to play in Panwapa—there is no opportunity for her to accidentally “stumble” upon inappropriate content within the Panwapa world.

Emma really enjoyed this part of Panwapa—she thought it was very fun to make her character have blue skin, green eyes, and yellow pigtails and to wear a pink-and-white action hero outfit complete with a pink eye mask. She often returned to this part of Panwapa to change her character’s look. When she first started Panwapa, she had difficulty using the computer mouse to control her actions on the screen. However, as she continued using Panwapa, she became much better at controlling the mouse and was proud that she could eventually play in Panwapa all by herself most of the time. She still has to ask for help when the browser freezes or if she accidentally clicks outside of Panwapa.

One of Emma’s favorite activities in Panwapa is to communicate with other Panwapa children using Panwapa Cards. These cards have the child’s Panwapa name, picture, and flag. In addition, the Panwapa Cards have a pre-scripted simple message chosen by the sender, such as, “We like some of the same things, and some different things!” and “I like your house. Please visit mine!” As Emma cannot yet read on her own, she loves clicking on the cards because the message is read out loud for her. Her parents are happy that communication is restricted in this manner; they would not feel comfortable if Emma were able to write
messages or receive them from other users. Because of this, they feel comfortable allowing her to play in Panwapa on the house computer, which is located in the kitchen, while they are making dinner in the evenings. Her parents have decided to limit her playing in Panwapa to 20 minutes a day during this time. She is not allowed to use the computer, or Panwapa, without asking permission from a parent, and when she is on the computer, a parent frequently checks on what she is doing.

Emma’s second favorite activity in Panwapa is a game called “Hide and Seek With Koko,” in which Koko, a Muppet character, hides somewhere on the island, giving the child clues in order to find her. There are many opportunities for play in Panwapa, especially make-believe play. In fact, the entire “island” is make-believe, as reinforced by the cast of Muppet characters. Other games in Panwapa, though not Emma’s favorite, are “Panwapa Movie Play-Along,” in which children can watch and play along with interactive short videos featuring real children from around the world in order to better understand how other children live in very different economic situations from themselves but have the same basic needs, such as food, water, and shelter; and “Treasure Hunt,” in which children can follow a series of clues around the Panwapa world in order to find other Panwapa Kids, allowing them to win special Panwapa Cards.

While playing in Panwapa has not made Emma more comfortable making friends, her parents have noticed that her skills in using the computer independently have improved greatly. They also find that she is showing an interest in geography and asks to read books about other places in the world. They do believe that allowing Emma to engage in make-believe in Panwapa for a little bit everyday exposes her to a new avenue for exploration of her imagination. They will continue to let her play with Panwapa until she indicates that she is interested in a new experience; at that time, they will begin the process of finding another age-appropriate virtual experience for Emma.