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## *Chapter 3*

### **Girl Games and Technological Desire**

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#### **Gender and Technological Desire**

During the past ten years, a research and design group at the Center for Children and Technology has spent time investigating issues of gender and diversity as they relate to the ways in which students, particularly girls, use and engage with technologies. Our approach to these issues has been both psychological and sociological: we have investigated the ways in which children and adults construct meanings in relation to different technological environments, and we have examined the social and cultural barriers that tend to affect the ways we engage with technologies. We have also experimented with designing technological environments that can engage diverse populations of learners—not just the white boys.

It has become clear to us over time that the problem of designing for gender and diversity is quite complicated, particularly with respect to technology. A variety of forces affect our understanding of gender and make it very hard for us to think our way out of more or less conventional understandings of “masculinity” and “femininity.” They include such sociological issues as the fact that girls and students of color still opt out of advanced-level science and math courses at a greater rate than do Caucasian males. As a result, scientific, engineering, and technological fields that are responsible for technological design are still largely dominated by white men. They also include economic factors, such as the fact that successful interactive “edutainment” products, often linked to other commercially successful products such as television series, are the ones to find shelf space in CompUSA and other large retail outfits. And they include psychological factors, such as the ways in which we as consumers have

been strongly encouraged to collude in the kinds of narratives that the vast majority of interactive products offer, particularly in the gaming industry. In this paper we focus on the latter point: the *psychological paradox*, the question of how we address issues of concern to young women that are glaringly absent in technological design without colluding in stereotypical understandings of femininity.

One of our strategies in exploring the psychological complexities that surround technological design has been to start with ourselves. We noticed that the women in our office seemed to respond quite differently to the sight of boxes of high-tech equipment arriving in the office than most of our male colleagues. The men seemed magnetically drawn to the boxes, tearing them open, practically salivating at the sight of the shiny, new machines emerging from their styrofoam nest. Then there would be the sound of happily boastful speculation about the speed, the power, the number of bips per bump the machine could produce or consume, and how it compared to a range of other machines with whose model numbers everybody seemed intimately familiar. We women tended to stay back and watch this frenzy with some amusement and a strong dose of skepticism, best summarized in the polite request that they let us know when they had put the thing together and had figured out what it was good for. We knew that there was no difference in technical expertise to explain this difference in attitude. Several of the women were more technically sophisticated than some of the men who were spitting stats at the new machine, and these women would probably end up setting up the machine, figuring out how to make good use of it—and then explaining it to the men.

As researchers and designers we decided to explore some of these casually observed differences in more depth. The Spencer Foundation funded a series of studies involving interviews with users of technology, from architects to NASA scientists, from filmmakers to programmers (Bennett 1993; Brunner, Hawkins, and Honey 1988; Brunner 1991; Hawkins, Brunner, Clements, Honey, and Moeller 1990; Honey, Moeller, Brunner et al., 1991; Honey 1994). All of these individuals were deeply engaged in computer-related activities, including programming, multimedia design and authoring, computer-assisted design, and engineering. We asked them about a wide range of topics, from their career paths and their mentoring experiences to their personal feelings about their work. We also selected a subsample of twenty-four respondents, balanced by gender and profession, and asked them to participate in a study of their technology fantasies.

In the fantasy study, we were interested in exploring women's and men's feelings about technology—the nonrational aspect of how we interpret technological objects. Assuming that people might be less self-conscious about sharing such fantasies with a computer than with a human interviewer, we made a software program that invited our respondents to spin fantasies directly into the computer. We made the program look fanciful rather than serious, hoping to invite respondents to censor themselves as little as possible. We posed the following question: “If you were writing a science fiction story in which the perfect instrument (a future version of your own) is described, what would it be like?” Our analysis of the adult fantasies focused on five major topics: 1) the role of technology in integrating people's home and work lives; and technology's relationship to 2) nature, 3) the human body, 4) the process of creation, and 5) the process of communication.

What emerged from this study were two distinct and highly gendered perspectives on technology. Across our sample, women fantasized about small, flexible objects that facilitate sharing ideas and staying in touch, that can be used anywhere and fulfill a number of quite different functions—something that can be a camera one minute, for instance, and a flute the next. For the women in our sample, technology is a fellow creature on the earth, a child of humanity, promising but problematic (because, like all good things, there can be too much of it), needing care and guidance to grow to its best potential within the balance of things surrounding it, within the social and natural network in which it lives. The women wrote stories about tools that allow us to integrate our personal and professional lives and to facilitate creativity and communication. The following is typical of the fantasies written by women:

The “keyboard” would be the size of a medallion, formed into a beautiful piece of platinum sculptured jewelry, worn around one's neck. The medallion could be purchased in many shapes and sizes. The keyed input would operate all day-to-day necessities to communicate and transport people (including replacements for today's automobile). The fiber-optic network that linked operations would have no dangerous side effect or byproduct that harmed people or the environment.

In contrast, men's fantasies were about mind-melds and bionic implants that allow their owners to create whole cities with the blink of an eye, or to have instant access to the greatest minds in history, to check in and see, as they get dressed in the morning, what Ghandi might have thought about a problem they

are facing in the office that day. In their stories technology frees us from the earth, from social problems, possibly from humanity itself. The men praised technology because it increases our command and control over nature and each other. It allows us to extend our instrumental power into god-like dimensions, to transcend the limitations of time, space, and our physical bodies. For the men technology is a magic wand (pun intended), and scenarios like the following were typical:

A direct brain-to-machine link. Plug it into a socket in the back of you head and you can begin communications with it. All information from other users is available and all of the history of mankind is also available. By selecting any time period the computer can impress directly on the user's brain images and background information for that time. In essence a time-machine. The user would not be able to discern differences between dreams and reality and information placed there by the machine.

Table 3.1 illustrates how we chose to summarize some of the most striking differences in how men and women fantasized about technology (Bennett, Brunner, and Honey 1996).

During the past decade, we have also conducted similar studies investigating children's technology fantasies and have collected fantasy machines, mostly from elementary and middle school students. In an analysis of the fantasy tasks of forty-seven preadolescent boys and girls, we asked children to create a blueprint for a machine of their own creation. Boys tend to make vehicles that take them wherever they want to go instantaneously. Typically, these vehicles have elaborate model numbers. Figure 3.1 represents what boys tend to imagine. The New 1994 Mazing Hover Carr is further illustrated in Figure 3.2. This one has a "twin valve seven rotor 4 class booster rocket," hidden turbo jets—and a snack bar.

Girls' fantasies about technology differed in nature from those of boys. The machines that girls typically invented tended to be human-like household helpers or improvements to existing technologies that aimed to solve real-life problems. They often highlighted functions rather than the features of their machines, and they were situated in context. Figure 3.3 shows an example of what girls typically imagine: instead of features, there are functions.

The Season Chore Doer (Figure 3.4) is a sophisticated, multifunctional device. It senses what is needed and provides just the right tool: a seeder in

Table 3.1 Technology

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Women fantasize about it as a <b>MEDIUM</b>	Men fantasize about it as a <b>PRODUCT</b>
Women see it as a <b>TOOL</b>	Men see it as a <b>WEAPON</b>
Women want to use it for <b>COMMUNICATION</b>	Men want to use it for <b>CONTROL</b>
Women are impressed with its potential for <b>CREATION</b>	Men are impressed with its potential for <b>POWER</b>
Women see it as <b>EXPRESSIVE</b>	Men see it as <b>INSTRUMENTAL</b>
Women ask it for <b>FLEXIBILITY</b>	Men ask it for <b>SPEED</b>
Women are concerned with its <b>EFFECTIVENESS</b>	Men are concerned with its <b>EFFICIENCY</b>
Women like its ability to facilitate <b>SHARING</b>	Men like its ability to grant them <b>AUTONOMY</b>
Women are concerned with <b>INTEGRATING</b> it into their personal lives	Men are intent on <b>CONSUMING</b> it
Women talk about wanting to <b>EXPLORE</b> worlds	Men talk about using it to <b>EXPLOIT</b> resources and potentialities
Women are <b>EMPOWERED</b> by it	Men want <b>TRANSCENDENCE</b>

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Source: Brunner 1994.

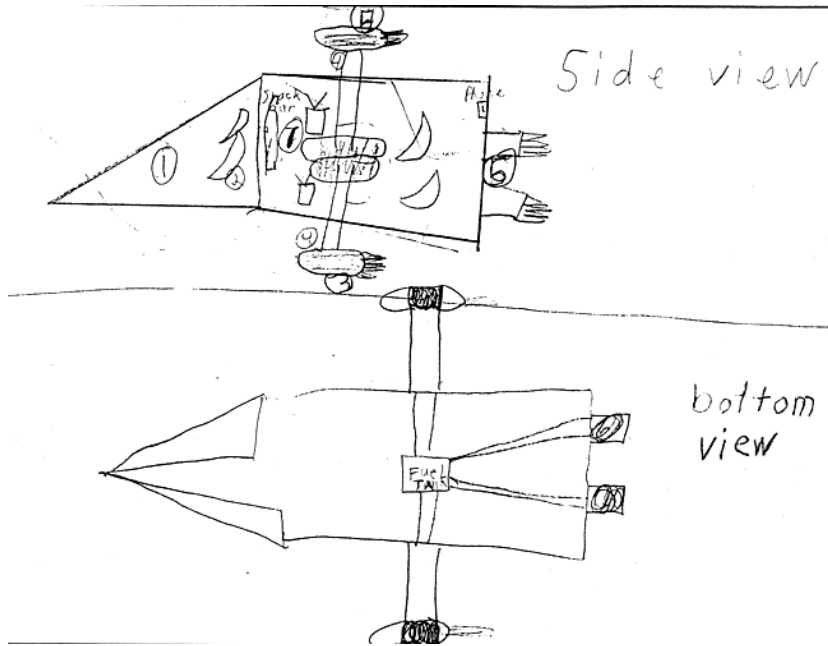


Figure 3.1

spring, an umbrella in summer, a rake in the fall, and a shovel in winter. It does not, however, eliminate the need for the chore itself. If this gadget had been designed by a boy, chances are it would not provide a rake to collect the leaves—it would probably pulverize them.

### Implications for the Design of Girl Games

One way of summarizing the implications of our research for the development of new technologies is to say that women and girls are much more likely to be concerned with how new technologies can fit into the social and environmental surroundings, whereas men are much more likely to be preoccupied with doing things faster, more powerfully, and more efficiently regardless of social and environmental consequences. Women are also far less likely to push the technological envelope and tend to be willing to make do with available tools. Men, in contrast, tend to draw upon their technological imaginations to extend the capabilities of technologies and to attempt to “go where no man has ever gone

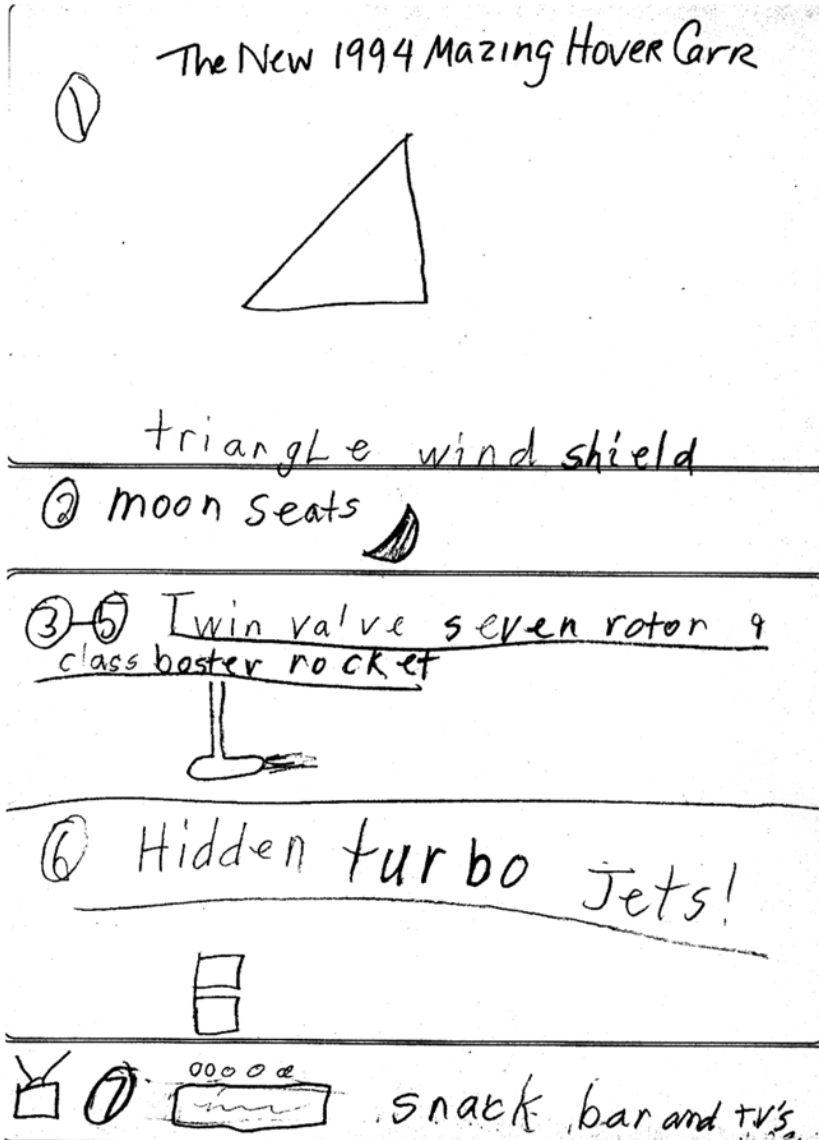


Figure 3.2



# SEASON CHORE DOER



Figure 3.3

before.” What are the implications of these differences for girl-friendly electronic games?

When thinking about the design of technological environments—particularly in relation to entertainment and educational products—it has been exceedingly difficult for us to imagine our way out of antithetical positions. The common approach in interactive design, or perhaps the path of least resistance, is to develop story lines that reinforce extreme notions of gender. The result is

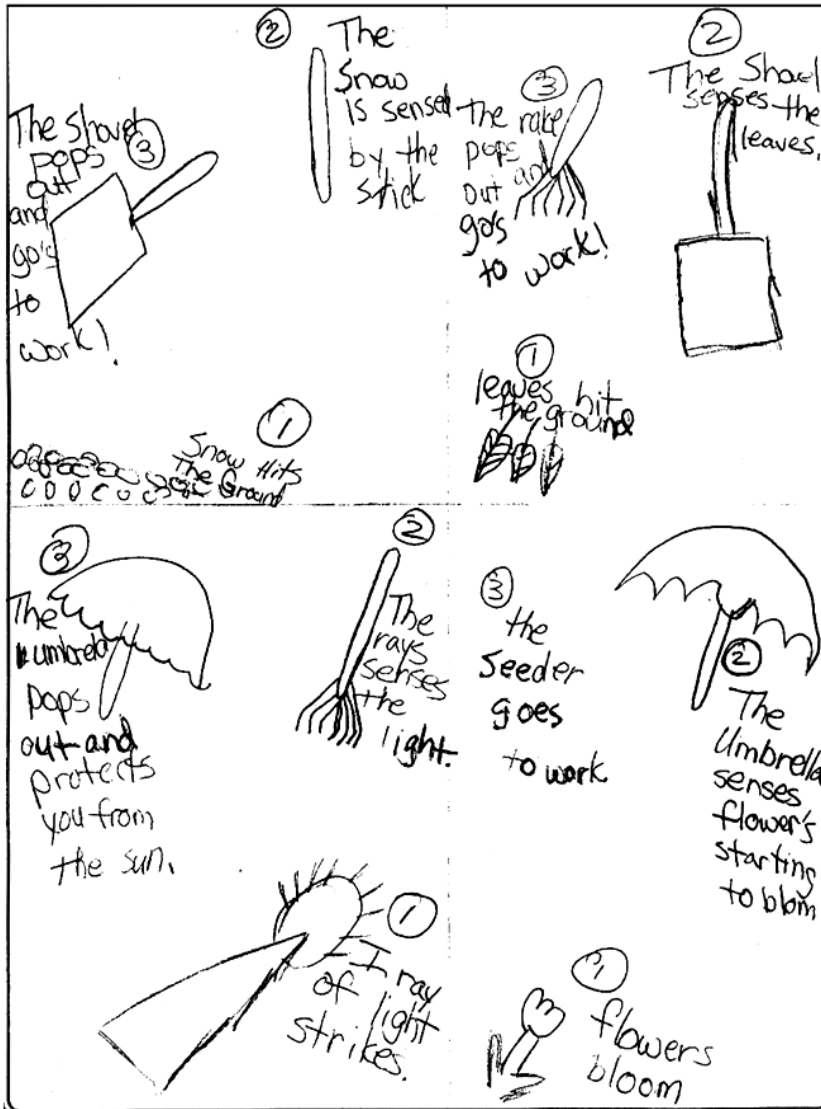


Figure 3.4

that “Mortal Kombat” becomes the archetypal video game for boys. In the girls’ arena, programs like “McKenzie & Company” are beginning to emerge. This product presents scenarios that revolve around how to handle problems with boyfriends or would-be boyfriends, and how to dress and what kind of make-up to wear. These kinds of stories are not bad in and of themselves, but if they are the only available options, they run the danger of reinforcing stereotypic thinking about gender. Just as the fantasy life of boys who enjoy playing games like “Mortal Kombat” should not be curtailed by scenes of mindless violence, the social decision-making options in a game like “McKenzie & Company” are too simplistic to represent the kind of human problem-solving situations girls think about all the time. Products such as these enlarge an already gaping gender divide, making it harder for us to imagine approaches that do not privilege an either/or paradigm: Conquest or A Day at the Mall. We have to engage both boys and girls with electronic games that can incorporate multiple perspectives and varying themes.

To consider what our research means for designing a new genre of game that is not rigidly overdetermined, we first have to consider the function of games and play. One of the functions of playing games, as Henry Jenkins (this volume) notes, is to rehearse and explore what it means to have a gender. Games provide a safe place to explore issues of femininity and masculinity. Game playing can deliberately expand our sense of who we are. The appeal of role-playing games among both children and adults is testimony to this fact. The kinds of worlds represented in electronic games tend to be one dimensional. Typically these games appeal to boys. They are about conquest, winning, scoring points, assertion, and domination. The player becomes the active protagonist, whether the game is played from a first- or third-person perspective. The player is central, makes things happen, and determines the outcome. There usually are no other roles. There are few partner roles, few helper roles, few participant-observer roles. Making ourselves so big and so powerful that nobody can touch us is hardly preparation for the multiplicity of roles that people, particularly women, play in life. We need to make games that stretch the potential of different play paradigms.

Games have traditionally privileged:

- Victory over justice.
- Competition over collaboration.
- Speed over flexibility.
- Transcendence over empathy.

- Control over communication.
- Force over facilitation.

We need game environments that offer players options—where you can pick and choose from a range of personas, decide on varying strategies, and discover that different actions result in variable outcomes. We need a more complex relationship between actions taken and results obtained, and we need contexts that offer rich and varied opportunities for exploration.

Based on our research, and on a variety of experiments with designs that are deliberately open-ended (such as leaving choice in the hands of the user), we have conditional faith in the following generalizations about designing games for both boys and girls. It must be stressed, however, that these observations are speculative. We have never actually investigated the design features that make games more attractive to girls. We are merely applying the characteristics we have found to make for good electronic learning environments for girls to the domain of electronic games. What follows, then, is a nonprescriptive attempt to transform traditionally privileged design elements, and imagine alternative scenarios for play.

- *Technological sophistication.* The kinds of games that encourage flexibility in decision making require a more sophisticated technology than current games. Mitchel Resnick (Resnick 1991) learned years ago that girls wanted to build Lego Logo devices that could interact with each other. Instead of thinking about a single object that did one thing very well, designers had to pay attention to multiple objects that would interact with each other.
- *Winning and losing.* It probably matters more to girls what you win and what you lose than whether you win or lose. Girls are not that interested in conquering the world. Girls really prefer triumphs of a more personal sort. Many girls are seriously preoccupied with perfecting themselves, which is quite different from a more masculine desire to become stronger and more powerful, or with having total control over some part of the universe. This preoccupation with self-improvement and perfection is a tricky business, no simpler nor more beneficial than the masculine focus on power over others, except, perhaps, that the damage is more likely to be internal than external. It is, however, a rich ground for interesting stories and meaningful problems to solve.
- *Success and sacrifice.* Girls are interested in thinking about the issues that adult women must face these days, including how to juggle career and family, how to be successful at work while helping others, and how to stay part of the group.

Girls want to figure out what the issues are and what sacrifices one may have to make. They want to anticipate and rehearse the complex dance that adult women, particularly those in nontraditional professions, must perform in order to make their lives work. This is good material for all kinds of adventure games.

- *The contradictions of femininity.* What constitutes femininity is open to question these days. For the young women we interviewed, femininity is linked to notions of social justice. Defining femininity is a live issue and a complicated one. Theories that absolve girls from the need to be feminine are of no help in the real world of their everyday lives. Things have not changed that much in junior high school, and popularity and traditional femininity still go together. Not much help is given to young women on how to rethink these issues. We believe that one function of role-playing games could be to help provide an imaginary space allowing girls to fool around with the notions of femininity that make sense to them, and offer rich, complex stories that raise questions about the consequences of the social prescriptions for femininity.

- *Persuasion versus conquest.* Women and girls tend to value persuasion, not conquest. Persuading is a more complex act than conquering. It is easy to simulate shooting somebody dead. It is harder to simulate persuading somebody—the interaction is more nuanced. Persuasion cuts both ways, of course. We have always wanted to make a game in which rumors create both havoc and opportunity. Instead of pulling out a sword when confronted with a complex situation, we want to let fly a rumor and have interesting things happen as a result of it—as in real life.

- *Humor.* Girls are very interested in humor. We think girls have less tolerance for humorlessness when it comes to games than boys do, because boys have something else that they can fool around with even in the absence of humor—weapons and victory. They still get to rack up points and shoot off weapons. The humor girls appreciate is based on character and situation rather than put-down. A certain level of sarcasm can be a lot of fun, but when the humor is based on pointing out people's shortcomings, it no longer appeals to girls as much.

- *Adventure.* What is adventure for girls? Rescue and romance are adventures. There is plenty of rescue and romance in current games, but the females in the story rarely get to experience that adventure directly. Girls do not just want to get rescued, they want to do the rescuing—without having to abandon femininity to do it. And they want to do more than come up with the right approach to get a guy to ask them out! Adventure means risk. In many games, the payoff is getting more strength, accumulating wealth or power, and figuring out what

risks to take to achieve those gains. The kinds of risks that interest girls may have to do with defying conventions rather than gaining authority. Let us have some games about that—more romantic heroines striking out to make a place for themselves and their kind in a world that misunderstands or undervalues them.

- *Puzzles and obstacles.* Let us also have more games in which you play at outwitting your opponent rather than vanquishing the enemy. Many games have puzzles that occasionally are very clever and require real thought. They are, however, rarely integral to the story. There are exceptions, of course, including “Myst.” The puzzle solving is fun, even when it is just an artificial obstacle to pursuing the story, but it might be a lot more entertaining to girls if the puzzles contributed to the story. Since girls are less motivated by winning than by following the flow of the story, such unintegrated puzzles can be frustrating and discouraging. Boys, on the other hand, often appreciate the opportunity to rack up more points.
- *Writing.* Girls are very interested in letter-writing and in other forms of communication across a variety of media. They like to think about what to say and how to say it. Girls enjoy analyzing responses, mulling over phrasings, and testing alternatives. They like to illustrate their messages, comment on them, and compare and contrast them with other statements. Girls might be interested in games that focus on how things are communicated, not just on what is being said.
- *Design.* Girls like designing living spaces—not blueprints, but actual spaces. With VRML and VR technologies, it should be possible to see people move through a space you have designed, to report on how it feels, to look at it from their perspective, and to watch which kinds of interactions the design privileges and which are prohibited.
- *Being chosen.* The girls we interviewed often mentioned that they might like games about being chosen. But girls are not nearly as interested in thinking about how to seduce someone into choosing them as they are in the complexity that results once you have been chosen. Being chosen, as we all know, is a complicated thing. You lose some friends, you gain some things, stuff happens. Games that focus on dealing with that stuff might be extremely interesting to young women.
- *Mysteries.* Girls like mysteries because they have complex plots and intelligent action. There is something to think about and to talk over with friends. The kinds of action required to solve a mystery—keeping track of information, sifting through it, thinking it over, trying it again, looking at it from a different

perspective—are the kinds of adult skills girls want to rehearse. It is what we like to do.

Some existing software, though not necessarily intended for girls, is designed in ways that seem compatible with the kind of feminine perspective on technology we have described here. Interactive comics, for instance, are an interesting new use of the electronic medium. The interactive features are a good fit with the way kids actually read comics, bringing each panel to life with sound and movies or animation. The comics provide a strong, linear narrative structure but utilize the nonlinear nature of the medium to offer a choice between multiple perspectives. The plot remains the same, the speech bubbles and the images inside the panels don't change, but the context and commentary in the descriptive labels changes, as does the accompanying information. This makes for a complex narrative of multiple voices, which lends itself beautifully to interactive storytelling. Unfortunately, this feature is not used in most of the interactive comics for children. These comics may include multimedia but they don't offer any conceptual interactivity. They are more like Living Books. Moreover the comics we have seen, such as "Reflux" by Inverse Ink, are interesting to look at and beautifully designed, but their content is strongly masculine. Nonetheless the genre makes a lot of sense for girls. Looking at a situation from multiple perspectives is a very attractive activity for girls.

Rather than leaving their mark on the world by conquering territory or even by amassing resources, girls might like to make a difference in a social situation, right an injustice, save a whale or two, or discover a cure for cancer. Some educational games allow for this kind of thinking, including the Sim-Games by Maxis and the Trail games by MECC. In the entertainment realm, there are some adult games, such as "Voyeur II" by Philips, that allow you to solve a mystery and thus prevent a murder rather than to avenge one. In "Voyeur II" you are a private eye, observing the shenanigans of a wealthy family in a fancy mansion through your fabulous binoculars. Sex, romance, and family tensions are the main elements of the plot, rather than war, violence, or world domination.

The themes matter, and so do the activities themselves. In "The 1st Degree" by Broderbund, a game for adults in which you are the district attorney (male, with a young, white, smart-alecky woman assistant who develops much of the context information), you have to make a case for first-degree murder. You interview witnesses in their surroundings to get an idea of the context in which they live. The point of the game is not to solve the mystery but to make

the case, which requires figuring out people's motivations and relationships, rather than establishing facts. Witnesses from whom you have learned the truth will lie on the stand if you have not persuaded them to join you. The story is more about the underlying emotional realities than about the grisly deed. This makes sense to girls.

Games with an electronic doll-house "feel" seem to be attractive to girls. An example is "SimTown" by Maxis, an environmental problem-solving game that lets you customize your own character, find out how the population feels, and lift the roof off the houses to see what's going on inside. "Hollywood" by Viacom is another kind of electronic doll house. Here, you can make animated movies with a set of characters and settings. You can write dialogue, select actions for character animation, customize the characters by giving them personality traits, and then record and play the movie. "Imagination Express" by Edmark is another doll house with good backgrounds, plenty of characters and objects, and the ability to add a little animation as well as captions. This program makes constructing settings fun because the objects, people and things, have a good deal of intelligence built into them. They twist and turn and place themselves appropriately behind, in front of, over or under things, and change size to maintain the illusion of depth.

Some of the new software coming out for girls, such as "Let's Talk About Me" by Simon & Schuster Interactive, are not exactly games. "Let's Talk About Me" is marketed as a handbook, and provides some activities girls might like. As for the other new electronic girls' games, some are good, some are not so good. The main differences are in the content rather than in the kind of activity they privilege. Most puzzles are still too unintegrated, and the choices are too few. The interactivity is still not conceptual enough. And we worry that the folks likely to have the money to develop complex activities may confuse content with marketing and end up reaffirming stereotypes. They may fail to realize that the desired forms of activity can be applied to a wide range of content girls are interested in, not just to catching a boyfriend. But at least somebody's finally working on the problem.

Our final thought is this. Boys can use games to escape into a fantasy world which allows them to prepare themselves for the requirements of adult masculinity. They can gird their digital loins with magical potencies and vanquish enemies with their limitless strength. They can also get killed, over and over, along the way, until they have achieved the degree of mastery that makes them champions. Then they can reach into the full storehouse of boy games and accept another challenge. The cultural prescriptions for masculinity are



harsh and exacting. Few boys can feel secure about achieving a sufficient degree of masculinity. The pressure is relentless—and these games provide a fun, painless opportunity to boost their sense of masculinity and let off some steam.

The cultural prescriptions for femininity are equally stringent—and they are also internally contradictory. Girls are expected to be both frail and enduring, helpless and competent, fun loving and sensitive, emotional and available, needy and nurturing, vain and moral. Girls need games in which they can rehearse and express the ambiguities and contradictions of femininity. Navigating the shoals of femininity is the stuff girls think about. It is an endless conundrum: how to do the right thing when all the available options force you to choose against yourself; how to maintain a sense of pleasure and confidence in yourself when all the paths before you lead to danger; how to satisfy everybody without calling undue attention to yourself. Girls need games in which they can take their own side, act out, throw caution to the winds and watch what happens. They need games in which they survive, again and again, until they have achieved a state of grace that makes them happy. Then they need to reach into a growing storehouse of girl games and play another story. The pressure on girls is relentless, too. Becoming a woman is a tricky business. Girls could use some games that provide a fun, painless opportunity to bolster their sense of femininity and to stretch their wings.

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