Do you prefer socializing with your friends online or in person? Ten years ago, such a question would have been one that very few of us could answer. Today, it is one that all of us have to seriously consider. Isn't it easier and more convenient to interact with people via social media applications than in person? But what happens when the majority of the time you spend socializing with others takes place in virtual rather than actual worlds? Furthermore, as we rely more and more on digital networks to relate to one another and on automated machines to perform various tasks, how should we design and program these technologies to make sure we are acting in the best interests of humans? While thinking machines and robots may sound like science fiction, the reality is that robotic devices like driverless cars are already legal in certain states. As a result, a number of ethical issues related to how we will use and relate to "thinking machines" arise, as do issues related to the consequences of our increasing use of devices and social media to mediate our relationships with other humans today.

The authors in this chapter all consider the social, cultural, and psychological implications of humans' increasing reliance on technologies for various tasks and functions, particularly interacting with one another. In her essay "Alone Together," psychologist Sherry Turkle probes the possible consequences of our reliance on "sociable" machines and how this reliance may affect actual human-to-human interaction. Journalist Susan Maushart reports on the effects of a six-month ban on her children's use of social media in her essay "When My Kids Unplugged." Cartoonist and graphic novelist Scott McCloud speculates that regardless of which specific media and technologies we use to communicate with, they are all acting as substitutes for our sad inability to communicate mind to mind. In his essay "Machines of Laughter and Forgetting" the cultural critic Evgeny Morozov asks not what the effects of our increasing use of technologies may be, but how humans might redesign technologies to make all of us more aware of their functions and the consequences of those functions. Psychologist Gary

Marcus, in his essay "Moral Machines," reports on increasingly automated technologies, such as Google's driverless cars, and how these technologies will require us to develop new ethical frameworks. Finally, Rose Eveleth reports on current theories related to humanoid robot development in her essay "Robots: Is the Uncanny Valley Real?"

Sherry Turkle
"Alone Together"

Sherry Turkle is a Professor in the Science, Technology, and Society Program at the Massachusetts Institute of Technology (MIT) and the founder and current director of the MIT Initiative on Technology and Self. Her research, which combines sociological and psychological perspectives on technology and its uses, has been read and circulated widely. She has written numerous books and articles, including *Life on the Screen: Identity in the Age of the Internet* (1995) and *Simulation and Its Discontents* (2009). Turkle's work is unique in its ability to address both academic and general audiences. In this essay, excerpted from her 2012 book *Alone Together: Why We Expect More from Technology and Less from Each Other*, Turkle reports on the findings from her most recent research, which considers the potential benefits and drawbacks of increased human interaction with robots and machines.

Has social media changed the ways in which you communicate with your friends and family members? How?

Computers no longer wait for humans to project meaning onto them. Now, sociable robots meet our gaze, speak to us, and learn to recognize us. They ask us to take care of them; in response, we imagine that they might care for us in return. Indeed, among the most talked about robotic designs are in the area of care and companionship. In summer 2010, there are enthusiastic reports in the *New York Times* and the *Wall Street Journal* on robotic teachers, companions, and therapists. And Microsoft

"Technology reshapes the landscape of our emotional lives, but is it offering us the lives we want to lead?"

demonstrates a virtual human, Milo, that recognizes the people it interacts with and whose personality is sculpted by them. Tellingly, in the video that introduces Milo to the public, a young man begins by playing games with Milo in a virtual garden; by the end of the demonstration, things have heated up—he confides in Milo after being told off by his parents.[1]

We are challenged to ask what such things augur. Some people are looking for robots to clean rugs and help with the laundry. Others hope for a mechanical bride. As sociable robots propose themselves as substitutes for people, new networked devices offer us machine-mediated relationships with each other, another kind of substitution. We romance the robot and become inseparable from our smartphones. As this happens, we remake ourselves and our relationships with each other through our new intimacy with machines. People talk about Web access on their BlackBerries as "the place for hope" in life, the place where loneliness can be defeated. A woman in her late sixties describes her new iPhone: "It's like having a little Times Square in my pocketbook. All lights. All the people I could meet." People are lonely. The network is seductive. But if we are always on, we may deny ourselves the rewards of solitude.

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As I listen for what stands behind this moment, I hear a certain fatigue with the difficulties of life with people. We insert robots into every narrative of human frailty. People make too many demands; robot demands would be of a more manageable sort. People disappoint; robots will not. When people talk about relationships with robots, they talk about cheating husbands, wives who fake orgasms, and children who take drugs. They talk about how hard it is to understand family and friends. I am at first surprised by these comments. Their clear intent is to bring people down a notch. A forty-four-year-old woman says, "After all, we never know how another person really feels. People put on a good face. Robots would be safer." A thirty-year-old man remarks, "I'd rather talk to a robot. Friends can be exhausting. The robot will always be there for me. And whenever I'm done, I can walk away."

The idea of sociable robots suggests that we might navigate intimacy by skirting it. People seem comforted by the belief that if we alienate or fail

each other, robots will be there, programmed to provide simulations of love.[2] Our population is aging; there will be robots to take care of us. Our children are neglected; robots will tend to them. We are too exhausted to deal with each other in adversity; robots will have the energy. Robots won't be judgmental. We will be accommodated. An older woman says of her robot dog, "It is better than a real dog.... It won't do dangerous things, and it won't betray you.... Also, it won't die suddenly and abandon you and make you very sad."[3]

The elderly are the first to have companionate robots aggressively marketed to them, but young people also see the merits of robotic companionship. These days, teenagers have sexual adulthood thrust upon them before they are ready to deal with the complexities of relationships. They are drawn to the comfort of connection without the demands of intimacy. This may lead them to a hookup—sex without commitment or even caring. Or it may lead to an online romance—companionship that can always be interrupted. Not surprisingly, teenagers are drawn to love stories in which full intimacy cannot occur—here I think of current passions for films and novels about high school vampires who cannot sexually consummate relationships for fear of hurting those they love. And teenagers are drawn to the idea of technological communion. They talk easily of robots that would be safe and predictable companions.[4]

These young people have grown up with sociable robot pets, the companions of their playrooms, which portrayed emotion, said they cared, and asked to be cared for.[5] We are psychologically programmed not only to nurture what we love but to love what we nurture. So even simple artificial creatures can provoke heartfelt attachment. Many teenagers anticipate that the robot toys of their childhood will give way to full-fledged machine companions. In the psychoanalytic tradition, a symptom addresses a conflict but distracts us from understanding or resolving it; a dream expresses a wish.[6] Sociable robots serve as both symptom and dream: as a symptom, they promise a way to sidestep conflicts about intimacy; as a dream, they express a wish for relationships with limits, a way to be both together and alone.[7]

Some people even talk about robots as providing respite from feeling overwhelmed by technology. In Japan, companionate robots are specifically marketed as a way to seduce people out of cyberspace; robots plant a new flag in the physical real. If the problem is that too much technology has made us busy and anxious, the solution will be another technology that will organize, amuse, and relax us. So, although historically robots provoked

anxieties about technology out of control, these days they are more likely to represent the reassuring idea that in a world of problems, science will offer solutions.[8] Robots have become a twenty-first-century deus ex machina. Putting hope in robots expresses an enduring technological optimism, a belief that as other things go wrong, science will go right. In a complicated world, robots seem a simple salvation. It is like calling in the cavalry.

But this is not a book about robots. Rather, it is about how we are changed as technology offers us substitutes for connecting with each other face-to-face. We are offered robots and a whole world of machine-mediated relationships on networked devices. As we instant-message, e-mail, text, and Twitter, technology redraws the boundaries between intimacy and solitude. We talk of getting "rid" of our e-mails, as though these notes are so much excess baggage. Teenagers avoid making telephone calls, fearful that they "reveal too much." They would rather text than talk. Adults, too, choose keyboards over the human voice. It is more efficient, they say. Things that happen in "real time" take too much time. Tethered to technology, we are shaken when that world "unplugged" does not signify, does not satisfy. After an evening of avatar-to-avatar talk in a networked game, we feel, at one moment, in possession of a full social life and, in the next, curiously isolated, in tenuous complicity with strangers. We build a following on Facebook or MySpace and wonder to what degree our followers are friends. We recreate ourselves as online personae and give ourselves new bodies, homes, jobs, and romance. Yet, suddenly, in the half-light of virtual community, we may feel utterly alone. As we distribute ourselves, we may abandon ourselves. Sometimes people experience no sense of having communicated after hours of connection. And they report feelings of closeness when they are paying little attention. In all of this, there is a nagging question: Does virtual intimacy degrade our experience of the other kind and, indeed, of all encounters, of any kind?

Connectivity and Its Discontents

Online connections were first conceived as a substitute for face-to-face contact, when the latter was for some reason impractical: Don't have time to make a phone call? Shoot off a text message. But very quickly, the text message became the connection of choice. We discovered the network—the world of connectivity—to be uniquely suited to the overworked and overscheduled life it makes possible. And now we look to the network to defend

us against loneliness even as we use it to control the intensity of our connections. Technology makes it easy to communicate when we wish and to disengage at will.

A few years ago at a dinner party in Paris, I met Ellen, an ambitious, elegant young woman in her early thirties, thrilled to be working at her dream job in advertising. Once a week, she would call her grandmother in Philadelphia using Skype, an Internet service that functions as a telephone with a Web camera. Before Skype, Ellen's calls to her grandmother were costly and brief. With Skype, the calls are free and give the compelling sense that the other person is present—Skype is an almost real-time video link. Ellen could now call more frequently: "Twice a week and I stay on the call for an hour," she told me. It should have been rewarding; instead, when I met her, Ellen was unhappy. She knew that her grandmother was unaware that Skype allows surreptitious multitasking. Her grandmother could see Ellen's face on the screen but not her hands. Ellen admitted to me, "I do my e-mail during the calls. I'm not really paying attention to our conversation."

Ellen's multitasking removed her to another place. She felt her grandmother was talking to someone who was not really there. During their Skype conversations, Ellen and her grandmother were more connected than had ever been before, but at the same time, each was alone. Ellen felt confused: she knew that her grandmother was happy, even if intimacy was now, for Ellen, another task among multitasks.

I often observed this distinctive confusion: these days, whether you are with or not, it is easy for people to end up unsure if they are closer together or further apart. I remember my own sense of disorientation the first time I realized that I was "alone together." I had traveled an exhausting eighteen hours to attend a conference on advanced robotic technology in central Japan. The packed grand ballroom was Wi-Fi enabled: the speaker was using the Web for his presentation, laptops were open throughout the audience, fingers were flying, and there was a sense of great concentration and intensity. But not many in the audience were attending to the speaker. Most people seemed to be doing their e-mail, downloading files, surfing the Net. The man next to me was searching for a New Yorker cartoon to illustrate his upcoming presentation. Every once in a while, audience members gave the speaker some attention, lowering their laptop screens in a kind of curtsy, a gesture of courtesy.

Outside, in the hallways, the people milling around me were looking past me to virtual others. They were on their laptops and their phones,

connecting to colleagues at the conference going on around them and to others around the globe. There but not there. Of course, clusters of people chatted with each other, making dinner plans, "networking" in that old sense of the word, the one that implies having a coffee or sharing a meal. But at this conference, it was clear that what people mostly want from public space is to be alone with their personal networks. It is good to come together physically, but it is more important to stay tethered to our devices. I thought of how Sigmund Freud considered the power of communities both to shape and to subvert us, and a psychoanalytic pun came to mind: "connectivity and its discontents."

The phrase comes back to me months later as I interview management consultants who seem to have lost touch with their best instincts for what makes them competitive. They complain about the BlackBerry revolution, yet accept it as inevitable while decrying it as corrosive. They say they used to talk to each other as they waited to give presentations or took taxis to the airport; now they spend that time doing e-mail. Some tell me they are making better use of their "downtime," but they argue without conviction. The time that they once used to talk as they waited for appointments or drove to the airport was never downtime. It was the time when far-flung global teams solidified relationships and refined ideas.

In corporations, among friends, and within academic departments, people readily admit that they would rather leave a voicemail or send an e-mail than talk face-to-face. Some who say "I live my life on my BlackBerry" are forthright about avoiding the "real-time" commitment of a phone call. The new technologies allow us to "dial down" human contact, to titrate its nature and extent. I recently overheard a conversation in a restaurant between two women. "No one answers the phone in our house anymore," the first woman proclaimed with some consternation. "It used to be that the kids would race to pick up the phone. Now they are up in their rooms, knowing no one is going to call them, and texting and going on Facebook or whatever instead." Parents with teenage children will be nodding at this very familiar story in recognition and perhaps a sense of wonderment that this has happened, and so quickly. And teenagers will simply be saying, "Well, what's your point?"

A thirteen-year-old tells me she "hates the phone and never listens to voicemail." Texting offers just the right amount of access, just the right amount of control. She is a modern Goldilocks: for her, texting puts people not too close, not too far, but at just the right distance. The world is now full of modern Goldilockses, people who take comfort in being in touch with a lot of people whom they also keep at bay. A twenty-one-year-old college student reflects on the new balance: "I don't use my phone for calls any more. I don't have the time to just go on and on. I like texting, Twitter, looking at someone's Facebook wall. I learn what I need to know."

Randy, twenty-seven, has a younger sister—a Goldilocks who got her distances wrong. Randy is an American lawyer now working in California. His family lives in New York, and he flies to the East Coast to see them three or four times a year. When I meet Randy, his sister Nora, twenty-four, had just announced her engagement and wedding date via e-mail to a list of friends and family. "That," Randy says to me bitterly, "is how I got the news." He doesn't know if he is more angry or hurt. "It doesn't feel right that she didn't call," he says. "I was getting ready for a trip home. Couldn't she have told me then? She's my sister, but I didn't have a private moment when she told me in person. Or at least a call, just the two of us. When I told her I was upset, she sort of understood, but laughed and said that she and her fiancé just wanted to do things simply, as simply as possible. I feel very far away from her."

Nora did not mean to offend her brother. She saw e-mail as efficient and did not see beyond. We have long turned to technology to make us more efficient in work; now Nora illustrates how we want it to make us more efficient in our private lives. But when technology engineers intimacy, relationships can be reduced to mere connections. And then, easy connection becomes redefined as intimacy. Put otherwise, cyberintimacies slide into cybersolitudes.

And with constant connection comes new anxieties of disconnection, a kind of panic. Even Randy, who longs for a phone call from Nora on such an important matter as her wedding, is never without his BlackBerry. He holds it in his hands during our entire conversation. Once, he puts it in his pocket. A few moments later, it comes out, fingered like a talisman. In interviews with young and old, I find people genuinely terrified of being cut off from the "grid." People say that the loss of a cell phone can "feel like a death." One television producer in her mid-forties tells me that without her smartphone, "I felt like I had lost my mind." Whether or not our devices are in use, without them we feel disconnected, adrift. A danger even to ourselves, we insist on our right to send text messages while driving our cars and object to rules that would limit the practice.[9]

Only a decade ago, I would have been mystified that fifteen-year-olds in my urban neighborhood, a neighborhood of parks and shopping malls, of

front stoops and coffee shops, would feel the need to send and receive close to six thousand messages a month via portable digital devices or that best friends would assume that when they visited, it would usually be on the virtual real estate of Facebook.[10] It might have seemed intrusive, if not illegal, that my mobile phone would tell me the location of all my acquaintances within a ten-mile radius.[11] But these days we are accustomed to all this. Life in a media bubble has come to seem natural. So has the end of a certain public etiquette: on the street, we speak into the invisible microphones on our mobile phones and appear to be talking to ourselves. We share intimacies with the air as though unconcerned about who can hear us or the details of our physical surroundings.

I once described the computer as a second self, a mirror of mind. Now the metaphor no longer goes far enough. Our new devices provide space for the emergence of a new state of the self, itself, split between the screen and the physical real, wired into existence through technology.

Teenagers tell me they sleep with their cell phone, and even when it isn't on their person, when it has been banished to the school locker, for instance, they know when their phone is vibrating. The technology has become like a phantom limb, it is so much a part of them. These young people are among the first to grow up with an expectation of continuous connection: always on, and always on them. And they are among the first to grow up not necessarily thinking of simulation as second best. All of this makes them fluent with technology but brings a set of new insecurities. They nurture friendships on social-networking sites and then wonder if they are among friends. They are connected all day but are not sure if they have communicated. They become confused about companionship. Can they find it in their lives on the screen? Could they find it with a robot? Their digitized friendships—played out with emoticon emotions, so often predicated on rapid response rather than reflection—may prepare them, at times through nothing more than their superficiality, for relationships that could bring superficiality to a higher power, that is, for relationships with the inanimate. They come to accept lower expectations for connection and, finally, the idea that robot friendships could be sufficient unto the day.

Overwhelmed by the volume and velocity of our lives, we turn to technology to help us find time. But technology makes us busier than ever and ever more in search of retreat. Gradually, we come to see our online life as life itself. We come to see what robots offer as relationship. The simplification of

relationship is no longer a source of complaint. It becomes what we want. These seem the gathering clouds of a perfect storm.

Technology reshapes the landscape of our emotional lives, but is it offering us the lives we want to lead? Many roboticists are enthusiastic about having robots tend to our children and our aging parents, for instance. Are these psychologically, socially, and ethically acceptable propositions? What are our responsibilities here? And are we comfortable with virtual environments that propose themselves not as places for recreation but as new worlds to live in? What do we have, now that we have what we say we want—now that we have what technology makes easy?[12] This is the time to begin these conversations, together. It is too late to leave the future to the futurists.

NOTES

1. Benedict Carey and John Markoff, "Students, Meet Your New Teacher, Mr. Robot," *New York Times*, July 10, 2010, www.nytimes.com/2010/07/11/science/11 robots.html (accessed July 10, 2010); Anne Tergeson and Miho Inada, "It's Not a Stuffed Animal, It's a $6,000 Medical Device," *Wall Street Journal*, June 21, 2010, http://online.wsj.com/article/SB1000142405274870446350457530105184493 7276.html (accessed August 10, 2010); Jonathan Fildes, "'Virtual Human' Milo Comes Out to Play at TED in Oxford," *BBC News*, July 13, 2010, www.bbc.co.uk/news/10623423 (accessed July 13, 2010); Amy Harmon, "A Soft Spot for Circuitry: Robot Machines as Companions," *New York Times*, July 4, 2010, www.nytimes.com/2010/07/05/science/05robot .html?pagewanted=all (accessed July 4, 2010); Emily Veach, "A Robot That Helps You Diet," *Wall Street Journal*, July 20, 2010, http://online.wsj.com/article/SB10001424052 748704682604575369981478383568.html (accessed July 20, 2010).

2. The way here is paved by erotic images of female robots used to sell refrigerators, washing machines, shaving cream, and vodka. See, for example, the campaign for Svedka Vodka (Steve Hall, "Svedka Launches Futuristic, Un-PC Campaign," Andrants.com, September 20, 2005, www.adrants.com/2005/09/svedka-launches-futuristic-unpc.php [accessed September 1, 2009]) and Phillip's shaving system ("Feel the Erotic Union of Man and Shavebot," AdFreak.com, August 21, 2007, http://adweek.blogs.com/ad freak/2007/08/feel-the-erotic.html [accessed September 1, 2009]).

3. Sharon Moshavi, "Putting on the Dog in Japan," *Boston Globe*, June 17, 1999, A1.

4. As preteens, the young women of the first Google generation (born roughly from 1987 to 1993) wore clothing widely referred to as "baby harlot"; they listened to songs about explicit sex well before puberty. Their boomer parents had few ideas about where to draw lines, having spent their own adolescences

declaring the lines irrelevant. Boomer parents grew up rejecting parental rules, but knowing that there were rules. One might say it is the job of teenagers to complain about constraints and the job of parents to insist on them, even if the rules are not obeyed. Rules, even unheeded, suggest that twelve to fifteen are not good ages to be emotionally and sexually enmeshed.

Today's teenagers cannot easily articulate any rules about sexual conduct except for those that will keep them "safe." Safety refers to not getting venereal diseases or AIDS. Safety refers to not getting pregnant. And on these matters teenagers are eloquent, unembarrassed, and startlingly well informed. But teenagers are overwhelmed with how unsafe they feel in relationships. A robot to talk to is appealing—even if currently unavailable—as are situations that provide feelings of closeness without emotional demands. I have said that rampant fantasies of vampire lovers (closeness with constraints on sexuality) bear a family resemblance to ideas about robot lovers (sex without intimacy, perfect). And closeness without the possibility of physical intimacy and eroticized encounters that can be switched off in an instant—these are the affordances of online encounters. Online romance expresses the aesthetic of the robotic moment. From a certain perspective, they are a way of preparing for it. On the psychology of adolescents' desire for relationships with constraint, I am indebted to conversations with child and adolescent psychoanalyst Monica Horovitz in August 2009.

5. Commenting on the insatiable desire for robot pets during the 2009 holiday season, a researcher on social trends comments, "A toy trend would be something that reflects the broader society, that tells you where society is going, something society needs." Gerald Celente, founder of the Trends Research Institute, cited in Brad Tuttle, "Toy Craze Explained: A Zhu Zhu Pet Hamster Is Like a 'Viral Infection,' " *Time*, December 9, 2009, http://money.blogs. time.com/2009/12/07/toy-craze-explained-a-zhu-zhu-pet-hamster-is-like-a-viral-infection (accessed December 9, 2009).

6. For classic psychodynamic formulations of the meaning of symptoms, see Sigmund Freud, "The Unconscious," in *The Standard Edition of Sigmund Freud,* ed. and trans. James Strachey et al. (London: Hogarth Press, 1953–1974), 14:159–204; "Introductory Lectures on Psychoanalysis," in *The Standard Edition,* vols. 15 and 16; "From the History of an Infantile Neurosis," in *The Standard Edition,* 17:1–122; "Inhibitions, Symptoms, and Anxiety," in *The Standard Edition,* 20:75–172; and Sigmund Freud and Joseph Breuer, "Studies on Hysteria," in *The Standard Edition,* 2:48–106. For Freud on dreams as wishes, see "The Interpretation of Dreams," in *The Standard Edition,* vol. IV.

7. For an argument about the pleasures of limited worlds in another technological realm, see Natasha Schüll's work on gambling, *Addiction by Design: Machine Gambling in Las Vegas* (Princeton, NJ: Princeton University Press, forthcoming).

8. See, for example, Bill Gates, "A Robot in Every Home," *Scientific American,* January 2007, www.scientificamerican.com/article.cfm?id=a-robot-in-every-home (accessed September 2, 2009).

9. See, for example, Matt Richtel, "In Study, Texting Lifts Crash Risk by Large Margin," *New York Times,* July 27, 2009, www.nytimes.com/2009/07/28/technology/28texting.html (accessed September 1, 2009). On the pressure that friends and family members put on drivers who text, see "Driver Texting Now an Issue in Back Seat," *New York Times,* September 9, 2009, www.nytimes.com/2009/09/09/technology/09 distracted.html (accessed September 9, 2009). As I complete this book, Oprah Winfrey has made texting while driving a personal crusade, encouraging people across America to sign an online pledge to not text and drive. See "Oprah's No Phone Zone," Oprah.com, www.oprah.com/packages/no-phone-zone.html (accessed May 30, 2010).

10. The teenage national average as of January 2010 is closer to thirty-five hundred; my affluent, urban neighborhood has a far higher number. Roger Entner, "Under-aged Texting: Usage and Actual Cost," Nielson.com, January 27, 2010,http://blog.nielsen.com/nielsenwire/online_mobile/under-aged-texting-usage-and-actual-cost (accessed May 30, 2010). On texting's impact on teenage life, see Katie Hafner, "Texting May Be Taking Its Toll," *New York Times,* May 25, 2009, www.nytimes.com/2009/05/26/health/26teen.html?_r=2& 8dpc (accessed July 21, 2009).

11. To find friends in the neighborhood, Loopt for the iPhone is a popular "app."

12. A witty experiment suggests that Facebook "friends" won't even show up when you invite them to a party. Hal Niedzviecki, "Facebook in a Crowd," *New York Times,* October 24, 2008, www.nytimes.com/2008/10/26/magazine/26lives-t.html (accessed July 27, 2010).

Analyze

1. Who is Milo?
2. What are some reasons why several individuals involved in Turkle's study reported preferring to interact with robots instead of humans?
3. Explain why Turkle makes a reference to vampires and how it relates to her argument about young people's relationships to technology.
4. What is a *deus ex machina*? Why does Turkle suggest that robots may be one?

Explore

1. Turkle ends her essay with a research question. She writes, "Does virtual intimacy degrade our experience of the other kind and, indeed, of all encounters, of any kind?" Based on your personal experience, answer this question by comparing and contrasting the sense of connection you experience with others after a virtual versus an in-person social encounter.