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18

A Palace in Time

Supporting Children's Spiritual Development through New Technologies

Marina Umaschi Bers

Sixteen-year-old Janet connects to Zora, a multiuser virtual city. There, during a summer workshop for youth, she has created an avatar, a virtual representation of herself, a virtual home, and a Jewish temple. A visit to Janet's virtual home on Zora reveals much about her: her favorite friends, her most-loved games, her family's history. After working on her own virtual home, she creates the Jewish temple. She makes a virtual rabbi to welcome visitors with a blessing. She invites other children to make the decorations of the virtual synagogue. There are Hebrew letters, a map of Israel, a picture of a man praying. Janet clicks on a silver mezuzah.¹ It tells her a story about the meaning of the prayers it holds. She decides to add a television to the temple. Inside it, she puts a snapshot from the movie *Schindler's List* that she found on the Web. The system enables her to associate objects with "values."² She associates the television with the value "documentation" and defines it as "very important to remember history. That way, bad things won't happen again. Holocaust survivors are getting very old now, and if someone doesn't record their stories of what happened, we are doomed to forget and repeat the horrors." While exploring the Jewish temple, Janet encounters Marie. Both girls chat via their avatars, and then Marie invites Janet to visit the virtual Baptist Church she created.

This vignette presents one of the many experiences that young people had while participating in a summer workshop in which they created a virtual city to explore cultural and religious differences using the Zora three-dimensional virtual world. Zora provides tools for users to design their world, with both private and public spaces, and to create and program the objects and characters that will populate the virtual world. In the process of creation, children can also communicate in real-time with each other (Bers 2001). Zora is one

of the many contemporary examples of virtual worlds that enable children to develop a virtual community and inhabit it. However, what is different from commercial applications such as *Second Self* and *The Sims* is that *Zora* was explicitly developed with a theoretical and pedagogical framework that looks at the positive role that technology can play in young people's lives. Thus, it has design features that enable children to not only have fun while creating their virtual city but also to learn about their own identities and to explore the different aspects of the self, spirituality among them.

Zora is an example of a computer-based identity-construction environment (ICE). In this chapter, I will present both *Zora* and other identity-construction environments I have developed over the last decade of work. While the technologies and the context of their use are different from each other, a virtual world in *Zora*, a robotics workshop in Project InterActions, and a storytelling authoring toolkit in SAGE (Storytelling Agent Generation Environment), in the many different pilot studies, children used these identity-construction environments to explore their own sense of spirituality and, in some cases, to learn more about religious traditions.

When first thinking about how to design these computer-based identity-construction environments, one image came to my mind: the Jewish Sabbath. I am not an observant person nor do I strictly follow the laws and rituals prescribed by Judaism with respect to the Sabbath. However, I find the idea of the Sabbath fascinating. The Jewish philosopher and theologian Abraham Joshua Heschel said that the Sabbath is a "palace in time" in our modern lives: "[Its] goal is not to have but to be, not to own but to give, not to control but to share, not to subdue but to be in accord" (Heschel 1951). According to Heschel, the seventh day belongs to the realm of time, as opposed to the realm of space. In a beautiful and simple manner, he explored the many reasons that make the Sabbath a holy day. One of them has been particularly influential in the design of identity-construction environments such as *Zora*: the Sabbath is a time for introspection and reflection, a time for stopping the everyday work and looking back at who we are, how we are feeling, and how we are building a caring, just, and responsible community.

When designing a technological environment for learning about identity, all of these images associated with the seventh day came to mind. The Sabbath served me as a powerful "object to think with" (Papert 1980). It illuminated the kind of experience that I hoped young people would have while engaging with the technology. I wanted children to enter a very special place, "a palace

in time," that would afford them similar experiences to the ones I had when entering the synagogue: engage in self-reflection, creation, creativity, communication, and participation in a community. I hoped children would collaborate with others in ongoing community projects and, at the same time, engage in personally meaningful projects. I imagined them entering into "a palace in time" where they would find tools for self-reflection and community building. These tools would go beyond the traditional prayers, words, and conversations that I found at the synagogue. I wanted results of quiet introspection and self-reflection to become tangible and manipulable. Thus, in *Zora*, children can create virtual temples with interactive religious objects and characters. And they can embed stories in virtual objects that can be programmed to react to users' inputs. *Zora*, as well as the other computer-base identity-construction environments I will later present, is my attempt at designing a virtual "palace in time," a technologically rich environment that would afford similar kinds of experiences as the Sabbath.

In this chapter, I will first provide an overview of the design history of identity-construction environments by describing an iterative process of designing, implementing, and evaluating three projects through psychoeducational interventions: SAGE, *Zora*, and Project InterActions. I will conclude the chapter with reflections on the positive role that technology can have in the spiritual development and the religious education of young people.

IDENTITY-CONSTRUCTION ENVIRONMENTS: A DESIGN HISTORY

Over the last decade, I have developed and conducted studies with several kinds of computer-based identity-construction environments that enable children to learn by doing. In this chapter I will present three of those that children have used to explore spirituality and religion.

1. SAGE, Storytelling Agent Generation Environment, provides tools to create wise storytellers to interact with by telling and listening to stories (Bers and Cassell 1999).
2. The *Zora* virtual environment, as mentioned before, provides tools to create and inhabit a three-dimensional virtual city (Bers, Gonzalez-Heydrich, and DeMaso 2001).
3. Project InterActions engages families in the design, building, and programming of a robotic artifact to represent a value or an aspect of their reli-

gious and cultural backgrounds (Bers, New, and Boudreau 2004). Within this project, a pilot study was done in a Jewish day school in Argentina during the high holidays. Families came together to make robotic creative prayers (Bers and Urrea 2000).

Identity-construction environments are specifically designed with the goal of promoting positive youth development (PYD). PYD involves cognitive, personal, social, emotional, and civic aspects of young people, which researchers refer to as the six C's: competence (cognitive abilities and behavioral skills), connection (positive bonds with people and institutions), character (integrity and moral centeredness), confidence (positive self-regard, a sense of self-efficacy), caring (human values empathy and a sense of social justice), and contribution (orientation to contribute to civil society) (Lerner et al. 2005; Lerner 2002; Lerner, Fisher, and Weinberg 2000). Together, these characteristics reflect a growing consensus about what is involved in healthy and positive development among people in the first two decades of their lives (Scales, Lefkowitz, and Blyth 2000). Thus, interventions such as the ones that can be developed through the use of computer-based identity-construction environments to promote learning about spirituality and religion can also have an impact on positive youth development.

In my own work on PYD, I pay particular attention to technologically rich contexts and aim to understand what kinds of technology-based interventions are more likely to engage children in a learning trajectory that I call positive technological development (PTD). Today's youth use computers for learning, working, playing, communicating, dating, buying, and protesting. According to a 2005 study conducted by the Pew Internet and American Life project, more than one half of all American teens use the computer and the Internet to create media (Lenhart, Madden, and Hitlin 2005). Psychoeducational programs must take advantage of the natural tendency of youth to use technology in creative ways.

Computer-based identity-construction environments such as the ones I will later describe are purposefully designed to be used in targeted interventions that will promote positive technological development, which, in turn, might promote positive youth development. Mirroring the six C's of PYD, the PTD (positive technological development) learning trajectory aims at helping children develop: (a) *competence* in the development of computer literacy and technological fluency, (b) *confidence* in their own learning potential and their

own ability to solve technical problems, (c) *caring* about others, to be expressed by using technology to engage in collaboration and to help each other when needed, (d) *connection* with peers or adults to use technologies to form virtual communities and social support networks, (e) *character* to become aware of their own personal values, be respectful of other people's values, and assume a responsible use of technology, and (f) *contribution* by conceiving positive ways of using technology to make a better learning environment, community, and society (Bers 2006; Bers 2007).

Computer-base identity-construction environments make use of stories as essential building blocks for helping children use technology in positive ways and for carrying on the "know thyself" mandate. According to the Jewish tradition, God presented himself to Moses in the Sinai by saying, "I am that I am" (Exodus 3:14). This recursive definition of identity serves as a metaphor of our own need to discover who we are. New technologies are changing the way in which we know our own selves (Turkle 1984, 1995). I will present some examples of how three different technologies and psychoeducational programs were developed with this purpose.

SAGE: STORYTELLING AGENT GENERATION ENVIRONMENT

SAGE is an authoring environment for children to create their own wise storytellers to interact with by telling and listening to stories. Children can engage with SAGE in two modes: (a) by choosing a wise storyteller from a library of already-existing characters and sharing with him or her what is going on in their lives, and (b) by designing their own sages and programming the conversational interaction between storyteller and potential users, as well as creating the database of inspirational stories offered by the storyteller in response to user's problems (Bers and Cassell 1999). The sage storyteller "listens" and then offers a relevant tale in response

The SAGE architecture has three components:

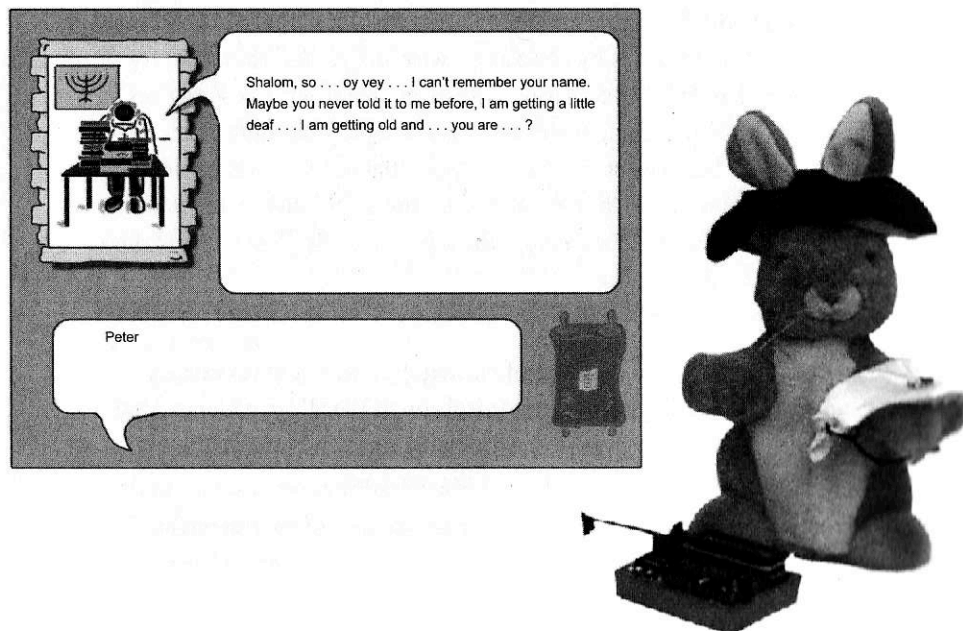
1. *Computation module* is in charge of parsing the user's story to extract nouns and verbs, expanding these keywords through WordNet, a hierarchical semantic lexical reference system, and performing a match between the user's personal story and an inspirational story in the database.
2. *Authoring language* serves to design the personality of the interactive characters, the conversational flow between user and storyteller, and the database of stories offered by the system in response to the user's story. In the

database of stories, users can write or record the inspirational tales that will be offered by the sage. They can index them with personal and moral values that they consider good descriptors of the main story points.

3. *Interface* is the layer through which a user communicates with the system, composed by the computer screen and a programmable interactive soft toy that behaves as the storyteller's assistant. It takes different personalities according to the hat it wears (see Figure 1). For example, by putting on a yin-yang hat, the toy behaves as a Taoist sage, and by replacing it with a yarmulke, the toy becomes the disciple of a rabbi who tells Hasidic stories. The toy moves its ears, shakes its body, and blinks its eyes to indicate attentiveness. These body movements can also be programmed by the children.

Over the years, I conducted several studies to examine children's interactions with the sage storytellers and their ability to build their own meaningful characters. My earliest research showed that children engaged deeply with sages that I had designed, such as a Hasidic rabbi and a Buddhist scholar.

FIGURE 1. The Hasidic SAGE on the computer screen and the interactive, stuffed storyteller assistant.



When interacting with them, children revealed aspects of their inner lives and the problems they face every day. For example, below is an extract from a conversation log between a ten-year-old and the Hasidic rabbi:

SAGE: You know Abraham, a story is more than a story. A story has power. Nu, what is your story? What is in your mind?

USER: Once I was learning math, and I could never understand it.

SAGE: *Oy vey!* Go on, Abraham.

USER: I kept on trying, but no matter how much I studied, I could not get it.

SAGE: I see, Abraham. What else do you have to share with this old rabbi?

USER: I have the same problem with English, Hebrew, and all other subjects.

SAGE: Well, your situation reminds me of a story. Remember that there is power on the stories. The Gerer rabbi said: "Exile contains redemption within itself, as seed contains the fruit. Right work and real diligence will bring out the hidden reward." Abraham, do you see the point of this story related to your own story?

USER: Yes. So now I see that I just have to keep on trying no matter what.

SAGE: I hope it was helpful. *Zie gezunt*, be well. May the Lord, source of life, bless you, Abraham, with peace, and may you find your inner peace. Amen.

In this example, the child, Abraham, shares his learning problems with the Hasidic SAGE who tells him a comforting story from the database by matching nouns, verbs, and values.

In the next example, the same format is used by a Taoist SAGE who tells a comforting story to Conor, who is also experiencing problems with school:

SAGE: *Nin hau*. What is your name?

USER: Conor.

SAGE: My name is Chuang-Tzu. I am a Taoist sage who lives by the Way, the Tao, wandering free and easy. How old are you, Conor?

USER: 13.

SAGE: I am 87 years older than you. I am older than the mountains and the seas, while you, Conor are still young. You are here because you seek knowledge. Conor, tell me your troubles, and I will enlighten you with the sayings of the Tao, the Way.

USER: I want to do better in school.

SAGE: I see, Conor. What else can you tell to this Taoist sage?

USER: I have a lot of math homework, and I don't understand all of it.

SAGE: Go on, Conor. We are becoming one.

USER: The teacher was vague in explaining it.

SAGE: My Taoist understanding tells me that you want to do better in school. You have a lot of math homework, and you don't understand all of it. The teacher was vague in explaining it. Is that close to the truth?

USER: Yes.

SAGE: Silence. Let the Way come to me. There is something for you. No need to leave your door to know the whole world; no need to peer through your windows to know the Way of heaven. The farther you go, the less you know. Therefore, the sage knows without going, names without seeing, and completes without doing a thing. Get the idea, Conor?

USER: I was already supposed to know how to do it.

SAGE: I see, Conor. Maybe this teaching of the Way will help you. To understand others is to be knowledgeable; to understand yourself is to be wise. To conquer others is to have strength; to conquer yourself is to be strong. To know when you have enough is to be rich. To go forward with strength is to have ambition. To not lose your place is to last long. To die but not be forgotten, that's true long life. Do you get it?

USER: Yes, I'm supposed to learn from my mistakes.

SAGE: So, Conor, now you understand the Way. I must go now to become one again with heaven and earth. Conor, don't stop thinking about the Way, and you will find your own way. May you, Conor, become one with the Tao.

Over sixty young children, such as Abraham and Conor, engaged with the Hasidic and the Taoist sages and were able to both tell their own stories and interpret the hidden meaning behind the traditional stories offered by the SAGES. However, older youth were also able to suspend disbelief and engage in the storytelling interactions.

SAGE: *Shalom, nu?* What's your name?

USER: David.

SAGE: Oh, David, I am the rabbi of this computer community. My grandfather was a rabbi in a shtetl back in Russia. But enough about me. How old are you, David?

USER: 16.

SAGE: *Baruj Hashem*, I am 64 years older than you.

SAGE: David, you know what *tsuris* are? Troubles . . . everybody has troubles. Tell me yours, and I will tell you a Hasidic story back.

USER: I have an assignment to write, and I am finding great difficulty writing it.

SAGE: *Oy vey!* Go on, David.

USER: If I do not write it, my teachers will be very upset with me.

SAGE: I see David. What else do you have to share with this old rabbi?

USER: I am afraid that they will not renew my scholarship if I do not hand it in.

SAGE: *Oy va voy*, David, let me see if this rabbi understands. You have an assignment to write, and you are finding great difficulty writing it. If you do not write it, your teachers will be very upset with you. You are afraid that they will not renew your scholarship if you do not hand it in. Is this right?

USER: Yes.

SAGE: Your situation reminds me of a story. Remember, there is power in the stories. Rabbi Israel Baal Shem Tov, who later was to found the Chasidic movement, lived a "hidden" life, artfully concealing his knowledge and piety in the guise of an ignorant clay digger. Once, he came to see the rabbi of Brody. The rabbi, seeing only his visitor's crude manners and torn and muddy clothes, treated him with contempt. Said the Baal Shem Tov, "Our sages tell us to 'learn from every man,' for your fellow is your mirror. If your own face is clean, the image you encounter will also be flawless. Should you gaze into a mirror and see a blemish, it is your own imperfection that you are seeing." *Nu*, David, do you get it?

USER: Yes. You are trying to tell me that I am self-centered and wrapped up in my own problem.

SAGE: *Baruch Ha Shem*, you got the power of the story.

SAGE: I hope it was helpful. *Zie gezunt*, be well. May you have the courage to keep telling stories, and may you, David, keep listening to stories.

While all of the examples above show interactions with sages that mimic religious or spiritual leaders, children also chose to create characters such as Mother Nature, Shaquille O'Neal, and the Big Orange Fox, who would tell them meaningful stories (Bers and Cassell 1998). In building a SAGE, children designed that person to whom they wished they could turn with their problems. They also played with different notions of self, by creating or imitating the narrative voices they wanted or needed to hear.

Pilot research showed that children created storytellers as projections of fears, feelings, interests, and role models. For example, young cardiac patients used the SAGE environment to tell personal stories and created interactive characters, such as Mrs. Needle or Mr. Tape, as a way of coping with cardiac illness, hospitalizations, and invasive medical procedures (Bers et al. 1998).

THE ZORA VIRTUAL ENVIRONMENT

Zora is a three-dimensional multiuser environment that provides tools for children to design and inhabit a virtual city. Avatars representing users can navigate around the virtual city. They can converse with others in real-time through a graphical chat system and construct the city's private and public spaces. They can create objects, characters, and stories while developing a virtual community (Bers 2001).

In Zora, all virtual objects have three different kinds of attributes that need to be personalized by the children. The *presentation attributes* determine the object's graphical appearance and motion. The *administration attributes* determine who owns the object and, therefore, who can edit it and who has permis-

sion to decide if the artifact can be cloned. The *narrative attributes* (i.e., textual descriptions, stories, values, and conversations) structure a way of thinking about objects that highlights their potential to carry ideas about self and community and that allow for specifying the meaning or personal and moral values that people assign to them.

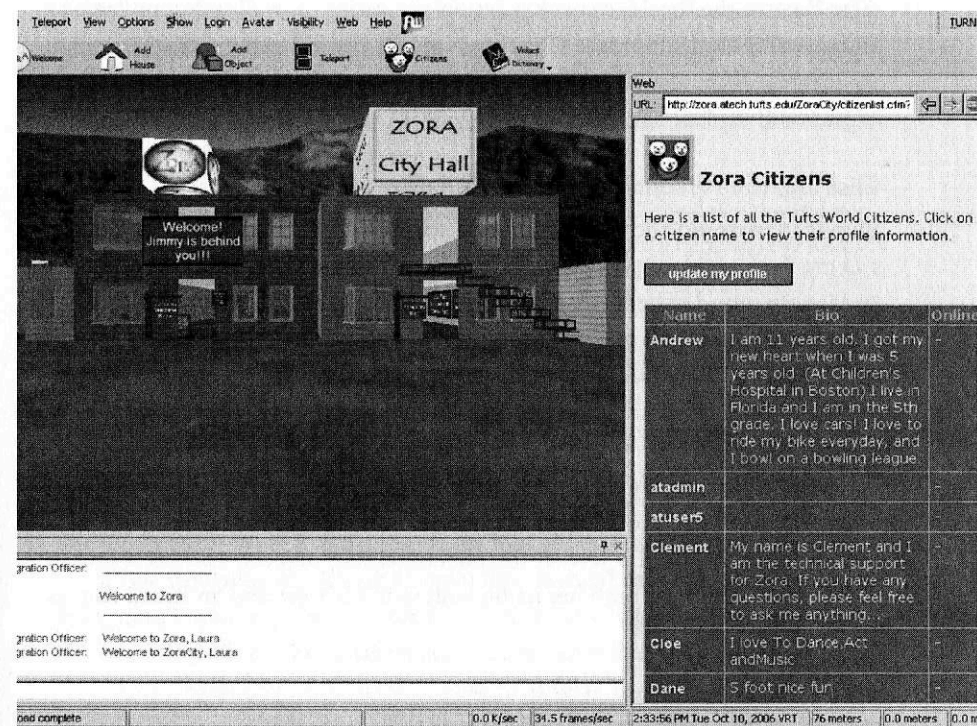
Users can write stories and associate them with keywords to be used while programming a conversation for the object, as well as write values and associate them with definitions. Figure 2 shows the Zora interface. Zora also offers tools for researchers and teachers to evaluate the learning experience. For example, the Zora system logs, with date and time, everything users say or do online. A Zora log parser was implemented in order to parse the system logs according to the specific needs of each research project and gives control to the researcher of the variables to retrieve and display. The first version of Zora was implemented as part of my doctoral work at the MIT Media Lab using Microsoft's Virtual Worlds research platform. The second version of Zora is implemented using the Active Worlds platform at Tufts University.

In the spirit of the constructionist learning theory that states that people learn better while engaged in the design of a meaningful project (Papert 1980), Zora offers easy-to-use authoring tools to build a virtual city. Users can import and create their own personally meaningful pictures and objects and can make virtual heroes and villains, positive and negative models of identification.

In constructionist graphical virtual environments, users can define how their objects behave in the world by programming their motion and animations. In Zora, however, users can also program objects to engage in storytelling interactions, as in SAGE, by describing the underlying turn-taking rules between user and object. They can also define the stories to be told by the object in response to certain input. While programming interactive conversations, learners engage in perspective taking or seeing the world as others do. This is a fundamental mechanism involved in the process of identity formation.

Zora's values dictionary is a compendium of all personal and moral values and their multiple definitions, held by the Zora community. At the beginning of a Zora experience, the dictionary is empty. As learners populate the virtual city with objects and characters and define the values and definitions associated with them, the dictionary starts to fill up. The collaborative values dictionary was designed to allow users (a) to browse its content and easily visualize clashes between different definitions for a same value in order to trigger interesting conversations and reflections and (b) to enter new values and definitions independently from grounding them in objects in the virtual world.

FIGURE 2. Zora's Interface



I conducted four different studies with young people using Zora. All of the studies focused on developing components of positive technological development—in particular, competence and confidence in using technology—but each study had some of the C's as a focal variable. For example, in a pilot summer camp with a multicultural group of teenagers, from which excerpts were shown in the scenario presented earlier (Bers 2001), the primary goal was to help youth develop character. In a pilot study with young patients in the dialysis unit at Boston Children's Hospital (Bers, Gonzalez-Heydrich, and DeMaso 2001) the focal C was connection. Patients used Zora to form a virtual community to escape the harshness of the dialysis treatment and to create a network to facilitate mutual support and new kinds of interactions with hospital staff (Bers, Gonzalez-Heydrich, and DeMaso 2003). In a recent study aimed at engaging freshman in a local university as civic participants in the university and the wider community, the focal C was contribution (Bers, in press). In an

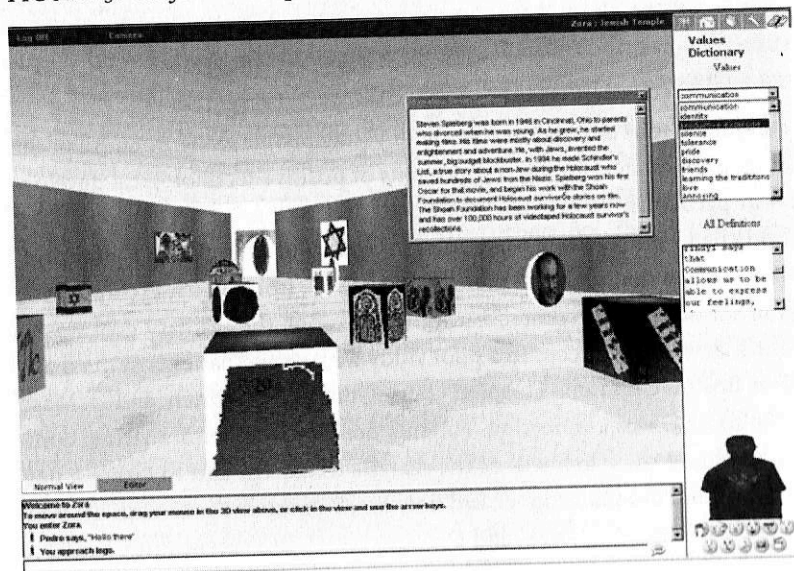
ongoing project with post-transplant solid-organ patients at Children's Hospital in Boston, the focal C's are connection and caring, as well as competence to engage in medical adherence (Bers et al. 2007). The following section presents an example of how a young girl used Zora during the summer workshop to express and explore her religion.

Elisa and the Personal Meaning of Judaism

Elisa is 16 years old and goes to a Jewish school. She is the daughter of a rabbi, and much of her identity is linked to Judaism. She lives in a wealthy part of town and is very proud of her Jewish heritage. She wears Jewish symbols around her neck and likes to read and write in Hebrew. She is very driven, independent, and outgoing. She loves to talk about herself and has many friends. She has strong opinions about what is good and bad, and she is not shy about sharing them with others.

Elisa started out by building a virtual temple instead of a personal home. She wasn't the only one to do so. Catherine created a Baptist church with God and evil. Elisa created a Jewish temple containing objects, such as a Jewish prayer book, a picture with her name written in Hebrew, and an Israeli flag, as

FIGURE 3. The Jewish Temple Built by Elisa



well as heroes like Steven Spielberg and her dad, who is a rabbi (see Figure 3).

In Elisa's Jewish temple, every object had very personal stories attached to it, as well as descriptions aimed at teaching others about Judaism. For example, the *kippah* has the following description: "Leather or cloth skullcap worn on the head to both show and feel closer connection to God through the body." It has the following associated story:

I live in the U.S.A., and so I don't normally see Jews just walking down the street in a non-Jewish environment. Even if I did see one, I wouldn't know because Jews look the same as everyone else. That's why I love when I see someone in a *kippah*. They enable me to know if they are Jewish just by looking at them. I know it is not much, but whenever I see random people wearing *kippot* I feel closer to them. I know that being Jewish is just as important for them as it is to me.

While building her Jewish temple, Elisa did research about what kinds of objects best express Judaism, especially her particular vision of it. This is very important for her. She doesn't want to absorb Judaism from her environment. She wants to re-create it and appropriate it in her own way.

While designing her Jewish temple, Elisa learned more about Judaism, but even more important, she was able to reflect about what Judaism means for her. She had a "palace in time," a safe space reserved for reflection and introspection.

This introspective exploration is very similar to the kind of "working through" issues of identity that Sherry Turkle, borrowing from Erikson, describes as a moratorium, or a time of constant experimentation and reflection in the adolescent's life (Turkle 1995). The process of self-reflection that Elisa engaged in has some resemblance to what happens during therapeutic interventions and meditative or religious experiences. However, during the experience with Zora, the products of self-reflection became tangible, dynamic, and manipulable.

Zora provided children like Elisa with a palace in time to reflect, explore, interpret, and share in community. However, technology can afford the development of both virtual and physical spaces that will serve the functions of a palace in time. In the next section, I present a pilot study done in a Jewish day school in Buenos Aires, Argentina, in which parents and children came together to participate in a robotics workshop to create interactive creative prayers during the holy days of the new years and the Day of Atonement. Those ten days, the *Iamin Noraim*, the terrible days, provided a palace in time for these families to explore their Jewish values.

PROJECT INTERACTIONS: ROBOTIC PRAYERS

The Project InterActions research program looks at the many interactions that exist when parents and young children are brought together in a learning environment using new technologies to program and build a robotic toy that represents an aspect of the family's cultural heritage (Bers, New, and Boudreau 2004; Bers 2007).

The first pilot study of Project InterActions was done in a Jewish day school in Buenos Aires, Argentina, in which families made robotic creative prayers and shared them with other members of the community at the synagogue before the traditional prayers of the Jewish high holidays (Bers and Urrea 2000).

The timing of the workshop was carefully selected to overlap with the Jewish high holidays, a period of ten days in which the community gathers to celebrate the Jewish New Year and the Day of Atonement. In this context, children's curriculum focuses especially on the values of these festivities, the most holy in the Jewish calendar. To hold a workshop during these holidays was very meaningful because of the spiritual work of reflection and forgiveness that takes place both in the school and the community. The workshop was a first step toward forming a group of parents, children, and teachers who would later integrate this approach to values and technology into the school's curriculum and make it available to a wider audience.

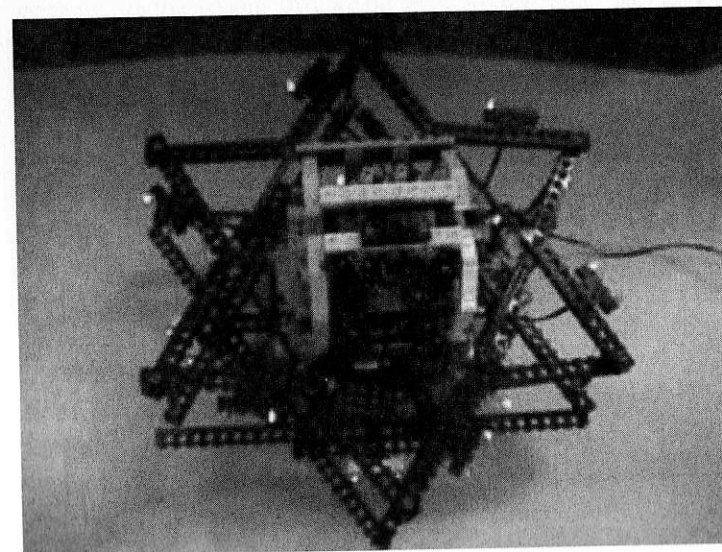
We worked with a project-based immersing methodology. By *project-based learning*, we mean that learners were asked to choose a project that they would like to work on for the whole duration of the workshop. They were involved in all aspects of the project. They chose the values to explore, decided the materials to use, managed the resources and time frame, resolved the technological challenges (both in terms of programming and mechanics), created a narrative around the final project, and presented it to the other members of the community through creative prayers.

By *immersing learning*, we refer to the notion that learners immersed themselves in the learning process by having a lot of time devoted to play and to explore their ideas in depth. For example, in this particular workshop, we worked with parents and children during five days, eight hours a day. During that time, participants could try many ideas and had enough time to iterate through different versions of the same idea. Each participant was asked to keep a design notebook to document the project progress as well as ideas and difficulties. We created a workshop Web site to document the experience collectively. Since this was the first pilot workshop within the research program, documentation was very important to allow future experiences and comparative studies.

Technology was used by parents and children in very different ways to explore values: (a) to represent symbols, (b) to represent values, and (c) to evoke reflection and conversation (Bers and Urrea 2000). Projects in the first category, technology to represent symbols, created artifacts that resembled the Jewish symbols without deeper exploration of the nature of the values represented by these symbols. For example, Michael, a 10-year-old boy, describes his project in the following way: "We built a 'Maguen David,' Star of David, as a symbol of our Jewish people, and we programmed it to turn forever like the wheel of life and have flashing lights resembling candles welcoming the New Year. We also reproduced the sound of the *shofar*. It has three different tones that are supposed to awake us for reflection and atonement." Michael's group chose the value "awakening" or "call for reflection." They designed their project by anchoring it to traditional symbols. The construction of the star was done in a very careful way out of LEGO pieces and flashing lights. The center of the star was connected to a platform that moved with a motor. They used a touch sensor to launch and stop their program, which had three basic jobs: turn the motor on, turn the lights on and off, and play the sound of the *shofar* (see Figure 4).

Projects in the second category, technology to represent values, involved both artifacts and stories that made the chosen value more explicit. For example, a group chose the value "friendship" and created a puppet theater. The theater

FIGURE 4. The LEGO-based Star of David



had a curtain that opened to show the performance of two LEGO dolls hugging after a fight (see Figure 5). Marcia, 9 years old, created a story about the girl's situation and the connection with some of the values of the high holidays, such as *Teshuva*. "This project tells the story of two girls that, after a fight, give each other a hug and become best friends," explains Marcia. "This project talks about the *Teshuva* that allows us to repair our mistakes. The friends did *Teshuva* and became friends again with a big hug." Marcia built the dolls with LEGO bricks, attached colorful strings as hair, and placed motors in the arms to swing back and forth simulating a hug.

The "friendship" project used technology as well as storytelling. Since the chosen value was the main element of this project, the group needed to tell a story to reinforce the interpretation of the value. The participants wrote the story in the good-wish card that was handed out to visitors during the open houses. Telling a coherent story around the robotic creation was as important as getting the mechanics and the programming right.

Projects in the third category, technology to evoke reflection and conversation, treated values in a more elaborated way and provided an opportunity for others to engage in experiencing the complexity of the chosen value and participate in thoughtful discussion. For example, Paula and her 10 year-old son, Matias, with the help of two other moms, created a conveyor-belt contraption that transports the actions of the previous year (see Figure 6). Paula explained

FIGURE 5. Friendship and *Teshuva*

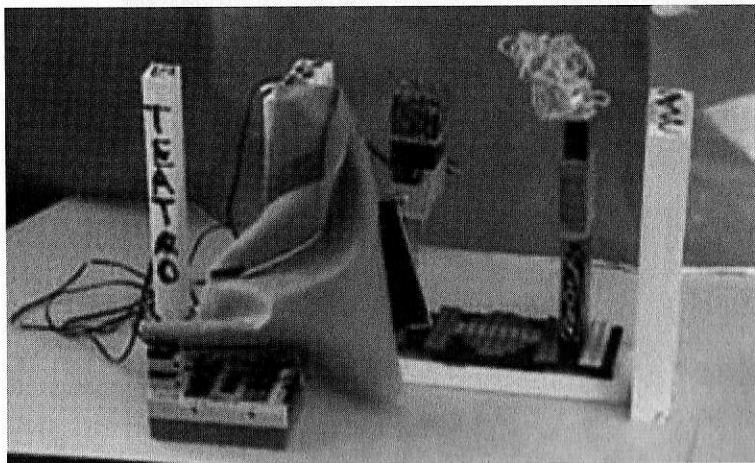
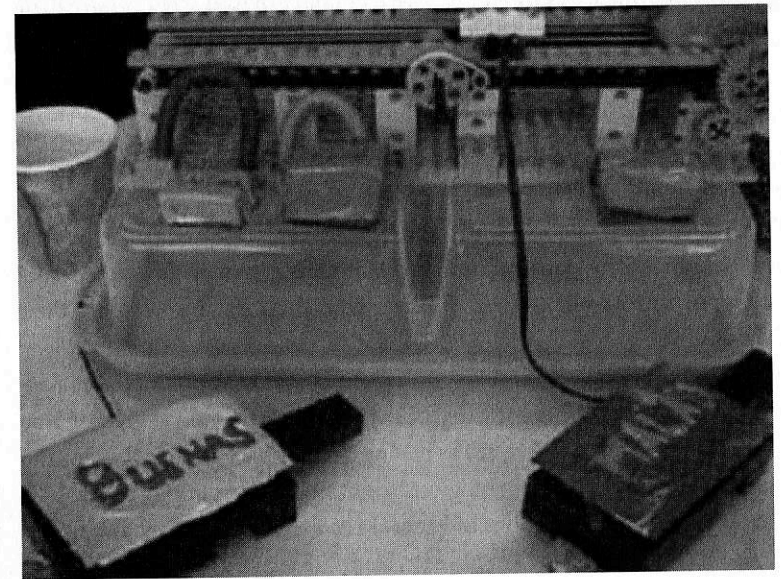


FIGURE 6. A conveyor belt transporting good and bad actions done during the year.



how they came up with the idea: "During the high holidays, we think about the actions in our everyday life. It is the time to think, reflect, and become conscious about our past deeds, so we can choose to continue with the good deeds or to rectify the actions that we believed were wrong." This idea gave birth to the conveyor belt. The machine was designed to carry actions until a reflection point, where the users could spend the needed time to decide about their positive or negative significance. An action considered good was transferred to a good container, and an action considered bad was taken back, meaning that people had to amend it. The mechanics consisted of a structure to hold the belt, which was made out of rubber bands; a motor located in the starting point of the contraption to move the belt; and two touch sensors to select between good and bad actions. Actions were foam rubber cubes wrapped in color papers and labeled with a name.

A program was created to start the motor for a given number of seconds and wait for the sensor input to take the actions to the next stage. If the sensor for good actions was pressed, the program started the motor in the same direction to go forward. If the sensor for bad actions was pressed, the program made the motor move in the opposite direction, taking back the action to the starting

point. For this group, it was very important to have users of its project not only learn the value of reflection but also experience it by reflecting about their own actions.

CONCLUSION

In this chapter, I have shown three different ways in which technology can be used to support children's spiritual development and religious explorations. In a world in which young people don't always have a place to tell their stories, computer-based identity-construction environments can provide a potentially powerful opportunity to help them discover who they are and what are their most cherished values.

Narrative is not only a communication genre but also a cognitive tool fundamentally responsible for organizing our possible selves in a coherent way (Bruner 1986). This view of narrative as having a major part in the construction of our identity is present in most religious traditions. For example, in the Jewish tradition, the Torah (five books of Moses) is conceived not only as a sacred text but also as a life text that is rewritten and reinterpreted at each relevant personal and community event. The value of the text lies in the value of the people who re-create and reinterpret, in their own lives, the values proposed by the tradition. For example, the festivity of Passover, which commemorates the exodus of Israel from Egypt, conveys the importance of narrative: "And you should tell (*vehiggadeta* in Hebrew) to your son on that day, 'It is [being celebrated] because of what the Lord did for me when I went free from Egypt'" (Exodus 13:8). However, the mandate to tell the story is not only to remember the exodus but also to allow people in each generation to consider himself as if he had gone free from Egypt. It is not enough to learn about the value of freedom: we need actually to experience it.

Identity-construction environments provide a palace in time to tell our stories, to reinterpret their meaning by sharing with others in the community, and to experience them. For example, in Zora, children not only create a virtual city and populate it with characters, objects, and stories, but they also inhabit it. Through SAGE, children create storytellers as the narrative voices they want or need to hear and then communicate with them about their inner problems. In Project InterActions, parents and children come together to explore their most cherished values and represent them through robotic creative prayers.

It is the purpose of this chapter to show that, in the twenty-first century, in which technologies are used by young people in all their walks of life, from learning to dating, they can also become "a palace in time" to engage them in

introspection, self-reflection, and community building. However, for this to happen, we need more people invested in positive youth development to take an active role in the design and study of technology-rich interventions.

NOTES

1. A *mezuzah* is a small piece of parchment inscribed with biblical passages from Deuteronomy, which is rolled up in a container and affixed by many Jewish households to their door frames in conformity with Jewish law and as a sign of their faith.

2. I use the term *value* to refer to the importance or worth of a quality for an individual and society.

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