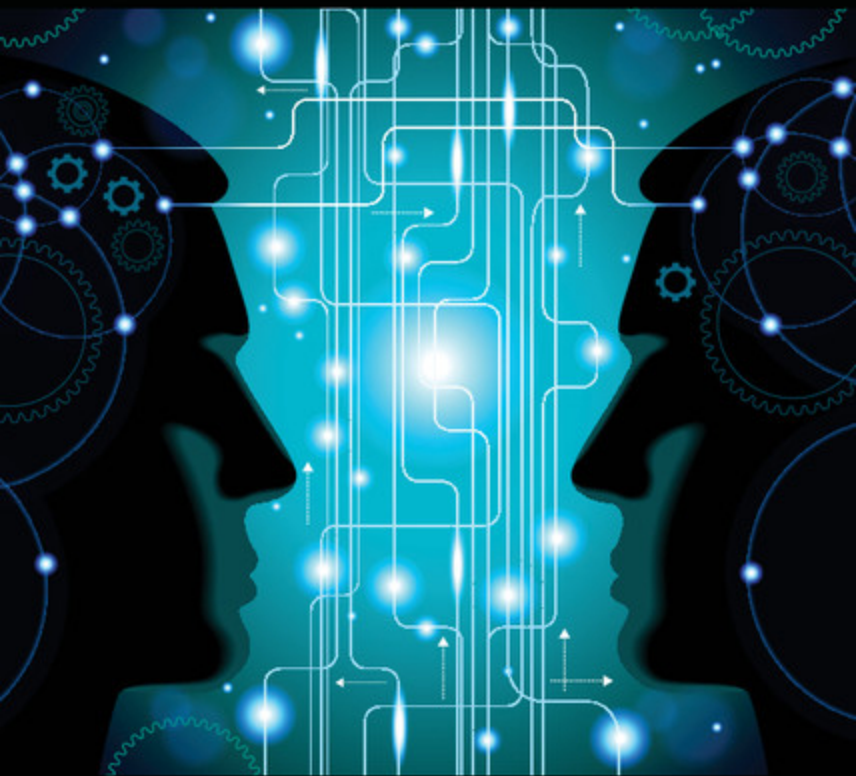


SECOND EDITION

THE PSYCHOLOGY OF THE INTERNET



PATRICIA WALLACE

THE PSYCHOLOGY OF THE INTERNET

An engaging and research-based book, *The Psychology of the Internet* provides a balanced overview of the psychological aspects of cyberspace. It explores crucial questions about the Internet's effects on human behavior, such as why we often act in uncharacteristic ways in online environments and how social media influence the impressions we form and our personal relationships. The book's balanced approach to the subject encourages readers to think critically about the psychology of the Internet, and how and why their own online behavior unfolds. Drawing on classic and contemporary research, this second edition examines new trends in Internet technology, online dating, online aggression, group dynamics, child development, prosocial behavior, online gaming, gender and sexuality, privacy and surveillance, the Internet's addictive properties, and strategies for shaping the Internet's future.

PATRICIA WALLACE is the author of thirteen books, including *The Internet in the Workplace: How New Technology Is Transforming Work* (2004) and *Introduction to Information Systems, 2nd Edition* (2015). Her work and educational background span psychology and technology, and she has held varied positions in higher education, including professor, chief information officer, and executive director of a research center. She holds a PhD in psychology and a Master's degree in computer systems management. She currently teaches in the Graduate School of the University of Maryland University College. Previously, she was Senior Director for online programs and information technology at the Center for Talented Youth at Johns Hopkins University.

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To Julian, Callie, Eric, Marlene, Lili, Keiko, and my whole *real life* family.

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PREFACE TO THE SECOND EDITION

When the first edition of *The Psychology of the Internet* came out in 1999, brick and mortar bookstores still reigned. With eight employees, Google had just outgrown its garage office, and Facebook founder Mark Zuckerberg immersed himself in classics as a high school sophomore. The release of Apple's iPhone and the torrent of mobile applications that followed were nearly a decade away. I would say "much has happened since 1999" if it were not such a laughable understatement.

The Internet of the 1990s attracted pioneers who explored an uncharted territory that took fortitude even to enter. Clunky dial-up modems, buggy software, frustrating load times, and unreliable connections dogged our efforts and blocked our work. At that time, the psychological aspects of the different corners of cyberspace received little attention from researchers, but anyone who spent time online could see that those aspects were already having fundamental effects on human behavior. To better understand how and why we were behaving in sometimes surprising ways, I drew mainly on classic research in the social sciences.

Those classic studies remain relevant, but this new edition adds a wealth of contemporary research that examines the psychology of the vastly expanded online world. Active research in psychology, communications, computer science, business, political science, and other disciplines is generating new insights about human behavior online, especially on social media. Many academic journals specifically focus on these topics, such as *Computers in Human Behavior*, *Journal of Computer-Mediated Communication*, *Cyberpsychology, Behavior, and Social Networking*, *New Media and Society*, *CyberPsychology and Behavior*, and *Cyberpsychology*. Universities are launching academic

programs, conferences, and institutes on Internet studies to explore the broader issues that the net raises for human beings, bringing together people with different backgrounds and perspectives.

As in the first edition, my goal is not to extol a utopian future built on emerging digital technologies. Nor is it to paint a darker picture in which the Internet leads to dire consequences for human behavior and social relationships. Instead, I describe - in a balanced way - what we actually know from research about the psychology of the Internet, citing both positives and negatives and raising many new questions. Some of the research zeroes in on specifics the reader should find quite useful, such as how people form impressions from social media profiles, or why certain videos go viral. I also hope this book will help the reader steer clear of the kinds of online blunders that can cause irreparable damage. In any case, we are riding a fast-moving vehicle that is picking up speed as it goes, and this book will help equip the reader with knowledge about how to travel wisely and help guide it.

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I want to thank the many people around the world who helped bring this book to life with their suggestions, anecdotes, and insights. They come from different fields and life experiences, and they span every age group, from an elementary student showing off her Minecraft creations to an entrepreneurial retiree starting an online business. The reviewers offered excellent ideas about the topics for the second edition and tips for exploring some tiny Internet corners that I would not have otherwise stumbled on. Thanks also go to my colleagues at Johns Hopkins University and our students at the Center for Talented Youth, who participated in my research about the role that the Internet and emerging technologies play in child development. I also want to thank David Repetto, Rebecca Taylor, Jeethu Abraham, Stephanie Sakson, Jim Diggins, and all the good people who work at or with Cambridge University Press whose efforts contributed in countless ways. It is always humbling to remember that Cambridge University Press has published works by John Milton, Isaac Newton, and Stephen Hawking. And finally, I owe all the thanks in the world to Julian, Callie, Keiko, Marlene, and Lili.

Patricia Wallace

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THE INTERNET IN A PSYCHOLOGICAL CONTEXT

Scrolling through Twitter's trending topics, I came upon #Ilostsleepbecause, one of those "fill in the blank" Internet memes that spreads from person to person, nudging Twitter users around the world to add witty or eye-catching endings. One response was, "There are still people out there who haven't watched Casablanca." Another person tweeted, "I don't know how to put my phone down," and that answer resonates with many of us. The smartphone connects the Twitter user to the Internet 24 hours a day, and it never sleeps, either.

At one time, the Internet was an arcane communication medium for academics and researchers, but now it sustains almost any human activity you can imagine, from shopping to sex, from research to rebellion. We use it to keep in touch with friends and coworkers, search for bargains, conduct research, exchange information, meet strangers, hatch conspiracies, and even talk to animals. Koko, the mountain gorilla who knows some American Sign Language, participated in a live Internet chat. People from all over the world logged into the chat room to ask questions and hear Koko's views on motherhood, pets, food preferences, friendship, love, and the future. She was not in the best mood, having just had a tiff with her mate, Ndume, and she shared her annoyance with the crowd by referring to him derisively as *toilet*, which is her word for "bad."¹

The Internet explosion happened very rapidly, and online environments continue to change at a breathtaking pace. For researchers trying to study how the net affects human behavior, it is a constantly moving target, but we know that the Internet is a place where we humans are acting and interacting rather strangely at times. Sometimes its psychological effects seem to be quite positive, but sometimes, we do

things online that we might never do in any other environment and that we regret later. At the same time, it is an environment that we can affect and mold - for better or worse.

If you mainly read news online, but occasionally glance at the comments, you might think that the Internet at large is overpopulated by people with mental disorders, bizarre ideas, and questionable motives and that normal folk had better tread very cautiously. Yet, decades of research on human behavior in many different settings show that minor tweaks in the environment can cause those “normal” people to behave differently, and sometimes the effects are quite striking. Although we might view ourselves as kind hearted, cool headed, assertive, or generous, we routinely underestimate the power of the situation on our behavior. People who rate themselves a “10” on cool headedness can lose their cool in certain situations. Someone who scores high on kindness and who ordinarily behaves courteously toward people in person might lash out aggressively in a heated Internet flame war. Psychological research confirms that the environment in which humans are behaving can and does affect the way they behave. Under the right circumstances, almost anyone will do things that they themselves consider quite uncharacteristic.

As human environments go, cyberspace is still relatively new, and we can learn much about how it affects us by looking closely at what is going on from a psychological perspective. Research about actual online behavior is growing and attracting the attention of scientists in the social and behavioral sciences, but also in computer science, media studies, communications, law, business, and other fields. For example, understanding how and why we behave in certain ways when we go online is critical for businesses seeking to earn revenue, and the “data scientist” is one of the fastest growing careers in the business world. We can draw on all these sources, along with everything we’ve learned about human behavior in face-to-face settings, to gain insights about behavior online. When we watch a flame war break out in an otherwise sedate discussion group, for example, we can turn to a long history of psychological research on aggression to better understand what is happening, and why. When we hear that a happily married couple met online, we can turn to studies of interpersonal attraction to comprehend why such relationships might be intoxicating.

In this book we begin, in [Chapter 2](#), with the online persona, delving into classic research on impression formation and impression

management. These processes unfold differently in cyberspace because the cues you use to form impressions of other people, and the tools you use to create your own, are quite different compared with what we use in real life. (In this book, I use *real life* to refer to anything and everything that is not online.) Next, in [Chapter 3](#), we take a closer look at group dynamics on the Internet, and show how many psychological phenomena involving groups play out differently online. Examples include conformity, group polarization, group mobilization, brainstorming, group conflict, and group cooperation. These studies are especially important as we move more and more work groups to the online world and tacitly assume they will be at least as productive as their real life counterparts.

One of the first surprises for researchers investigating online behavior was how disinhibited people sometimes became and how their tempers seemed to flare more easily as they interacted with others. [Chapter 4](#) looks at the psychology of aggression as it unfolds on the net, searching for the roots of those harsh emails, acerbic flame wars, and other forms of contentious online behavior. A second surprise was that the Internet environment is also very supportive of friendships and romances, perhaps for some of the same reasons. [Chapter 5](#) examines the nature of interpersonal attraction in the online world, especially in social media and in online dating.

Many corners of the Internet are filled with people who are willing to invest considerable time to help others in need. [Chapter 6](#) focuses on altruism and how the net supports volunteerism, fundraising, and support groups. From a psychological perspective, some Internet neighborhoods are particularly welcoming to certain kinds of support groups, such as those involving members who feel stigmatized by society and who are reluctant to share their concerns with people in their community, or even their own families. Online, they can talk quite intimately with caring others who share their problem without risking real-life censure.

Online games and their psychological effects - both positive and negative - are the focus of [Chapter 7](#). From the primitive Pacman, online games emerge as a multibillion-dollar business with very high stakes, attracting players from around the world in stunningly vivid virtual worlds. Fundamental psychological principles underlie these games, making them as compelling as possible so that players keep coming back. Research shows that games can offer significant advantages well beyond the fact that they are fun to play.

Chapter 8 explores child development and what it really means to grow up steeped in digital technologies. Teens, for instance, choose texting as their primary communication tool, exchanging dozens of texts every day. Today's youth are truly digital natives, and the Internet plays a critical role in their identity development, their social behavior, their cognitive development, and potentially their brain development. Some studies, for example, suggest that certain types of Internet use lead to positive consequences for cognitive development, but others point to alarming levels of multitasking and distraction. The Internet has certainly changed the way young people approach learning, with facts, figures, and lively instructional videos just a few keystrokes away. Socially, children are co-constructing online environments to suit themselves, as they develop new norms and communication patterns.

According to the Pew Research Center's surveys, 87 percent of U.S. adults use the Internet, and they are equally balanced in terms of gender.² But the environment began as overwhelmingly male, and some neighborhoods still are. This feature has certainly left its legacy. Chapter 9 examines how gender roles, stereotypes, and conflicts unfold online; for women, certain corners of the Internet can be hostile places. The chapter also examines sexuality on the Internet, including cybersex and pornography.

Debates about online privacy captured center stage when revelations about the National Security Agency's massive surveillance programs came to light, and also whenever a social media giant tweaks its privacy policies and outrages users. Chapter 10 covers the psychological aspects of privacy and surveillance and how we deal the "privacy paradox." We certainly say we care about online privacy, but much of the time we don't act as if we care, largely because of the nature of many Internet environments. Intellectually, most people realize - or should realize - that anything posted online could leak out to some audience we didn't intend to include, or even to the entire world. But the characteristics of many online spaces lead people to forget this and to behave in ways they would not if others were physically nearby, watching their actions. This chapter also takes up important issues in the privacy debate that touch on human behavior, including so-called big data and the "right to be forgotten."

In Chapter 11, we explore the Internet as a time sink, beginning with the way 24/7 connectedness affects work-life balance. Managing boundaries becomes extremely difficult, not just because of mobile

devices but because people *expect* you to be available and to reply quickly to that email from the boss or the text from a coworker. The chapter also delves into the controversial subject of “Internet addiction” – how prevalent it is, what causes it, and what it should really be called. Certain Internet environments, such as the online games and social networks, are so compelling that some people are simply unable to control their behavior, despite negative effects on their family lives, social relationships, and careers.

Finally, in [Chapter 12](#), we look toward the future, first exploring ways in which we, as Internet users, can help mold and shape this environment for the better. This is not television, a technology that we mainly affect through our viewing habits and fan support. The Internet is a work in progress, and we are doing much of that work ourselves. Relying on knowledge of the many psychological phenomena that influence our behavior online, we can develop strategies to shape our own behavior and influence others with whom we interact on the net. We also take out the crystal ball to predict how the Internet might evolve and how changes will create new psychological effects.

DEFINING THE “INTERNET”

From a technical perspective, the term “Internet” has a specific meaning. It is a global system of interconnected computer networks that use the same communications protocol to connect with one another, called Transmission Control Protocol/Internet Protocol (TCP/IP). The networks themselves transmit digital signals using wired or wireless connections, and much research goes into expanding the capabilities of those transmission media, especially welcome because of the explosion in streamed video. The wired media might be optical fiber, coaxial cables, ordinary twisted pair with copper inside, or anything else that can transmit digital signals. Some jest that the Internet’s original design was so flexible that two tin cans and a string would do the trick.

The wireless Internet connections rely on the electromagnetic spectrum, which they share with radio signals, X-rays, gamma rays, and visible light that our eyes can see, among others. The different types of transmissions use different wavelengths along the spectrum; the ones the Internet uses are longer than visible light and closer to the ranges used by radio.

This book is not about the Internet strictly as a technology, however. It is about the psychological aspects of any kind of computer or

digitally mediated life, regardless how you get to it. In a coffee shop, for instance, you might set your smartphone to use the free wifi connection to access your favorite apps, so you don't use up the data allowance you pay your carrier for. There, your phone relies on TCP/IP to communicate with the coffee shop's wifi router, which typically would have a wired connection to whichever Internet service provider (ISP) the shop uses. But in the car, out of the range of any wifi signals, your smartphone would switch to your carrier's cellular infrastructure, relying on communication protocols such as GSM or CDMA, depending on the carrier. Now, your phone's antenna is exchanging signals with one of the cell towers that then connects to the Internet.

Psychologically, any of these environments, and all the others I describe in the next section, can affect human behavior, and I use the terms "Internet," "cyberspace," and "online" broadly and inclusively. Research on online behavior has been complicated by the fact that the environments themselves vary, but not necessarily because they use different transmission media or communication protocols. In this book, we are looking at their psychological characteristics, and while their technological features sometimes affect behavior, those features may not have much to do with the protocol. For example, the screen size and mobility of a smartphone are more important for human behavior than which communication protocol is used.

William H. Dutton, the founding director of the Oxford Institute for Internet Studies, points out that from the perspective of social science, a focus on the underlying technical infrastructure and its protocols is too limited to define the Internet.³ For this book, a broader, more inclusive definition is appropriate, and you will even learn about some research studies that predate the Internet and rely on simple networks that connect people sitting in separate rooms. Broadly defined, cyberspace presents a wide range of experiences, and we need a special kind of taxonomy - one that divides up the known virtual world into better-defined spaces that share features from a psychological perspective.

A Taxonomy of Online Environments

When zoologists classify an animal into a particular phylum, class, order, family, genus, and finally species, they rely on major characteristics in order to group organisms that are similar to one another in

various dimensions. Does the animal have vertebrae? If so, it belongs in the Chordate phylum. What does it eat? If the answer is “mainly meat,” its order would be Carnivora.

Online environments shift and evolve far more rapidly than most living things, so any classification scheme will be subjective and fluid. Also, many environments have overlapping characteristics or they are hybrids that combine elements from several. Nevertheless, looking back over the Internet’s history, we can envision a kind of loose taxonomy, albeit with much variation, overlap, and many blended forms. It begins with the early “first generation” Internet environments, notably the World Wide Web, email, discussion forums, and synchronous chat. Then it moves into the *Web 2.0* environments that provide strong support for collaboration, sharing, and user-generated content (UGC). This classification scheme relies less on the technological roots of each environment and more on certain features that can affect behavior, such as whether and how it supports communication with other people, and if it does, how interactive, synchronous, and media-rich the environment is.

The Web

The first online environment is the *World Wide Web*, which is arguably the one that catapulted the Internet into millions of people’s lives once we could browse it with the early web browser called Mosaic. Now, people can search for information, shop, pay bills, watch movies, and much more. (Web browsers also make many of the other environments more easily accessible, so users don’t have to install separate software.) Here, I emphasize the web’s role as an information repository, shopping mall, self-service kiosk, theater, and as a place of other functions that do not involve much communication with other people.

As an information resource, the web has no equal, and our ability to find what we are looking for continually improves. Google developed its search engine to turn up the most relevant and highest quality results, and eventually became both a household word and a verb. Google’s secret algorithms change often, partly to foil scammers who use devious techniques to optimize their websites so that they turn up on the first page of results, which is about as far as most people ever look. For instance, a developer seeking to promote a website on cures for baldness might stuff the home page with keywords people would most likely use. To be less obvious, they could use a font color that

disappeared into the background. Visitors wouldn't notice, but the developer hopes Google's bot will judge the site as highly relevant. Search engines ignore scams like that, and the website might even get penalized.

How do search engines judge quality? As a Stanford graduate student, Google cofounder Larry Page came up with the idea that every link on the web is like a vote, and those votes can be a kind of proxy for quality. If a website has thousands or millions of votes in the form of inbound links from other websites, especially if those website "voters" are reputable ones, its rank goes up. As Web 2.0 emerged and websites became more and more interactive, additional proxies were added, such as the ratings and "likes" that users provide. Scammers never stop trying, of course, which is one reason you often see links to some questionable website embedded in the comments on popular and reputable blogs. Search engine companies play a never-ending cat and mouse game, trying to turn up the most relevant and useful results for every search.

Efforts to make the web an even more valuable information resource focus on adding more machine-readable meaning to the data, so instead of being a "web of documents," it becomes a *semantic web* of data. Currently, for example, a link from one web page to another is just a pointer, but in a semantic web, the link can carry a richer meaning by showing the actual relationships among the links and data sources. If the semantic web comes to fruition, software will be able to perform far more sophisticated tasks online without human direction.

The net is also unparalleled as an information resource because we ourselves contribute considerable user-generated content to it. Certainly, many contributions are worthless or worse, but good intentions sometimes produce very valuable information resources. Wikipedia is a good example, with its all-volunteer army of writers and editors. But many more are out there. For example, when I was learning how to prune our overgrown plum tree, a quick Internet search turned up amazingly useful videos that a farmer who grows his own organic fruits and vegetables kindly uploaded.

Under the Surface: The Deep Web and Dark Web

The search engines that index web pages on the Internet do their work by crawling from link to link, eventually traversing what is called the entire *surface web*. But there is much more on the Internet, in the *deep web*, that is orders of magnitude larger than the surface web, and far

more difficult for search engines to access with that link-crawling strategy. Much of the material lies buried in databases that have front end query forms for visitors to use.⁴ For instance, if you are looking for government grants, a search engine would lead you www.grants.gov, and from there, you can choose key words and set your own filters to query the grants database yourself. Most of these databases are not meant to be hidden and computer scientists are working out ways for search engines to tap these immense repositories.⁵

A subsection of the deep web has come to be called the *dark web*. This term refers to websites that are hosted on *darknet* networks that are invisible to search engines crawling the surface web, and that require special software or authorization to access. The alternate networks within the dark web are often created by communities seeking anonymity, whether to cloak criminal activities, bypass censorship, or protect dissidents, journalists, and whistleblowers. Many are publicly accessible using specialized software, provided you know where to go.⁶ Silk Road was one of the best known websites located in the dark web, operating as a black market for people buying and selling illicit goods and services - even murder for hire. Before his arrest in 2013, the founder made a fortune in bitcoins, one of the digital currencies used in such environments.

As we will see, people feel more or less anonymous in many Internet environments, but when on the dark web, they have somewhat more assurance that anonymity is preserved. Nothing is foolproof, however, given constantly advancing technologies.

Email

Email is a second environment for net users, and as we discuss in the [next chapter](#), your email address makes an impression. People react differently to an email from fuzzybear342@yahoo.com compared with one from h.k.whitley3@nasa.gov. You will see research on how those impressions form, and why they are difficult to contradict. Many people maintain multiple email accounts to present different identities or to manage contexts. I maintain a couple for use when I have to enter an email address to buy some product, for instance, but don't want my regular email address flooded with promotions. We discuss privacy issues in [Chapter 9](#), but suffice it to say that not all companies adhere to their own privacy policies about not selling or sharing email addresses.

Asynchronous Discussion Forums

Another distinctive space on the Internet is the *asynchronous discussion forum*. These are the ongoing conferences in which participants start topics, post replies to each other, and read what others have said. They are asynchronous in the sense that you can catch up on the discussion and contribute your thoughts at any time of day or night. Some discussions, such as the ones in which people add their thoughts to the comments that follow an article in an online newspaper, unfold very quickly. But they die out just as quickly as readers move on to other topics. In other discussions, the rhythms can be very slow. A discussion of a single topic might go on for days or weeks. The forum could also be very erratic, with several topics under discussion at the same time and other topics completely ignored. In these groups, you become part of a discussion among people with similar interests, regardless of their geographic location; you may know the participants in real life, or you may have never met any of them. Many groups exist on the web, supported by Google Groups, Yahoo! Groups, or others, and you can find a group on almost any conceivable topic. Scanning groups created for hobbies, I ran across "Bird Photography India," a group devoted to sharing pictures of birds from the subcontinent. The members of "Maine Birds" limit their sightings and discussion just to that state.

Technically, asynchronous discussion forums can exist on several different platforms. One of the earliest varieties is the mailing list, or "listserv," which is still widely used, especially for professional or academic groups. This is a special kind of email address with an automated feature that resends all the messages it receives to everyone subscribed to the forum. Once you subscribe, all messages posted to the main email address will land in your inbox as well, and anything you send will reach all the other subscribers. We will see research on several of these in the upcoming chapters. Scouring through a mailing list's archives helps researchers study how norms unfold, how conflicts are resolved, and how people use language in computer-mediated environments.

Another type of asynchronous discussion forum is the collection of conferences known as news groups on a distributed bulletin board system called Usenet. This is one of the oldest Internet niches, and the forums spanned every conceivable human interest - from the scholarly to the salacious. A loose hierarchical naming structure was established in a somewhat futile effort to stay organized.

Some examples are sci.space in the science hierarchy, which focuses on space research; soc.culture.british in the social issues hierarchy; and rec.arts.tv.soaps under recreation. The “alt” (alternative) hierarchy is wide open, and any net user can create a news group under this heading. Examples include alt.backrubs, alt.conspiracies, alt.evil, alt.flame, and alt.sex. Though many thoughtful discussions occurred in the news groups, Usenet gained a reputation for being a stronghold in the Internet’s “Wild West,” and Usenet is now largely defunct. Researchers can still study the archives, however, and former Usenet users are sometimes shocked to find their decades-old postings still online.

Synchronous Chat and Instant Messages

Synchronous chats and *instant messaging* form separate psychological environments on the Internet because they attempt to mimic a real-time conversation with just typed words, as the people involved type their messages back and forth. These, too, come in many different types. Businesses offer online chat to help website visitors navigate the site or to answer questions. When I have a question, I often prefer the chat to a phone call with a long automated menu, and I can also keep a record of whatever was typed. In offices, many employees also prefer instant messaging to voice calls because they are quite efficient and less time consuming. The social norms for voice calls, such as “Hello, how are you?” do take more time.

Public chat rooms attract people for many different reasons. Chat rooms, such as those that are part of the worldwide Internet Relay Chat network, have a seedier reputation because of the way criminals and Internet predators use them, but synchronous chat has many uses. For example, Bill Gates likes to hold synchronous chats on Reddit’s “Ask Me Anything” platform. Redditors, as the site’s users are called, type in queries that Bill answers, and the chatters in the room join in the discussion.

Blogs

Emerging with the Web 2.0 technologies, *blogs* are websites that an individual or group is constantly updating with new material, and they typically allow readers to add their own two cents in the comments. In that sense, they are similar to asynchronous discussion

forums, except that a single individual's thoughts are the main focus. The material is mostly informal, often the blogger's own reflections and opinions, although the term "blog" is also applied to websites that are more like commercial magazines or newspapers with multiple authors contributing to the blog's frantic update pace. Huffington Post, Mashable, Gizmodo, and TMZ are examples.

Anyone can start a blog and free services offer sophisticated tools to get started, adding images and videos along with text. A few lucky bloggers gain enormous followings and can earn a decent living. British blogger Andrew Sullivan, for instance, started a political blog in 2000 called "The Dish," and its popularity attracted the attention of major publications, including *The Atlantic*. Blogging is exhausting work, however, and Sullivan announced on his blog that he was quitting: "I'm saturated in digital life and I want to return to the actual world again."⁷

Social Networks

Social networks are one of the most compelling environments on the Internet, as people build their own profiles and connect to family, friends, coworkers, and assorted others. These environments blend many components of the other online environments into the platform, with wall posts forming a kind of asynchronous discussion forum, and messaging that is similar to texting. They also add many novel features that have their own psychological effects. Facebook, for example, offers endless opportunities for you to manage your impression with your profile, your photos and videos, your status updates, and also the company you keep. The links to social games create playgrounds for you and your network friends, and location-based services help you meet up when you happen to be in the same neighborhood.

Sites that feature content sharing such as YouTube, Flickr, and Instagram, where users upload videos and slide shows, are also social networks, but with a somewhat different focus. On YouTube, for instance, a user might create a channel with a particular theme, such as Excel tutorials or cat videos, and then incorporate links within their main social network profile.

While Facebook is wildly popular, it has many competitors with somewhat different features and audiences. LinkedIn, for example, focuses more on business networking, and Dogster attracts people

who share a love of their pets. People outside the United States often choose social networking platforms that match their needs and that easily support their local languages. Orkut in Brazil, Renren in China, VK in Russia, and StudiVZ in Germany are a few examples. As we discuss in this book, people have difficulty managing their personas when their social network includes different categories of “friends,” such as parents and coworkers, so many people create profiles on more than one social networking site.

Although the social networks started out as a way for individuals to craft an online persona and keep in touch with friends and family members, they are now homes for companies, nonprofit organizations, political campaigns, government agencies, activist groups, and other entities that use them to shape a narrative and connect with interested parties. It’s hard to miss the constant demands to “Connect with us on [choose your social media!” and the familiar buttons that instantly transport you to the organization’s social media site.

Twitter and Texting

Twitter is a *microblogging* social network, on which users can tweet messages limited to 140 characters of text, but they can also add other media. They accumulate followers – largely friends – who see all their text messages and might “retweet” the ones they especially like to *their* followers. Unlike on more traditional social networks, however, users can follow anyone they like – no friend requests or approvals are needed. Celebrities work diligently to attract thousands or millions of followers, for instance, and when they succeed, advertisers pay princely sums to them to tweet nice things about their brands. Twitter’s retweeting feature is a key ingredient in viral communications online. In a matter of minutes, a tweet might jump from one network of followers to thousands, and then thousands more. Twitter’s “trending topics” track these by location, so users can easily keep up with the buzz.

Twitter users themselves invented the hashtag convention in which they add a keyword to the tweet preceded by the pound sign (#). This makes it easy to search for tweets by keyword.

When Twitter first launched, few thought that the service would catch on with adults because it seemed like so much pointless babble about trivial topics. But it turned out that even babble can play an important role in human interactions, and Twitter grew to be far more

than just that. Companies, celebrities, politicians, journalists, police departments, and many more use the service, and news often breaks on Twitter before it reaches traditional media.

Texting bears some similarity to Twitter with its short messages that most recipients read as soon as the message arrives. It gained early traction outside the United States as a favored means of communication, especially in countries where cell phones are extremely common but where smartphones that support apps like Facebook are rarer. In countries such as the Philippines, Indonesia, and South Africa, cell phones are nearly ubiquitous, and over 90 percent of cell phone owners regularly send text messages.⁸ It quickly caught on in the United States, however, especially among teens and young adults – many of whom send and receive dozens of texts every day and often prefer texting to voice calls or email.

People use text messages to send alerts, stay in touch, or flirt – even when all they type is “hi.” For youth, it is a less risky way of connecting compared with the phone or email, because of its informality and the fact that the recipient doesn’t have to answer. Texting also plays a key role in coordinating events, as when we dash off a quick text to say we’ll be ten minutes late.

Virtual Worlds and Virtual Reality

Virtual worlds, in which people take on avatars in three-dimensional worlds and interact with one another synchronously, form another environment for Internet users. Early versions, called MUDs, were completely text-based, and players typed in commands to “go north” or “go down” to move about. On entering a room in a mansion, for example, the program would display a text description of the room along with the names of the avatars present, and the player could begin communicating with them. “MUD” originally stood for multiuser dungeon because many were based on the game Dungeons and Dragons. As they branched out, MUD came to mean multiuser dimension or domain.

Modern virtual worlds feature vivid graphics and sophisticated controls that players can use to build their own characters, communicate with other inhabitants, and even set up businesses. Many of these environments are multiuser gaming worlds, where players team up to battle enemies or other teams. The massively multiplayer online role-playing games (MMORPGs) attract millions of players,

and in [Chapter 7](#), we discuss the psychological aspects of online gaming, both positive and negative.

The term “*virtual reality*” is used in a number of ways, but in this book I use it to describe a computer-generated simulation of a three-dimensional environment that people can enter, not by using a keyboard or video controller, but with their physical selves. A virtual reality environment typically involves a headset that displays images and that appear to move as the wearer moves about. Gloves fitted with sensors might further enhance the virtual reality experience. These setups are often used for simulation training or research, and we will discuss several examples in this book. Virtual reality gear is also beginning to supplement virtual world experiences. For example, Linden Labs, the company that owns the virtual world Second Life, is linking the Oculus Rift virtual reality headset to that online virtual world, so players can view the world from their avatar’s perspective in three dimensions.

Interactive Video

Applications that offer interactive video and voice form a distinct online environment because they support more nonverbal communication - facial expressions, gestures, and vocal tone and tempo, for instance. These are key elements of human communication, and research on the psychological aspects of computer-mediated video interaction is not as extensive yet compared with research on text-based interactions. But interactive video is not the same as a face-to-face meeting, and it introduces some odd features that can have psychological effects. One, for example, involves eye contact. You look at the screen when you interact, not the camera lens, so you don’t quite simulate eye contact with your partner.

In some settings live video may be very welcome. For example, online work groups that conduct their kickoff meetings using interactive video tend to become more cohesive and productive. In other settings, however, video might kill some of the magic that makes the Internet so enchanting and liberating.

Mobile Apps

Finally, mobile apps are quickly replacing web browsing on smartphones and tablets because they work well on smaller screens and

keyboards. Whether you want to check sports scores, post a status update, calculate a tip, or pay a bill, “there’s an app for that,” as Apple’s ads announce. Just as the Internet itself triggered waves of creative destruction that upended one industry after another, apps are doing the same. The breathtaking rise of on-demand car services is one example. City dwellers gravitated very quickly to the mobile apps and services offered by companies such as Uber and Lyft that compete with taxis.⁹

Apps, of course, overlap with and support all of the environments described in this section, but they deserve special mention because they add distinctive elements to those environments such as tiny screen size. A video chat with a smartphone is quite a different experience compared with the same chat on a large, high-definition monitor. Another element is that mobile apps confine the user to specific applications, so the online experience is narrowed compared with web browsing.

Because apps are on mobile devices that we hardly ever leave behind, they have access to our current location, depending on settings. That information opens up an entirely different set of possibilities for location-aware apps that can map out nearby friends, services, or coffee shops. Mobility also means that apps are always available, and people can fill all the micro time-slots scattered throughout the day, perhaps while waiting for an elevator or riding a bus. You might install an app to learn a foreign language, practice math problems, or help scientists collect data. An app called NoiseTube, for example, measures noise levels and reports it back to scientists who use the information to create “noise maps” and track noise pollution.¹⁰

More Psychological Dimensions of Online Environments

Weaving through all those general categories and mediating their psychological effects are certain features that affect our behavior in any setting, including online. One particularly important feature is the degree of anonymity. Do the people you are communicating with know your real name? Do they already know you from face-to-face settings? Do they expect to meet you again? Within Twitter, for example, perceptions of anonymity vary dramatically. Many people exchange tweets just with family and friends, but others use the service very differently, tweeting under pseudonyms to strangers around the world. Asynchronous discussion forums for professional groups

would not likely feature anonymity, but on discussion sites such as 4chan, anonymity is highly prized and users cannot even register.

Levels of self-awareness also vary in different environments. In an interactive video chat with several other people, you can see your own image along with that of everyone else. That kind of environment heightens self-awareness. But if the webcams are turned off so that you all are looking at a slide show instead, the environment feels more like being in a darkened conference room, with all eyes on the screen. In that setting, your level of self-awareness is lower, and such differences can affect your behavior.

Your perception about the size of your audience is also a feature that can vary within online environments. In a face-to-face setting, you can usually see how many people are in your audience, but online, audience size is more elusive. Even on Facebook, where you know how many friends you have, you don't know how many are actually reading your status updates, if any. And when you send an email to a single individual, you don't know whether the recipient will forward it or even post it online in some public space for the world to see.

Another example of a mediating variable is the presence or absence of some local authority, such as a group moderator, who has the power to resolve disputes, enforce policies, and kick wrongdoers out. Adding an armed sheriff to a lawless town had predictable effects on the frontiers, and it isn't that different on the Internet.

Perhaps the most important mediator of behavior in these different Internet environments is the purpose of the people who visit or inhabit them. Though I like the "global village" metaphor, the Internet is not really like that most of the time. With respect to human interaction, it is more like a huge collection of distinct neighborhoods where people with common interests can share information, work together, tell stories, joke around, debate politics, help each other out, or play games. Geography has a bearing on the way some of these neighborhoods form, but purpose is even more powerful, and it has a strong influence on our behavior. People can enter multiple neighborhoods and they change their behavior as they click from one to the next, just as you would when you move from a business meeting to a beach.

LANGUAGE ON THE NET

Written language is the Internet's bread and butter, so you will see many examples throughout this book of how people online use

language deliberately, playfully, and sometimes intemperately to express themselves. Just like any other behavior, the way we use language is closely related to the social context and situation. The style of speech - or language register - changes when you speak on the phone, talk to a child, brief your boss, write in your diary, or compose a political speech. Linguistic research into online language is growing rapidly, and the particular medium is clearly an important variable.

For example, Christopher Werry analyzed logs from informal synchronous chat sessions, trying to identify some of the properties of this register. The following transcript was part of his study:¹¹

```
<anya> catch you all in about 10 mins  
<Keels> boooooooo  
<ariadne> keels !!! you in and out today?  
<bubi> keels, don't scare me !!!  
<Keels> you mean youre  
<Shaquille> ariadne - what the hell is your problem?  
<Keels> who are you bubi  
<Alvin> bubi: What does your friend want to do in Australia...work  
<Alvin> Shaquile: You're the problem.
```

If you have never been involved in an Internet chat, this log must look rather ridiculous. On the surface, it seems as though communication among people is barely occurring at all and that most of the utterances are a jumbled mass of disconnected insults and meaningless grunts. Yet experienced chatters learn how to follow the threads as though they are in a room in which several conversations are going on at the same time. They might participate fully in one and just eavesdrop on the others. Dissecting out the threads is made a little easier by the fact that the messages scroll slowly and remain on the screen for a while.

The chat medium affects the register in several ways, pushing it toward a highly economical use of language that is not just an attempt to reproduce spoken conversations. Efficiency matters, and people who chat use many abbreviations and shortcuts. In this sample of text, the participants are evolving innovative linguistic strategies as they create a register for conversation and adapt to the constraints of the medium.

Linguistic analysis of a very large sample of text messages also finds elements that distinguish this online environment. Phonetic respellings are common, for instance, as in this sample:¹²

Thnx dude. u guys out 2nite?

Hey! Congrats 2u2. id luv 2 but ive had 2 go home! Xxx

Again, texting is not just written speech. Compared with other language forms, texting contains many more first- and second-person pronouns (you, I, u), and also more words that refer to timing, such as soon or just.

The asynchronous discussion forums have a different register, probably because participants can “talk” as much as they like.¹³ One intriguing finding is that many people use a style that is somewhat similar to the public interview style of speech. We may be looking at the effects of the Internet soap box, rather than just a discussion going on inside a group. When people respond to a post and debate various points, they appear to be talking to a single individual, but they know they have a wider audience, as though they are sitting in front of a camera with a television interviewer who is tossing out questions. Yet unlike a TV interview, there is no one to interrupt them, so they can express their opinions with some very long-winded and detailed messages.

APPLYING THEORY TO ONLINE BEHAVIOR

To make sense of the way human behavior unfolds in online environments, we can draw on a number of theories that attempt to generalize about how certain elements affect behavior in many different settings involving technology. We will be discussing many of these throughout the book, but several are particularly relevant.

One of the earliest was *social presence theory*, which John Short and his colleagues proposed long before the Internet entered the mainstream.¹⁴ “Social presence” refers to the degree to which an individual is perceived as a “real person.” Technology-mediated communications can affect those perceptions and human interactions, particularly because they differ in the ability to transmit nonverbal information – facial expressions, eye contact, posture, dress, vocal tone, and so on. They argued that media that can transmit more of those cues, such as interactive video conferencing, will provide a heightened sense of the others as “real,” and that will lead to warmer and friendlier interactions.

Media richness theory emerged from research on leadership and management that explores how executives might best communicate

different types of messages.¹⁵ At the time, the choices were face-to-face meetings, telephone calls, letters and memos, impersonal written documents, and numeric charts or tables, listed in decreasing order of media richness. But you can easily see how email, texting, interactive video, and other online environments can be added to that list. In business settings, the theory predicts that managers make better choices by using the richer media when uncertainty is high, and those nonverbal cues will help people resolve issues. But for simple exchanges, the leaner media are a better and more efficient choice. This kind of thinking opened up a more optimistic view for the possibilities of online communications, one that didn't immediately relegate them to second-class status compared with face-to-face meetings.

Joseph B. Walther's *social information processing theory* directly addresses human behavior online, mainly in text-based environments such as email or synchronous chat.¹⁶ In such settings, people are still motivated to manage their own impressions and to form impressions of their communication partners, but they have to rely on a leaner medium to do it. In a face-to-face meeting, multiple nonverbal cues combine in real time with whatever words are spoken, so people can form impressions very quickly. In computer-mediated settings, they rely mainly on language, so people adapt to that setting, choosing whichever tools are available to convey feelings. For instance, we might smile and increase eye contact to convey liking in a face-to-face setting. But without those nonverbal strategies, we find the right words, and even might just type, "I like you." Despite the limitations, the partners can develop very strong relationships without ever having met in person or talked by phone, but it does take longer. Indeed, such environments can support "hyperpersonal" communications that are highly intimate, and we discuss some of Walther's work on how this happens in [Chapter 5](#) on interpersonal attraction.

Another theory called *SIDE* deals especially with the nature of online groups and how group identity develops.¹⁷ The acronym derives from "the social identity model of deindividuation effects," and the theory helps explain some of the nuances that make people identify with an online group, conform to its norms, and overestimate how similar the members are to one another. When personal characteristics are subdued or even invisible, as they are in most anonymous groups, but group members have reason to believe

they share a common social identity, those group members show more attachment to the group's identity rather than to their individual identity. The lack of nonverbal cues that might highlight individual differences can lead to a very cohesive "ingroup" that suppresses individuality and magnifies differences between the ingroup and the outgroup. For example, gender stereotypes are common in online, anonymous groups, which is one reason women sometimes choose gender-neutral or male nicknames. This theory helps clarify why some online environments increase stereotyping and do little to empower the disempowered, because their features promote depersonalization and group identity at the expense of individual identity.

Finally, a theory that grew out of early studies of mass media deals with how people actively seek out various types of media to satisfy their particular needs. Called *uses and gratifications*, it emphasizes how people make their own choices about which media to consume. This approach departs from the more traditional studies in which researchers investigate the effects of media on overall human behavior, without considering the kinds of choices individuals are making. Although the approach fell out of favor for decades, it gained new life because of the Internet. We Internet users are highly active choosers and contributors, not just passive media audiences.

All of these perspectives, and the others we discuss in later chapters, take into account that human behavior is complex, and it involves interactions among the characteristics of each person, the situation he or she happens to be in, and the features of the technology in use.

EMPOWERING INTERNET USERS

In this book, we explore how different kinds of human behavior unfold in many corners of cyberspace, and why online environments can affect us in surprising ways. Given how much we can contribute to the net, we can also use this knowledge to avoid the worst missteps and improve our own outcomes. We might even improve the psychological climate in our favorite neighborhoods for all their inhabitants. Although its ubiquitous presence makes it seem as though the net has been around forever, it is still a young technology, and even its regulatory status remains up in the air.

The Internet also changes very quickly. Even if - after many blunders - we feel adept about using email, we can't predict what norms

will evolve for the next new “thing,” and how that “thing” will affect the way people behave. Not many predicted, for instance, that Snapchat, the service people use to text a photo that vanishes a few seconds after the recipient opens it, would lead to sexting in teens, followed by their arrests for transmitting child pornography – a felony that can carry lengthy prison sentences.

The Internet is not simply a technology thrust on us, one that we can choose to use as is or avoid altogether. We *can* do only that, but we have more power to influence this environment than we had for television or telephone because we are the creators, producers, and users at the same time. We can even use it to influence the mature broadcasting medium of television, where our activism was once expressed mainly by whether we turn on the set and what we watch if we do. Producers religiously monitor social media chatter about their shows, and that can carry some weight. Fans of the TV show *Chuck* came out in force on Twitter with a campaign called “We Give a Chuck,” in hopes of getting the network to produce a fifth season. They cleverly mentioned how much they support the show’s advertisers in their tweets: “Just rewatched the last episode of #Chuck while drinking my daily @drpepper! Thanks for the Chuck support @pepsi!”¹⁸

Nevertheless, the Internet’s momentum is extremely powerful, and some argue that there is little we can do to change the course of this technology. Perhaps it is too late, for instance, to rescue privacy – not just from the many companies and government agencies that want our digital data and have the means to collect it, with or without our knowledge and consent. Our own online behavior often puts our privacy at risk.

Karl Marx provoked a debate about the power of technological innovation to drive social change when he pointed out, “The hand-mill gives you society with the feudal lord; the steam-mill, society with the industrial capitalist.” His point was that certain new technologies have immense power to shape human behavior and social structures. Now, in a postindustrial age, we have what sociologist Manuel Castells calls the “network society” that promises further upheavals and dramatic change.

In 1967, economist-historian Robert L. Heilbroner revisited the issue of technological determinism. It is, he wrote, “peculiarly a problem of certain historical epochs ... in which the forces of technical

change have been unleashed, but when the agencies for the control or guidance of technology are still rudimentary.”¹⁹ We are in one of those epochs now, and we need knowledge about how this technology affects us and how we can, in turn, affect it.

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2 YOUR ONLINE PERSONA

THE PSYCHOLOGY OF IMPRESSION FORMATION

How do people manage their self-presentations online? How successful are we at conveying the impression we hope to create? And what cues do we use to form impressions of other people when we read their emails or browse their social network profiles?

For face-to-face settings, there is no shortage of advice. Consultants eager to help us create the right impression abound, whether the goal is to impress a prospective boss, get elected to public office, make a sale over the telephone, or get a date. For a face-to-face job interview, they offer tips such as “show confidence with a strong handshake” or “maintain eye contact to show interest.” Researchers have spent considerable effort exploring how people present themselves in person and how those strategies affect the impressions they make on different audiences.

Online, different approaches work, and an especially clever self-presentation might lead to instant celebrity status. Dave Carroll, a little known Canadian musician, posted a music video called “United Breaks Guitars.” The catchy folk song explains how clumsy airport baggage handlers broke Carroll’s expensive guitar and how his attempts to negotiate compensation met with failure. The video attracted 150,000 viewers in just one day, and many millions within a month. Carroll’s lighthearted approach led to quasi-celebrity status and many invitations to speak on customer service at corporate events, as well as a new book.¹ United eventually asked for permission to use the video in its own training programs.

Embarrassing blunders are easy to make and difficult to retract. A university administrator sent out an email to 40,000 students, encouraging them to opt in to paperless delivery of 1098-T tuition forms. The

students quickly discovered they could reply to all, and what became known as “replyallcalypse” ensued. A suddenly empowered student body shared jokes, friendly comments, cries for help, and complaints, along with many calls to stop “replying to all” as their inboxes flooded. The employee who made the mistake apologized but the floodgate was already wide open.

Much online interaction, on social networks and email in particular, is among people who already know each other in person, so their online personas add to the impression we already have of them. But the online persona plays an important role in first impressions as people rely more on email or social network introductions, and employers check out applicants’ profiles. For some Internet relationships, communication starts on the net and later develops in other environments. For others, the entire relationship never strays away from the net, not even with a phone call, so the online persona is the whole story.

I recall receiving an email many years ago from a distant colleague I had never met in person that highlighted how clumsy we can be at constructing an online persona. It was thirteen screen pages long and closed with one of those automated signatures containing the sender’s name, a string of letters announcing his many degrees and certifications, a list of academic affiliations, and a lofty quotation surrounded by asterisks. I was tempted to click “delete” immediately, but then I remembered that he is struggling with his online persona, and we all have much less guidance to go on. I printed it out and read his missive.

ONLINE, ONSTAGE

Erving Goffman, the father of impression management theory, proposed that everyone uses tactics to present themselves in whatever light they think appropriate for the context. He thought of a social event as theater, with people performing on the front stage as actors who are conscious of their audience and who are trying to create a certain impression. They might be following the social norms they assume the audience expects, or they might be deliberately defying them - to shock or amaze. The actor will behave differently on the back stage, however, when there is no audience.

Much research has been conducted to understand how people present themselves in face-to-face settings and how well their performances create the impression they intended. But how does this process unfold on the Internet?

Online Self-Presentation: A Challenging Stage

In some ways, crafting the online persona has unique advantages over a face-to-face setting because people can take their time to get just the right text, photo, or video for their network profile or personal home page. They can edit and revise text, retouch photos, and make thoughtful decisions about what to disclose.

In other ways, managing your own impression on the Internet is like navigating white water with two-by-fours for oars. Your impression management toolkit is strangely devoid of the tools most familiar to you - your real life smile, body language, and other nonverbal cues. In many online environments, you can't project your high status the way you could in face-to-face settings. Your commanding voice is silenced, and your subtly raised eyebrow is invisible. Posting photos and videos of yourself and your friends adds richness to your online self-presentation, but often, the main tool you have to manage the impression others form about you is the keyboard. Compared with cosmetics, clothing, hairstyles, and all the other accoutrements that swallow our paychecks, the keyboard can be an unfamiliar and awkward impression-making device.

The tools people use to manage impressions online run the gamut in terms of media richness. An email, for example, is often nothing but typed text, but the recipient will quickly form an impression of the sender based on whatever cues are available. Facebook, LinkedIn and other social networking sites offer more tools that create opportunities for richness in self-presentation, with images, videos, links to favorite sites, and many comments from friends.

Another way in which online impression management differs from the face-to-face version is that new tools keep appearing that offer enticing ways to tweak how you present yourself. Adobe's Photoshop software quickly became a verb as people began enhancing their images to whiten teeth or erase blemishes. Some of these features are difficult to use and error-prone, so that the first clumsy attempts can easily create an impression you didn't want to make. For example, novice LinkedIn users might start by importing many associates into their LinkedIn network from their contact lists, and then start to tinker with their profiles and photos. What these newcomers might not know is that the setting to send out activity updates to the network could be on by default, so every tiny change is broadcast. That is a bit like installing a live webcam in the dressing room of an actor who is applying make-up to transform into a stage character.

The options for presenting oneself online also continue to expand. With Snapchat, for instance, people can send an image to a recipient's mobile phone, and the image will disappear in a few seconds, or at least it is supposed to. Using Vine, you can create a looping six-second video using a smartphone to share with friends. In 3D virtual worlds such as Second Life or Sims, inhabitants can create lifelike or fanciful avatars to interact with one another.

A feature of online impression management that people often forget about is that many of the services are free to the users, but the companies earn revenue through advertising or other business arrangements. The fine print (which few read) may contain elements that make the online stage even more challenging. Facebook frequently changes its privacy policies, but at this writing, the company claims the right to use your image on advertising, a feature that will definitely affect the impression you are trying to make. For instance, if you click "like" to follow Budweiser Beer's Facebook page, your friends might see your profile photo next to an ad for that product. In a face-to-face setting, you wouldn't expect a Budweiser representative to snap your photo because you attended a Clydesdale parade, and then use it in an ad without asking you for permission.

A final example that we return to later in this chapter is the audience itself. On Twitter, for example, you might think you are tweeting to a handful of followers, and you craft your presentation in a way that you think will please or amuse them. But tweets can be retweeted, and your tweet might start "trending" and reach the whole Twitterverse. The possibility of unintentional viral spread of a performance intended for a particular audience is a very real one.

Self-Presentation Strategies

Goffman stressed that our motives are key to the strategies we choose. You might want to be liked by your audience, to dominate them, to throw yourself on their mercy, or to have them fear or respect you, and you will choose tactics for your self-presentation that you hope will accomplish your goal.² Goffman calls it "an information game - a potentially infinite cycle of concealment, discovery, false revelation, and rediscovery."³

A study of how people use these tactics online shows that the context can affect which strategies they use, much as it does in a face-to-face setting. The researchers chose three different social media

platforms to examine: Facebook, multiplayer first person shooter games, and FatSecret, a social support community about weight loss. Facebook users stressed ingratiation, which fits a social networking theme. People on the first-person shooter game chose intimidation, and those participating in the social support discussion forum were more likely to use supplication compared with the other platforms, as they asked for help and advice.⁴

Strategies also depend on each person's own personality, in addition to their motives and the context. For example, high self-monitors carefully regulate their self-presentations to make themselves more likable and socially desirable, sometimes including deception as part of their performance. Imagine a politician adept at changing styles for each speech, carefully responding to the audience's preferences. Low self-monitors present more authentic self-presentations, caring less about what each audience might think. Online, high self-monitors tend to portray themselves as more extraverted and sociable.

Although some self-presentations are completely fictitious, most people recognize that authenticity is a key ingredient for effective impression management, especially when the audience includes people known in real life. They might enhance the profile image a bit, or choose to feature their most positive traits online, but outright deception is less common and may easily backfire. In a focus group on impression management, participants brutally mocked someone whose Facebook profile smacked of falseness:

D: I have a person who I know was just a geek in high school, and the next thing they're doing, they're on their Facebook with guns ...

E: I've seen that too ... I laugh at it.⁵

We spend a lot of time and effort managing and refining the impression we want to make, but we don't want others to know how hard we work at this. We also want to be very careful about being perceived as a manipulative social chameleon who fakes impressions for social gain. To better understand how well people are doing at this online, let's take a look at how we form impressions of other people.

FORMING IMPRESSIONS ONLINE AND OFFLINE

Psychologists have been studying impression formation in face-to-face settings for decades, with many surprising results. People are not

always rational when they form an opinion of a newcomer, carefully drawing on all the cues available and withholding judgments when information is sparse. Instead, we draw conclusions on little evidence, as classic research in psychology demonstrates.

Crafting a Warm and Likable Self-Presentation

Soon after World War II, Solomon Asch did a simple but provocative study on first impressions and found that people tend to leap to conclusions with blinding speed and few cues to guide them.⁶ He first described a man as “intelligent, skillful, industrious, warm, determined, practical, and cautious.” The people who heard this brief description had no trouble painting in the rest of the personality. They assumed he was also honest, good-natured, wise, popular, sociable, and imaginative - an all-around likable fellow. In retrospect, I could imagine a friendly cat burglar with the same traits that Asch listed, but the subjects apparently did not.

Asch wondered how small changes in the list of traits might affect the impression the man was making, so in variations of the same experiment he read the list again to other groups, substituting “cold,” “polite,” or “blunt” for the single word “warm.” Neither “polite” nor “blunt” changed the impression very much, but when the man turned “cold,” he was transformed into a very unlikable person. He became an unpopular, disagreeable cheapskate. The change in his psychological temperature was the step in the recipe that turned Dr. Jekyll into Mr. Hyde.

“Warm” and “cold” say a great deal about our dispositions and influence how others will react to us in social settings. They are heavily weighted central traits when people are forming a first impression. You may be considered brilliant and industrious, but these will pale next to your warmth or coldness.

The Chilly Internet

The cues people use to form some impression of your warmth are mainly nonverbal. Your facial expressions can be a giveaway: a scowl is all your observers need to take your measure. Your vocal patterns, body posture, gestures, and eye contact will also tip the scales toward one end of the warm/cold continuum. Folding your arms and looking away will lead to a colder impression, while moving a little closer (but

not too close) when your partner speaks will make you seem warmer. Research on nonverbal communication and its role in impression formation is very extensive, and there is no question that your words - what you actually say - take a back seat to other cues when observers are drawing conclusions about warmth and coldness.

In the early days of the Internet, observers had little more than typed text to judge temperature. Much of the original research on socioemotional expression online, the kind that leads to impressions of a person's warmth or coldness, showed that we all seem cooler, more task-oriented, and more irascible than we might in person. In the 1970s, Starr Roxanne Hiltz and Murray Turoff conducted one of the first studies to compare the way people express themselves in computer-mediated and face-to-face meetings, and their results did not bode well for this youthful medium.⁷ They analyzed utterances in the two settings and found that the face-to-face groups expressed more agreement with one another. The simple "uh-huhs" that a person uses to show understanding and alignment with the speaker were far less common in the online meeting. This isn't too surprising - it would seem odd to type an utterance like that, but perfectly natural to say it. What was more surprising was that the computer-mediated groups made more remarks to express *disagreement* and fewer remarks that might relieve a tense situation. It sounds as if they were getting on each other's nerves and communicating in ways that made it worse rather than better. Those differences would easily account for the chilly impressions.

The chilliness comes out in email, too. A study using a shorter version of the Myers Briggs Type Indicator (MBTI) personality test demonstrated that online, mistakes about warmth and coldness are common. When the subjects took the test, they imagined that they were answering it in the way one of their colleagues would - one with whom they had communicated only via email. Those colleagues also completed the test, but they answered for themselves.⁸ As a control, people who knew one another face-to-face also completed the test, with one member of each pair playing the role of the other.

How well could the role players guess how their colleagues would answer the questions? The ones who had the advantage of face-to-face contact did well, but the email-only partners showed some intriguing misperceptions. They thought their partners preferred the logical and analytical "thinking" approach far more than they actually did. They also underestimated the possibility that many of them would prefer a more people-oriented "feeling" approach. The targets' need for

structure and order, at the expense of spontaneity, was also overestimated by the role players who knew them only through the wires.

Studies such as these show that what we type is not quite what we would say in person, and others react to this subtle alteration in our behavior. We don't just *appear* a little cooler, testier, and disagreeable because of the limitations of the medium. Online, we appear to be less inclined to *perform* those little civilities common to social interactions. Predictably, people react to our cooler, more task-oriented impression and respond in kind. Unless we realize what is happening, an escalating cycle begins. The online group members could have typed simple phrases to express more agreement and to release tension if they had realized their importance. They could have softened their typed verbal disagreements, with "Oh, not sure I quite agree with that," as they might have done in person. Though their emotional intelligence might have been high in person, it was less acute online.

Emoticons and the Socioemotional Thaw

Even in a text-only environment, people find ways to shape their personas with more emotional expression. Emoticons, those playful combinations of punctuation marks designed to show some facial expression, began appearing in the 1980s. Scott Fahlman at Carnegie Mellon is widely credited with starting this innovation in 1982 with a smiley face, and many more have taken hold. Using just the keys on the QWERTY keyboard, we can smile :-), frown :-(, wink ;), express frustration :/, or stick our tongues out :P.

With more sophisticated software, emoticons have become more accessible and nuanced. Microsoft Word and other programs automatically convert the original smiley face to a graphic ☺, and many apps offer tools to add far more graphical emotional expression to text-based communication. Emoji, for instance, are the extremely varied emoticons that started in Japan, and that include some emotions linked to Japanese culture, such as bowing deeply as a way to express an apology.

Studies of various settings in which emoticons might be used show quite different rates of use. For example, a longitudinal study of smartphone users in France found that emoticons were not used very often in text messages sent by mobile phones. Just 4 percent of these private messages contained one or more emoticons.⁹ In another setting, however, they might be used in nearly every message, especially by younger users.

How Do Emoticons Affect Impressions?

Whether emoticons are capable of tipping an impression in one direction or another depends on the situation, as many research studies have uncovered.¹⁰ For example, take a look at this brief email:

Date: January 1

Subject: Question

Hi, can you send me the name and contact information of a tutor that can help me with the accounting class? Thanks. :)

Students in a management course judged both this email and another one just like it but without the smiley face. They did indeed perceive the person who added a smiley face as more likable.¹¹ The emoticon softens the request, and makes it seem less abrupt. (In this study, students also rated an email in which the sender used all caps. Not surprisingly, subjects judged those senders as less likable.)

Another study demonstrated that emoticons can humanize “experts” a bit. The researchers showed subjects the transcript of a chat session in which an expert discussed a topic with a group of participants. For half the subjects the transcript contained comments from the expert that included emoticons, and these subjects rated the experts as friendlier as well as more competent.¹²

Emoticons can intensify the verbal content of the message, so that we have a more favorable impression of the person who sends a verbal compliment with a smiley face attached. The reverse is also true. A verbal criticism will be seen as even more biting if the sender adds a frown :-).

In an experiment that illustrates the nuances of this kind of intensification, students read a series of emails that appeared to offer feedback on the student’s class presentation. Some contained positive comments, while others were more negative or neutral. Within those categories, the messages contained a smiley face, frown, wink, or, for controls, no emoticon. Finally, the messages appeared to be coming from the student’s good friend or from a stranger. The subjects rated each email on several measures that revealed how they interpreted the contents.

The emoticons strengthened the intensity of the message, but only as long as the emoticon’s emotion and the verbal contents were in the same direction - positive or negative. When the message was neutral, a smiley face led to a more positive interpretation, and a frown did

the reverse. The emails containing mixed messages in which the emoticon and the verbal message didn't match were more difficult to interpret. Many subjects thought the sender might be subtly conveying sarcasm.¹³

Context matters, and it pays to understand when emoticons might offend or disturb the recipient. Business colleagues often find emoticons immature and silly, and they certainly have no place in formal correspondence. The nature of the recipient also affects how a smiley face is perceived. In the study described earlier, involving the emails with a request for an accounting tutor, the researchers also asked the subjects themselves about their own personalities, including their self-rating of emotional stability. Those who scored higher on that trait were more affected by the use of emoticons and judged the senders of those emails higher in likability. The less emotionally stable subjects were unaffected.

Overuse also matters. One context in which overuse might be souring some people and turning impressions in the wrong direction is on dating sites. Analysts at the online dating company Zoosk found that men with a smiley face in their profile receive 6 percent fewer messages, and 12 percent fewer responses to the messages that they send out to potential partners. Even worse, response rates from women decreased by an astounding 66 percent for messages from men who added a wink ;) . Women, however, get 60 percent *more* messages from men when they include smiley emoticons in their profile.¹⁴ Data such as this make it clear why online impression management is not a simple matter.

Impression Formation Shortcuts

How can just a couple of keystrokes influence impressions? When little else is available, people are motivated to find *something* to go on, and will form an impression from an emoticon, as those online daters do.

We are also rather lazy in how we form impressions. Rushed for time, we take shortcuts and are comfortable relying on just a few cues. Once we have those, we think we have a reasonably accurate impression and can move onto other matters. Social psychologists Susan Fiske and Shelley Taylor coined the term *cognitive miser* to describe our interest in conserving energy and reducing cognitive load.¹⁵ It would be too time consuming to collect comprehensive information to form unique impressions of

everyone we meet, so we overuse certain cues that serve as heuristics - rules of thumb. The impression of a person's warmth or coldness is one example. It dominates the picture as soon as we know anything at all about it, and our conclusions about other personal characteristics flow from it.

On the Internet, even your email address can also contribute to your impression. Consider these examples:

```
tufdude888@aol2.com
jtravis@vq2.harvard.edu
thebigboss@lg.comcast.com
FoxyLady@fanbase1.tv
75664.8843a@gmail.com
rgoldman_6g@microsoft.com
honey.bunny66@hotmail.de
s.a.lopez@ncr.krg.com
```

You might question tufdude's objectivity on women's rights, for example, and you might be inclined to listen more carefully to rgoldman's views on the future of the Internet than to FoxyLady's. The Harvard address of jtravis might carry some weight in the absence of any other information about the sender.

What exactly is it about those email addresses that can convey such impressions? Researchers at the University of Leipzig tried to find out what cues observers were actually using to form an impression.¹⁶ They first asked 600 young adults to provide their actual email addresses, and then identified various objective characteristics, such as number of characters, number of digits, name of provider (Yahoo!, AOL, Hotmail, etc.), and top-level domain (.com, .net, .edu, etc.). To identify more subjective aspects of the email address, coders sorted them into groups with similar characteristics. The sorting process resulted in general categories, such as "definitely a man," "salacious," "fantasy character," "creative," or "funny."

To learn which cues people were using to form impressions from those email address, a hundred strangers were asked to rate the email owners on the "Big Five" personality traits, widely used in psychological research (Table 2.1). The observers rated the people with funny email addresses or fantasy characters in the address as more extraverted, and they thought the same about Yahoo! users. Gender stereotypes also played a role: email addresses that seemed to have female owners were rated as more neurotic, open to experience, agreeable,

Table 2.1. *The Big Five personality traits*^a

TRAIT	ADJECTIVES	SAMPLE ITEMS
Extraversion	Active, assertive, energetic, outgoing, enthusiastic, talkative	I feel comfortable around people. I think a lot before I speak or act (reversed).
Openness to experience	Artistic, curious, imaginative, insightful, original, broad range of interests	I have a vivid imagination. I have difficulty understanding abstract ideas (reversed).
Agreeableness	Appreciative, forgiving, generous, kind, sympathetic	I sympathize with others' feelings. I feel little concern for others (reversed).
Conscientiousness	Dependable, responsible, productive, ethical, high aspirations, not self-indulgent	I am always prepared. I often forget to put things back in their proper place (reversed).
Neuroticism	Anxious, self-pitying, tense, touchy, unstable, worrying	I worry about things. I seldom feel blue (reversed).

^a Items identified as "reversed" were reverse scored, so that stronger agreement indicates lower scores on the trait.

and conscientious. Email addresses with more dots and more characters were thought to be tied to more conscientious owners.

The observers also rated the addresses on another trait - narcissism - with items such as "Regards himself/herself as something special." Salacious and self-enhancing email addresses earned high marks on that trait. If you create an email address such as *tufdude* or *FoxyLady*, expect people to form a certain picture of your personality. If you want to appear conscientious, try a few dots.

Most people with Internet accounts have not spent much time considering the impression their email addresses make. The domain name to the right of the @ is usually acquired by default. Those connected with colleges and universities will end with the name of the institution followed by the *edu* top-level domain name. That ending instantly identifies you as a member of an academic community, though your actual role is concealed (*jtravis* might be a freshman, a professor, or a member of Harvard's dining staff. *Edu* is a little tag that separates its owner from the world of capitalism, where addresses end in *com* (for commercial). Other endings announce your connection to

government (*gov*), nonprofit organizations (*org*), or particular countries. As Internet usage exploded, the U.S.-dominated naming scheme based on organizational affiliation gave way to nationalism. Honey.bunny's email address ends in "de," which is Germany's two-letter code.

To expand top-level domains even further, the organization that manages domain naming, called the *Internet Corporation for Assigned Names and Numbers* (ICANN), accepts applications for new top-level domains that suggest a type of business, a location, an industry, or anything else the applicant wants to promote. Examples include "sydney," "furniture," "singles," "help," and "tattoo." (Expect to see email addresses such as happyink75@mail.tattoo in the future.)

People who sign up for a free account with Google, Yahoo!, or other commercial service also create a certain impression. Their email address is the electronic equivalent of wearing a tee-shirt emblazoned with a company brand name, day and night. Comcast and AOL users also tend to be a little older than people who use the other services, so the choice also leaves some cue about age.

LOOKING THROUGH A LENS

To sort out the complexities of online impression formation, particularly as we start examining Facebook profiles, personal websites, YouTube channels, and venues in which there is much more latitude to add richness to the self-presentation, we can draw on Egon Brunswik's *lens model*, which breaks down the process of human perception in an attempt to understand how people use the cues available to form judgments.¹⁷ This model asks three questions:

1. What cues are people using to form impressions?
2. Which available cues are actually *valid* predictors of someone's personality?
3. Are people using the *right* cues that lead to accurate impressions?

The cues that guide impressions are not just the obvious ones - gender and age, for instance. Nor are they confined to cues we deliberately manage to create a certain impression, such as a warm smile or a fashionable outfit. They include *behavioral residues* that people leave behind, even when they are not physically on the scene.

Some of these are intended to complement a person's overall impression management, such as a guitar hanging in a music lover's

dorm room. Others might be less intentional, or even completely unintended. That moldy sandwich left half eaten on the desk also says something about the room's inhabitant.

"Rooms with a Cue"

Samuel D. Gosling and his colleagues used the lens model in an innovative way to learn how behavioral residues in office workspaces and bedrooms influence impression formation.¹⁸ Without ever meeting the occupant, or even seeing a photo, could observers accurately judge personality using the residues lying about? And which residues would they rely on to judge different facets of the person's personality?

The researchers drew on the Big Five personality traits to answer these questions, and found that observers were rather accurate in their judgments, especially for certain characteristics. Noting a clean, orderly, and uncluttered room, they judged the person to be conscientious. When observers saw distinctive decorations with many magazines, books, and CDs, they tended to think the inhabitant was more open to experience. Colorful, cluttered, unconventional, and inviting rooms led observers to correctly think the person was more extraverted and sociable.

Online Behavioral Residues

What cues are people leaving behind online? A great many, as it turns out. The email addresses, for example, are just one very thin behavioral residue, but remarkably, they do have some power to influence how observers judge several aspects of personality. In the study described earlier, the observers came to many similar conclusions, and the consensus was strongest for extraversion, conscientious, and narcissism. But were their impressions accurate? Did they actually match how the email address owners described themselves?

To some degree, the impressions were surprisingly accurate. Relying especially on how cute or creative an email address was, observers correctly judged the owner to be high on "openness to experience." The researchers found significant correlations between the observers' ratings and the email owners' self-ratings for all the traits except extraversion. If you judged thebigboss@comcast.com to be more narcissistic, you would more than likely be correct. But honey.bunny66@yahoo.de might not be as extraverted as his or her email address appears.

Emoticons are another form of behavioral residue, one that is under the control of the sender, who can decide whether to use one and where to put it. The particulars of an email address are partly intentional, as people choose which provider to use or what username to create. When observers are forming an impression of your online persona, they might take into account whether a behavioral residue is something you can manipulate as part of your overall impression management. If it is not under your control, observers might be wise to ignore it, or they might decide that the cue is actually more valuable and believable because you could *not* manipulate it. That kind of cue might warrant more attention.

Let's turn now to the far richer worlds of social networks and personal home pages, in which behavioral residues abound, both intentional and unintentional.

IMPRESSION FORMATION ON PERSONAL WEBSITES AND SOCIAL NETWORKS

A friend of a friend emails you to invite you to lunch. You haven't met this person but the email address didn't give off any narcissistic vibes, and the email itself didn't contain any emoticon winks, either. You are already starting to form an impression, but before replying, you enter the name in a search engine and find that the person has a website and profiles on Facebook and LinkedIn. What impressions will you form from these and how accurate will they be?

The Personal Home Page Advantage

With the exception of a few European aristocrats in the first age of self - the Italian Renaissance - people have not had such an opportunity before. Without any of the costs of land, labor, artists, or architects, we can make our digital billboards as simple as a brief description with a photo, or as elaborate as a multimedia multipage spread, complete with music, animations, and an album full of selfies. We can fill them with as much autobiographical detail as we like, either true or reconstructed, and add links to our previously unpublished poetry, novels, and drawings.

Many people take the time to create a home page on the web, often using free services. People create home pages for a variety of reasons. They might want to launch a kind of digital brochure about

themselves, containing any information they think should be publicly accessible: images, career interests, social network participation, performances, and publications. Some create a personal website to provide a community service. One man in the Netherlands put some information on his home page about how to eliminate a particularly aggressive virus that was penetrating computers, mainly in Europe. Those who had been infected found his site through search engines and encouraged him to keep adding to his store of information about how to get rid of viruses. He did, and is very proud that his site has become a solid and useful addition to the web.

These websites differ from social network profiles such as Facebook or LinkedIn profiles, partly because they are publicly accessible and serve as digital billboards. Their contents are essentially a collection of identity claims made by the owner, carefully selected to create an impression the owner hopes to make. Unless the owner allows commenting, all the behavioral residues are under the owner's control.

A study of such publicly accessible home pages found that most of the creators were not trying to create an alternate identity that differed dramatically from their own selves. Rather than fragmenting identity, these sites present an integrated one that is stable and shows what the individual believes is important.¹⁹ The creators often blend aspects of their public and private lives in surprising ways, partly because the audience for their creation is not well understood. While the audience for a professional resume provides a context that constrains the contents, the audience for the home page is, quite literally, anyone on the planet with Internet access. Friends and family might drop by, but so might coworkers, employers, or strangers from another part of the world. Thus, many people aim for an integrated and holistic self-presentation.

Drawing again on the Big Five personality traits, researchers recruited 89 people who had launched personal websites.²⁰ These website creators then completed self-ratings of their personalities and "ideal" self-ratings. To better detect how accurate these ratings were, the researchers contacted informants that the authors identified - people who knew them well - and they completed the same surveys to assess the website author. Eleven independent observers who didn't know the author then looked at the personal websites and rated them on the Big Five.

Based on the correlations, the observers were remarkably accurate when they depended just on the personal website to judge the author's personality. Accuracy was especially high for "openness to experience," likely because a personal website can include quite a range of

distinctive features to suggest the author is imaginative and creative. People high in openness have more tools to express themselves online, and it showed.

The website authors seemed to be projecting their real selves for most of the personality traits, and not trying to tweak it too much toward their ideals. The exceptions were on extraversion and agreeableness. On those, the observers interpreted the cues on the websites in a way that matched what the authors hoped for, rather than as descriptions of reality. You may recall Solomon Asch's research showing that "warmth" tends to dominate the impression. These website authors appeared to tilt their self-presentations toward a warmer temperature, leading to higher marks on extraversion and agreeableness.

Social Network Impressions

Whereas the personal website is a public billboard, the social network profile is an online persona for which you have more control over the audience and can limit access to family, friends, or colleagues. The explosive growth of social networking, particularly Facebook, has attracted quite a lot of research attention.²¹

The companies that provide these services strive for "stickiness," a characteristic that encourages visitors to stay longer and come back often. Software features on the socially oriented Facebook network, for example, invite elaborate self-presentations and frequent status updates with prompts such as "What's on your mind?". The site reminds you constantly if you haven't added much personal information about where you went to school, where you work, your relationship status, your family, your favorite music and books, what your views are about religion and politics, and your likes and dislikes. I will discuss the privacy implications of this business model in [Chapter 10](#), but for now, what impressions do people form about you when they visit your social networking site?

A Picture Is Worth a Thousand Words

The profile photo does indeed say a thousand words, and it shows features that cognitive misers rely heavily on, such as age and gender. If the profile photo shows a woman in her sixties, you form some impression of her personality, even though nothing was ever said about what she thinks or how she acts. Marilynn Brewer at UCLA

showed how powerful age and gender can be when people are forming first impressions about personality.²² She collected 140 facial photographs of men and women of all ages and asked her subjects to sort the photos into separate stacks that contained pictures of people they thought were similar in character. The piles nearly always contained people of the same gender and approximate age. Nevertheless, when the subjects were asked to provide verbal labels for their stacks, they rarely used age or gender as part of the description. Instead, they came up with vivid personality labels:

“serious professionals with I-dare-you-to-challenge-my-opinion attitudes”

“white collar workers who are uptight about their jobs”

“Barbara Walters-types, gossipers, nosey, yet sly and slightly snobbish”

“people who are persistent talkers and don’t pay attention to their listeners”

The photo also shows physical attractiveness, another extremely powerful cue that dominates impressions. Research shows clearly that we tend to perceive attractive people as kinder, smarter, more successful, more extraverted and confident, and of course, warmer, compared with less attractive ones. This “attractiveness halo effect” also applies online. Not surprisingly, visitors to a social network profile page are more likely to want to meet someone of the opposite sex who shows an attractive photo. In fact, they’d prefer to meet someone who shows no photo at all compared with someone who shows an unattractive image.²³

In one study, researchers used an eye tracking device to see how observers actually view simulated Facebook profiles with attractive and unattractive images of men and women on their profiles. The subjects spent more time viewing the profile image of attractive women, especially. For profiles of attractive men, the subjects took more time to view some of the “About me” text, showing the profile owners’ likes and interests. When the profile image was unattractive, though, it was clear from the eye tracking measurements that the subjects did not put very much effort into learning about the person from the profile, either by viewing the photo or noting other cues on the page. Instead, they focused on the irrelevant advertisements.²⁴

Behavioral Residues and Number of Friends

While the photo is extremely important to your impression, social network sites contain many more behavioral residues that could shape

the impression. Number of friends; the wording in the “About me” section about the work you do; your favorite books, music, and TV shows; your relationship status; wall posts; status updates; and more are all visible at a glance. With a little more effort, the stranger can look at your photo albums showing tagged friends, links to YouTube videos, a resume, and whatever else you’ve made public. On the professionally oriented LinkedIn site, visitors might see employment history, experience, knowledge and skills, publications, and career interests.

What can we learn about a person from these online residues? We can often learn quite a lot, and at least some of it is on target. As in the study of personal websites, Facebook profile owners completed an inventory of the Big Five, and then independent observers rated the profile owners on those traits based on their Facebook profiles.²⁵ The researchers also asked well-acquainted peers to rate their personality characteristics, so they did not have to rely just on the profile owners’ self-reports. The observers were especially accurate on their judgments of extraversion, relying on number of friends, wall posts, photos, and other behavioral residues.

The number of friends on Facebook affects impressions all on its own. Joseph B. Walther at Michigan State University has been studying computer-mediated communications from its earliest debut, and he and his colleagues find that profiles showing a lot of friends might have some drawbacks.²⁶ Facebook statistics show an average of about 130 friends per user, and even higher for people of college age, particularly in the United States. That is quite a lot of “friends,” and the sheer volume brings into question what people actually mean when they talk about friendship on a site such as Facebook. “Friending” new people is one of the most common activities on this site, and the result, for many users, is a kind of popularity competition rather than a meaningful network.

How do observers rate profiles with larger friendship networks? In this study, observers viewed one of five Facebook mock-ups that differed only in the number of friends, and then were asked to rate the profile owners on social attractiveness, physical attractiveness, and extraversion. The ratings on social and physical attractiveness peaked for people who had about 300 friends, but then dropped off as the number of friends increased. The observers thought people with about 500 friends were the most extraverted but not the most physically attractive or likable.

The Company We Keep

The sheer volume of friends has its effects on the impression, but the nature of social networking adds more residues from the company we keep. One finding, for example, is that people tend to perceive profile owners whose wall posts include very good-looking friends as more attractive. Having attractive friends who post comments on your wall will make you seem more attractive yourself.

What friends actually *say* on your wall can also add behavioral residues, for good or bad. I recall receiving an email from someone in Hong Kong that was rather formal and polite, so the impression he made was conscientious and competent, if a bit aloof. When I saw his social network profile, however, the impression changed. Wall posts and images of his friends suggested an avid partier with many young friends posting about late night revelry and morning hangovers.

In some ways, behavioral residues that are not really under the profile owner's control could weigh more heavily for the impression and carry more warrant value. Walther and his colleagues took a look at this possibility in an experiment in which they once again used mock-up Facebook profiles.²⁷ Some of the profiles included negative or positive comments in the wall posts that didn't quite match what the profile owner was attempting to project in the "About me" section. For example, in one mock-up, the "About me" section includes: "Just hangin out . . . getting better looking everyday." But a wall post from a friend that strikes a discordant note reads, "I'm so sorry things didn't work out with that blind date you went on, who knew he would turn out to be so shallow."

How do observers react to these two different behavioral residues, one generated by the profile owner and the other generated by a friend? It turns out the friends' wall posts had a significant effect on the impression when it seemed to contradict what the profile owner was trying to project. Observers judged the profile owners most attractive when the wall poster made some very positive comment about the owner's looks, even though the profile owner's "About me" statements suggested the owner didn't think of him- or herself as so good looking. In contrast, the profile owners who were touting their good looks in the "About me" section, but had wall postings that didn't quite match that viewpoint, were judged least attractive.

Which Cues Are the Best Predictors?

We can see that people are very quickly forming impressions of you from your social networking profile. Looking at the Big Five personality traits, it is clear that people are drawing on some cues that are valid.²⁸ To judge extraversion, for instance, observers tend to rely on the number of friends and on photos that show the profile owner with friends rather than alone. As we saw earlier, impressions based on the number of friends become complicated when the network is huge, but that residue is a valid one to predict extraversion for lower numbers. A friendly smile in the profile photo is also a reasonably good diagnostic that predicts agreeableness, and people are using that cue correctly. For openness to experience, observers correctly rely on the person's broad interests in books, music, art, or other areas.

However, some cues that could be useful are overlooked, while others are used too much but aren't very accurate or helpful. One example of an overlooked cue is a photo of the profile owner alone, rather than in a social setting. That cue is associated with more openness to experience, but observers tend to ignore it. Another is the way the profile user talks about family, and includes more family photos. That is correlated with conscientiousness, but again, observers don't pick up on those cues.

Some cues are misleading, though observers mistakenly rely on them to come to inaccurate judgments. For example, that attractiveness halo effect and our cognitive miserliness lead us to judge someone with an attractive photo as warmer and more agreeable. That is a mistake. Observers also tend to judge a profile owner as more neurotic simply because he or she doesn't use Facebook that often and hasn't uploaded many photos. That cue can be misleading as well. Neuroticism is actually hard to evaluate from any cues on these sites, so it's best to reserve judgment.

Managing Impressions for Multiple Audiences: The Collapsing Context

Most of the time, you can *see* your audience when you manage your impression in a face-to-face setting. Knowing who is watching and listening, you can tailor your self-presentation to just that individual or group. You also get quick feedback from your audience, perhaps in the form of an arched brow or approving nod. Online, however, the audience is a shifty concept, sometimes only imagined, and much more difficult to pin down.

Facebook was initially created as a social network for college students who could connect with a network that included their friends – mainly fellow students at the same college. But that limitation has long since been abandoned in favor of more open access, and now networks include family members, distant acquaintances, friends of friends, work colleagues, high school classmates, or even strangers who happen to share interests. A wall posting and photo from a friend who attended a party with you last night might not be exactly what you'd like your grandmother or employer to see. This phenomenon is called *context collapse* as multiple audiences merge in ways that make it much more difficult to manage an “authentic” impression.

The challenge escalates as more services link to the social network frameworks that specifically encourage spontaneous sharing of photos, updates, and location. For instance, someone with an account on Foursquare might “check in” when she reaches the house where a big party is underway and add a comment about the event. The host's next door neighbor follows the guest on Twitter and sees the post on her Twitter account. But the neighbor wasn't invited.

How do people navigate the collapsing audiences? Some create separate accounts on different social networking sites and then try to build more homogeneous audiences – just family, for example, or just professional colleagues. Many people create one account on a socially oriented network to present the social self, but then also create another account on LinkedIn to present a more professional slant.

People are also opting for a “lowest common denominator” approach in which the self-presentation is watered down to avoid offending anyone in any of the overlapping audiences. This is especially true for those whose social network already includes a mixed audience.

Some sites support fairly fine-grained segregation of the audience, so that a user might designate different people as “close friends,” “friends,” “family,” “acquaintances,” “colleagues,” or other categories. A “restricted” category might be used for people you add as a friend (perhaps they requested it), but with whom you don't want to share anything except information intended for the general public – a boss, for example. Although people are notified when you add them to the network, they would likely be unaware of the category you chose for them. This kind of technological segregation of an audience can be very awkward to manage. Imagine, for instance, enjoying lunch with a “close friend” and a “friend.” Your close friend might remark on the

hilarious photo you posted, not realizing how you segregated your audience and that the “friend” didn’t see it.

One might argue that if someone is truly presenting the real, authentic self, it should not matter who the audience is or whether the context is collapsing around us. Talking about the audience, some Twitter users discount the notion, preferring to emphasize a more consistent and honest self-presentation regardless of who is listening.²⁹

*As an individual (not org or corp) it's worth it 2 me 2 lose followers
2 maintain the wholeness/integrity of who/what/how I tweet.*

*when I tweet, I tweet honestly, I tweet passionately. Pure expression of
my heart*

But human beings don’t have just one “self,” and what constitutes that “self” changes depending on who we’re interacting with and the context of the interaction. With some we are, and should be, more reserved about self-disclosure, and with others, we might interact in more personal ways. The strategies people use to manage these multiple online audiences on social networks are evolving; a few users, perhaps in exhaustion, just call it quits and delete their accounts.

ARE WE BECOMING MORE NARCISSISTIC?

Managing an online persona usually means spending a fair amount of time selecting and editing photos, crafting an online profile, adding status updates, and commenting on other people’s posts. Is social networking and the very nature of the online world drawing out more narcissistic tendencies?

Dimensions of Narcissism

Narcissism, a term coined by Sigmund Freud from the Greek legend of Narcissus, describes the ultimate “about me” psychological trait. People with high narcissism tend toward arrogance and a grandiose sense of self-importance. Other characteristics include exhibitionism, a preoccupation with success and power, a belief that they are special and entitled to favorable treatment, and a need for frequent and excessive admiration. Narcissism is also related to a lack of empathy. Envy of others is not uncommon, nor is the belief that others must be envious of him or her.

This narcissistic individual can also be high in self-monitoring, constantly attuned to the way others are reacting in order to better manage the self-presentation. An important goal is exploitation – taking advantage of other people to achieve one’s own ends. This particular characteristic can lead other people to like the narcissist on first meeting, but the favorable impression can fade quickly. Narcissists tend to have few close friends, and instead make many acquaintances who add to the size of an admiring audience.

Narcissism becomes a personality disorder when these tendencies become extreme and lead to significant impairment in personality functioning or in interpersonal relationships. The disorder itself is not very common, but most people show some dimensions of narcissistic behavior on occasion.

The Narcissist’s Online Stage

The online stage offers many tempting opportunities for people with narcissistic tendencies, ones that are not as easy to exploit in face-to-face settings. For example, people have considerable control over the way they present their online persona, and narcissists can use this control for self-promotion and attention getting. In one study, profile owners were assessed on their levels of narcissism and then asked about their motivations for choosing the personal picture that appeared on their Facebook profile. People high on the narcissism scale were more likely to say they chose the picture because it emphasized their attractiveness or their unique personality.³⁰

Another attraction for narcissists in the online world is the ability to collect a large audience of acquaintances and inundate them with updates, on the assumption that people will be intensely interested in whatever they have to say. In another study, subjects completed an inventory to assess levels of narcissism and then reported on their social networking activity. People high on the narcissism scale emphasized the importance of getting to know as many people as possible online, and they reported having a larger friend count compared with people with low narcissism scores.³¹ The narcissists were more likely to believe that their online friends were interested in what they were doing and wanted to hear updates.

Objective coding of what actually is happening on the social networking sites of narcissists confirms that link. Researchers obtained narcissism scores for 129 Facebook users and then asked some

independent observers to take a look at the site and obtain a rating of the amount of social activity, derived from the number of friends and wall posts. People with higher narcissism scores did indeed show higher levels of social activity. The observers also rated the content of the narcissists' self-descriptions and photos to be more self-promotional in nature.³²

Interestingly, observers can pick up on some of the behavioral residues that narcissists leave on their social networking sites, and judge the owner's personality at least somewhat accurately. In that same study, observers judged the owners to be more narcissistic when they spotted high levels of social activity, very attractive photos of the owner, and more self-promotional content. But as we discussed earlier, observers sometimes rely on cues that are not good predictors. Observers rated people who included provocative pictures and a lot of information about themselves in their profile sections as more narcissistic, but those factors weren't actually related to the owner's level of narcissism.

The online world offers narcissists intriguing new venues, and the research indicates they take good advantage of many of them. But are these venues actually promoting more narcissism? Some argue that the people who use these sites belong to a generation that already feels quite self-important and entitled.

A Narcissism Epidemic?

Jean Twenge and her colleagues point to a drastic rise in narcissism among the so-called millennial generation - people born after 1980. Analysis of surveys of college students from 1979 to 2006 shows that narcissism scores rise dramatically for the millennials compared with previous generations, and they propose that parenting styles, a celebrity culture, the self-esteem movement, and the Internet all contribute to this trend.³³

Twenge's analysis is controversial, and some argue that the data she draws on is flawed, partly because it comes mainly from students at research universities rather than cross sections of the population. Her findings also rely heavily on the Narcissistic Personality Inventory, which includes some subscales that measure characteristics that are actually desirable ones, such as assertiveness. Longitudinal studies are often fraught with challenges when it comes to interpretation because so many variables can influence the results. The student

samples surveyed in the 1970s and 2000s might differ in various ways, such as in mean income or gender composition, in addition to their exposure to different parenting styles and their Internet access.

Nevertheless, the hypothesis that generations differ with respect to their sense of self-importance and entitlement is an intriguing one that demands a closer look. If narcissism is especially high in the first generation to grow up with the Internet, and the first that could snap selfies and instantly share them on Instagram, could features of the online environment have something to do with it?

Do Online Environments Promote Narcissism?

A key theme in this book is that online environments have the power to affect and shape human behavior in both positive and negative ways. Maintaining a social networking site or personal web page strongly encourages a focus on the self. Just completing a profile is an exercise in self-absorption. On joining Google+, for instance, you confront endless calls to self-focused action, such as these:

- Snap a photo (or upload an image)
- Add people you know (with suggestions from contact lists)
- Follow things you love (celebrities, photographers, automobile companies, health sites, etc.)
- Be awesome
- Keep your image fresh
- Where have you gone to school?
- You might be lonely ... Add more people

Facebook's prompts are equally focused on self with sections called About You, Favorite Quotes, and Places You've Lived. . Other sections prompt users to identify movies they've watched, want to watch, or like, and people can add the same information for TV shows, music, books, and sports teams. The Places section offers an interactive map to upload your vacation photos, and subtly brag about all your travel adventures. And not least, every time you log into Facebook, the prompt reads "What's on your mind?," suggesting that your audience is eagerly awaiting the answer.

Just reading and responding to the prompts promotes self-absorption and an inflated sense of uniqueness and importance, all characteristic of narcissism. A series of experiments with undergraduates who had

already created profiles demonstrated this effect experimentally.³⁴ In the first experiment, Myspace users came to the lab and were then randomly assigned to the treatment or control groups. Subjects in the treatment group spent 15 minutes making edits to their Myspace page, while the control group spent that time tracing routes on campus using Google maps. After the 15 minutes were up, the Myspace page editors answered some questions about their pages, such as how many friends had viewed it and how well the images express who they are, while the control group answered innocuous questions about map routes. All the students then completed the Narcissistic Personality Inventory.

One finding from this study was that students with higher narcissism scores were also more likely to report a higher number of Myspace friends and to predict more page views by those friends. As one might predict, narcissists strive for a large audience.

But the most intriguing finding involved the differences between the students in the treatment and control groups on narcissism scores. Fifteen minutes spent focusing on one's online profile may not seem like a lot of time, but those students showed significantly higher scores on the narcissism scales compared with control students. For instance, they were more likely to endorse statements such as "I like to be the center of attention" and "Everybody likes to hear my stories."

That just 15 minutes spent tinkering with one's profile could affect narcissism scores is remarkable. This is especially true given that narcissism is considered a trait, one that is relatively stable and not particularly malleable over short durations. One might conclude from this study that we have our answer and it is yes, the online environment of social networking does promote narcissism. But the picture becomes more complicated when we look at the second experiment, which was an attempt to replicate the Myspace findings for Facebook users.

Once again, undergraduates who already had a Facebook profile came to the lab, and were randomly assigned to the treatment and control groups. In the treatment group, the students edited their page for 15 minutes, and the control group did the Google maps task. This time, the subjects also completed a short inventory to assess self-esteem, in addition to the narcissism inventory.

As before, students with higher narcissism scores who spent that time editing their profile reported a larger number of Facebook friends and more page views. But the effects of the 15 minute editing session were rather different in this experiment compared with the one

involving Myspace users. Facebook page editors did not show an increase in narcissism compared with the control group, but they did show an increase in self-esteem. Compared with the control group, the students who spent time editing their Facebook page were more likely to agree with statements such as “I feel that I have a number of good qualities” and “On the whole, I am satisfied with myself.”

What might account for the difference? One might argue that heightened self-esteem is one characteristic of narcissism, so the two social networking sites might be promoting different aspects of that trait. Another possibility is that Myspace emphasizes self-promotion as the central feature, and some users have even achieved fame and celebrity status. But Facebook emphasizes a combination of self-presentation and social connection, stressing ties with family and friends rather than a broader public stage. Instead of tweaking their About me section, the Facebook page editors might have been looking around on their site to see what others were up to and thinking about new comments to add to their friends’ posts.

In any case, the study suggests that subtle differences in online environments can have varying effects on human behavior, and that should come as no surprise. People also actively choose certain online venues because they believe the environment better matches what they hope to accomplish. For narcissists, different online environments can serve different purposes, and their features can be tapped to express different aspects of narcissism. For instance, Twitter can become a technologically augmented “megaphone” that people who lean in the narcissistic direction can use to amplify their cries of superiority, but that venue is not a great place to feature attractive, self-enhancing, self-promoting photos. Facebook offers a better environment for that kind of preoccupation.

Another important element in interpreting studies such as this one is the speed of change and the fickle nature of users – especially youth. Social networking is a moving target, with shifting populations. Myspace, for instance, lost many of its users to other social networking sites many years ago, although it still maintains a sizable user base. Facebook fatigue is also underway, as younger users drift away and focus more on Twitter.³⁵

In an online debate about social media and narcissism,³⁶ Jean Twenge thought it might be at least one of the causes of what she and her colleagues call an “epidemic of narcissism.” Bruce McKinney, whose own research initially suggested that frequent Facebook use

was *not* associated with narcissism, wrote that he didn't think he'd get the same result a year later. He writes, "Either the way of communicating has changed significantly or we have evolved into a state of narcissism that would shock any psychologist." Keith Hampton at Rutgers was more optimistic, pointing out that narcissism declines with age, and that most people are using Facebook to connect rather than promote themselves. Actor Joe Holt thinks that Facebook isn't the problem and that the real problem is "our need to validate ourselves with outside approval."

Although the actor makes a good point, from a psychological perspective, we have never had quite the stage we have now to seek that validation or the tools to tweak our presentation. In addition, the incoming stream of social feedback, from the positive reinforcement that happens when someone retweets your tweet, to the numerical count of "likes" under your post, offers quantitative metrics about the outside approval that are hard to ignore. While these online environments continue to change, they will certainly attract narcissists who can take advantage of their special features. They will also have potent effects on our behavior, and promoting narcissism may be one of them.

MAKING THE KEYBOARD WORK HARDER

The desire to manage our impression is a fundamental human characteristic that does not disappear just because we now do these things on the Internet. The difference is that we are not expert at using the cues at hand, nor are we sure how to manage our own self-presentations. This keyboard, for example, can be a rascal when it comes to the nuances of human communication. The caps lock key is, inexplicably, much too large considering how rarely we use it. If I slip and press it by mistake, my colleagues might think I AM SHOUTING AT THEM. The colon and right parenthesis :) are far harder to locate, but even this blunt socioemotional instrument can add a warmer and friendlier tone to certain kinds of messages.

The smartphone's tiny touchscreen introduces another communication tool that can bedevil. Apple helpfully adds "Sent from my iPhone" to outgoing emails, perhaps as a way to end with an automatically generated apology for blunders and bluntness. Not wanting corporate ads tacked on to my messages, I looked up how to change that. But then I decided to leave it alone because it does help explain clumsiness.

On the Internet, we are struggling with an odd set of tools and pushing them as hard as we can. We humans are both set in our ways and amazingly adaptable, and even with more than two decades of experience, we are still learning some painful and awkward lessons about impression formation online. Perhaps the “interaction rituals” that Goffman described will stabilize on the net and the business of forming impressions will become more predictable, reliable, and familiar, and less prone to misperceptions.

That online acquaintance I mentioned earlier sent me a few more messages during the next two years, none of which did much to improve the first impression he had made. But I did not want to make the *fundamental attribution error*. We attribute other people’s rude behavior to their basic natures, to their boorishness. When we, ourselves, do something bad, we blame the situation. If I SHOUT online, it is because that caps lock key is so wretchedly misplaced by hardware manufacturers. If a stranger does it, I conclude that the person is unnecessarily brash.

I finally ran into my email acquaintance at a conference and learned how mistaken my initial impressions were. His contagious smile instantly belied the cool and arrogant image he had projected at first. Somehow, I was not surprised.

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3 GROUP DYNAMICS ON THE INTERNET

Homo sapiens is a social creature, and we seek the companionship and support of others throughout life. Indeed, Aristotle opined that a person who did *not* do that was either a beast or a god. But while human groups have always existed, the Internet has not, and its effects on group dynamics are profound. It seems trite to even point this out, but the net is a social space that enables entirely new kinds of groups.

Within social networks, we create our own groups with ourselves in the center. On Twitter, we follow and are followed, fluidly joining discussions on trending topics and adding our two cents in the form of 140 characters or less. On Google Hangouts, we can join live, impromptu, multimedia group discussions, with webcam images of all the group members flashing across the screen, and text messages scrolling on the smartphone.

But exchanging text messages or status updates, or even viewing another's webcam image, is not the same as being in the same physical space with other people where you share the same sights, smells, sounds, and surprises. How exactly are online environments different for groups and how do the differences affect group dynamics?

THE EMERGENCE OF A GROUP, OFFLINE AND ONLINE

Defining the term “group” is difficult enough without prefacing it with the even more elusive adjective “virtual.” One succinct definition states that a group is a collection of two or more people who are interacting with and influencing one another. The definition seems clear and satisfying enough until you begin to think of humans on

elevators, in theaters, or in the same subway car. Though interaction and influence are apparent in tightly knit work and social groups, they may be less obvious in elevator passengers, at least until the car jerks to a sudden stop between floors. The amount of interaction among people who are in physical proximity can vary dramatically depending on the circumstances, and one small change in the environment could quickly turn a collection of individuals into something that fits neatly into the traditional definition for the word “group.”

Raising the bar somewhat leads us to groups in which members identify with the group, show commitment and loyalty, and participate in group activities. Offline, group membership can have powerful effects on human behavior. People not only clap for their groups and cheer them on, they die for them, and sometimes kill for them. The bond grows strongest when group demands are high, membership is difficult to achieve, and group membership confers high status. The pledging process for sororities and fraternities, for example, which can include hazing, both weeds out people with low commitment and promotes strong attachment to the group for those who persist, partly through cognitive dissonance. If you go through the challenging process, you must *really* want to be part of that group. The result is a tightly knit, cohesive group that helps to shape the social identity of its members.

Can Cohesive Groups Emerge Online?

In the Internet’s infancy, skeptics wondered whether such cohesive groups could really emerge at all in a computer-mediated communication (CMC) environment. Some believed that the lack of the usual social cues and the transitory nature of so many online interactions would make it unlikely that genuine and satisfying groups could develop.

Leaving aside the social networks in which groups arise mainly from offline contacts, virtual groups can certainly come and go with alarming speed. Scrolling through Yahoo! Groups, for example, you will see many groups that appeared to capture the interest of quite a few participants for a while, but then they die out. A Yahoo! group for model railroad aficionados shows 219 members, and the logs reveal lively conversations in the early 2000s. Although those members were still subscribed, none of them posted any messages for years.

If you do post a message to one of these fossils, you might receive a response from some of the participants who say they forgot that they were even subscribed, and there hasn't been any activity in the group for ages. Many never draw more than the occasional curious visitor who looks around, finds nothing going on, and leaves. The long list of abandoned groups suggests rows of cafes and clubs whose disappointed owners naively believed would become vibrant watering holes, but whose chairs and tables remain empty.

Social Identity and "Groupness"

Despite the ephemeral and fragile nature of so many groups on the Internet, there is evidence that a very strong sense of group cohesion - of "groupness" - does emerge regularly. Joan Korenman and Nancy Wyatt attempted to untangle some of the underlying variables that contribute to cohesive online groups by investigating the patterns of participation and the attitudes of the participants on a mailing list called WMST-L.¹ The mailing list is an unmoderated forum for people involved in women's studies from an academic standpoint, and it includes teachers, researchers, librarians, program administrators, and others interested in the topic. As in most discussion forums, a few people take center stage and hold the vehement discussions, while others watch (or lurk), making only rare comments.

Participants responded to a survey designed to see how much "groupness" was really present. In answer to a question about what was satisfying and useful about the group, "information" was most often mentioned, but many also mentioned a "sense of community" and "discussion of personal experience." Based on an analysis of the messages themselves, this mailing list appears relatively free of "flames" and other kinds of antagonistic posts, although disagreement and discussion about sensitive issues were common. Apparently the group members found this environment to be a worthwhile and welcoming place to discuss personal issues, pointing to that elusive but very real sense of "groupness."

Another demonstration of emerging group identity comes from a study on Reddit, a social news site where participants, called "Redditors," can upload news stories and share comments about them with one another. People also create subgroups that narrow down the topic by location or by subject matter. In a subgroup called "Ask Me Anything," lively discussions with celebrities are not uncommon.

The late Robin Williams, for instance, seemed to very much enjoy his time on a virtual chat session. Here is a brief sample of the more than 9,000 comments:²

Kakoose: On a scale of 1-10, how scared are you when you're around [Jack] Nicholson?

RobinWilliamsHere: It's more fascinated than scared. He says things that even Buddha goes "... *what did that mean?*"

NoFap_Express: This is amazing, your persona totally comes through even on reddit.

Do Redditors feel like a community, with a shared group identity? On a survey with questions such as "I feel a bond with this online group" and "I have a lot in common with the average member of this online group," many subjects answered in the affirmative. Some indicated that they felt extremely bonded with the Reddit community, reporting very high levels of commitment and emotional attachment.³

Just as real-life groups vary a great deal, virtual groups can be of many different types. Facebook and other social networks consist primarily of people who already know each other and are using the net as a way to keep in touch and share ideas between face-to-face meetings. Other virtual groups might draw together people with common interests who do not know each other in person. Time and circumstances permitting, some of these people might eventually meet in real life at professional meetings or social gatherings. The people on the WMST-L mailing list might run into one another this way. Surprises are inevitable as the impression you formed from the individual's online persona is suddenly enriched by face-to-face contact.

On the far end of the spectrum are the *zero-history* virtual groups whose members have never met in person when the group is formed. Their members may also have no real expectation of ever meeting in real life. These are the ones in which any sense of "groupness," if it is to emerge at all, must arise from the dynamics of online communication.

We know from decades of social science research that just the presence of other people affects the way we behave, for better or worse, even when they are strangers and we might never see them again. Let's now see how some of these influences work in real life, and then examine how they unfold online, beginning with some classic studies on conformity.

CONFORMITY

That madcap producer Allen Funt once orchestrated a *Candid Camera* segment called “Face the Rear,” in which he planted several confederates on an elevator. All of them faced the back of the car rather than the front, and none cracked so much as a smirk. The unsuspecting “star” of the video hopped on the car and looked about with a puzzled expression. Confronted with a unanimous, silent, and serious-looking group that seemed to be following a strict rule about which direction to face, the subject turned and faced the rear as well. On a subtle cue, the confederates turned to the left, and the “star” did the same. On another cue, the group removed their hats, and again, the subject followed suit. Though the naive *Candid Camera* subject looked anxious and uncomfortable, he readily conformed rather than break rank with the odd group choices.

The Asch Experiments

Social psychologist Solomon Asch wondered how deep the tendency to conform actually goes. Would, for example, people under group pressure disregard or at least question the information they receive through their sensory systems? In a pioneering research program, he brought subjects into the laboratory to sit with a group of four other people and make perceptual judgments. The experimenter held up a card with one vertical line on the left side and three other vertical lines labeled A through C on the right. One by one, each person in the group was asked which of the three lines is closest in length to the line on the left.

The correct answer on each of the cards was obvious to anyone not legally blind, but the four other people in the room were not really subjects at all. They were confederates of the experimenter, instructed to give the same wrong answer on certain turns. Like the *Candid Camera* star, the real subject of the experiment faced a troubling situation. His turn was always last, so one after another, he heard each person insist that an obviously incorrect answer was the correct one. Should he go with his own senses, even though everyone in the room thought differently? To even Asch’s surprise, the real subjects went along with the group more than one third of the time.⁴

A remarkable feature of this experiment was that there was no particular punishment or consequence for disagreeing with the rest of the subjects. The only pressure to conform came from within, and it was even more startling than the conformity on the elevator because

the subjects had to deny their own sensory experience in order to go along. Some probably began to doubt their own eyes because of this subtle group pressure, while others may have remained privately convinced that their senses were intact but chose to conform to the group rather than risk group censure.

Conforming to an Online Group

More than thirty years later, a group of researchers tried to replicate Asch's original experiment using computers and an online environment.⁵ Five subjects were formed into a group, and each sat in front of a microcomputer. The computers were arranged so that none of the subjects could see the other screens, so they couldn't tell what the other subjects were typing. Subjects also couldn't see one another because the computer monitors were in the way.

Once the subjects were settled, the researchers went around to each computer, saying that they were connecting it to a central network so each person could see the judgments the others in the experiment were making.

The network was a ruse and the computers were not actually connected at all. After some more instructions about the length-judging task, each subject was asked to enter a three-digit number that would be used to "randomly assign" the order in which the subjects would choose. This was another ruse; regardless of which number the subjects chose, they all were assigned Station #5, the last in line.

Imagine watching the screen as all the other "subjects" enter the same obviously wrong answer, one after another. When it is your turn, you probably blink at the screen yourself, wondering what those people are really looking at. In his face-to-face experiments, Asch found that only 24 percent of his subjects made no errors at all and just refused to conform to the group. But in this online version, 69 percent of the subjects facing a computer screen made no errors. In the CMC environment the tendency to conform was reduced.

Why Do People Conform?

People choose to conform to a group for a variety of reasons. They may simply want to avoid rejection by other group members or to earn their praise. This kind of conformity is called compliance because it doesn't involve any fundamental change in beliefs or attitudes.

Research that extends the Asch findings, both online and offline, shows that conformity drops to near zero if the subjects submit their response in private rather than speaking (or typing) it publicly.

Another reason for conformity is that people rely on others for information that could guide their behavior, especially in unclear or confusing situations. In the quiz show *Who Wants to Be a Millionaire?*, contestants can choose to ask the audience for help if they are unsure of the correct answer, and a graph displays the results. The contestant often goes with the majority.

How does this kind of “audience” input affect behavior in online communities? In a study of Swedish discussion groups, subjects completed a survey with multiple choice questions such as “What did Alfred Nobel invent?” and “How far above sea level is Mount Everest?” Half of the subjects also saw a graph showing how members of their online community answered each question, but the graphs for several questions were faked. For those, the researchers made it look as though the majority of the online community was making a wrong choice.⁶

The subjects who saw these faked graphs were more likely to conform to what they believed was the group’s opinion, and this was especially true for the more difficult questions. Like the contestant on *Who Wants to Be a Millionaire?*, the subjects were crowdsourcing the task in hopes that the crowd’s wisdom would shine through.

People also conform because they identify with the group and have a desire to be similar to its members. As we saw earlier, people do indeed identify with their online groups, defining themselves by their social identities. In the study with the faked graphs, this identification probably also contributed to the tendency to go along with the majority of their online community members.

Cohesive groups also develop group norms, and online, this process also unfolds somewhat differently.

GROUP NORMS

Groups need norms to function smoothly. Some might be very explicit: “Let’s all get to every meeting on time.” Others will be much more cryptic, and members may not even realize a norm exists until someone breaks it. It appears human beings develop norms even when there is absolutely no need for them. Muzafer Sherif wondered if you could watch group norms appear in a laboratory and conducted studies in the 1930s that showed how they emerge.⁷

The Sherif Experiments

Sitting in a dark room, a subject sees a tiny point of light some distance away. The subject stares at it, and within a few moments, the light seems to move erratically and then disappears. The subject is asked, How far did the light move? The subject has no real way of knowing, but might guess, "I think about 12 inches."

For the next three days, the subject comes back to the lab, but instead of sitting alone in the dark room, the subject is in the room with two other subjects who made their own guesses the day before. The first subject might report that the light jumped 4 inches. Now, the subject who guessed 12 inches yesterday offers a lower number - 6 inches, perhaps. The third subject does the same - converging on a value that is closer to the other estimates. By the third day, the subjects in this group are all estimating about the same distance.

Clearly, a group norm emerged, though different groups converged on different distances because there was no "correct" distance. In fact, the light never moved at all. Sherif was cleverly relying on an optical illusion called the autokinetic effect, in which we perceive movement when a stationary point of light appears in a dark and featureless room. The drive to converge on a group norm was strong, even though there was no particular pressure to come to any consensus.

Online Norms

Online, norms also emerge, though the cues people use to establish them are different. The norms that evolved for email, for instance, are one example.

Linguistically, much email falls somewhere between a paper memo and a phone call, even though it could have become something quite different. We might have developed a much more formal style with guidelines for placement of date, salutations, and closings, just as we did for business letters and, for the most part, have adopted for faxes as well. However, the original uses of email by the academic and research community established the medium as less formal and more spontaneous. The rapid transmission of messages helped push it toward informality, and the informality led to the need for more socioemotional content and lots of shortcuts in the form of abbreviations and simplified spellings. IMHO, BTW, ppl, and thx are all examples of email conventions that are widely used and understood, but are almost nonexistent in paper memos or letters. You might receive an email

with a more formal letter attached, but the email itself tends to follow the informal style, showing how powerful the email convention actually is.

An early study of email exchanged by college students showed how their styles began conforming to a pattern regardless of the topic.⁸ Even those students who had never used email before learned the norms quickly from one another and turned email into quasi-conversation. Misspellings, punctuation errors and deviations, and ungrammatical sentences were perfectly acceptable, even preferred. Crude jokes, flirtations, puns, and sarcasm were all common. Any student who might have chosen a more formal style would have appeared rather out of step.

Norms for texting and platforms like Twitter continue to evolve. For example, one study of 229,000,000 tweets from 2009 to 2012 found some intriguing changes. During that period, tweets began to include fewer words, and the words that did appear became shorter.⁹ One possibility is a growing emphasis on efficiency, with more widely understood abbreviations (Table 3.1). Although the tweets convey at least as much actual content, they communicate more with less, or at least with fewer keystrokes. The challenge of typing on smartphones may also have something to do with an efficiency norm. Tweets often include shortened URLs to lengthy blog posts, images, videos, or other material that wouldn't fit in a tweet, so readers who want more detail can find it.

Even though Twitter is a worldwide network, different groups on Twitter are also adopting different norms.¹⁰ Not surprisingly, teens' tweets differ from those of reporters and corporate public relations managers, for example. Different social groups may use Twitter and

Table 3.1. *Examples of Twitter shorthand*

ABBREVIATION	SHORTHAND FOR:
b4	before
cld	could
idk	I don't know
kk	kewl kewl (cool cool)
ab or abt	about
prt	please retweet
wtv	whatever

the hashtags in different ways as well, creating group norms that contribute to group identity and cohesion.

Where Do Online Norms Come From?

Much like the norms that Sherif observed in his groups, online norms can sometimes appear just because people are attending to one another and converging on a behavioral pattern. The students' email norms, for example, seem to have emerged in this way. In many cases, though, human beings simply attempt to adopt norms that closely resemble what they would use in face-to-face settings, and translate them as best they can in a way that works online.

For example, when journalists embrace new technologies, they typically try to maintain journalistic norms that apply to print or broadcast media. A study of journalists who began blogging found that they tried to stick to their role as nonpartisan gatekeepers who are supposed to draw public attention to important news, even though the medium was dramatically different from a newspaper, involving far more participation by regular readers.¹¹ However, about one quarter of the reporters strayed from the nonpartisan norm, voicing their personal opinions on their blogs as they interacted with the group.

Twitter has become the main social media platform for journalists who consider it ideal for breaking news and for crowdsourcing information gathering and fact checking. Here, they also try to maintain traditional norms of objectivity and gatekeeping. But like the blogging environment, Twitter appears to lead some journalists to editorialize, which they are not supposed to do. One reporter commented:

*We did have an instance of a reporter who frequently editorialized in his tweets, which he would never do in his reporting. He was told to stop tweeting until he got some additional training ...*¹²

Another example showing how norms transition from the offline world to an online context comes from research on personal space and the ways in which people manage interpersonal distance. In face-to-face settings with strangers, Americans like to keep about four feet of distance between themselves and another person. Arabic and French people tend to prefer shorter distances compared with Scandinavians and the British. Gender also plays a role. Men tend to choose

larger distances when they interact with another person, particularly if it is another man. Women tend to choose smaller distances when interacting with other women.

Many classic studies in psychology show that people will work hard to regulate psychological distance when crowded conditions make their usual preferred distance impossible. They reduce eye contact, for example, pointing their gaze well away from a nearby person. On a crowded elevator, people stare intently at the floor numbers over the door, or they look down at their smartphones.

Personal space has little meaning in many online environments, but it is quite relevant in the three-dimensional virtual worlds such as Second Life. Community members walk or fly their avatars around the zones, and they can adjust their positions and the direction they are gazing with the keyboard. Do people on Second Life adopt the same kind of norms for personal space that they would use in face-to-face settings? One study collected position information on avatars in different zones who were interacting with one another over a period of seven weeks. By taking snapshots of each interaction, the researchers could also identify gender and whether or not the people were talking to one another with the chat function or just standing about.¹³

Just as in face-to-face settings, the personal distance between two males who were interacting with one another was larger than it was when the two avatars were both female. They also found that avatars standing too close to one another tended to avoid eye contact - in the sense that their avatars were facing at angles away from one another. However, when the two people were holding a conversation, they did show more "eye contact." This conformity to the norms we bring with us when we go online is especially intriguing because in Second Life, you can't just turn your head to look away. You have to use a keyboard, mouse, or touchpad to turn your avatar.

Although norms clearly emerge in these online groups, the ability of the group to pressure a wayward individual to conform is lessened. Groups do find ways to encourage conformity to norms in online environments, and enforce them when necessary.

The Sign on the Door

First timers in an elegant Michelin-starred French restaurant often peer around the room, watching others to learn the acceptable

patterns of behavior. They observe how experienced patrons handle the several forks, speak to the waiter, or hold their wine glasses. Those undergraduates who had limited experience with email learned the norms a different way, by engaging in the online version of looking around to see what others are doing, much like Sherif's subjects did when they heard others estimating distances. Online groups often go a step further, however, by posting a sign on the door.

The sign for that mailing list on women's studies called WMST-L, for example, includes very explicit rules about what is appropriate behavior, and what is not. Here are a few:

- Do not send any attachments.
- Do not send any warnings about viruses.
- Do not send jokes.
- Do not send petitions.
- Put your name and email address at the end of every posting.

Guides that offer advice about *netiquette* are also widespread, and they continue to evolve as the Internet develops. One early example is a book first published in 1994 by Virginia Shea, sometimes called the Miss Manners of the online world.¹⁴ She strongly encourages people to adhere to the same standards of behavior that we would follow in real life, although sometimes that is easier said than done.

Companies such as Pinterest or Twitter that offer online environments to support groups post their own signs on the door, often in the form of the end-user license agreement, or terms of service. These stretch to thousands of words, not just to convey community norms but to establish the legal relationship between the company and the user. Facebook, for instance, warns users that the company will delete content that violates its standards and may suspend or cancel accounts. Linden Labs, the corporate owner of the virtual world Second Life, welcomes new users by setting out the "Big Six" behaviors that will lead to suspension or expulsion. These include some that are common in many online environments, such as intolerant speech and harassment. They also add some less obvious prohibitions, such as assault (pushing or shoving someone else's avatar) and disclosure (sharing personal information about your fellow residents without their consent - including gender, religion, age, marital status, race, sexual preference, alternate account names, and real-world location).

Apart from fairly standard and informative warnings such as “No Parking,” “No Smoking,” or “Shoes and Shirt Required,” we rarely see signs that so bluntly state the requirements for appropriate behavior in real-life situations. Imagine going into a classroom and seeing a sign that listed such explicit dos and don’ts:

- No spitting or fighting.
- Don’t sit on another person’s desk.
- Don’t walk around the room during the lecture.
- Don’t assault other students.

When you do see real-life signs that seem to grossly underestimate our human ability to grasp social conventions appropriate to the group setting, they are memorable. A tavern in rural Texas had conspicuous signs posted that reminded patrons about acceptable behavior. Two examples were “No Spitting” and “No Fighting.” In the men’s room, as I learned from my husband on his return, there was another sign that suggested the tavern owners had a sense of humor and were aware they might be going a bit far with their written rules. The sign there read: “Men: Do not eat the urinal cakes.”

The rules of behavior for face-to-face situations, from the board room to the beach, are generally unwritten, but they are very extensive. Our lifetime of experience within our own cultures gives each of us ample time to build up knowledge about all these rules, and the physical presence of others is generally enough to ensure conformity when the rules seem to shift a bit or when we are in an unfamiliar situation. We willingly watch what others do, note which fork they use to pierce the shrimp, and face the rear of the elevator if we determine that rearward positioning is the social convention.

The Internet, though, is a global environment with people from many cultures, and not many ways to convey social rules. Stronger measures are needed to get the job done, and the blunt sign on the door is one example. Another example is the verbal reproach.

Handling Norm Violations: Arched Brows, Unfriending, and Trial by Twitter

If a group participant fails to read the sign or ignores the rules, group members will escalate their pressure by simply raising a virtual eyebrow, reminding the offender gently - or not so gently - that certain behavior is not acceptable. In most cases, this arched brow is enough to bring the person into line for cohesive groups.

In an early study of these conformity-inducing reproaches, researchers examined discussion groups on Usenet.¹⁵ Based on 300 of these episodes, the researchers developed a taxonomy of the kinds of conduct the group members objected to, and for which they would issue reproaches to the offender. Flaming, harassment, or use of vulgar language were high on the list. Others were peculiar to online settings. One, for example, was a failure to type “spoiler alert!” if the message contained details about a show’s ending. Group members who used excessively long signatures or who forwarded any messages without the sender’s consent all received reproaches.

The reproaches range from the mild correction to the truly vicious attack on the offender. Some groups were particularly vocal about any perceived violations, and all in all, reproach episodes made up about 15 percent of the network traffic during the period. Clearly, there are a lot of mistakes to be made in online groups, and a lot of people eager to tell you when you make them.

In a study of Facebook users, many implicitly understood and widely shared norms emerged. For instance, they generally agreed that updating your status too frequently is not appropriate and that overly emotional or negative posts should be avoided. On Facebook and other social networks, users have other options to deliver different kinds of reproaches. One method is to unfollow norm violators so that their posts don’t appear in the user’s News Feed. However, these “reproaches” may go unnoticed by the violators, although they might begin to suspect something is amiss. In extreme cases, the user can unfriend the violator. One subject explained how he dealt with a violator who really caused some damage:

*One guy thought he was being funny and posted on my Wall. He was trying to make some joke, but in it he was totally calling me out for being a racist . . . so I deleted that, then deleted him.*¹⁶

When the online group considers someone’s actions really egregious, the group can wreak severe vengeance. A public relations executive at a media company learned this lesson the hard way. Her Twitter account had fewer than 500 followers when she tweeted about her upcoming South Africa vacation. Just before boarding the plane from London to Johannesburg, the executive sent a quick tweet to alert her followers that she was on her way:

*Going to Africa. Hope I don’t get AIDS. Just kidding. I’m white!*¹⁷

During the 12-hour flight, while the executive had no Internet access, her comment became the tweet heard around the world as Twitter users picked it up and harshly denounced it as racist and deeply offensive. Once on the ground, she saw the avalanche of outrage and found that her following had mushroomed into the thousands, and they were combing through all her social media posts for more incriminating evidence. She apologized profusely, although some people interpreted the tweet differently, and not as a racist remark. One suggested, "I think she was more mocking the aloofness white people can have on this issue, not celebrating that aloofness."¹⁸ But she still lost her job as a result of what amounted to a trial by Twitter. She also wisely deleted her Twitter account.

In Search of the Leviathan

Conforming to social conventions and adhering to laws that restrict our freedoms are, from a philosophical perspective, things we do to preserve our existence. We give up certain freedoms to earthly authorities in order to live in a predictable and safe world, interacting peaceably and fairly with our fellow humans. Thomas Hobbes proposed the concept of the Leviathan, defined as "that mortal god, to which we owe under the immortal God; our peace and defence." The Leviathan might simply be a system of government that we empower to resolve disputes, justly we hope. It might also be the head chieftain who has the power of life or death over tribe members. That particular mortal god is elusive on the Internet. One might wonder whether any Leviathan could exist at all in cyberspace, given how sprawling and decentralized it is, but demigods are certainly in evidence.

On your Facebook account, for example, you are the mortal god who can delete posts or unfriend violators. But your authority extends only so far. You can't insist that someone else take down a post or image on *their* account unless the item violates Facebook's terms of service. When an item violates Facebook's community standards, then the company takes over as Leviathan. Hate speech, threats of violence, graphic content, bullying, harassment, and copyright violations might lead Facebook or other services to remove the content or even terminate the account.

With free services, account holders have little recourse if they think a company treated them unfairly. One YouTube user complained

bitterly that his channel about amateur travel was deleted, along with all his videos and user comments - with no warning and no explanation. The automated email from YouTube offered little help:

Thanks for your email. Your . . . account has been found to have violated our Community Guidelines. Your account has now been terminated. Please be aware that you are prohibited from accessing, possessing or creating any other YouTube accounts.

YouTube staff review flagged videos 24 hours a day, seven days a week to determine whether they violate our Community Guidelines. When a video or account is brought to our attention we investigate and take action if necessary.

We are unable to provide specific detail regarding your account suspension or your video's removal.¹⁹

Arguably some of the most powerful demigods are the Internet service providers (ISPs) that offer high-speed service, especially when the geographic area has only one such provider. Bill Machrone, writing for *PC Magazine*, tells of an incident in which a writer became involved in a flame war, and his opponent finally complained to the ISP. The company simply canceled the writer's account rather than spend time listening to charges and countercharges. The abrupt cancellation left the writer without high-speed access until some other service became available in the region.²⁰

More recently, a Leviathan that may have the most effect on human behavior online is simply the realization that our online contributions are not fleeting, even though it often feels that way, and that corporations, governments, and other powerful entities can collect and analyze them. Even Snapchat videos that are supposed to self-destruct in seconds are easy to store, if the recipient chooses to do that. The Library of Congress is archiving every Twitter post, and archives of the early Usenet groups are readily accessible. Knowing that online activity is so durable and that any of it could easily go viral years later may turn out to be the Leviathan elephant in the room.

GROUP POLARIZATION

Off the net, people tend to split into ingroups and outgroups rather easily. British psychologist Henri Tajfel demonstrated just how easily in his classic studies of the *minimal group*, in which people are assigned

to a group based on the most trivial characteristics, a random choice of hat color, for example, or a coin flip. Tajfel and his colleagues found considerable ingroup bias, even though the group members were only sharing meaningless labels. Subjects rated their ingroup members as more similar to themselves compared with members of the outgroup, as having more pleasant personalities, and as being generally more competent. They also showed favoritism toward the ingroup when they distributed rewards.²¹

Outside the lab, people join groups based on more meaningful identities, and these ingroup biases and favoritisms are even stronger. Also, within a group, *polarization* can occur, as members' preexisting tendencies are enhanced as a result of their ingroup interactions. Many argue that the Internet has actually increased polarization because it is easier to pick and choose what to view, seeking out the opinion of others of like mind rather than exposing yourself to divergent viewpoints.

Let's first look at some classic research in social psychology that uncovered this tendency that groups have to move toward extremes.

The "Risky Shift"

Most people intuitively suppose that groups would be more conservative and cautious in their thinking and decision making than individuals and that it makes good sense to appoint a committee (or jury, board, or task force) when important issues need to be resolved and difficult decisions made. Democratic societies are not all that comfortable with an autocrat, and we routinely put groups in charge to balance and restrain the potential extremism of an individual. But an early study of group dynamics found something surprising. The study involved dilemmas in which an imaginary character was faced with a decision and subjects reading the dilemma offered advice about which road to take. Each choice involved an element of risk. One dilemma, for example, described a fictional writer of genre westerns who yearns for a loftier literary goal:

*Helen is a writer who is said to have considerable creative talent but who so far has been earning a comfortable living by writing cheap westerns. Recently, she has come up with an idea for a potentially significant novel. If it could be written and accepted, it might have considerable literary impact and be a big boost to her career. On the other hand, if she cannot work out her idea or if the novel is a flop, she will have expended considerable time and energy without remuneration.*²²

Subjects were invited to choose how much risk Helen should take, based on estimates of the chances for success. After each person in the group indicated his or her choice privately, the group discussed the case and came to a consensus recommendation for Helen. To everyone's surprise, the group decision was actually riskier than the average of the individuals' decisions. After talking it through, the group became less cautious, not more so, and the individuals did as well. This intriguing bit of group dynamics became known as the *risky shift*.

Nothing piques the interest of psychologists more than a counter-intuitive finding such as this one, and hundreds of studies followed. It was important to nail down the underpinnings and complexities of this risky shift, especially because we rely so heavily on groups to make important decisions. It was alarming to find that whatever was going on when people got together to talk led to more extremism, not less.

Though the phenomenon was initially dubbed the "risky shift" because the problems involved some decision about risk taking, later studies demonstrated that group discussion does not necessarily lead to riskier decisions. Instead, talking it over seems to intensify the individual leanings of the group members further toward one of the extremes, pulling them toward one or the other pole. If the individuals are leaning toward caution in some kind of a dilemma, their group decision will be even more cautious. Or if they tend to agree with a particular opinion individually, their group will agree with it even more strongly after they have a chance to discuss it.

A study of attitudes toward decriminalization of marijuana shows how this move toward the fringe can work. The subjects first offered their individual opinions on a scale from 1 to 9, with 1 being completely opposed, and 9 being completely supportive. Then the subjects joined a three-person group to come to a consensus. The groups whose members initially tended to support decriminalization came to a consensus that was even more supportive, and the opposite happened to the groups whose members initially leaned toward opposition. Interestingly, it didn't matter very much whether a particular group contained someone whose initial opinions were already very extreme before discussion started. Although those people talked more and voiced strong arguments, they didn't appear to affect polarization.²³

The question of why people in groups shift toward one or the other end of the attitudinal scale has been a difficult one to answer. Certainly a discussion will allow group members to raise tidbits of

information that might not have occurred to each individual separately. Indeed, this is one reason why most people believe a group will make better decisions than an individual. Nevertheless, if the group members lean slightly toward one side to begin with, their tendency to conform could continue to reinforce that same direction in one another as they add their comments. One might say, "Well, Helen really has little to lose," and another might add, "She isn't proud of herself as a cheap western writer, anyway." Each argument in favor of "going for the gold" would tend to sway the individuals, and thus the group, toward the extreme.

Another element that seems to make group decisions more extreme than their individual counterparts is social comparison. When you don't know what the others think, you can't compare your own opinion to theirs or exhibit your own tendency to conform to the group norm. You might suppose that most people would take a more conservative viewpoint about Helen's dilemma and that you would be the adventurous risk taker in the group. When you learn that others generally agree with you, you might want to not just conform, but move even further out on the limb to maintain that initial view you had of yourself - of being the adventurous one in the group. As others do the same thing, the group moves perilously close to the ledge.

Group Polarization Online

Research in social psychology suggests that the phenomenon of group polarization may be partly responsible for the extremism we so often see on the Internet and the apparent absence of that moderate voice. An individual Person may hold relatively moderate views about an issue initially, but after talking about it in a group setting with others who lean in the same direction, they may move away from the middle ground toward one of the fringes. And talking is what people do online. Studies of group polarization in face-to-face settings suggest that the factors that contribute to it are present in abundance on the Internet, so we may not have far to look to understand why that moderate voice is so rare.

Russell Spears and his colleagues demonstrated that group polarization can be quite high in Internet-like situations, especially when the people who are working as group members think strongly of themselves in those terms.²⁴ These researchers sent out questionnaires to their subjects to find out their initial positions on four controversial subjects

that had clear “right-left” political overtones. One item, for example, asked the students to state their agreement with the statement, “Nationalized industries should be sold off.” They assumed, rightly, that the students would already be leaning toward the left on issues such as this, and the experiment would detect whether their positions became even more radical after various types of group discussion.

Groups of three arrived at the lab and learned the basics of a simple CMC system they would use to discuss the issues in turn. For half the groups, the subjects sat in the same room during their discussion so they could see one another, even though they communicated by means of the computers. For the other half, though, the subjects never saw one another and stayed in separate offices. This latter condition is closer to the Internet environment where people are not in the same physical setting, and the perceived anonymity is high.

To investigate the extent to which each person’s feelings of groupness influenced their behavior, the researchers added one additional twist. Half of the groups who would be sitting in the same room, and half of the groups whose members would be lodged in separate offices, were given special instructions that would make them feel closer to their other group members and make group membership more salient to them. In this case, the researchers encouraged group identity by a carefully worded introduction to the experiment. They heard that their group consisted entirely of first-year psychology students, and they were being tested as members of a group - not as individuals. In contrast, the other groups were encouraged to behave as individuals, and group identity was downplayed. After the computer-mediated discussions, the subjects in all groups answered the questionnaire again and guessed which attitudes they thought their fellow group members held about the same issues.

The results from this study are fascinating because they point to an interaction between level of anonymity and feelings of group identity. For those whose group membership was emphasized, sitting in separate rooms caused a sharp *increase* in polarization. But for those for whom individuality was emphasized, sitting in separate rooms caused a sharp *decrease* in the polarization phenomenon. In fact, these people actually strayed in the opposite direction when they couldn’t see each other, away from the group norm.

To help explain results such as this, Spears and his colleagues proposed the social identity model of deindividuation effects, known as the *SIDE model*, which I mentioned in [Chapter 1](#). In this case, a

plausible hypothesis is that the Internet-like setting is most likely to create a strong tendency toward group polarization when the members of the group feel some sense of group identity. Group polarization, after all, relies on group influence and the tendency to conform and compare one's own views to those of others around you. But for people who don't feel like they are a part of a cohesive group, the isolation, deindividuation, and physical distance typical of the Internet lead them to ignore the group's views and go their own way. They do this more easily than people who are in plain sight of their loosely knit group members. They might even show a little psychological reactance in the other direction to demonstrate their own individuality, as they did in this study.

The Echo Chamber

Online environments may lead to even more group polarization because it is so easy to find people who are already leaning the same way as we do on any issue, regardless of how peculiar. Unlike the people in many of the studies I described in this chapter, we are not randomly assigned to groups and given a particular task to work on. We can proactively choose which groups to join and find like-minded others who are almost certain to reinforce our viewpoints and move us a bit further out toward an extreme position. On the Internet, you find your own groups and your choices are almost infinite.

You may know of no other people in your geographical vicinity who happen to believe that Elvis sightings have been documented, proven, and suppressed by government conspiracies. But on the Internet, people who share your viewpoint are just a few keystrokes away, regardless of the issue's obscurity, social desirability, or bizarreness. As people participate in online group discussions with the few others who share their views from around the world, they may well hold biased discussions, experience the influence of group polarization, and move further and further toward extremism. When interacting with a small subset of like-minded others spread around the globe, our framework for social comparison could become rather warped. We could quickly acquire an exaggerated perception of the rightness of our views because we found others not only who agreed with us but who are even further out on the attitudinal limb. Inch by inch, we would join them - moving toward the polarized extreme - with the support of those like-minded others. Goodbye, moderate voice.

The technology makes it quite easy not just to find people of like mind, but to restrict our own access to just the sources that tend to agree with us. As early as 1995, Nicholas Negroponte at MIT predicted that people would gravitate toward “The Daily Me” for their news, carefully choosing which news sources to include so that they could screen out anything they might disagree with. That capability is certainly available now. You can pick and choose news sources, websites, and blogs that confirm what you already believe, and rarely see any information that might challenge your views.²⁵ You can also accept friends and follow Twitter users whose views agree with yours.

Yahoo! account holders, for instance, can manage their exposure to different content very easily, by clicking “More like this” or “Fewer like this” on any headline. Even if you don’t actively manage your content preferences, Yahoo! chooses news stories for you based on your likes and dislikes on a connected Facebook account. The company’s goal is to provide a “personal and customized experience” to each user, but the result can contribute to the online echo chamber.

Group Polarization on Twitter

Twitter users often voice very strong opinions, and the nature of the medium offers opportunities to see how polarization unfolds. They can @reply to individuals, but unless a message is specifically designated as private, others can find it using keywords or hashtags. Thus Twitter tends to be more of a public forum in which anyone can join the conversation, rather than a conversation just among people who are in a friendship network.

To see how much exposure people are getting to different points of view, a group of researchers gathered Twitter posts that contained one of several keywords that were likely to reflect controversies. Examples included global warming, healthcare reform, Tea Party, and Obama.²⁶ Then they gathered the usernames of the most recent 500 Twitter users who included one of the keywords, along with the usernames of all those they followed and who was following them. What were the political ideologies of all these people, what messages were they sending, and who were they tweeting to? Were they in echo chambers, or was some cross-ideological dialogue going on?

The thousands of tweets were grouped into a small number of clusters, each with a relatively large number of Twitter users

who follow or are followed by one another. Then the messages themselves and any web links were coded as liberal, conservative, or neutral. Within each of the clusters, the conversations turned out to be very polarized, particularly when most messages in the cluster were tagged as liberal or conservative. In a cluster's conversation on global warming, for instance, almost 80 percent of the messages were coded "liberal," and the rest were unclear or had no particular orientation. There was some cross talk, however, suggesting that the echo chambers are not completely soundproof.

Another study of Twitter shows that conversations outside the echo chambers or between people inhabiting different echo chambers are more likely when the whole community is faced with a tragedy. One of these involved a murder in 2009. George Tiller was a late-term abortion doctor in Wichita, Kansas, who was shot and killed on May 31, 2009, by an anti-abortion activist. He had been a controversial figure for many years, and his murder triggered a huge volume of posts with the hashtag #tiller.

A study of more than 30,000 such posts collected within the first week after the shooting shows a wide range of interactions.²⁷ In general, people were more likely to reply to others who shared their view, particularly so for pro-choice advocates. But cross talk was also evident. Over one third of the replies were directed to someone with differing views. The pro-choice tweeters often commented to pro-life advocates about the disconnect between the shooter's pro-life beliefs and the murder he just committed. The replies from pro-life advocates to pro-choice did not necessarily disagree, and most condemned the shooting. Here are two examples.

Pro-Choice to Pro-Life

@DChi606: How can one preach about pro life but then turn around and kill someone? Sad.

Pro-Life to Pro-Choice

savvyconsumer7: @michellew_I don't know AnyOne who condones the murder of Dr. Tiller. I'm pro-LIFE.

Twitter is hardly a likely platform for serious debate and thoughtful discussion, but this study does suggest that strict polarization is not necessarily inevitable on controversial topics.

GROUP MOBILIZATION

The Internet transformed the way people mobilize for action, gathering together for some larger purpose or cause and persuading others to join. Imagine, for instance, how a group would organize a protest march in the pre-Internet days. They might use phone calls, fax, radio, TV, letters, flyers, and newspaper ads, and they would also need plenty of time to get the word around. Now, they need none of that because they can use social media and cyberspace. They can send mass emails, texts, and tweets to thousands or millions of followers very inexpensively, with breathtaking speed.

Consider the key role that social media played in the Arab Spring uprisings and how the online conversations swayed the narrative. During the weeks before Egyptian President Hosni Mubarak resigned, the total rate of tweets about the political situation in Egypt ballooned from around 2,000 a day to 230,000. With mobile phones, ordinary citizens could put a human face on oppression as they mobilized very large protests and distributed commentary and videos to each other and the outside world.²⁸ Images of Mohamed Bouazizi's self-immolation in Tunisia spread rapidly through social media, drawing worldwide attention and inspiring millions to protest. The efforts were so effective that the Egyptian government attempted to shut down Internet access in the country during the uprising.

Online Activism

Online environments offer many advantages to activist groups seeking to express their views or protest against dominant elites. Social media in particular can spread the word very quickly to sympathetic others and help people make a case across geographic boundaries, pushing back against top-down propaganda. The relative anonymity can also help foster stronger group identity and a sense of "groupness," reducing the salience of differences in educational levels, social class, national origin, or ethnicity.

While many are highly optimistic about the value of online environments for social movements, they also face significant challenges. One, for instance, is that they often rely on citizen "microjournalism" to report and document events before the news media and law enforcement arrive. For instance, during the mass protests about the alleged corruption during the 2009 election in Iran, Western reporters had great difficulty getting first-hand information, and Iranian

authorities placed a ban on their reporting. But citizen reports and images flooded the Internet, including the video in which philosophy student Neda Agha-Soltan appears to have been shot dead by an Iranian sniper, even though she was a bystander.²⁹ Trained journalists rely on sources they can identify, even if they do not reveal the name, but the identity of citizens who post online is often unknown and unverifiable. Reporters walk a fine line, not wanting to miss an important story, but unsure of its veracity.

Online activists also face the threat of censorship or worse. Many countries block certain Internet sites from computers inside their boundaries, although their efforts are typically only partially successful. Some estimate that the “Great Chinese Firewall” blocks 18,000 different websites, although enterprising citizens find ways to bypass the wall to gain access to the blocked sites.³⁰ Google receives frequent requests from governments around the world to take down content for a variety of reasons, including its potential to stir unrest.³¹

Beyond censorship, online activists can face arrest, imprisonment, or death. For example, Mohammed al-Qahtani maintained a blog in which he criticized Saudi Arabia’s religious leaders, and in 2014 he was sentenced to ten years in prison and 1,000 public lashes.³² Many activists use Tor or other strategies to preserve their anonymity in repressive countries, but with surveillance tools becoming so widespread, efforts to remain anonymous can fail.

Another challenge for online social movements is sustainability. One of the largest online activist communities protested the genocide going on in Darfur. Founded in 2007, the Save Darfur page on Facebook attracted more than one million members, and the group raised more than \$100,000. Kevin Lewis and his colleagues examined the patterns of recruitment and donations and found rapid early growth in both. But the growth slowed down by the end of that year, and by 2010, the group was no longer growing at all or raising funds. The vast majority of those one million members never actually recruited another person, nor did they actually make a contribution of any kind. They supported the cause primarily by just joining that Facebook cause, and were more “slacktivists” than activists. We discuss that phenomenon in more detail in [Chapter 6](#).

One way in which cyberspace makes a distinctive contribution to group mobilization is by supporting coordinating efforts as group members organize some activity for the network, using what might be called “microcoordination.”³³ Using Twitter, email, social media

posts, and text messages, people can quickly send out alerts and updates to keep everyone apprised of rapidly changing conditions. Flash mobs make particular use of microcoordination.

Flash Mobs

Flash mobs burst on the scene in 2003, at Macy's department store in New York. About 100 people arranged to visit the store at the same time and asked for help in selecting a "love rug." Ten minutes later, they all abruptly disbanded and left the store. Many other such performances followed, typically coordinated by email or text messages. The participants might send text messages to mobilize and then suddenly gather in a mall or other public place to sing a lively song, perform a dance, build a snowman, or just freeze in place before disbanding on cue.

Flash mobs originally focused on innovative and spontaneous performance art, but new varieties emerged with different purposes. The ones directed toward social goals and activism rather than pranks or artistic performances became known as "smart mobs." Companies also sometimes microcoordinate flash mobs to advertise new products and garner attention. A newer and far more troubling version gathers large numbers of people in a specific location to loot or commit acts of violence or vandalism, and then they quickly disperse before police can intervene. This version is sometimes called "flash robs" or "wildings" to distinguish them from the more prosocial flash mobs.

What motives drive people to participate in these events? Focus groups with teens - who are the main players in flash mobs - suggest that many understand that different motives are in play.³⁴ They cited motives such as wanting to be cool, relieving boredom, and wanting to exercise their rights to be in a public place. They also wanted to clarify the meaning of "flash mob," and not apply it to the prosocial versions. In a violent flash mob event in Kansas City, for example, shootings occurred and three people were injured. One student remarked about the way the press handled that incident:

Flash mob is what they (called) it because they wanted to sound politically correct and wanted to sound polite instead of saying a gang warfare or gang brutality. Instead of saying something in a negative term they wanted to keep it a positive light for Kansas City. It wasn't positive; it wasn't a flash mob by definition.

Alarmed by the violent incidents, some state legislatures are passing laws to regulate flash mob violence and to penalize anyone who mobilizes such events through social media. In the United Kingdom, the Prime Minister advocated putting limits on the communication channels the flash mob participants were using - in that case, Blackberry messenger. In San Francisco, the Bay Area Rapid Transit system shut off cellular signals at some stations, trying to prevent riders from microcoordinating an event to protest police shootings. But these draconian tactics are highly controversial because they come up against constitutionally protected freedom of speech and the right to gather in public places. As in so many areas, the Internet is changing what it means to mobilize a group and how the technologies can promote both positive and negative behavior.

Much of what I have been discussing in this chapter thus far involves venues used especially for social or political purposes rather than business. But companies depend heavily on virtual work groups to cut down on expensive travel and tap talent from all corners of the globe. Let's turn now to the virtual work group and see how the online environment is influencing group dynamics in that setting.

VIRTUAL WORK GROUPS

In *The World Is Flat*, Tom Friedman describes the "flat world platform" that empowers people from all over the world to collaborate on tasks, form communities, build new products, and create a new era of globalization.³⁵ The Internet's infrastructure underpins this platform, and it relies heavily on virtual work groups composed of people who may never have met, who live in different parts of the globe, and whose purpose is to get a job done.

How well do these groups actually function? Beyond the hype, virtual work groups are proving extremely valuable, but research demonstrates that group dynamics unfold rather differently online compared with collocated groups, as we might expect.

Biased Discussions in Online Work Groups

In any work-group discussion, group members are unlikely to have exactly the same information and expertise. As I mentioned, this is one reason we believe groups will make better decisions than individuals. They should, in principle, have the combined information and

expertise of all members at their disposal after they talk about it. Each person can share what he or she knows with the others, making the whole at least equal to the sum of the parts. Unfortunately, this is often not what happens, and it is especially not what happens when work groups get together online to make decisions.

One early experiment studied this phenomenon in the context of management, exploring how online groups might collaborate to make personnel decisions.³⁶ The research involved *hidden profiles*, in which group members reviewed resumes of three applicants for a marketing manager position. The investigators rigged the candidates' positive and negative attributes so that one applicant was best suited for the job because that person matched the criteria in the job description most closely. Then they handed out packets of information to their subjects containing a subset of the information from the resumes, so each group member knew only part of the story. Some of the three-person groups met face to face, while others discussed the candidates from separate locations using CMC.

Polarization was common, and you may be dismayed but not surprised to learn that almost none of the groups - face-to-face or computer-mediated - chose the best candidate. They just were not sharing the information in a way that would enable the group to make an objective decision based on the whole picture. The amount of bias in the discussions, though, was particularly high within the online discussion groups. The researchers could assess *how* biased the discussions were by examining the actual tidbits the group members chose to share. In a very biased discussion, they would tend to share positive information about the winning candidate and negative statements about the losing applicants, but they would avoid bringing up negative information about the winner and positive items for the losers. Each item they contributed would thus reinforce the march toward group consensus rather than add complications and fuel debate. This trend was very apparent in the online groups, and more than twice as large compared with the face-to-face groups.

Online Ingroups and Outgroups

Another somewhat troubling feature of virtual work groups is the tendency for subgroups to emerge, with an "us" versus "them" dynamic. This is particularly the case for groups in which some element is present that can divide the group, a kind of fault line that

members can use to separate the ingroup from the outgroup. Location is one example. As I discussed earlier, people tend to identify with a group rather easily, and location is a key factor that would underpin a social identity. A virtual team with members in New York and Chicago would certainly be susceptible to this location fault line. Even if the Chicago team members never actually interacted with one another face to face, they would still share a location identity, partly because they might *anticipate* running into one another at some point.

The global virtual teams Friedman imagined confront even greater challenges that can lead to ingroups and outgroups. Cultural differences, time zones, and language barriers can all lead to coordination problems and misunderstandings. Differences in all the unwritten norms will also arise. In some cultures, a “due date” is less strict than in others, so submitting work late will be perceived negatively by those whose cultural norms stress timeliness. Basic gaps in knowledge can also cause misperceptions. Americans who are unaware that businesses in some Arab countries close on Friday may get the impression that the Arab team members are just not very responsive when emails go unanswered. The Arab team will be working on Sunday and may get the same impression.

One study investigated group dynamics in six-person teams in which members came from two universities - one in the United States and the other in Canada. The teams relied mainly on email to tackle a research project together over a three-week period, eventually producing a written report about how different companies handle management challenges. After the project, team members completed a variety of questionnaires that measured aspects of group dynamics and team functioning.

Ingroups and outgroups based on location emerged clearly in this study, to the detriment of team performance and cohesion. Those teams whose members were geographically distributed showed more conflict and coordination problems, and their members had weaker identification with the whole team compared with teams whose members were all collocated. Problems were especially pronounced when the six-person team was unbalanced, with four members at one location and just two at the other. The minority subgroups felt more alienated and powerless against the majority at the other location. As one subject put it:

When we started [to] work with them, we were optimistic . . . but then [our four teammates at the other site] threatened to “out-vote” us on

*several key decisions. The two of us here had little we could do in response and things devolved from there.*³⁷

A survey of professionals who work on distributed virtual teams in various companies found similar “us” versus “them” problems arising. Respondents pointed to uneven communication channels, cultural differences, conflicting goals, and other issues that tended to widen the gulf between team members already separated by physical distance. And not surprisingly, those teams with the most pronounced “us” versus “them” attitudes were generally less effective. Nevertheless, many of these real-world teams were still effective, showing that experience with the pitfalls of distributed teams helps people overcome them.³⁸

Status Effects

In face-to-face settings, the members of a virtual team may differ in terms of status - their position on the organizational chart, perhaps, or their acknowledged expertise. People with more status tend to talk more, dominating the discussion, and their views carry more weight when the group makes decisions. In online environments, status can be harder to detect, and some studies suggest that status effects are less pronounced.

One early study, for instance, compared the relative contributions of people in groups of three who were trying to reach consensus with some groups interacting face to face and others using CMC. In all the groups, one person tended to dominate the discussion, but the dominance was less for the online groups.³⁹ Some argued that the online environment should be an equalizer in which status is less important and good ideas can emerge regardless of their source.

More recent research suggests that dominance and status do unfold differently online, but not quite the way people initially thought they might. Researchers assigned undergraduates to three different types of virtual teams to work on one of the hidden profile tasks in which no group member has all the information to come to the correct answer, but together, the information is there. Some groups included members who were all collocated at the same university, while others had members from all different universities. The third type was partially distributed. After the task was completed using an online discussion forum, the subjects rated themselves and their team members on dominance, group cohesion, and other kinds of group dynamics.

The results demonstrated that perceptions of dominance definitely arose in these teams and that these perceptions were influenced by physical location. Students tended to form more extreme perceptions about dominance for team members who were not at the same university. For instance, a student might rate herself at about the midpoint for dominance, and would rate a collocated team member about the same. But that same student would rate the distant team members as either very dominant or very submissive.

One way to understand this finding is by drawing on Joseph B. Walther's hyperpersonal model of CMC, which I mention in other chapters as well.⁴⁰ It is not uncommon to find that interactions in text-based online environment often lead to more extreme impressions, ones in which stereotypes and cognitive shortcuts play a larger role. In face-to-face settings, people have many cues to draw on to form impressions - not just nonverbal cues but situational ones as well. In the discussion forum that those students were using, such cues were narrowed, particularly for students who were not attending the same university. They jumped to more extreme impressions.

Minority Opinions in Online Workgroups

When you find yourself on the side of the minority, it is time to switch sides and stop being such a nonconformist.

- Oscar Wilde

In face-to-face settings, groups can exert considerable pressure to conform, and the majority can put the minority in a very uncomfortable position. Yet research in social psychology shows that minority opinions in face-to-face settings can indeed sway majority opinion, at least under some circumstances. Consistency is important, though, and if the minority opinion holder is wishy-washy, the majority may just discount that person's arguments.

One classic study that demonstrated this simply asked subjects sitting in a group to report the color they saw on a slide in front of them. In a group of six subjects, two were confederates of the experimenter who deliberately said "green" when the slides were obviously blue. When the two "subjects" in the minority held steadfast, some of the others were more inclined to also say the slide was green, at least on some trials. But if the minority wavered occasionally and said a slide was blue, they had no influence.⁴¹

Novel ideas and those minority opinions can be very valuable to organizations seeking innovation. But can a minority voice in an online group influence the majority? On one hand, we might suppose that a person who holds a dissenting opinion from the rest of the virtual work group would feel freer to express that opinion in the online setting. In an email discussion, for instance, the dissenter would not have to endure raised eyebrows or interruptions by members of the majority, or be made to feel uncomfortable about the failure to agree with the others. He or she could type away at the keyboard, restating the position in a persistent way.

Early research initially focused on groups whose members were actually in the same room but who were making their contributions using a group decision support system (GDSS). This kind of software facilitates a freer expression of ideas; participants each use a computer to submit comments and suggestions, and these appear on a shared screen in front of the room so all can see. The software can eliminate names so people can't see who contributed what.

In one study that compared groups using GDSS to face-to-face groups, the subjects worked on a hidden profile task in which members were each given somewhat different bits of information about companies A, B, and C.⁴² Their job was to discuss which company would be best to invest in. The deck was stacked so that if all pieces of information were on the table, company A was the best choice. However, only one person in the group held the most revealing pieces of information, ensuring that he or she would be the minority opinion holder. These lone wolves were more vocal when their contributions were online and anonymous, compared with the minority opinion holders in the face-to-face groups. But they were also much less effective at changing the majority opinion. As a result, the online workgroups wound up making rather poor decisions and bad investments. It looked like it was just easier to ignore dissenting messages on the screen, at least in a GDSS setting.

How does minority opinion play out in the more common virtual groups that include some far-flung members - the kind that multinational companies rely on so heavily? Here the outcomes seem to be more promising for that lone voice chiming in from a considerable distance.

In a study in which online groups consisted of people from the same or different locations, the most effective minority voice came from people who were consistent in their opinions, similar to what

happens in face-to-face settings. But their influence also depended partly on *where* they were. The person at a remote location who was expressing consistent minority opinions was the most effective of all.⁴³ This situation is different from one with members in Chicago and New York, where ingroup biases can lead to conflict and poor decision making. Instead, a team with one geographically isolated member may have a unique benefit – someone who can play the role of devil’s advocate to get the attention of the majority. If you happen to find yourself in that position on a virtual team, remember to be consistent.

Work Groups and Electronic Brainstorming

Group brainstorming emerged on the business scene in the 1950s, after an advertising executive published a how- to book on the technique.⁴⁴ Intuitively, it seemed like a wonderful way to stimulate creativity and generate many original ideas very quickly. People sitting in the same room try to come up with as many wild ideas and solutions to some problem as they can. Criticism is disallowed, but members should try to improve on, combine, or build on the ideas of others during the brainstorming session. The participants generally loved the technique, and it took hold.

Unfortunately, it didn’t work. After more than two decades of research on the subject, behavioral scientists concluded that individual brainstorming was simply more effective. In study after study, groups whose members worked individually developed more ideas, and more original ideas, compared with the same size group working with the group brainstorming technique. One reason was *production blocking*. In a group, only one person can talk at a time; if you are listening to the discussion you have less time to come up with original ideas of your own. Also, social loafing might be a factor; in a group, people might not work as hard, assuming others will pick up the slack. Conformity and concerns about how team members evaluate wild ideas could come into play as well.

Software developers ignored that research and developed an electronic support tool for group brainstorming.⁴⁵ Participants would sit at their computers and enter their original ideas in one window. Then that idea appears in a second window along with the contributions of the other participants. Researchers investigating the effectiveness of this new version of group brainstorming found, to their

surprise, that the electronic support made quite a difference in the results. When the group is large, the results from the computer-mediated group brainstorming session were superior compared with individual brainstorming.

One reason that electronic group brainstorming works reasonably well when its face-to-face version does not is that the electronic version bypasses the production-blocking problem. With the computer-supported version of group discussion, you can glance at your group members' contributions at any time, but they need not interrupt your train of thought. Also, the computer-mediated environment may trigger disinhibition, so group members may feel freer to express their wildest notions with less concern about negative reactions.

How useful are the findings about electronic brainstorming? One intriguing application could be detecting fraud during company audits. In the wake of many corporate scandals involving financial statements, the American Institute of Certified Public Accountants developed new guidelines for auditors, and one of them is a requirement for auditors to conduct a "fraud brainstorming session." The goal is to encourage auditors to have open and questioning minds when they investigate a company's finances, and to consider many different ways in which fraud might happen in that particular company. Are certain managers under special pressure to achieve glowing results? Are internal controls lax because of cost cutting?

To test out this approach, researchers assigned accounting students to four-person teams to conduct fraud brainstorming sessions, either face-to-face or electronically. The company was a fictitious one, but the case offered many opportunities to identify unusual fraud risks. The results were clear. The electronic brainstormers came up with an average of 29.5 relevant ideas, compared with just 17.3 for the face-to-face groups.⁴⁶

Interestingly, the question of why electronic brainstorming works better than face-to-face sessions is still not fully answered. In the fraud study, the researchers assigned some students to a third type of treatment - a "nominal" electronic group brainstorming session - in which group members could not actually see one another's ideas on the screen. The group members were essentially working alone, but using the computer to input their ideas. These "nominal" groups did just as well as the groups in which members were actually interacting and viewing one another's contributions online. The overriding factor that made the electronic brainstorming sessions more effective appears to

involve the way people are able to focus on the task when they sit at the computer, rather than any advantages from seeing what other people came up with.⁴⁷

Brainstorming still holds much appeal among managers, and despite the dismal results for face-to-face groups, they still extoll its virtues. Electronic brainstorming certainly works better, but it remains unclear whether group brainstorming is really the most effective technique to generate the best and most innovative ideas.

Developing "Swift" Trust in Virtual Work Groups

For work groups to succeed, the individuals who participate must develop some trust in one another. In face-to-face situations, this kind of trust evolves as coworkers come to know one another and learn to respect the contributions that each person can make to the team effort. Over time, as they join task forces and working groups, colleagues learn they can rely on one another and trust that other team members will perform as expected. This kind of trust has great advantages for a work group. Individual members don't have to worry about freeloaders who miss deadlines or shirk their share of the work.

Corporations are finding many advantages to the kinds of fluid teams the Internet makes possible, with members drawn from subsidiaries around the world and activities conducted in cyberspace. If a team needs a certain combination of skills, the corporation is not limited by geography when members are chosen. In fact, many companies rely on expert systems that track each employee's expertise so they can find the best match for a particular team, regardless of geography. But how do these far-flung virtual team members establish a sense of trust so they can work together effectively?

One study examined how trust developed in seventy-five global virtual teams, each of which had four to six members residing in different countries.⁴⁸ The groups worked together for eight weeks on several tasks, including two trust-building exercises and a final project in which the teams proposed content for a new website. Predictably, some teams did extremely well while others did very poorly; a key success factor was the development of trust among the members.

The members of one of the high-trust teams exchanged messages frequently, and they all showed optimism, excitement, and a clear orientation toward project goals. Members shared leadership duties, and they proactively volunteered for specific roles without waiting for

assignments. They also recognized that as a virtual team they needed to stay in close contact and meet their commitments, and even during weekend trips the members found ways to communicate. In the early part of the project, some members explained away short absences or failure to meet deadlines because of strikes, sickness, or personal duties, but one quickly pointed out, "Do you know what the devil's grandmother died of? Bad excuses. So therefore, I will stop apologizing - and start working."

By contrast, a team that failed miserably had members who communicated infrequently and made few commitments. At one point, eight days went by without a single message exchanged. When a member did finally post some ideas for the project, she implored, "Can we PLEASE try to respond?," and rarely did any online discussion emerge in which the members reacted to one another's contributions.

The most successful teams capitalized on "swift" trust. They lacked time for the personal interactions that allow trust to develop gradually, the way a long-term face-to-face group might. Instead, the members jumped into the project acting as though trust existed from the start, even though they had no evidence that their group-mates would carry their share of the load. Their initial willingness to show trusting actions led swiftly to actual trust. By interacting frequently, emphasizing the positive tone, volunteering for assignments, and then going that extra mile to meet their commitments, these teams overcame the obstacles that led to poorer performance in others.

Group norms are the key variable for the success of teams that develop swift trust. In a follow-up study, global team members that displayed the most trust early in the project developed explicit group norms.⁴⁹ These teams discussed performance goals, milestones, and what the group considered acceptable conduct. Members of global virtual teams come from very different backgrounds, and the teams that recognize that their different norms could cause serious problems are more likely to succeed.

Successful virtual teams also tap the power of synchronous communications, especially to introduce themselves to their new teammates and kick off the project. Video conferencing works very well for this. When added to the "signs on the door" that clarify group norms, these video sessions give everyone a chance to look one another in the eye, and that starts group dynamics off on good footing.

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4 THE PSYCHOLOGY OF ONLINE AGGRESSION

Caroline Criado-Perez learned firsthand how aggression unfolds online - on Twitter in her case. She was posting on social media to advocate for a female figure to appear on a Bank of England note when Internet trolls launched their attack. Two of the perpetrators used more than 80 separate accounts to bombard Criado-Perez with vile tweets that threatened rape, murder, and torture. The attacks were life changing for the victim, who couldn't sleep and doubted whether the abuse would ever end.

Rarely, offenders are caught, and the two did prison time for their actions. While savvy trolls work hard to cover their digital tracks, these offenders were not very careful. An alert investigator tracked down one down because he linked a Twitter account to a videogame profile, where he used his real name.

The man and woman who committed this aggression are two different kinds of trolls, and while their behavior was similar, the underlying causes were not. The man's lawyer described him as a sad individual with little social life, no criminal record, and learning difficulties. The woman, however, was socially active, with many offline friendships. Initially, she defended her actions with tweets like these:

You're in the public eye, you're on Twitter, then you should expect some sort of abuse. People take it all the time. Why are you different?!

letters/words are never a threat. They're hardly going to jump off the page at you

But later, she seemed remorseful about her behavior:

*Of course, I support woman's rights, being one myself. I'm ashamed of my behaviour and like I've previously stated I won't be doing anything like this again.*¹

What causes human aggression? Biological factors may play a role, particularly higher testosterone levels. But environmental factors may play a larger role. Many people believe that the Internet is loaded with trolling, fighting, and flaming and that aggression in general is higher online than offline because of the nature of the environment. Certainly, some research confirms this, especially the early studies on computer-mediated communication (CMC) that uncovered startling levels of name calling, swearing, and insults - much higher than in face-to-face groups. Indeed, the woman's attorney claimed she was a "victim of new technology as she did not understand the impact of what she was doing."

Her behavior illustrates that online aggression is a complex behavior with many different roots. What factors might make people behave more aggressively online than they would in other settings? Online environments vary a great deal, but many feature characteristics known to promote disinhibition in other settings - frustration, anonymity, invisibility, and physical distance. Let's start with frustration.

FRUSTRATION AND AGGRESSION

At a stoplight, the driver is engrossed in a phone call and doesn't notice when the light turns green. It takes no more than a second before horns start honking. According to frustration-aggression theory, the frustration that the other drivers feel can lead to anger, and anger triggers a hostile action - not just a little beep to get that driver's attention, but a loud and prolonged blast.

Back in the 1940s, when war rumors began spreading worldwide and social psychologists were becoming intensely interested in the nature of human aggression, Roger Barker and Kurt Lewin conducted an experiment to see just what happened when you produce frustration in young children.² They showed a room filled with intriguing toys to two separate groups of children, but the children couldn't reach the toys because they were behind a wire screen. For one group, the researchers opened the screen right away and the children rushed

in to play. The other kids were told they had to wait. When the screen finally opened, many of these frustrated children smashed the toys and broke them.

Frustration is even more likely to bring out an aggressive response when we are very close to the goal and something, or someone, blocks us from achieving it. Snatching defeat out of the jaws of victory is particularly frustrating in the final seconds of a game, and tensions run very high at sporting events in which this occurs. An early study of people waiting in line - for theater tickets or grocery store checkout, for example - led to similar conclusions.³ A confederate cut into the line, either in front of the second person in line or in front of the twelfth person. People closer to the goal, who were number two in line, reacted more aggressively to the line cutter.

Is the Internet environment a frustrating place, one that might make us more likely to show anger when something happens to bother us? It certainly can be. Consider the barrage of endless interruptions that thwart people as they try to accomplish a task using a computer. Alert messages remind you to update software and then reboot your computer. Wifi signals mysteriously disappear. The screen freezes, or the “blue screen of death” appears - before you saved your work. And your inbox constantly fills up with irrelevant spam, all those newsletters you never requested, or suspicious phishing messages.

The explosive growth in online commercial activity is another major contributor, and research on strategies to attract customers is flourishing. Revenue from advertising and targeted marketing is the lifeblood for many websites, especially social media sites and newspapers that are free to the public. But those advertisements and promotions lead to frustration and annoyance, so people find ways to ignore or delete them. Clickable banner ads, for example, once attracted a respectable number of clicks, but “banner blindness” set in some time ago. Click-through rates are extremely low - fewer than one in 100 visitors click on those ads. Eye tracking studies also show that people don’t look at them much, and they remember little about them.⁴ Companies eager for more attention began using richer media in those ads, such as videos or animated graphics. But the annoyance level grows and “ad blocking” software becomes widespread, defeating the company’s purpose.

To bypass that banner blindness, some companies are creatively embedding promotions inside the steps of a transaction, which just increases frustration. You might, for example, be buying a train ticket

when a page appears offering discount coupons for restaurants in your destination city. Confronted with a maze of choices, you become confused about whether you can skip the page. One study that explored this strategy asked subjects to try out one of several websites, some of which contained that kind of embedded promotion. One was a simulated airline reservation system, and subjects were asked to imagine they were purchasing tickets to visit a friend in Chicago and complete the transaction. Those whose transaction was interrupted by a promotional message (to fill out some information to get a free coupon) were significantly more confused, irritated, and frustrated, compared with those who did not.

Embedded promotions are here to stay, however. That study also showed that promotions embedded in those step-by-step transactions really do work, partly because people - especially novice users - are not certain whether that "optional" page is really optional, and they don't want to have to start over.⁵

Online customer service is another major source of frustration. One survey found that 58 percent of consumers were unable to resolve their issues on the web and that most of those consumers eventually gave up after spending more than 30 minutes trying.⁶ People are also reluctant to phone a customer support line, knowing they would likely struggle with a complicated phone menu and a long wait.

Any kind of unpleasant event can lower our thresholds for an aggressive response, and frustration is one of them. But the key ingredient is that aversive stimulation in general triggers a state of negative affect. Once in this state, our ability to dispassionately reflect on the events around us declines, and we become more likely to lean toward a negative interpretation of stimuli that under other circumstances we might view as neutral.

If frustrating circumstances lower the threshold for an aggressive response, what is the actual trigger? If we are sufficiently primed, almost anything could set us off because our perceptions are distorted. We might find an email from a colleague containing one sentence that reads, "WE NEED YOUR INPUT BY TOMORROW! PLEASE!" In a calmer state of mind, you might laugh and imagine the writer in a begging mode, desperate for your invaluable help on this project. However, if you are in a frustrated state, your perceptions are affected and you interpret the email quite differently. You might feel anger toward this coworker's arrogant and pushy behavior.

That online communications can be quite ambiguous makes it even easier for people experiencing aversive stimulation to interpret it in certain ways.

AMBIGUITY IN ONLINE COMMUNICATIONS

Try this experiment. Think of a catchy song, one that most people would know, and tap it out with your fingers on a table. How confident are you that a friend would be able to guess the song? Write down your answer in terms of percentage. Now recruit someone to listen to your tapping and ask him or her to guess what song it is. Did your "subject" guess correctly?

In a classic study of this phenomenon, subjects showed stark overconfidence about how clear their tapping message would be to listeners. The tappers thought half the listeners would guess the tune, but in reality, those listeners guessed correctly only twice out of 150 tunes.⁷

We are typically overconfident about the clarity of our communications, when they are often rather ambiguous and easily misinterpreted. To some extent, this overconfidence arises because we are looking at things (or hearing things) in an egocentric way - from our own perspective rather than the perspective of the listener. The tappers could hear the music in their own minds, possibly even all the words and a full orchestration. The listeners just heard the tapping.

Sarcasm Misinterpreted

Text-based communication is plagued with ambiguity because of the absence of all those nonverbal and paralinguistic cues that can clarify and complement the message. And similar to those subjects in the tapping experiment, senders are often quite overconfident that their text messages are clearly understood, when in fact, they are not. Attempts at sarcasm, for instance, often lead to misinterpretation, hurt feelings, and retaliation. Even with a smiley face emoticon, a sarcastic remark can easily fall flat, creating puzzlement for the overconfident sender and annoyance or anger for the recipient.

A series of experiments on how sarcasm is interpreted when it is conveyed either by email or voice showed clearly that sarcasm is a danger area for miscommunication.⁸ In one experiment, for instance, college students read statements that were either serious or sarcastic,

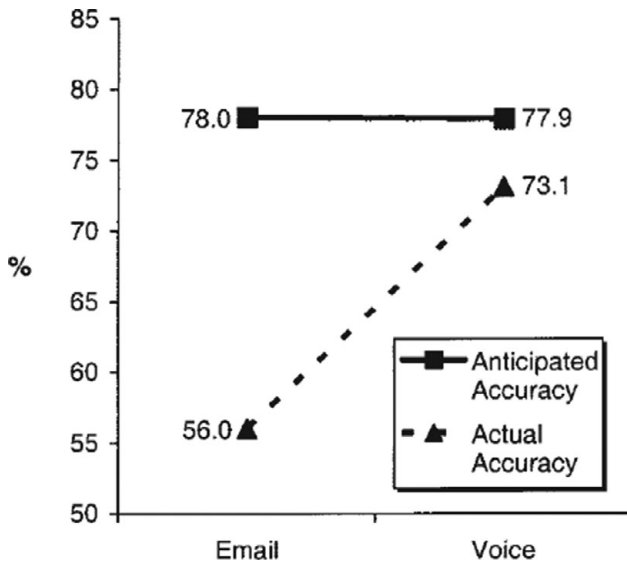


Figure 4.1. Anticipated and actual accuracy for sarcastic and serious messages conveyed by email or voice. (From Kruger, J., Epley, N., Parker, J., & Ng, Z.-W. (2005). Egocentrism over e-mail: Can we communicate as well as we think? *Journal of Personality & Social Psychology*, 89(6), 925-936. Published by the American Psychological Association and reprinted with permission.)

and then chose ten of them to communicate to a partner. For instance, one sarcastic statement read, “I really enjoy dating because I like feeling as self-conscious and inadequate as possible.”

One member of each pair read their chosen statements into a voice recorder, while the other typed them into a computer. Then all the participants rated how confident they were that their partner would recognize whether each statement was sarcastic or serious. How did the partners actually do? Figure 4.1 shows the results.

Regardless of whether senders were using email or voice, they were quite confident that the recipient would detect the message tone (solid line), predicting that the recipients would get it right almost 80 percent of the time. Their confidence was almost warranted when they used voice to convey the message (73.1%). But when they used email, their partners scored barely above chance accuracy (56%).

After they read or listened to the messages, all of those partners rated how confident they were that they correctly *detected* the tone of the message. Here again, overconfidence prevailed. Even though those who read the typed messages were unable to separate sarcasm

from seriousness, they certainly thought they were able to. They were just as confident about their detection skills as the ones who listened to the messages.

You can imagine what this overconfidence and egocentrism can lead to when people are communicating online. Misinterpreted text messages can turn what could be a useful discussion into hostile and aggressive exchanges.

When Does a Flame Become a Flame?

A study that used a fictional series of posts between “Dr. Ski” and “Snow Pro” attempted to nail down what makes a flame a flame, at least in the eyes of the audience.⁹ The posts became progressively more disagreeable and antagonistic, and volunteers rated each one on a scale from 1 (not flaming) to 7 (flaming). The incident begins when “A Total Novice” asks for some suggestions for a good ski school.

Message 2, from Snow Pro, in response to a question from A Total Novice:

A Total Novice asks:

> *Is there a good ski school or learn-to-ski package
> someone could recommend?*

Brighton is a good place to learn to ski. That’s where I learned, and I think they offer a special deal for beginners.

- Snow Pro

Message 3, from Dr. Ski, also in response to A Total Novice’s question:

In response to A Total Novice who wrote...

> *I want to learn how to ski.*

Alta is the area I would suggest. Alta has really great slopes, and a lot of them. I ski there almost every weekend.

- Dr. Ski

The tension between Snow Pro and Dr. Ski rises after a few messages in which the two disagree:

Message 6, from Snow Pro, directed to Dr. Ski

If Alta has a reputation, it’s for crowded slopes. Learning to ski at Alta is like learning to drive on a freeway! :-) For those just learning to ski, Brighton offers the best combination of great snow, comfortable surroundings, and relaxed pace.

- Snow Pro

By Message 9, the character attacks are well under way:

Message 9, from Dr. Ski in reply to a post from Snow Pro

Snow Pro made reference to

>*the ski snobs like Dr. Ski who go to Alta*

Snobs? What a joke! Real skiers like Alta because we take skiing seriously. Skiing is more than just snow, slopes and lifts, which is all Brighton offers, and barely that. Only nerds like Snow Pro would admit to skiing at a pit like Brighton. :-)

- Dr. Ski

Message 10, from Snow Pro in reply to a post from Dr. Ski

It's obvious that Dr. Ski doesn't want to carry on a civil conversation. It's also obvious that Dr. Ski doesn't know a damn thing about skiing. Let me ask you, Dr. Ski, is your diploma from a cereal box? :-)

- Snow Pro

The ratings showed that people gradually perceive a sequence that begins with a disagreement and gets more heated as a flame war. Observers' perceptions jump over to the flame side when they detect some tension - as in Message 6. When character attacks and foul language appear, observers widely agree a flame war is in progress. It is interesting that the little smileys helped to reduce the perception that the messages were flames when they were just disagreements. When the emoticons were added to really nasty messages, however, the smileys just made them look even more sarcastic.

ANONYMITY

Anonymity, or the perception of it, is another potent ingredient that can lead to aggression. When people believe their actions cannot be attributed directly to them personally, they tend to become less inhibited by social conventions and restraints. This can be very positive, particularly when people are offered the opportunity to discuss difficult personal issues under conditions in which they feel safer. As we will see in [Chapter 6](#), the online support groups are flourishing, partly because participants feel freer to voice sensitive issues in the relatively anonymous Internet environment than they might in a face-to-face support group within their communities. However, anonymity can also unleash aggressive behavior under the right

circumstances. Depending on the situation, anonymity could lead to what is called *toxic disinhibition*.

Philip Zimbardo's classic study of how anonymity can negatively affect human behavior involved students who were asked to administer electric shocks to another person in a lab setting. Students randomly assigned to a treatment group wore hoods and lab coats, so their sense of anonymity was heightened. The other students in the control group wore regular clothing and a name tag. The hooded students chose to administer longer shocks.¹⁰

Obviously, most people on the Internet are not cloaking themselves in anonymity, and they willingly add their names, affiliations, and favorite quotes to their profiles, emails, or book reviews. Nevertheless, considerable Internet communication does occur under conditions in which the participants believe that they will not be personally identified. And research demonstrates that aggression can result. For example, in an online group decision-making task, team members whose names did not appear before each of their messages made more hostile and uninhibited remarks compared with other groups in which names were linked to each comment. Just leaving off the names affected how the participants behaved.¹¹

The Components of Anonymity

Our understanding of “anonymous” is somewhat more complicated than the actual meaning of the word, derived from the Greek, meaning “without a name” or “nameless.” For example, people you pass in the street may be nameless, but they might still be easily identifiable because you recognize their faces. *Identifiability*, or lack thereof, might be a more important contributor to toxic disinhibition online compared with namelessness. Even if you add a name to your post, and routinely post under that name, you might still feel relatively unidentifiable. Readers would have little information about your location, profession, gender, ethnicity, or age unless you voluntarily offered these tidbits.

Another aspect of anonymity is *visibility*, or invisibility if there are no webcams, videos, or photos involved. In a face-to-face setting, invisibility created by darkness produces more disinhibition as people feel more willing to abandon social constraints and norms. Online, invisibility can have similar disinhibiting effects. In an online classroom in which everyone is identifiable, the lack of visibility

may be an important factor for some students, who might be shy or physically less attractive but who become more outgoing and confident online. These students relish not having to worry about how they look or whether classmates will snicker at their choice of clothes.

Studies that compare outcomes from work groups that use text-based communications, videoconference, or face-to-face interaction also suggest that visibility plays a role in the disinhibiting effects of anonymity. One such study created groups who used one of these three communication environments to work out the “Moon Survival” problem. Subjects imagined themselves crash landing on the moon far from the base, and they only have fifteen pieces of usable equipment left. Individually, subjects ranked the equipment in order of value to survival, and then, working together, came to a group consensus. (This kind of problem, which has a correct solution provided by NASA, is more likely to elicit disagreement and disinhibition compared with more open-ended tasks.) As expected, the groups using CMC made more comments categorized as flames compared with those using face-to-face communication - almost *twelve times* as many. Videoconferencing, however, helped. Those groups made just twice as many flames as the face-to-face group.¹²

The Eyes Have It

Videoconferencing eliminates the invisibility component of anonymity, but there is more to a face-to-face setting than just visibility. When people are in the same room, they can manage many aspects of their interactions, such as the physical distance separating them and their gestures. They also manage eye contact in subtle ways, maintaining it to secure attention or glancing away to show disagreement or boredom.

A videoconferencing system may simulate eye contact in some ways, but it does not quite reproduce it. On a Skype video chat, for example, the only time your partner would get the feeling of “eye contact” is when you look directly at the camera itself. But most people look at the screen where their partner’s image appears. Because the camera may be some distance away, there is no “eye contact.” The position of the camera can also contribute to the strangeness of the interaction. If it is high up, the viewer mostly watches the top of the other person’s head. If it is low or if the person is holding

the smartphone and looking down at it, the chin is more prominent and the “vampire” effect emerges. Movie directors often use that low angle camera shot to make a villain appear more threatening. In either case, online “eye contact” is difficult to simulate.

An intriguing experiment attempted to separate out the eye contact aspect of anonymity to see how that variable affects toxic disinhibition and flaming.¹³ Researchers randomly assigned partners to each subject and gave them the “life-saving drug dilemma.” All participants were told to imagine that a very close friend badly needed this scarce drug, and they should try to convince the partner that *their own* friend’s need was the greatest. All the pairs communicated using text chat on an instant messaging service, but the experimenters manipulated anonymity levels for the pairs.

Some pairs used randomly assigned aliases, to create the namelessness type of anonymity. In contrast, nonanonymous pairs displayed many personal identifiers - name, age, gender, and college major. Pairs in another “visible” group were equipped with one camera that showed their partners a side view of one another. Those in the “invisible” condition did not use any cameras. Finally, eye contact was manipulated by equipping some pairs with a camera at eye level, and the partners were told to look directly into the camera during the discussion. In all, there were eight sets of pairs, each with a different combination of treatments.

The dilemma itself was intense, and the typed discussions contained comments such as “You’re an a**hole,” “Shut up!,” and “You’re talking like a typical woman.” Subjects also used symbols and punctuation to convey aggression, such as “Wellllllllllllllllll??” and “@#!@#\$\$%#@#%#&.”

Pairs that had all three types of anonymity - namelessness, invisibility, and no eye contact - showed the most flaming overall. But the variable that had the most effect was the presence or absence of eye contact. The old expression “Look me in the eye and say that!” apparently offers good advice.

That eye contact is more important than namelessness in deterring toxic disinhibition helps explain why efforts to require commenters to provide their names have not been very effective. Korea enacted stiff laws to stem the tide of hostile commenting on popular websites, by requiring commenters to provide their national ID numbers or to use a credit card, but the laws had little effect. A study by the Korean Communications Commission found that toxic comments dropped

by less than 1 percent. Worse, the sites were overrun by hackers, attracted by the new opportunities for identity theft.¹⁴

RETALIATION

How do we determine what constitutes a “justified” response, and what is the appropriate level of retaliation, in our judgment, in any particular situation? According to some surveys, the most provocative kinds of insults are the ones in which someone appears to be attacking our character, competence, or physical appearance.¹⁵ This suggests that certain kinds of events on the Internet are especially likely to trigger retaliation.

The very human and ordinary response to a real or imagined insult is to retaliate in kind. In a typical study on retaliation, two subjects may be paired to compete against one another in a reaction time experiment. After each round, the winner chooses the level of shock to give to the loser. The experiment, however, is carefully programmed and there is really only one subject; the other “subject” is a computer program designed to manipulate the wins, losses, and shock levels in predictable ways. As you might expect, the real subjects retaliate in kind. If the computer is programmed as a vengeful villain who delivers large shocks to the subject after every loss, the subject strikes back with at least equal force.¹⁶

When we decide how to retaliate and how aggressive to be about it, we pick a method and level that, in our minds, matches what the offender did to us, but then ups the ante. In some Internet episodes, it begins to sound like the children’s game of raising the stakes: “You’re a jerk,” “You’re a double jerk,” “You’re a jerk times ten,” “You and your whole family are jerks.” To the uninvolved, some flame wars sound just as silly.

Others are more serious and loaded with detailed arguments for or against an issue, with the verbal aggression and thinly veiled character attacks embedded more and more deeply as the controversy escalates. They can go on for many weeks and the combatants may insist that they are not in any flame war; they are just “discussing” a subject and “debating” a point.

Flame wars that erupt inside long-standing, normally peaceful groups can be extremely disruptive. Bystanders who attempt to defuse the discussion might get drawn in instead. I know a few individuals who can use extraordinary wit and the skill of a professional mediator

to help the combatants see the lighter side of their behavior, often because they make fun of themselves as they gently chide the participants in the flame war. They avoid the substance of the debate entirely and focus instead on an amusing side issue that could rebuild group cohesiveness. If the war goes on, however, it could do serious damage to relationships.

Reproaches

One way in which people attempt to control flammers and others whose behavior in a discussion group is not in line with the group's norms is to use the reproach. A participant will gently or not so gently remind group members, either publicly or with a private message, about acceptable group behavior. One study that tracked reproach episodes examined some posts on a discussion group for singles, in which the norms prohibited personal ads. Here are excerpts from a reproach episode that delves deeply into some creative sarcasm:¹⁷

The Offense

Hi, I'm a 23 year old graduate student and would like to communicate with any females on this news net.

- (Posted for a non-net friend) -

The Reproach

Well, Howdy! Finally a request for a female that doesn't specify species - you wouldn't believe how many people on this net want a woman, which of course means a person. *giggle* My name is Susa, and I'm a five-year-old Lemur in the Philly Zoo. My measurements are 12-12-12, which is considered quite sexy for a lemur *giggle* we all fail the pencil test *giggle* My hobbies include running around, climbing trees, and picking lice; I hope you have a nice thick head of hair!

I only write to stupid people who post personals on soc. singles; the other ones are too smart for me - we lemurs may be very_cuddly *giggle* but we tend to be on the low end of the smarts scale. I know that with that post, you'll be really_dumb for a human, and perfect for me! *giggle*

The Accounting

In reference to my posting a few hours ago.. I have just discovered that this is the wrong news group! Thanks to so many

people, among others, so if you'll all quit sending me more messages, I move on.

OK? But those who seem to have nothing better to do feel free to do whatever you want!

Reproachers themselves are often taken to task by participants other than the offender for a variety of reasons. If the offense arose from a lack of knowledge, a sarcastic reproacher might be accused of bullying newcomers. Episodes like this one can sometimes engage the whole community in a meta-discussion of the group's norms and appropriate responses to honest mistakes.

Overretaliation

When you believe that someone did you harm, your most likely response is to retaliate, to strike back, with words or actions. But suppose your retaliation is more than just an "eye for an eye"? What happens when you thrash someone for merely stepping on your toe? Rationally, you might assume that an apology would be in order, especially if the misstep was not intentional. Unfortunately, humans are not always this rational, particularly because most of us have a strong desire to think we are decent and fair human beings. Ironically, our desire to cling to a belief in our own rationality can lead us to some very strange perceptual contortions.

Leon Festinger's widely known theory of *cognitive dissonance* predicts that we will feel uncomfortable when we do something that does not jibe with our own attitudes, beliefs, or perceptions. This tension motivates us to find some way to bring our actions and thoughts in line again, and while we can't erase what we did, it is not all that difficult to modify our perceptions. We revise our views of the offender and the offending incident and begin to think of them as worse than they actually were. This mental revisionism can occur whenever we behave aggressively toward someone who didn't really deserve such harsh treatment. Even more alarming is that it also occurs when the person never deserved any retaliation at all.

In an early study on overretaliation, subjects watched an interview with someone they thought was another student but who was really a confederate of the experimenters.¹⁸ These researchers instructed each real subject to provide negative feedback to the interviewee/confederate - to state clearly that the subject thought the interviewee

was shallow, untrustworthy, and a generally dull and boring person. Before the subjects made these brutal comments, they generally found their interviewees to be reasonably attractive. But after the interview, the subjects lowered their opinion of the interviewee/confederate and rated that individual as less attractive. As cognitive dissonance theory predicts, the subjects tended to bring their actions and thoughts into line. Aware that they were verbally cruel to the interviewee, they revised their opinions downward so that their actions would seem justified. This change occurred even though the cruelty was not the subjects' own choice; they were just following the researcher's instructions.

Given how eager we are to justify our aggressive acts, it isn't difficult to guess that we would paint a negative picture of a target we just reproached. The post directed to the participant who submitted a brief personal ad struck me as this kind of overretaliation, filled with other-directed humor, sarcasm, and personal criticism. That reproacher might engage in some dissonance-reducing maneuvers to justify the harsher-than-necessary correction, perhaps coming to believe that the offender was an unattractive and unsavory character who deserved the rebuke.

Don't Feed the Trolls

People who deliberately try to start arguments or sow discord with deceptive, aggressive, inflammatory, insulting or vile comments are the trolls of the Internet. They deluge sites on which public commenting is allowed. Reproaches or any kind of retaliation on such sites is unlikely to have any effect other than to reward trolling behavior with attention and keep things going far longer.

Erin Buckels and her colleagues surveyed a sample of Internet users and found that 5.6 percent reported that they *enjoyed* trolling.¹⁹ The researchers developed a new survey instrument, called the Global Assessment of Internet Trolling, that contained items such as these:

I consider myself to be a troll.

Do you enjoy trolling memorial pages of people who died (RIP trolling)?

The more beautiful and pure a thing is, the more satisfying it is to corrupt.

People who agreed with these sentiments also tended to earn high scores on the measures designed to assess psychopathy and

Machiavellianism. For example, those high on psychopathy tended to agree with statements such as “Payback needs to be quick and nasty.” The Machiavellianism scale includes items such as “It’s not wise to tell your secrets” and “There’s a sucker born every minute.”

The scores of people who enjoyed trolling were also especially high on the items designed to assess both direct and vicarious sadism, such as “I enjoy hurting people,” “I enjoy making jokes at the expense of others,” and “In video games, I like the realistic blood spurts.” As the researchers put it, “Both trolls and sadists feel sadistic glee at the distress of others. Sadists just want to have fun . . . and the Internet is their playground!”

The lack of accountability, relative anonymity, and other features of so many online environments can indeed add up to a playground for sadists. The more people who respond to those with that kind of psychological makeup, the more fun they have. As we discuss later in this chapter, many websites have taken measures to combat trolling, although without much success.

Anonymity on the Internet, however, is a moving target. The tools for identifying Internet users keep improving, as do the techniques available to remain anonymous. The success of any tracking effort rests partly on the determination and skill of the tracker and trackee. However, even though an individual’s identity might be traceable, simply the heightened *feeling* of anonymity promotes disinhibited behavior.

Pre-Internet, people could certainly drop angry, unsigned letters into the mailbox that would be difficult to trace. Now, we can use a public computer to send emails from a hastily created free email account, and reach far more recipients compared with the letter-writer, at much lower cost. In other words, one angry person could create considerable havoc with little expense or effort.

Another characteristic of the online world that probably makes it easier to let our tempers loose is simply that we are hurling the flames from quite a distance. Internet users span the globe, and any virtual community of people, or conversational partners, could be right next door to one another or half a planet away. They are not in the same room, however, so the physical distance measurement is already several notches larger than it would be in a face-to-face meeting. It is easier to attack someone if they are out of sight and far away. We can’t see the injured and pained expression on their faces, and we feel safer and more immune to a counterattack.

CATHARSIS: IS LETTING OFF STEAM GOOD FOR YOU?

While features of the online environment tend to draw out more verbal aggression, we can also ask whether that is a good or bad thing. If we have a tendency to react more negatively to minor slights, and vent our anger with language that we would rarely use in any real life setting, are we letting off some steam that might be released somewhere else? Psychoanalysts suggest that we all have aggressive impulses, and it does us good to vent them once in a while. If we don't, they build up, and we may explode against our loved ones or turn our Thanatos drive inward to self-destruction. Perhaps the Internet gives us a safe playground for catharsis, and when we use it that way we become much happier, kinder, and mentally healthier in real life.

The notion that a cathartic release of aggressive impulses turns down the pressure, lets us "blow off steam," and keeps us from erupting violently sounds attractive and plausible on the surface. Unfortunately, psychological research shows it does not work that way most of the time. Instead, behaving aggressively tends to increase our aggressive tendencies, not reduce them.

One early study that demonstrated this phenomenon involved people who were laid off from a company and felt some anger about it.²⁰ When such terminated employees were interviewed just after they received their pink slips, the researcher gave some of them a chance to vent their anger at their employers by asking leading questions. One was, "What instances can you think of where the company has not been fair to you?" Many of the laid-off workers seized the chance to air their angry feelings. Later, when all of them completed questionnaires that asked about their attitudes toward the company and their supervisors, the ones who had vented their anger showed the *most* hostility. Their catharsis did not release pressure from the steam valve at all; instead, it intensified their anger.

The widespread belief that catharsis is good for you led to the launch of "rant" websites, where people can vent their anger online. On one site, for instance, a retiree ranted about family and friends who constantly ask her to do something for them: "NO, I don't want to babysit! NO, I don't want to fix your computer! NO! I don't want to take care of your dog . . ." ²¹ This rant was quite mild compared with others, but you get the idea.

A survey of people who frequent that particular rant site discovered many different motives, such as curiosity, entertainment, and a sense of community.²² Over one third said the site made

them feel better about their own lives by comparison, and a few reported enjoying other people's misery. All of them said they felt "calm and relaxed" after they posted a rant. That doesn't match what other studies find, but these people *chose* to visit the site, and that might explain the results.

In a follow-up laboratory study, college students first read through a series of authentic rants from the site, and then added one of their own. These students reported feeling sadder and angrier after reading rants, and especially after writing a rant, with one exception. The researchers asked each student whether to post the rant they created in the lab onto the live site. Most said "No," but those who said "Go ahead!" did not feel sad at all.

For most people, ranting has immediate negative consequences and increases anger. But a few people - such as those who hang out on such sites and are more prone to anger in the first place - feel a short-term lift that keeps them coming back. The negative consequences, however, may unfold over a longer time period.

CYBERSTALKING

American opera singer Leandra Ramm found herself the victim in a case of international cyberstalking that lasted more than six years. In 2005, a Singaporean man who attended one of her performances starting sending her death threats and intimidating voice messages. He posted pictures of the singer plastered with foul threats on a blog, and he obtained email addresses of her family members, friends, and potential employers. Ramm sought the help of law enforcement for years with little success, partly because the man was outside the reach of U.S. agencies. The man was finally brought to justice by Singaporean authorities in 2013, and sentenced to three years in prison. Yet, despite expanded legislation that addresses electronic harassment, many more cyberstalkers go undiscovered and unpunished.

What exactly is *cyberstalking*? Legal definitions vary considerably, although many emphasize the use of telecommunications and the Internet to annoy, abuse, threaten, or harass the person who receives the communications. Some laws include language about fear, such as victims must fear death or serious bodily harm; other laws address emotional distress. As is true for many aspects of the online environment, laws often fail to capture changing technologies and the creative ways in which people can tap them to achieve some end. For instance,

a legal requirement that the victim must receive the communication disregards the stalker who sends malicious emails to a victim's employer. And of course, some countries have no laws at all, which is why international cyberstalkers can be so difficult to stop.

Cyberstalking overlaps with cyberbullying, which I discuss in [Chapter 9](#) on child development and the online world. Cyberbullying includes many of the same kinds of behaviors discussed in the next section, but the term is closely linked to school-age youth, and the characteristics of the phenomenon are somewhat different compared with stalking in adults.

Stalking Behaviors

Stalking, whether in person or online, is not typically a single, unmistakable act that everyone can agree is a crime. It is much more often a series of events that, when added together, go beyond harassment and cause the victim considerable distress. The following are some examples of stalking and cyberstalking behaviors.

Stalking

- Following or spying on the victim
- Showing up at places where the victim is likely to appear without a legitimate reason
- Leaving unwanted items and presents at the victim's home
- Waiting at places for the victim to appear

Cyberstalking

- Sending unwanted and unsolicited messages to the victim
- Making unwanted phone calls to the victim
- Posting unfavorable or untrue information about the victim online
- Sending defaced images of the victim to others
- Hacking the victim's social media or email accounts
- Creating fake websites or social media accounts to impersonate the victim
- Sending unwanted messages to the victim's family, friends, or colleagues

Stalkers often combine cyberstalking and physical stalking to ramp up their harassment. A California businessman who was stalking an

ex-girlfriend secretly attached a cell phone equipped with GPS to her car, and added a motion detector that turned it on when the car moved. The phone transmitted her location every minute, and the stalker used that information to show up unexpectedly at the victim's destination - a bookstore, an airport, and many other places. The victim was not only very distressed by the endless "coincidences" but confounded by how the man knew where she would be. She got her answer when she saw him working under her car, trying to change the phone's battery. The man was charged with stalking and sentenced to sixteen months in state prison.

Another example of how stalking and cyberstalking blend into one another involves a former Library of Congress film preservationist, who posted fake ads on Craigslist that invited strange men to come to his ex-girlfriend's home for free sex. Over a three-month period, the man posted 165 ads that lured 100 men to the woman's Virginia farm.

Victims and Offenders

Estimating the actual prevalence of cyberstalking is challenging because definitions vary. U.S. government surveys indicate that about 3.3 million people are stalking victims each year, and many of those cases involve cyberstalking. A survey of more than 6,000 participants on StudiVZ, a German social network, was used to estimate prevalence rates based on different definitions, and as you might expect, rates varied dramatically. More than 40 percent reported that they had experienced online harassment at least once in their lives, but when stricter definitions were used that align more closely with legal definitions of cyberstalking, the rates dropped. Fewer than 7 percent of the sample reported harassment that lasted more than two weeks and that provoked fear.²³

Victims and nonvictims in that study differed in several ways. For example, over 80 percent of the victims were women. Compared with nonvictims, victims tended to have lower income, fewer years of education, and were more likely to be single. The most common forms of cyberstalking included sending unwanted personal messages, contacting other people to defame the victim, posting messages on social media that were also visible to other users, and spreading falsehoods on the net. Other methods included making purchases in the victim's name, sending viruses, and stealing the victim's login credentials.

Who are the offenders? Most of the victims knew who the stalker was, and as you might expect, most of the stalkers had some relationship with the victim. In a few cases, the stalker was actually a family member.

Whether stalking is increasing because the online environment offers new opportunities is not clear. But there are many reasons to think that certain features of online environments contribute to the prevalence and the impact of many kinds of online aggression.

AGGRESSION: INTERNET STYLE

In face-to-face settings, people have an almost limitless array of behaviors they can use to express aggression. They can glare at their victim or shout verbal insults. They can use physical violence in many forms, from a poke on the arm to a gunshot in the head. Aggression is commonly defined as any form of behavior directed toward the goal of harming or injuring another living being, and it leaves open an enormous expanse of possibilities by which to do it.

On the Internet, this definition serves equally well, though the range of choices is rather different. From a psychological perspective, online environments have quite a few features that not only encourage aggressive behavior but amplify and prolong its impact. Here are the major ones:

1. **Anonymity.** Even though aggressors' IP addresses or ISP accounts may be discoverable, the heightened *perception* that they are wearing that "white hood" can be disinhibiting. As we discussed, anonymity is complex, with many different components. Some components - such as the lack of eye contact - may be particularly important in unleashing more aggressive acts.
2. **Physical distance.** For the aggressor, physical distance itself can also lead to disinhibition. When the victim can't retaliate, at least not immediately or with any physical action, the aggressor can be emboldened. The distance that separates aggressor from victim can change the character of the aggressor's behavior. For example, *imminent* physical threat can be communicated in a face-to-face setting, but not as easily in online communications. Instead, the aggressor can communicate threats that involve the future, which prolongs the impact of the aggression on the victim.

3. **Amplification.** In face-to-face settings, the aggressor and victim can see one another and can also usually see who the bystanders are and how many of them are present. The audience for online aggression is not as clear-cut, but it can be vast. A hurtful post to a social network site could certainly be seen by all of that person's network connections; worse still, some of those connections might retweet or repost the message, resulting in a viral explosion in audience size. One person can reach thousands or millions of others via social media with hurtful comments about the target. Anyone who wants to spread vicious and untrue rumors can also start mobilizing thousands or millions of others to join in, leading to a social media version of a shark feeding frenzy.
4. **Permanence.** Events occurring in a face-to-face setting happen once, and memories fade. Dialogue may be forgotten or reconstructed over time, and images may be reinterpreted. Online, however, aggressive acts are permanent, so the victim will experience them again and again. Certainly he or she can delete harassing emails or voice messages, but much of what goes on online can't be deleted so easily. Social media posts, fake websites, tweets, and Instagram images are persistent, and search tools easily locate harmful images that would have faded long ago in people's memories. The result can be frequent refreshing of the aggressor's harassment and the victim's emotional response.
5. **Use of multimedia.** If a picture says a thousand words, an audio recording probably says a million, and a video far more than that. Multimedia presentations are game-changers in terms of their impact on a target. Disinhibition also impacts the kinds of things people actually post online about themselves, so it is often not that difficult to find embarrassing or incriminating multimedia material that an aggressor can use to victimize someone. And the widespread use of cell phone cameras, audio recorders, and camcorders means that almost any person's actions could be recorded, at almost any time. According to one survey, most people have few ethical qualms about shooting a video of people in embarrassing or compromising situations.²⁴

STRATEGIES TO REDUCE AGGRESSIVE BEHAVIOR ONLINE

Some of the strategies discussed in this chapter will help lower the temperature and reduce the overall level of hostility in online

environments. By now, everyone should know that ALL CAPS signals shouting and anger, even when the typist's finger just slipped and accidentally pressed the caps lock key. The research on emoticons should also make us all more cautious about using them, particularly in any tense situation in which they might suggest sarcasm. They can escalate the tension, rather than defuse it. The discussion of catharsis also touches on ways to avoid exacerbating your own angry feelings, which - combined with the disinhibiting features of the Internet - could lead you to behave in ways that are uncharacteristically hostile, abrupt, or aggressive.

In a public forum, the recommendation about not "feeding the trolls" will help avoid rewarding people with attention when they behave in a hostile or abusive manner. Even if your response to a troll is negative and critical, the fact that someone responded at all acts like a reward and perpetuates the exchange. The research on eye contact in online environments may also offer an intriguing tip that might reduce toxic disinhibition. When you add a profile picture, pick one in which you are looking straight into the camera so it simulates eye contact.

If someone in your own social network is misbehaving, you have other options.

Unfriending, Unfollowing, Unlinking

On social networking sites, profile owners can choose to unfriend, unfollow, or otherwise disconnect troublesome people from their networks. A survey of Facebook users found that old high school friends were most likely to be unfriended, especially because they might be expressing political or religious beliefs that cause polarization and discord.²⁵ When the friends were together in high school, those beliefs might not have been as firmly established, but over time, the two might have drifted further and further apart. People unfriended former friends also because they found their posts to be boring and too frequent or because they objected to the person's offline behavior in some way.

Those who are "unfriended" on a site such as Facebook often experience some emotional impact that could be severe. Many are surprised and didn't see it coming, and quite a few feel bothered or saddened by the event. The marginal cost of leaving someone as a "friend" on a social network is really very low, especially if you have a lot of friends.

But unfriending takes more work and serious thought about the possible consequences. In a real-life setting, most relationships don't end so abruptly, with a single mouse click. Instead, they dwindle over time as one or both parties drift away.

The *context collapse* phenomenon (see [Chapter 2](#)) contributes to the desire to sort out the friend lists. Over time, a profile owner might friend, follow, or connect to quite an assortment of people - high school buddies, college friends, colleagues at work, bosses, family members, fellow football fans, political associations, and many more. Managing communications with multiple audiences is no simple challenge. Given the diversity, any member of the owner's network could post a message or add a link that offends at least *some* other people.

In any case, terminating a person's presence in your social network certainly sends offenders a message. It may cause them to be more thoughtful and sensitive with posts. It could also just make them very mad. Besides unfriending, Facebook's software developers created quite a few options for profile owners to turn down the volume from particular friends, short of unfriending. For example, a profile owner can choose to hide some of the person's questionable posts from the newsfeed so others can't comment on them, or mute them entirely with the "unfollow" command. Comments from other people could exacerbate and prolong the problem, by rewarding the commenter with attention. These intermediate steps align with classic research in psychology about the power of reinforcement - and the lack of it - to shape behavior. Behavioral patterns that are rewarded will be repeated, while those that are ignored are more likely to extinguish.

Online Reputation Systems

Technological approaches that attempt to promote prosocial behavior online and reduce aggression are multiplying, particularly in large communities in which the volume is very high and human moderators could not handle it. A common strategy is to deploy a *reputation system* in which the community members participate, using metrics such as those in [Table 4.1](#). These systems do much more than help weed out abusive content. Some are actually an ingredient critical to the site's success, or even the reason for the site's existence.

[Yelp.com](#), for instance, features user reviews of retail businesses. Visitors can consult the site to find out what others say about local

Table 4.1. *Reputation system metrics*

TYPE OF REPUTATION	SAMPLE METRICS
Reputation of the poster (karma)	Number of contributions Ratings of reviews by readers Number of posts that other readers reported as abuse Number of contributions from the poster that other users have shared (e.g., retweeted)
Reputation of the content	Number of likes, dislikes, thumbs up/down Number of replies Number of readers who reported the content as abusive or otherwise unacceptable Total number of words Average word length Number of times viewed Number of times shared

restaurants, hair salons, or car dealerships, and they can write reviews of their own. The user-contributed reviews, and Yelp's reputation system that recommends certain reviews based on a variety of computer-calculated factors, are key reasons people visit. Yelp staff work very hard to configure the software so that it rejects fake or abusive reviews and shows people the ones that will be most meaningful.

Reputation systems are very efficient at calculating variables such as number of contributions, average ratings by others, thumbs up or down, likes, shares, and related variables. These help reward people who make a positive contribution to the community, but ignore those whose contributions are less than welcome. For example, most websites that permit readers to add content in the form of comments, videos, or other material also include a link to "Report Abuse." Due to high volume, some systems automatically delete any content that someone reports in that way, rather than take time to review it with human eyes.

This "shoot first and ask questions later" approach has notable disadvantages, however. Some users will "report abuse" simply because they disagree with the contributor's point of view, not because the content itself is abusive. The person whose content was reported unfairly and automatically deleted might retaliate and click that "report abuse" link on another poster with an opposite viewpoint. You can imagine this escalating quickly, causing disgusted bystanders to leave the community. Ideally, human reviewers would check the reported content before deleting it or banning the contributor.

Another challenge to reputation systems comes from trolls, who can pollute a fast-moving community and step around any software filters that attempt to quarantine abusive or offensive content before other users see it.²⁶ Yahoo! Answers had this problem because an attractive feature of the website is timeliness. When someone posts a question, it rises to the top of the page so community members can answer right away, without any intervention or approval by human beings. The software could easily filter messages containing foul language or all caps, but it could not identify abusive questions or answers from trolls. The engineers at Yahoo! knew they needed a solution when an especially offensive question about cannibalism rose to the top and stayed there for hours.

Yahoo! didn't want to use the "shoot first" method by deleting any content that any user reported as abusive, because there would be too many false positives. Instead, their engineers designed a way to crowd-source the task, granting community members the authority to cause certain content to "hide," through the abuse reports and voting. This drastically reduced the amount of time it took to remove abusive messages from the display, and likely discouraged trolls from gaming Yahoo! Answers.

Yahoo! added one more ingenious step to this system, by sending an automated email to the contributor whose content was hidden to explain the appeal process. Trolls don't often provide a real email address, so - unlike legitimate community members whose content was hidden in error - trolls would not learn of the appeal process.

Strategies that tap technology advances to reduce online aggression are likely to spread even more widely as the software improves. While online environments may often possess characteristics that can promote anger and aggression, even in relatively peaceful human beings, they may eventually also include elements that help to reduce or block it. And as we learn more about what it is exactly about online environments that affects our behavior, those strategies will improve even more.

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5 LIKING AND LOVING ON THE NET

THE PSYCHOLOGY OF INTERPERSONAL ATTRACTION

Developing close friendships, finding romance, and nurturing these relationships are lifelong pursuits that the Internet is fundamentally transforming. Not only do people seek out companions online; many rely heavily on their online tools to communicate and stay connected. We have seen how online environments can escalate tension and anger, thanks in part to features such as perceived anonymity, physical distance, and the paucity of nonverbal cues. But how do these same environments affect intimate friendships, romance, and love?

In many cases, social media and other online tools complement existing relationships that already have a strong face-to-face component. Certainly the majority of social network friends are also known to most profile owners in person, so the online relationships are just one facet of a richer context of hanging out, dates, family gatherings, meetings, or phone calls. However, people also meet for the first time through dating sites, in support groups, in massively multiplayer online role-playing games (MMORPGs), and as virtual team members at work.

Research on interpersonal attraction is voluminous, and it uncovers a great deal about the reasons one person is attracted to another, particularly on first meeting. Let's look at the factors that affect attraction in real-life settings first.

THE BASICS OF INTERPERSONAL ATTRACTION, OFFLINE

When you meet another person, how do you decide that you like that person and would like to explore a more intimate relationship? What attracts you to certain people? Why would you be romantically

attracted to one person, but not another? When researchers ask people what traits they look for in a potential partner, they often list characteristics such as honesty, sense of humor, intelligence, warmth, and confidence. Men tend to rate physical attractiveness in their ideal mates higher than women do, and women are more likely to consider a man's earning potential.

But both insist that looks are not the most important factor. That sounds promising, and suggests that people really try to look beyond the superficial to understand the person's character. But are those traits really what attract others?

The Magnet of Physical Attractiveness

In a classic study at the University of Minnesota,¹ researchers offered incoming freshmen a chance to attend a "Computer Dance" staged during Welcome Week, with the advertisement "Here's your chance to meet someone who has the same expressed interests as yourself." Interested students went to the Student Union where four bureaucratic types checked their IDs, led the students to a testing room, and handed out questionnaires with stamped code numbers on them. The four "bureaucrats" were actually confederates of the researchers whose primary job was to rate each subject's physical attractiveness on a scale from 1 (extremely unattractive) to 8 (extremely attractive), relying on just a couple of seconds of interaction. On the questionnaire, students rated themselves on popularity, self-esteem, how easy it was for them to get a date, and how nervous they felt about blind dates. The researchers also obtained some measures of academic ability, such as their scores on a standardized test.

Although the subjects expected that their answers would be used to match them with a blind date, they were actually randomly assigned, with one exception. Men were never matched with a woman who was taller than they were. Then the subjects went to the dance to meet their dates. During an intermission, subjects completed another questionnaire to evaluate their dates and the whole blind date experience, signing the form with just the coded number. The researchers followed up with these students for a few months to see how the relationships fared.

The one characteristic that mattered in this study, indeed the *only* one that counted, was physical attractiveness. The more attractive the woman was (according to the independent ratings the confederates

assigned) the more her date liked her and wanted to ask her out again. The same was true for women, which was somewhat surprising, given that they typically profess less interest in physical attractiveness. They, too, liked the good-looking men more and wanted to go out again.

This tendency for people to profess that they value many characteristics, but to really stress physical attractiveness in potential mates, also dominates the speed-dating scene. In one study, participants completed a questionnaire about political attitudes, values, personal interests, personality traits, and other measures before attending a one-hour event in which each speed date lasted 5 minutes.² The physical attractiveness of each participant was rated independently by the research team. Once again, the strongest predictor of attraction was the physical attractiveness of the speed date.

In face-to-face settings, physical attractiveness is a very powerful magnet. Though we profess that “beauty is only skin deep” or that “beauty is as beauty does,” the truth is that physical attractiveness is an enormous advantage if you want to be liked, particularly on first meeting. Our stereotypes about good-looking people extend far beyond mere appearance. We judge them as happier, more sociable, warmer, kinder, more likable, more successful, and more intelligent, too.

The physical attractiveness stereotype is so pervasive and potent that it affects our attitudes about others in almost every setting researchers have examined. For example, teachers who are rating the intelligence and potential success of students based on their written descriptions and photographs tend to rate the attractive students more favorably than the unattractive ones.³ Attractiveness also affects the hiring decisions of personnel officers, the chances of a political candidate, and even the salaries people earn. Should we be surprised that cosmetic surgery is a booming business? One might hypothesize that any surgical intervention that moves you up a notch or two on the attractiveness scale could pay for itself.⁴

Because we view good-looking people more favorably, we tend to treat them better and pay more attention to them. The positive treatment often tends to bring out their best qualities and make them more confident. An early experiment that demonstrated how this spiral of *positive treatment* and *positive response* begins observed how college men behaved in an experiment on “getting acquainted.”⁵

The men were paired with women students, but they were to get acquainted over an intercom, not face-to-face. Each man received a portfolio of information about his female partner that included her

snapshot, but as you might guess, the researchers rigged this picture. Half the men thought they were talking to a very attractive woman and the other half thought they were talking to someone far less attractive.

To no one's surprise, the men who thought they were talking to a very beautiful woman judged her favorably on many qualities. She was, they surmised, poised, humorous, sociable, and generally quite wonderful. Those who thought they were talking to an unattractive female were far less impressed with her attributes and behavior. The type of photo affected the way the women behaved, as well, although they didn't know which photo their partner was looking at. Independent observers listening to the recordings of the woman's part of the conversations afterward also judged her as more confident and charming when the man believed she was good looking. The positive treatment by a man who was staring at a beautiful (but imaginary) photograph was enough to bring out the best in the woman on the other end of the intercom, regardless of her actual appearance.

Beyond Appearance: Proximity and Familiarity

Although physical attractiveness is the key ingredient to attraction, other factors do come into play. Simple proximity, for example, determines who you actually meet in real-life settings. You become friends with, and you tend to marry, people you see frequently - that girl or boy next door. Often, they work in the same office, live on your block, enroll in the same classes, or ride the same train every day.

One obvious explanation for the proximity effect is that it provides the opportunity to meet and get to know another person. The other person becomes familiar to you, predictable. The old adage about familiarity breeding contempt is inaccurate. It often does not breed contempt; it breeds liking instead.

Familiarity affects how much we like any kind of novel stimulus, not just people. In a rather odd study, psychologist Robert Zajonc presented many different polygons to subjects for a very brief moment, just one one-thousandth of a second.⁶ Later, he showed them the same polygons along with many new ones mixed in and asked them how much they liked each shape and whether they remembered seeing it before. The people couldn't do better than guessing on the recall test, but strangely, they "liked" the polygons they'd seen

before better than the ones they had not. At some level, the subjects had formed a positive emotional attachment to the polygons from mere exposure, even though consciously they were unaware that the shapes were familiar to them.

Similarity

Assessing the truth of two mutually exclusive proverbs is a common research agenda in psychology. For example, do “birds of a feather flock together?” Or do “opposites attract?” The answer to this one is in, and it is the feathers that count, not the magnetic forces. In study after study, researchers demonstrated that people tend to like those with similar attitudes and ideas. This finding became known as the *Law of Attraction*. In a typical experiment, subjects check off their opinions about a wide range of topics, such as how much they enjoy classical music or what they think about disciplining children. Then they look at the responses of others and guess whether they would like each one. The findings show a direct linear relationship: the greater the proportion of similar attitudes, the more attracted you are to the person.

The law of attraction predicts liking from the *proportion* of shared attitudes, not the total number, a mathematical quirk that has relevance to interpersonal attraction online. For example, you might know about Jane’s views on six issues, and you agree with her on three of them (50%). Jack has spoken out more; you know his views on ten issues, and you agree with four of them (40%). Even though you agree with Jack on more issues, you will like Jane better because the proportion of similarity is higher. Obviously, we’re not doing these precision tallies with our digital calculators in real life, but the trend is there.

Humor

When someone makes us laugh, do we like them more? That depends. In a study of social attractiveness, Melissa Bekelja Wanzer and her colleagues asked their subjects to complete some questionnaires about their sense of humor and their social lives. They were also asked to give a slightly different version of the questionnaires to two of their acquaintances, one that assessed what they thought of the subject’s humor and attractiveness.⁷

The subjects were generally on target about their own sense of humor, as their acquaintances confirmed. However, their ratings of social attractiveness depended on the *kind* of humor they usually expressed. If other people were usually the butt of their jokes, their social attractiveness was not very high, but if they often targeted themselves, it was. The funniest people in the group also expressed less loneliness, another indication that people liked them and sought them out.

The “You Like Me, I Like You Too” Spiral

When someone likes you, you tend to like that person back. Partly because you are flattered and the other person’s attraction to you raises your self-esteem, you have warm, fuzzy, rewarding feelings when you’re liked by someone else. Just learning that someone likes you can be quite an ego-booster, and the next time you interact with that person you’re apt to act a little differently - a little warmer and friendlier, perhaps. The other person will detect the change and react favorably, liking you more and treating you more kindly. Just as physical attractiveness creates a spiral of positive treatment and positive response, being liked by someone else does, too.

One experiment that demonstrated this reminds me of that “anonymous note” teens sometimes use to stir up the social scene. The pranksters send an unsigned note to a classmate targeted to be the butt of the joke, confessing deep admiration and attraction. As the conspirators spread misleading hints about who might have written the note, the target’s behavior changes. Believing that someone likes her, she likes the other person more, too, and her behavior changes.

In this study, subjects were led to believe that another subject either liked them or did not like them, and were randomly assigned to those conditions. When the two met again, the ones who were told their partners liked them behaved in even more likable and friendly ways, and they disclosed more information about themselves. The partners reacted in their turn by developing a liking for the ones who thought they were liked, and an aversion to the ones who thought they were disliked. The spiral moved rapidly up, toward attraction between the two, or rapidly down, into the pit of aversion. The initial “anonymous note.” the one that misled the subjects into thinking their partner liked or did not like them, was the catalyst that set off the chain reactions. One led to an upward spiral of interpersonal attraction - a mutual admiration society. The other led to repulsion between two people.⁸

An intriguing twist in the findings about interpersonal attraction is that sometimes we work harder to gain someone's approval when they are not completely awed by us in the beginning. If we succeed in converting them and they begin to like us later, we tend to like them even more than if they had liked us all along.

Social psychologists Elliott Aronson and Darwyn Under developed a creative way to test this phenomenon in the laboratory, one that involved a "plot within a plot within a plot." As each woman subject arrived, she was told the study was about verbal conditioning and that another volunteer would be along soon. This "other volunteer" was actually a confederate. The experimenter explained that he needed two people for each set of trials: one would be his "helper"; the other would be the subject in the study. He went on to say that because she arrived first, she would be the "helper."

The real subject, who is now playing the role of "helper," was told to listen in on a brief discussion between the experimenter and the other woman and record the number of times the woman used a plural noun. The experimenter said he was going to try to condition her to increase her use of plural nouns with a verbal reward ("mmmmmm") each time she used one. Then the "helper" would take over the conversation but offer no verbal rewards for plural nouns, and the experimenter would listen in to see if the "subject" continued to use plural nouns more than usual. In other words, will the verbal conditioning carry over to a new conversation with a different person? They would switch back and forth talking to the "subject" until each had seven separate conversations with the "subject."

The researchers then deviously embedded the final plot within a plot. They told the helper that it was important the subject didn't know the real purpose of the study, so the cover story was that it was about interpersonal attraction (!). After each conversation between the helper and the subject, the experimenter would be asking the subject her impressions of the helper, and an assistant would do the same for the helper. The catch was that the "helper" was overhearing the "subject's" evaluation of herself, painstakingly counting plural nouns. Because the "subject" was really the confederate, the "helper" heard precisely what the experimenter wanted her to hear - a sequence of scripts designed to make the subjects think they were very much liked all along, disliked all along, or that the subject's evaluation of them changed over time. Some subjects experienced a "gain" - that is, they started out overhearing negative

evaluations, but these became more positive with each of the seven interviews. Others experienced a “loss” – the subject’s evaluation of them got worse and worse.

This experiment should win the purloined letter award in the annals of psychological research. Telling the real subjects that interpersonal attraction was just a cover story needed to deceive, when that was exactly the subject of the study, was very crafty. The ploy worked, and the subjects never suspected that those evaluations they were monitoring were staged.

How did the women react to these overheard evaluations? The ones who experienced a psychological *gain* liked their partners the best, followed by those who heard positive evaluations of themselves all along. The women who suffered a loss, as their partners started evaluating them negatively halfway through, *disliked* their partners the most. One reason for our greater liking for people who change their minds in our favor is that we believe we won them over. We guess their initial negative view was mistaken and that as they grew to know us better they learned the truth about how terrific we really are. This is a great boost for our self-esteem, even greater than what we feel when someone likes us all along. After all, the latter may be a sycophant or may just have reacted to some superficial quality (such as our good looks).

The dislike we feel toward someone whose evaluation of us drops is also more extreme. We might dismiss the one who evaluated us negatively from the beginning as someone who never got to know us anyway. Yet what a blow to the ego it is to learn that someone started out liking us, but as they got to know us better, changed their minds.

Finding the Right “Match”

Most people do have some self-knowledge about where they stand on the physical attractiveness yardstick and on other qualities that might be desirable. Rather than continually pine for the best-looking ideal mate, people tend to pair off with someone who is a good match in terms of social desirability. Married couples, for instance, tend to be similar in terms of attractiveness and also in intelligence, self-worth, and other traits.

The matching process seems to occur early, when people are deciding whether to approach someone they haven’t met yet. In an early study on a college campus, students viewed six photos of potential

blind dates who, ostensibly, had been computer matched to each of them. Subjects then selected the one each would like for a blind date to the upcoming dance. Attractive subjects tended to choose the most attractive photos, while less attractive subjects chose photos that were closer to them on the attractiveness meter.⁹ This experiment was different from the one described earlier because here the students were making a choice *before* meeting the date. Perhaps the less attractive students did not want to be rejected or to suffer through an evening with someone who felt short changed.

With this background about how interpersonal attraction unfolds offline, let's look at what happens online.

INTERPERSONAL ATTRACTION ONLINE

In the Internet's infancy, people were meeting online through a text-based interface, in chat rooms, news groups, discussion boards, MUDs, games, and by email. Although they may have shared photos or phone calls later, their initial introduction was often with typed text. The Internet took some wind out of the sails of physical attractiveness, and many people reveled in the opportunity to get to know others on a different level. At the time, many doubted whether lasting bonds could be formed in that setting, but the actual participants clearly disagreed.

One early study surveyed people who were posting to a sample of news groups to learn more about who was making friends in cyberspace, and what they thought about their relationships.¹⁰ The news groups spanned the gamut from the computer-oriented *comp* hierarchy to the zany *rec* (recreation) and *alt* (alternative) hierarchies. The goal was to survey a wide range of people, not just the computer gurus, though the sample was limited to people who participated in news groups in the first place. This represented a relatively small percentage of those early Internet users, of course.¹¹

Nearly two thirds of the people who replied to the survey reported that they had formed a personal relationship with someone they met on a news group, and those who said "yes" were not all huddled in the computer forums. The proportion was about the same for the respondents who participated in any of the news groups. Opposite-sex relationships were somewhat more common than same-sex ones, and some of those became romantic attachments (7.9%).

With physical attractiveness held at bay, what variables affect attraction? Many of the other variables that operate within real-life settings enter the picture, but they unfold in different ways.

Proximity and Familiarity: Who Is Next Door on the Net?

For instance, on the Internet, proximity and the familiarity that goes with it translates into something that might be called *intersection frequency*. This is obviously quite different from the geographical distance that defines proximity in real life. It reflects how often you run into that other person on the net. Your online friendship candidate might be on the other side of the planet, but as long as you intersect frequently by participating in the same discussion forum, commenting on the same articles, or playing the same online game at the same time, the proximity effect will probably be there. In the comments sections after news articles, for example, commenters often recognize one another's nicknames and greet warmly.

In fact, the proximity effect may be even stronger online than offline because comings and goings happen so fast in some settings, and participation can be quite volatile. Even one exposure to a stranger on the sprawling Internet can trigger the proximity effect the next time you run into that person.

The survey of news-group participants highlighted another feature of the proximity effect important for online relationships. People who formed such friendships and those who did not were no different from one another in terms of how much they *read* the postings. They were quite different, however, on their participation rate. The lurkers who posted few messages were less likely to make friends. It appears insufficient to just "be" there. You have to be visible to intersect with others, and on the Internet that means speaking out (or typing a lot). Of course, what you say will affect whether people are drawn to you, but this survey demonstrated that Internet wallflowers are less likely to establish personal relationships compared with those who actively participate.

One reason real-life proximity promotes attraction is that the person's nearness makes you expect - and anticipate - future interaction. If you know you'll see that person again because they live on your block, you are more likely to behave warmly toward them. In a study with a twist ending, Joseph Walther demonstrated that anticipation of future interaction is an important factor in the way people behave

toward one another online, as well.¹² The subjects volunteered for an experiment they thought would last many weeks. When they arrived, Walther assigned them to work in small groups that would communicate via an online chatting system, an asynchronous computer conference, or face-to-face. Some groups were told that they would be working with the same partners for the whole study, while others learned they would be changing partners after each task. Then all of them held their first “meeting” to complete the first task, using whichever medium they’d been assigned to.

When their first “meeting” was over, Walther asked them to fill out some questionnaires to rate their experiences and attitudes toward their partners. When they were finished, he surprised them by saying the experiment was over. The results showed that the people who anticipated working with the same partners for a long time communicated in friendlier, more affectionate, and generally warmer ways, compared with people who thought they would work together once and be gone. They also expressed more openness and rapport with one another, regardless of which communication medium they were using.

This simple ingredient could play out in many different ways on the Internet. On a social network, you might anticipate eventually running into the friends of your friends at parties, in class, or on the golf course. On a collegial mailing list with a professional focus, you could well expect to meet any of them in the future, at a conference perhaps. Even gamers who meet online and join forces to slay enemies may meet up at some point. One prominent player who was retired in real life made it a point to stop by cities where his guildmates lived as he traveled around the country. Those people are not just transient passers-by. The anticipation of and possibility for extended interaction affects how you behave online toward them.

Similarity: Birds of a Feather, Flocking Together

How does the Law of Attraction work online, with fewer visual and nonverbal cues that people typically rely on to form impressions? People have less to go on to determine how similar a partner might be to them. The law of attraction may cause many “false starts” and misperceptions. In a discussion forum, you might learn from Emily’s posting that she shares your views about conservation. Knowing little else about her, your proportion of shared attitudes is now a whopping

100 percent. If you had met her in real life, you - always the cognitive miser - would have presumed many more of her attitudes from her dress, her age, her appearance, her facial expressions, her speech patterns, and her accent. Your presumptions may have been wrong, but you would have formed an impression anyway - one that included some guesses about Emily's attitudes on many subjects. If she were wearing motorcycle boots and leather jacket, for example, your stereotype of bikers and their attitudes would leap to mind. The total number of Emily's attitudes you know about, or think you know about, would be much higher from a face-to-face meeting, so the *proportion* of shared attitudes would probably drop from that 100 percent.

Research on the exchanges between two people in a discussion forum illustrates how an attachment forms with very little to go on.¹³ "Rick" began the online acquaintance with "Janet" with the following:

Hi there! It's rare to find Chinese people on boards like these. Tell some stuff about yourself and I'll tell you some stuff about me and don't worry, I just want to make friends . . . nothing to lead to a relationship. Hope to hear from you soon.

His initial attraction to Janet as a friend was based on only two pieces of information: Janet was Chinese (as was Rick) and a participant on the same forum. So far, there was 100 percent similarity, and Janet responded immediately. Over the months, they exchanged more information, and the proportion of similar characteristics plummeted. Janet reveals she is a bookworm, watches TV, teaches piano, and is a terrible driver. Rick writes he is a car nut, kills his pet fish through neglect, and doesn't like reading. Not surprisingly, their messages got shorter and less frequent, and eventually stopped altogether. The level of interpersonal attraction slipped, right along with the proportion of shared attitudes.

Mutual Liking

The "you like me, I like you too" spiral plays out online with many different ways to show liking that don't require a warm smile or pat on the back. When someone clicks "like" on your Facebook post or gives a thumbs-up on an Instagram photo, you feel that sense of being valued and liked, much as you would in any other social situation. Even when you don't know the person, you sense he or she likes you, and that is powerful news.

The most important online tool to show liking is arguably simply attention. Clicking “like,” “favorite,” “follow,” or “thumbs-up” are clear metrics that indicate the level of positive attention. Responding to a person’s message in a group discussion, agreeing with them and supporting them, and referencing them by name, are also powerful cues and very rewarding to the recipient, especially when some of the other methods we usually use to convey liking are not available. You can’t smile, move closer, or nod, but you can say, “As Jack said . . .,” “Jasmine had the right idea . . .,” or “I like the way Juan explained things.”

The pattern I described earlier in connection with how face-to-face interactions, in which people tend to like best those who started out disliking them but then came to like them after getting to know them better, may play out differently online. It is so easy to drop out of an interaction and enter another that people may be less likely to give themselves a chance to experience that gain in liking. If someone shows dislike for you at the outset, you might feel little motivation to try a bit harder to win that person’s respect, because you could just start over somewhere else. The number of people “out there” with whom we can interact is so enormous that a single communication expressing dislike may be the abrupt end of the game. In real life, many of the new people you meet are not so easily dismissed. You may intersect with them because they live on your block or work in the next office, and you can’t just click your mouse to avoid them. The power of the “gain” online may have little chance to affect interpersonal attraction because you never get past that initial contact. As you will see later in this chapter, this is an important element in online dating.

The Profile Photo

The overwhelming dominance of physical attractiveness burst forth online once people could easily upload profile photos and videos to their online personas. The so-called level playing field vanished, and the impressions people make were once again dominated by physical appearance.

In a study of Facebook users, for example, researchers prepared fake profile pages and paired them with a photo of an unattractive person, an attractive one, or no photo at all. Subjects viewed one of the profile pages, and then answered whether they were willing to add the person as a friend, accept a friendship invitation from the profile owner, write on the profile owner’s wall, or “poke” the profile owner.¹⁴

Both male and female evaluators were more willing to initiate a friendship when the profile photo showed an attractive person, particularly if that person was the opposite sex. Showing *no photo at all* was better than showing an unattractive photo, especially to male evaluators viewing female profiles.

As in face-to-face settings, we also tend to think what is beautiful is also good. An attractive photo on social media will lead viewers to believe that the profile owner has many other positive traits - confidence, warmth, intelligence, and popularity. And that *positive treatment* effect may be affecting how people appear online as well. In one study, researchers picked out a selection of 100 online profiles created by men on a dating site, and rated the photos on attractiveness.¹⁵ Then they separated the text descriptions in the profile from the photo, and asked their female subjects to rate photos and text individually.

Even though none of the female evaluators judged both of the two parts of any individual man's profile, the ratings for photos and text were highly correlated. That is, photos judged as highly attractive had profile texts that were also thought to be appealing. The men with attractive profile photos seemed to exude confidence and other positive traits when they crafted the text for their profiles, perhaps because they were accustomed to others responding positively to them.

Popularity

Popularity is related to physical attractiveness, but it may not be so obvious when you meet someone for the first time in person. At a party, you might notice that one especially attractive individual is getting a lot of attention, suggesting high popularity. But at work, in class, at sporting events, and many other venues at which you might meet someone, a person's popularity may be unclear.

On social media, however, the number of friends or followers leaps out. In [Chapter 2](#), we discussed how the number of friends affects the impression you make, and that number provides some indication of extraversion and social attractiveness. But the relationship is not linear; a very large number of friends may make you seem somewhat narcissistic.

How do the measures of popularity that people can detect from your online profile affect interpersonal attraction? Researchers in Scotland put together fake Facebook profile pages that manipulated the level of popularity by altering some of those online behavioral

residues I described in [Chapter 2](#): the number of friends, the number of wall posts by other people, and the number of thumbnail photos of friends. The “popular” profile owners showed between 330 and 340 friends, and they were tagged in many of the photos on the site. For wall posts, the “popular” profiles included two posts written by the owner, and five added by others. In contrast, the profiles intended to portray unpopularity had 90–99 friends, were tagged in fewer photos, and had more self-authored wall posts. The profile photos for both “popular” and “unpopular” profiles were all moderately (and equally) attractive.

The subjects who judged these fake profiles clearly picked up on the popularity cues. Besides being judged as more popular, the “popular” profile owners were also thought to be more socially and physically attractive, more approachable, and more extraverted. The effects on the ratings of physical attractiveness are especially relevant. Instead of a person’s looks influencing our judgment of many other traits the person might have, we see online measures of popularity influencing our judgment about looks.

Self-Disclosure

Developing a close relationship with another person requires a certain level of intimacy, of self-disclosure. Gradually, you begin to feel comfortable enough with the other person to trust him or her with your feelings, your dreams, and your self-doubts, and to be confident that the other will not reject or blame you. Normally, to achieve this kind of intimacy, we rely on reciprocity. If you tell me something about yourself, I’ll tell you something about me. Over time, the exchange deepens and the two people disclose more and more information to one another. The dance of self-disclosure is a delicate one, however, and fraught with potential problems. If you pour out your deepest feelings to someone you just met too early or in a setting that seems inappropriate, the other person may think you’re unstable.

Computer-mediated environments promote disinhibition, a freeing of the usual constraints on human behavior. For instance, when clinical psychologists first began using computers in their offices, one of the applications, besides patient records and billing, was the computerized interview. Clients would sit at a terminal and answer questions about themselves, their problems, and their beliefs about their own behavior, and the computer would dutifully record the responses. The

computerized interview was controversial at first, though it was certainly a time saver. Many practitioners thought the client should be talking to a human being and developing a rapport, so even now, few use it. However, a strange thing started happening. Clients seemed to be more forthcoming when they were answering questions posed by computer compared with settings in which they were talking to a person who was jotting notes.

Do people disclose more about themselves online than they do face-to-face? The evidence is mixed, partly because on many surveys, people say they share more intimate conversations offline, with close friends.¹⁶ But several experimental studies confirm that people are more inclined toward self-disclosure in certain online environments compared with face-to-face settings. In one study, for example, students who had never met were assigned to work together in pairs to come to an agreement to the following dilemma:¹⁷

There is room for five people in the world's only 100% safe nuclear shelter. Excluding yourself and your family and friends, which five people in the world do you think should be given a place in the shelter in the event of nuclear war?

Pairs that discussed the problem through online chat disclosed more personal information about themselves compared with those who met face to face. This was especially true for pairs that were visually anonymous and unable to see one another through webcams. A feeling of anonymity, as we have seen in other contexts, can unleash more disinhibition.

In a follow-up experiment, those researchers manipulated the levels of private and public self-awareness in pairs communicating online. They made some pairs feel more privately self-aware during their typed chat by adding a video-conferencing picture of each participant on his or her own computer screen, but each was told it wouldn't be transmitted anywhere else. Watching your own image live onscreen certainly draws attention to yourself and your appearance. To manipulate public self-awareness, they mounted video cameras that pointed at each participant, letting them know that their partner could see the live feed and that they would meet their partner after the discussion was over.

Which condition resulted in the most self-disclosure? It was between the pairs whose private self-awareness was made very high, but whose public self-awareness was low.

The tendency for people to disclose more when they are typing on a keyboard - even when they know someone will be reading what they say - is an important ingredient in interpersonal attraction online. Yes, it can be an impersonal, cold-blooded medium at times. But it can also be what Joseph Walther describes as *hyperpersonal*.¹⁸ You sit at a computer screen feeling relatively anonymous, distant, and physically safe, and you feel disinhibited. Sometimes that feeling unleashes uncharacteristically aggressive behavior, as I discussed in the [last chapter](#). But in certain contexts, you will begin to feel closer to the people on the other side of your screen whom you have never seen, more so even than to the people in the next room. You may reveal more about yourself to them, feel more attraction to them, and express more emotions. At the keyboard you can concentrate only on yourself, your words, and the feelings you want to convey. You don't have to worry about how you look, what you're wearing, or those extra pounds you meant to shed. "The waist is a terrible thing to mind," as Walther suggests, and online you can reallocate your energies to the message.

This hyperpersonal nature of certain online interactions can also be especially relevant because you can endlessly idealize those personas with whom you are interacting. Someone you know only as "Moonlight" who has told you many intimate details of her life - but not her name, address, or phone number - is like a canvas with just a few iridescent brush strokes. You can fill in the rest of that minimalist artwork with your imagination.

Jealousy, Surveillance, and Internet "Creeping"

Yet another way in which online environments affect relationships is simply by providing much more access to information about what your partner is doing and thinking. For heavy social media users, this information can be very extensive and personal, ranging from photos of friends at the ball park to intimate posts on the relationship itself. Imagine a pair - Greg and Stella - who recently met at a party and are thinking about meeting again for a date. Both will almost certainly check one another's social media profiles first. And if their relationship starts to blossom, both will very likely do some monitoring of the other's activities as they appear on Facebook or other social media sites.

Research confirms that using Facebook actually contributes to feelings of jealousy and suspicion, in a kind of feedback loop.

The more monitoring Greg and Stella do, the more they will see ambivalent information that can cause concern and that then leads to more monitoring. Stella might add a photo of herself with a man Greg doesn't know, and he then tries to track down the man's identity. Or Marcy might comment on Greg's video, driving Stella to hunt for Marcy and learn more about her involvement with Greg.

A survey study of college students found a strong association between the amount of time spent on Facebook, feelings of jealousy, and jealous behavior¹⁹. Many participants in this study seemed to recognize the problem, with statements like this:

I have enough confidence in her to know my partner is faithful, yet I can't help but second guess myself when someone posts on her wall - it can contribute to feelings of you not really "knowing" your partner.

I was already a bit jealous and insecure, but I think that Facebook has definitely made me much much worse.

Certainly, partners can become jealous without Facebook, but the social media site exposes them to many more "triggers" that provoke jealousy, and they can linger over them without the partner even knowing. If the partners are already insecure, those triggers add up to more surveillance and exposure to ambivalent cues that make things worse. Compare this with a face-to-face setting in which Marcy approaches Greg with a warm smile in Stella's presence. Greg would immediately introduce them - as his sister, perhaps - eliminating that ambivalence that causes so much anxiety.

Social media can also interfere with emotional recovery after a breakup. After a split, people often check the ex-partner's profile, looking for signs of new relationships. In one study of this kind of post-breakup Facebook surveillance, researchers asked subjects how they were handling offline and online relationships with the ex-partner and how much distress they were feeling.²⁰ About 57 percent said they remained Facebook friends, and over 90 percent of those people said they could still see all their ex-partner's photos, wall posts, comments, and status updates. Even if they unfriended the ex-partner, or if the ex-partner unfriended them, they could still see the public content of the ex-partner's profile.

To assess surveillance, subjects were asked how often they looked at their ex-partner's profile and friend list. The results showed that those who engaged in more surveillance were the ones who also had the

most trouble getting over the ex-partner, particularly for those who were no longer Facebook friends.

Terms such as “Facebook creeping” and “Facebook stalking” have entered the lexicon to describe that kind of surveillance of partners, ex-partners, ex-partner’s new love interests, and anyone else. Blogger Emma Golden describes how she caught her ex-boyfriend’s latest girlfriend creeping on her own Instagram site.²¹ The girlfriend clicked “like” on one of Emma’s photos, quickly deleting it within a few minutes, but not until after Emma was able to take a screenshot for evidence. Emma confesses to creeping her rival’s social media sites “a bazillion times,” but knows better than to make such a foolish mistake by leaving behind any digital tracks. She even offers tips for stalkers, to make sure they tiptoe carefully.

Given the many differences between the way people approach, nurture, and end relationships online and off, we would expect that the online worlds in which finding Mr. or Ms. Right is the main purpose would hold some fascinating surprises. We turn now to online dating.

THE PSYCHOLOGY OF ONLINE DATING

“We use math to get you dates,” proclaims the fast-growing dating site called OKCupid. That site and hundreds of others like it attract people from around the world who want to meet someone special – for just a casual date, a quick fling, or a lifelong partner. Many specialize in certain tastes or populations, such as OurTime for people over 50, Intellectual Passions for intellectual types, Ruby Radar for business owners and professionals, or Fitness Singles for sports enthusiasts with active lifestyles.

Matchmaking is hardly new, as anyone who has seen *Fiddler on the Roof* knows. Engaging a third party to bring two compatible people together is also quite common in many cultures around the world. But the Internet introduces a fundamental transformation in the way matchmaking unfolds.

Who Uses Online Dating Services?

Attitudes toward online dating have changed a great deal over the years, and recent research shows that it is now definitely mainstream. Surveys by the Pew Research Center’s Internet and American Life Project find that one in ten Americans has used an online dating

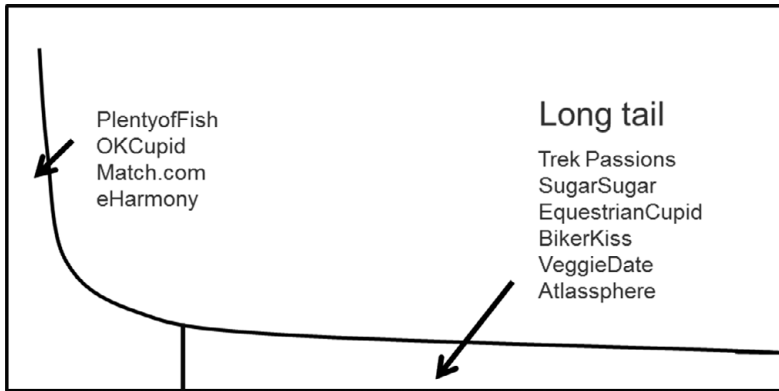


Figure 5.1. The “long tail” phenomenon.

site or mobile dating app, and that two thirds of those have gone on a date with someone they found on the site.²² For the “single and looking” population, online dating sites are even more popular, with 38 percent reporting having used this kind of service.

Although men entered the online dating world in larger numbers early on, as the services became more mainstream, the gender ratio became more equal.²³ Dating sites are most popular with people aged twenty-five to thirty-four, who have attended college, and whose income is between \$50,000 and \$75,000. But all age groups, ethnicities, and socioeconomic levels are participating. While still relatively small, the fastest growing demographic is the fifty-five-plus age group, comprised of both men and women who might be widowed or divorced. Numerous online dating sites attempt to attract that growing population of more mature daters.

The “Long Tail” Phenomenon

Dating sites attempt to appeal to potential customers in many different ways, leading to the proliferation of niche sites and what marketers call the “long tail” phenomenon (Figure 5.1). The cost of launching yet another dating site is low, so companies find that they can earn profits with niche products customized for even very small audiences. The big mass-market products no longer dominate as much and have given way to many specialty products with tiny audiences.

SugarSugar, for example, boasts that it is “where romance meets finance” and that the site is a discreet place to find Sugar Daddy and

Sugar Baby relationships. Cindy is a nursing student who needs help with tuition, and Jonathan's profile claims he is a "generous banker" who needs downtime with someone special and doesn't have time to go to bars. Not to be outdone, CougarLife caters to successful older women who are "looking for a young stud!" Ashley Madison blatantly promotes services to married people who are looking for something on the side, with the tagline, "Life is short. Have an affair."

Another way dating sites specialize is by focusing on bringing people together by virtue of their shared interests. Green Singles, for example, helps progressive singles in the environmental, vegetarian, and animal rights communities find one another. Trek Passions ("Live Long & Prosper") brings sci-fi aficionados together, and Tastebuds.fm matches people with similar musical tastes.

Why Is Online Dating Different?

It is true that matchmaking has been around for quite a long time, and people have used personal ads in newspapers to find potential mates for centuries. Particularly when circumstances create situations in which men and women are very unequal in number, or when they have little chance to meet, personal ads flourish. In the nineteenth century, for example, the San Francisco-based "Matrimonial News" published personal ads for men seeking mail-order brides, most of whom were back east. One read: "Lonesome miner wants wife to share stake and prospects. Please respond to Louis Drelbelbis in Grass Valley, California."²⁴

Yet online dating represents a fundamental change in the way people seeking love, romance, or marriage find one another, get to know each other, and develop relationships that may last a few minutes or a lifetime. Online dating involves a series of steps that differ significantly from what would happen in an offline situation.²⁵

1. Seek information about various online dating sites.
2. Register for one or more sites.
3. Create profile on the online dating site, and complete the "matching" questionnaire (if there is one).
4. Browse the profiles of other users.
5. Initiate contact with someone through the site's messaging service.
6. Receive contact from someone on the site.

7. Engage in computer-mediated communication.
8. Meet face-to-face.
9. Develop a relationship offline.

At almost every step, the psychological aspects of the process differ from traditional dating, sometimes dramatically so. Exploring the various options, for example, and choosing to register at one or more of them, introduces a shopping mentality that isn't easily replicated offline. Certainly, people can pick and choose particular offline venues where they are more likely to meet potential partners - clubs, for example. But the Internet dating sites offer far more choice and thus call for more research and decision making. While many sites are free and supported through ads, others charge substantial sums, so a decision to join carries financial implications.

Step 3 - creating a profile - is a bit like decorating your own specialty shop window that potential partners can view at any time. Unlike a social network profile, the online dating profile targets potential dates only, so the context doesn't "collapse" with all the different audiences - family, friends, coworkers, distant acquaintances, high school buddies, and professional contacts. [Chapter 2](#) explored the psychology of online impression management, and those findings are critically important to the online dating profile. As you might expect, physical attractiveness carries the most weight, and photos are essential. Research shows that people are unlikely to contact someone who doesn't post a photo.

Once registered, users browse the site for potential matches using keywords and categories, such as "men, 25-34, athletic, nonsmoker." For sites that use a matching algorithm, the choices would be narrowed to those that are theoretically compatible. Browsing takes considerable time and has no real equivalent in face-to-face settings. One study found that online daters spend more than five hours a week browsing profiles, and many don't enjoy it very much.²⁶ The process again involves a shopping mentality, and the choices are endless. One man said, "I tried looking for someone really specific - red hair, my age and location, green eyes, etc etc - turned up hundreds of matches. How am I supposed to choose? And why would I care about red hair anyway?"

Too Many Fish in the Sea?

The sheer volume of potential partners is a key ingredient that makes online dating so different from traditional dating. *Access* is exploding,

and online daters have opportunities to meet people they would never have met in real life. This is certainly an advantage, especially for people who work long hours, live in rural areas, or find themselves in situations in which the pool of potential mates is small. In college, for example, men and women have many opportunities to meet other singles face-to-face. But after graduating, those opportunities usually decline a great deal.

Online dating sites present people in a kind of catalog, in which participants are making side-by-side comparisons of hundreds or even thousands of profiles. On the mobile dating app Tinder, users just swipe through one profile after another on their smartphones, focusing mainly on the photo to decide who to message.

While such comparisons are useful when buying a laptop, they may not be as helpful for dating because people tend to prioritize characteristics that don't matter very much, simply because the dating site offers the tools to do it. The man who wondered why he was looking for redheads was using a strategy that at least narrowed down the pool to something more manageable, but the criterion was irrelevant. It's very difficult to construct search terms that will uncover, in a potential mate's profile, whatever it is that makes a relationship blossom into romantic magic.

Endless choices can also overwhelm people, so they experience choice overload and withdraw from the process. A classic study at an upscale grocery store in California showed that too much choice can baffle consumers. At a tasting booth in the store, customers stopped at tables to try some exotic jams. For some of the customers, the display offered a choice of six jam flavors, but for others, the choice was much larger - twenty-four different flavors. More people stopped at the display with twenty-four choices, so the large array attracted more attention. But just 3 percent of those customers actually purchased a jar. In contrast, 30 percent of the customers who visited the booth that offered just six choices went on to purchase.²⁷

For online dating, the huge volume of potential dates can also lead to inefficient searching and sloppy choices. Researchers in Taiwan asked subjects to describe the characteristics they thought they were looking for in a date, and then they were assigned to browse a small choice set (30 profiles), a medium-sized set (60 profiles), or a large set (90 profiles). The subjects who explored the large set tended to do more overall searching but were distracted by information that wasn't relevant. They also did a poorer job at screening out inferior choices that didn't match their initial preferences.²⁸

The sheer volume can also make people lazier when it comes to devoting effort to getting to know a potential partner. Armed with the knowledge that there appear to be so many alternatives out there, online daters may be more likely to abandon the relationship early rather than patiently get acquainted, one step at a time. They may also reject a partner for minor “infractions” early. One dater said, “He mentioned his mother in an email. That was enough for me to move on.” As I mentioned earlier, online daters may rarely get the opportunity for that psychological gain that comes with changing a partner’s impression from negative to positive.

A twenty-year-old student conducting a social “experiment” on an online dating site uncovered another cause for quick rejection.²⁹ She received lots of compliments from men, most of which she never answered, but then decided to see what would happen if she agreed with the compliment. When one man typed, “Your beautiful,” she replied, “thank you!! I know aha how are you?” He responded by telling her how vain she was, as did many other men in her experiment.

Initiating Computer-Mediated Contact

The dating sites offer people different methods to express interest in one another. Tinder features a chat application for the smartphone so users can engage in a synchronous chat session with a profile owner who attracts them and who agrees to communicate. On other sites, users send an email through the site to try to initiate contact with someone they find intriguing.

Creative site developers also offer more subtle ways to express interest. On Match.com, for example, users can “wink” at a profile, much as they could click “like” on other sites. Some users say they appreciate this lower risk way to initiate contact. One woman said, “I love winks. I like checking my profile to see who’s noticed me. It’s an ego boost, even if not all of them lead to dates.” Others have less favorable views: “Winking is wimpy . . . Online dating is already impersonal so the least you can do is send me an email expressing interest, intrigue, or curiosity.”³⁰

Avatars offer opportunities for “virtual dates,” in which the two partners create three-dimensional personas and interact with one another on screen. One study of this kind of virtual dating compared partners who communicated using a simple text-based chat application, with a small photo, with pairs who used “static,” “responsive,” or

“active” avatars.³¹ For the static version, the partners saw a large still image of two photorealistic characters sitting at a table, as though on a date. The “responsive” avatars were similar, except that they displayed subtle motions and gestures that made them appear as if they were actually listening or speaking. Eye blinks, nods of the head, and lip movements all added richer nonverbal cues to the interaction. The “active” avatars displayed those motions as well, but they also offered the partners opportunities to signal their own nonverbal cues by clicking on one of the buttons labeled “flirt,” “blow kiss,” or “touch hand.” After the virtual date, the subjects completed questionnaires to assess their perceptions about the partner.

How did these simulated nonverbal cues affect perceptions? Overall, the more the partners could exchange nonverbal cues, the better they liked each other and the more they disclosed about themselves. The pairs using active avatars were the most likely to say they wanted to develop the relationship further. Clearly, the nonverbal cues enriched the virtual date for these partners, just as they do in real-life settings.

This study also found an intriguing gender difference. The men tended to respond very favorably to the static avatar images, but the women did not. Instead, women were most affected by the simulated motion, facial expressions, and body language. Are men less sensitive to body language in face-to-face settings compared with women? Some research suggests that this is the case, and it seems the difference carries over to the virtual world.

Why not just use video chat services such as Skype for a virtual date? Some online dating sites offer this option, in a speed-dating format, for example. SpeedDate boasts that there are “3,360 Singles Online Now!” and the site will support several speed dates per hour, each 5 minutes long. People who connect using the other computer-mediated communication tools will sometimes arrange a video chat date before they meet in person. Actual research is sparse, but daters have decidedly mixed views. Webcam images are often unflattering at best, with dreadful lighting, messy backdrops, awkward camera angles, and annoying lags. Laptop and smartphone users, for example, will unthinkingly project the worst possible camera angle that showcases the double chin. Although nonverbal cues will enrich the interaction, they may still be a little “off” because of the computer setup. For example, the partners will be looking at the image of one another on the screen, not the camera lens, so eye contact is not the same as in a face-to-face setting.

One dater on PlentyofFish said, “If anyone insisted on Skype before meeting I’d tell them to shove it.” But others, especially women, are concerned about possible deception:

For me, Skype is very important. Anyone could hide behind a profile or phone call, but it’s near impossible to hide behind a video chat . . . Another reason I like Skype is that it weeds out scammers. - zendy³²

As I discuss throughout this book, computer-mediated communication differs from face-to-face communication, particularly when it is mainly via the keyboard. In the context of online dating, it allows people to be very strategic about the way they present themselves, as they craft their profiles and compose messages to initiate contact. Skype takes away some of those advantages, which may explain why it has not caught on as the preferred method to communicate with potential dates, at least initially.

The disinhibiting effects of online environments are also likely to lead people to make more intimate disclosures in this early phase of the relationship than they might have made if they first met face to face. All in all, the hyperpersonal nature of computer-mediated communication can be beneficial, with each partner idealizing the other to some extent and shaping messages in a way that will seem most attractive.

Deception and “Catfishing”

Zendy, the woman who wanted to use Skype for a virtual date, was concerned about exaggerations and outright lies. Are most profiles on the online dating sites reasonably accurate? Their owners should certainly attempt to craft a pleasing persona, but when does cosmetic retouching become deception?

Surveys of online daters show that the majority *believe* that others are misrepresenting themselves and that deception is the largest disadvantage for these services. In actual studies, however, most of the deception appears to be modest and not exactly outrageous lies. In New York City, subjects who already had created online dating profiles on one of the major sites replied to a Craigslist ad calling for their participation in a study of online dating.³³ When they arrived at the lab, they answered questions about how accurate they thought their own profiles were, and what they thought about deception in online

dating. Before they left, researchers took actual measurements of each subject's height and weight, and retrieved their true age from their driver's license.

Comparing their actual height, weight, and age to what was on each subject's profile, these researchers found that 81 percent were untruthful on at least one of those characteristics. People - especially women - were most likely to lie about weight, subtracting a few pounds when they posted it online. Men were more likely to lie about height - presenting themselves as a bit taller than they actually were. Not many lied about age, although one outlier turned out to be eleven years older than his profile indicated. In most cases, the lies about height and weight were rather small, and the participants were aware that they did some creative exaggeration on the profile.

Online daters could also use deception in their profile photos - not necessarily by posting a photo of someone else, but by using software tools to enhance the image. Photoshop's "spot healing brush tool" quickly removes any blemishes, and more advanced users can slim a waist, remove gray hairs, whiten teeth, and perform all kinds of magic. A study of this kind of enhancement demonstrated that less attractive people are most likely to fix up their photos to make them look more attractive, particularly women and people interested in a long-term relationship. The less attractive daters also posted fewer photos of themselves in their profiles.³⁴

Online deception does sometimes capture headlines, especially the major cases of wild masquerades. The documentary *Catfish*, about Nev Shulman's experiences with online deception, brought the term "catfishing" into the Internet lexicon. According to one of the characters, shipping live cod fish over long distances causes them to become lazy and inactive, so they became mushy and tasteless. Shippers found that putting a catfish into the tank would keep the cod lively, so they arrived in better condition. Now, "catfishing" refers to the behavior of Internet predators who post false information online for the purpose of reeling someone in, tricking them into a lengthy online romance or convincing the target to lend a financial hand. Just like the legend about catfish in the tank, the online catfish certainly reminds us to stay on our toes.³⁵ As online dating sites grow into big businesses, catfishing grows right along with it. Although most online daters keep their deception to a minimum, some do use the platform in devious ways.

Romance and Math: Do Matching Algorithms Work?

While many online dating sites rely on the users to search profiles using keywords or other filters, others boast that their own matching techniques will identify potential soulmates. [Chemistry.com](#) offers its “world-famous personality test” that helps you discover your own personality type and identify the best partners from the data. eHarmony patented its “Compatibility Matching System” and claims that it:

narrows the field from thousands of single men or single women to match with a highly select group of compatible singles - singles who have been prescreened on 29 Dimensions® of Compatibility.
(<http://www.eharmony.com/why/>)

These tests typically assess attitudes, beliefs, personality traits, relationship intent (casual dating, lifelong partner), relationship styles and skills, family background, expectations about an ideal partner, and other aspects that the dating site developers think might be helpful. [Chemistry.com](#)'s test asks about the length of the index finger relative to the ring finger, drawing on research suggesting that prenatal exposure to testosterone leads to a “masculinized” ratio, with the index finger clearly shorter compared with the ring finger.³⁶ As its name suggests, the founder of [Chemistry.com](#) argues that certain biological factors can help predict compatibility, including levels of male and female sex hormones.

Whether the matching algorithms successfully predict romantic attraction and successful long-term relationships is difficult to answer, partly because the companies keep their algorithms secret. Most rely heavily on similarity to identify potential partners, choosing ones that are similar demographically and in terms of certain attitudes and behavioral choices. For example, someone who loves mountain biking and athletic pursuits would be paired with others with similar preferences, not stay-at-home movie lovers. Similarity would seem an obvious choice as a matching factor because research on attraction consistently finds that people who are more similar to one another do tend to like one another more, as we discussed earlier in this chapter.

In terms of personality traits, research on 191 couples found that actual similarity is associated with higher satisfaction about the relationship, but only for women, not men.³⁷ That is the kind of evidence

the dating sites use to argue that similarity is important, but the conclusions are shaky. For instance, those happily married couples could have become more similar to one another over time, as an extraverted wife persuades an introverted husband to step out a bit more. The evidence that we can *predict* who will form long and happy relationships based on detailed questionnaires about attitudes and personality traits is weak at best.

Matching is also more complicated than just comparing scores. For example, the algorithm might comfortably pair people who were high on agreeableness, one of the Big Five personality traits, and those pairs might agreeably meet and be attracted to one another. But how would that algorithm find matches for people who score low on that trait? Would two disagreeable people make a happy couple? How about people who score high on neuroticism or narcissism?

Some sites apparently use complementarity for certain traits, rather than similarity. At PerfectMatch, for example, Allan turns out to be “SCTE” based on the results from the site’s matching system, which according to the site, stands for “Structured, Compromising, Temperate, Extrovert.” The algorithm matches him with Jane, an “FDHE,” which stands for “Flexible, Dominant, Hot, Extrovert.” In this case, the theory proposes that a “structured” type will be attracted to someone who is “flexible.” Evidence that complementarity can be used to predict successful relationships is lacking, however, even though intuitively it might seem to be a promising approach for certain traits.

Whether or not a dating site uses the results from questionnaires and surveys for matching, all sites have access to a wealth of information on registered users from their own behavior on the site and the information they provide. Many use a recommender system that attempts to predict whom you might find attractive from your own past behavior. Just as Pandora continually refines the music selections it plays for your personal radio channel based on your thumbs-up or thumbs-down, the dating sites can easily draw on their own “big data” to offer selections you also might like. Similarity to your previous choices is the most common approach, but the dataset is so huge that the software can also draw on a treasure trove of data that you supply.

The online dating sites offer a service that brings together people who, at the very least, share an interest in meeting a potential romantic partner and are geographically close, and those similarities in themselves are helpful. Some also screen out people whose test results indicate they may be unsuited to *any* partner, so the remaining

pool - however large - contains at least minimally acceptable partners. The most reliable predictors for whether an enduring and satisfying relationship will take hold between two people can be observed only *after* they meet, not before, in their interactions and mutual attraction. Perhaps it is not that surprising that matching algorithms may not be very useful to find that one "soulmate" in the enormous universe of online dating profiles.

One type of matching that may yet make an intriguing contribution to online dating comes from research in evolutionary biology. The biological basis of mate selection is drawing considerable interest, and some findings may shed light on why some people are attracted to one another, and others are not. For example, the reason that men tend to stress physical attractiveness in their choice of women, and women put more emphasis on social status and earning potential, may be partly rooted in evolution. Physical attractiveness generally signals good health and reproductive fitness, a promising sign for a man looking to reproduce. Social status and earning potential signal the ability to protect and provide for a family, something a woman would want in a man who fathers her children.

Some preliminary research also suggests that human beings, like most mammals, may be influenced by olfactory cues that signal a promising mate. One candidate cue involves genes that control *major histocompatibility complex* (MHC), a portion of the immune system that also happens to affect a person's scent. In one study, women preferred the odor of T-shirts that had been worn by men whose MHC was most different from their own.³⁸ That would make evolutionary sense because the children of two people with very different genes involved in immunity would inherit stronger immune systems.

In another investigation, women's sexual responsiveness to the man with whom they were romantically involved was partly dependent on how similar their genes for MHC were. The more similar, the less sexually responsive the women felt to the partner. Those women also reported more attraction to *other* men, especially when they were ovulating.³⁹ Here, an evolutionary explanation is that it deters inbreeding, so that people who are too similar to one another on this particular genetic trait are less likely to find each other attractive. Olfactory cues, of course, are not transmitted on the Internet, so if they play any role in interpersonal attraction, their effects would emerge only in a face-to-face setting.

THE INTERNET AND THE MAGIC OF “INTERPERSONAL” ATTRACTION

Science still has a long way to go to dissect the magic of interpersonal attraction and to predict when, where, and with whom it will happen. The “with whom” might even be “with what,” as the movie *Her* explored. A lonely writer, played by Joaquin Phoenix, works as a letter writer, composing artful and poignant missives for people who have little time or inclination to write themselves. He purchases a new computer with an extremely advanced operating system that communicates with him via text messages and with a sexy female voice (Scarlett Johansson). The man falls deeply in love with “her,” even though their only communications are computer mediated.

The movie is fiction, of course, but some people are also becoming quite attached to their “invisible” boyfriend or girlfriend, with whom they communicate only through texting or voice mail. Launched in 2013, the InvisibleGirlfriend and InvisibleBoyfriend services offer, for a monthly fee, realistic communications with an imaginary person, one whose characteristics subscribers themselves make up. You can choose any name for your online significant other, and describe the person’s appearance and personality traits.

Once texting begins, things can get quite personal very quickly. On first glance, one might suppose the “person” at the other end is computer generated, but the thoughtfulness and detail in them shows they are not. In fact, real people are on the other end. Codeveloper Matt Homan said, “When we first started this product, we were playing around with the idea of using chatbox artificial intelligence, but it just wasn’t real enough.”⁴⁰ Instead, the service crowdsources those text responses to workers around the world who answer each text with their own words. Your invisible boyfriend or girlfriend is actually more than one person.

Homan asks subscribers to review the “product,” but for many, the interactions feel a bit too real to be called that. Time will tell how attraction plays out in this new space, but judging from the psychological research on the hyperpersonal nature of text-based environments, some people will find such relationships very satisfying.

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ALTRUISM ON THE NET

THE PSYCHOLOGY OF PROSOCIAL BEHAVIOR

Struggling to build a new sanctuary for sick or injured farm animals in Australia, Pam Ahern turned to the Internet for help. She launched her campaign on the online crowdfunding platform [Chuffed.org](#), and within just three days, she reached her initial goal of \$50,000. After two months, the campaign attracted support from people in fourteen countries, and donations topped \$162,000. Ahern said, “I was absolutely blown away with the kindness, generosity, and belief people have shown for our work.”¹

RANDOM ACTS OF KINDNESS: INTERNET STYLE

The news rarely carries stories of how humans behave kindly, even nobly toward one another on- or offline. While stalking, cybercrime, mass protests, or pornography grab the attention of journalists, the less-sensational human interest stories might be treated more as filler for the back of the magazines. Yet behind the scenes, random acts of kindness occur regularly, and people might be surprised to learn how altruistic people can be when they enter certain online neighborhoods.

As we discussed in [Chapter 4](#), on aggression, some online environments unleash an alarming level of toxic disinhibition, flaming, and hate speech. But we also find a considerable amount of *prosocial behavior*, which - in contrast to antisocial behavior - describes actions that benefit people other than oneself.² Motives range from the purely altruistic to calculated self-interest, or a combination of both. But the positive contribution such behavior makes to the online world is very welcome. Three areas in which the Internet has been

especially prominent are volunteerism, fundraising and crowdfunding, and online support groups.

Volunteerism

The net has a long history of volunteerism, and people freely give their time to answer random questions, maintain servers, tutor kids, edit Wikipedia entries, offer cooking tips, and write reviews. People send speedy replies to calls for help - right alongside the seedier and meaner bit streams.

People on the net are willing to help one another in small and sometimes very large ways. Helpful replies to requests for information are extremely common, and the willingness of so many to provide assistance is one of the main reasons people participate in discussion forums. For example, on Yahoo! Answers' Homework Help topic someone asked, "What is the national costume or traditional clothes in Indonesia?" Within minutes, an answer appeared, citing "Batik and Kebaya. They are usually bright and colorful. Also, I think that they wear a sari. I hope that helped a bit!"

Technological advances have taken the Internet's role in volunteering to a whole new level, and one transformational change involves global databases, which resemble online dating sites. On these sites, nonprofits can post their needs, and volunteers can easily locate opportunities to contribute in meaningful ways. The objective of Volunteermatch.org, for example, is to "bring good people and good causes together." Visitors can browse entries under headings such as human rights, animals, children, or arts and culture, looking for something that might match their particular skills and passions. The Believe in Tomorrow Children's Foundation has a posting to attract talented bakers who can help make cookies for families in the local area. Or volunteers with teaching experience might be interested in the many organizations that offer mentoring and tutoring to students. The net gives these charitable organizations entirely new ways to vastly improve their volunteer outreach and recruitment efforts.

Volunteering is also at the heart of projects in which the focus is on user-generated content where people create valuable information goods that can then be widely and freely distributed online. Wikipedia depends on unpaid editors to write and update the millions of articles in its encyclopedia collection, and many of them spend a considerable amount of time doing just that. YouTube is awash with helpful videos

contributed by amateurs who volunteer to show you how to trim your bangs or locate studs behind drywall.

iFixit is another kind of encyclopedia, one that collects repair manuals written by technicians who also answer questions. These volunteers promote conservation and urge people to “ditch the throw-away economy,” reduce e-waste, and repair your gadgets yourself.

Another growing volunteer activity involves citizen science, in which amateurs can contribute to many different kinds of research projects and data collection.³ For example, the Berkeley Open Infrastructure for Network Computing (BOINC) project at the University of California at Berkeley offers scientists a means to tap the unused processing power of home computers that sit idle much of the day. SETI@Home is one example, and scientists need the extra power to analyze radio telescope data in the search for extraterrestrial intelligence (SETI). Evidence is mounting that the conditions needed for life may be quite common in the universe, but the computing resources needed to analyze data from telescopes is enormous. Millions of volunteers from more than 200 countries participate in the SETI@Home project, creating one of the most powerful supercomputers on the planet.⁴

Scientists also draw on volunteers around the globe to contribute their time and skills to solve puzzles that computers can't solve. These efforts are called crowd science and they are earning a great deal of attention from scientists who need help tagging images, translating documents, or performing other work that is still best done by human beings.⁵ Zooniverse.org is one of the largest platforms for crowd science projects, where hundreds of thousands of volunteers contribute their time to help researchers with projects that could not be conducted without them. One project, for example, asks volunteers to get to know individual humpback whales by viewing images and identifying features such as the markings on the underside of their tails, which is the kind of task humans can do quite efficiently.

Fundraising and Crowdfunding

The Internet marries technology and philanthropy to dramatically change the landscape of charitable giving. Simple email, for instance, drastically reduced the cost of reaching out to potential donors who might contribute to a good cause. Once secure online payment systems were developed, people could make donations with just a

few clicks on a computer or by sending a text. Websites, blogs, and poignant videos that charities distribute through social networking sites attract even more attention.

The crowdfunding trend opens another new avenue for the Internet's role in prosocial behavior. The practice is exploding, along with the websites that support it and the fundraisers who use it. Firstgiving.org is one of the earliest crowdfunding platforms, working with nonprofits to help them plan and execute their campaigns. Actor Edward Norton promotes the site called Crowdrise.com, which takes an off-beat and often humorous approach to crowdfunding for good causes. It adds contests, social networking, and a community feel designed to appeal to younger donors. Fundraisers earn points for each dollar they raise or votes they receive from community members. Norton earned quite a few for running in the New York City Marathon to raise funds for the Maasai Wilderness Conservation Trust in Kenya.⁶

Kickstarter.com focuses on crowdfunding for creative projects in art, film, music, and design, drawing donations from millions of people around the world. Filmmaker Jeremy Saulnier received more than \$35,000 to make *Blue Ruin*, a film that won an award at the Cannes Film Festival. Rob Thomas launched a campaign on Kickstarter to crowdfund "Veronica Mars," the detective series that was cancelled. Adoring fans contributed over \$5 million.

Perhaps most surprising is the success of many crowdfunding efforts to raise money for individuals who are not famous but who can use the Internet to make a compelling case. When Kelli Space graduated from college, she struggled to repay many thousands in student loans. Panicked, she decided to start a crowdfund and received \$13,000 from total strangers around the globe. In some ways, these personal crowdfunding efforts resemble the barn-raising events of yesteryear, in which neighbors helped out a family by supplying the labor to build the barn. A major difference, however, is that these virtual barn raisers tap the enormous power of the Internet and its worldwide reach.

Small loans also help struggling entrepreneurs build a profitable company, and the trend to crowdfund start-up funds is growing, especially for underdeveloped countries. These investors typically receive little or no interest, and defaults are common, so their "investment" is closer to altruism. Researchers find that appeals are especially effective if they stress the prosocial side of the new business. A study of Kiva.org, one of the largest crowdfunding platforms for microloans, found that

investors were drawn to those that included more human interest language, with words such as family, cousin, friend, or baby, but less so to appeals using language that emphasized the profit motive.⁷

Despite its early successes, the future for crowdfunding is unclear. With so many websites and projects to choose from, donors might begin turning away rather than try to sort through the volume. A few high-profile “bad apples” with deceptive projects might also sour donors on the concept. For this moment in time, however, crowdfunding is an amazing phenomenon that drives charitable giving toward the very long tail.

Internet Support Groups

You need visit only one of the many online support groups to see how often people will share even very serious and stressful problems with an unknown and unseen audience, reaching out for caring and comfort. A man on one of the first such forums shared his anguish about a woman who rejected him because he had cancer⁸:

What she said hurt me very much. She asked questions like “Is it contagious?”, “Don’t all cancer’s reoccur [sic]?”, “You can’t have children if you have cancer can you?” and “I don’t want my children to have cancer.” I was upset. I know that partners have to go through some grieving but I could tell by her questions that this was a major concern for her. Soon after that the relationship ended. She wanted to be “just friends” What hurt me so much is that she made the decision solely on one thing. My health history.

Several replies followed, including this one:

How lucky for you that this woman is no longer in your life. You said she was intelligent, but any intelligent person knows that cancer is not contagious and often does not recur . . . You will find the right woman, but it will help if you have the confidence that you have so many good qualities to offer - you will shine! Someone will grab you up - you’ll see!

Online support groups are flourishing on the Internet in Facebook groups, discussion forums, Google Hangouts, and many other online environments. They spring up to support people who share any conceivable disease, personal problem, or other stressor, and their members come together to exchange information and provide emotional support.

The phenomenon of online disinhibition, particularly in asynchronous text-based forums, make these support groups a natural fit for people to communicate in a hyperpersonal way. They can join anonymously to protect their identities, using pseudonyms or initials. They can take time to craft the messages they send to group members, and the tone of those messages matters. One study of messages posted in a forum for cancer survivors found that longer messages with fewer second-person pronouns (you, yours, yourself) were more likely to receive a reply. And group members were less likely to respond to messages dripping with positive emotional words such as “love,” “nice,” and “sweet.”⁹

The status-equalizing effects also contribute to disinhibition. The man with cancer might be a portly CEO or a plumber, and the person responding might be a retired grandmother or college professor. The group members are invisible to one another, so physical appearance doesn't enter the equation.

How effective are these online support groups? Testimonials abound, and just being able to find other people with similar problems may be an important factor, especially if the problem is an obscure one. One example is Tourette syndrome, with symptoms that include excessive nervousness, hyperactivity, tics, quick reflexes, impulsiveness, and explosive cursing. Not very much is known about the disorder, and some people with mild cases are ambivalent about taking any medication for it because it slows them down. One man, for example, experienced violent tics since childhood and had difficulty holding down a job. His condition, however, actually helped him become a jazz drummer of some repute because of his wild improvisations and musical creativity. People who suffer from an unusual disorder, such as Tourette syndrome, or who have relatives who do, can easily find a supportive online community.

Research on the effectiveness of online support groups yields mixed results, but some controlled studies do confirm their value in certain situations. For example, patients suffering from depression were randomly assigned to an online support group, an online support group supplemented with an online training program, or a control group that did not participate in either one. Over time, the patients who engaged in the online support groups showed fewer depressive symptoms compared with controls.¹⁰

Another study compared cancer patients who participated in an online support group, a face-to-face group, or both. In terms of how

they valued their experiences, the patients who participated in both the online and offline groups benefited most, suggesting they were drawing on the best of both worlds. Comparing just the other two groups, the face-to-face group valued the emotional support and insights they received from their group members more than the online-only patients. Those in the online-only group tended to rate their experience higher in terms of the advice they were able to get and in their ability to express their emotions.¹¹

One important drawback of online support groups is that people can't see nonverbal cues and, as a result, may misjudge the level of distress members are feeling. In one study, breast cancer patients were randomly assigned to either an online or face-to-face support group led by a therapist for a sixteen-week period.¹² The face-to-face sessions were videotaped and the conversations transcribed, so that the text could be coded separately for emotional expression and compared with how observers coded the video. The researchers found that the human coders looking just at the transcribed text from the face-to-face groups overestimated the amount of positive emotional expression compared with what the coders saw when they viewed the tapes. They also detected less defensiveness and hostility compared with the video coders. Clearly, nonverbal cues such as a raised voice or a tear in the eye can dramatically change the emotional meaning of a typed sentence. The disinhibiting effect of a text-based online environment may help compensate for the lack of nonverbal cues, however, so that people in online support groups may become more adept at expressing emotion through their typed words.

The act of writing out their problems and posting them to a group could be an important factor in the positive experiences that so many participants report.¹³ We know, for example, that people who write diaries describing traumatic events in their lives show lower levels of stress and anxiety and better physical health. The exercise seems to help people work through their own thoughts and put troubling experiences behind them.

The online support group often plays a special role for people who can't or prefer not to discuss issues with family or friends, perhaps because their feelings would cause distress to their loved ones. For instance, a study of online support groups for new mothers found that many expressed anxieties caused by uninvited visits from in-laws who they thought were too critical or picky.¹⁴

One study of online and face-to-face groups for parents of children with special needs found that the people who sought each of those environments out were rather different.¹⁵ The parents who turned to the online world for help reported more stress and believed that having a special needs child - such as a baby with Down syndrome - was more stigmatizing. They were either not seeking or not getting much support from their real-life friends and families, and they found much comfort through the Internet's support networks. Men, in particular, seem attracted to this anonymous environment. Almost half the people in the electronic groups were fathers, but almost no fathers participated in the face-to-face counterpart. Perhaps men find it easier to break out of traditional gender roles online.

Support groups within the anonymous Internet environment are especially well suited for people with concealable stigmas that are easy to hide and that the individual prefers not to disclose to family or friends. Examples include hidden eating disorders, drug addictions, unusual sexual preferences, or even diseases like lung cancer that are associated with behavioral choices. These are somewhat different from noticeable stigmas like obesity or stuttering, because people can hide them, even from close family members.

In *Here Comes Everybody*, Clay Shirky explains how the magazine *YM*, which appeals to young girls, had to drop its health and beauty discussion forum because anorexic girls were using it as an online support group.¹⁶ In this case, the girls weren't trying to help each other recover or offering emotional support for backsliders. Instead, the "Pro-Ana" teens were swapping tips about how to succeed at losing even more weight. One wrote, "You've made a decision - you won't stop . . . The pain is necessary, especially the pain of hunger. It reassures you that you are strong - can withstand anything - and that you are NOT a slave to your body; you don't give into its whining." Unfortunately, online support groups aren't only about recovery.

Although the online support groups may not reliably lead to therapeutic improvements, they do empower participants with information, self-confidence, and a greater sense of control. However, they are not immune to negative effects, as the Pro-Ana group demonstrated. For example, group members can pass around very bad advice and misinformation as easily as correct information, and some people might put off seeking treatment because of their

participation. They might also reduce their contact with family and friends as they become more involved in an online support group, even shutting off their real-world connections. People seeking help through an online support group should weigh the pros and cons and take their time finding the group that fits them best.¹⁷

WHY DO PEOPLE HELP EACH OTHER?

Debates about why people help each other are common, and many revolve around whether “altruistic” behavior is truly driven by selfless altruism or just self-interest. For example, one explanation argues that helping behavior arises out of social norms that tell us we *ought* to help when someone is in need, especially because some day, we may need help ourselves. The norm of reciprocity is a strong one that defines social obligations, sometimes very precisely, and it benefits society as a whole.

Another explanation for prosocial behavior has to do with maximizing benefits and minimizing costs. If you gallantly volunteer to donate blood, the costs would be a needle prick, time, and possibly fatigue. Benefits might include feeling good about yourself, impressing friends and colleagues with your selflessness, raising your own self-esteem, and, of course, actually helping someone else. Most of those benefits might involve self-interest, but not all.

Evolutionary biology contributes a third explanation for prosocial behavior: genetics. In the interest of ensuring the survival of our genes, we sacrifice for our children and the people with whom we share the most genes - our relations. We are also likely to have more genes in common with friends and neighbors in the geographic area compared with foreigners. Ethnicity, eye color, body type, or other subtle cues that might signal more shared genes may also play a role. Evolutionary biologists propose the concept of kin selection, which means that genes that tend to predispose people to behave altruistically toward their own kin will be selected for because they help shared genes survive.

To some extent, research supports all of these explanations, and they overlap more than they conflict. But people also differ with respect to their willingness to behave in prosocial ways and in *when* they are willing. Let's start with personality differences.

Helping Behavior and Personality

Some people seem more disposed toward helping than others, based on studies that assess personality. In particular, people who score high on empathy - the ability to share another person's emotions - are often the ones who generously offer to help others in face-to-face settings. Empathy turns out to be at least somewhat correlated with several of the "Big Five" personality traits, especially agreeableness. People who agree with statements such as "I sympathize with others' feelings" or "I make people feel at ease" seem to find it easier to empathize with people in need, and even take a few risks in doing so. Empathy is also positively correlated with extraversion, perhaps because outgoing extraverts have more success in socializing when they can see things from another person's perspective.

As you might expect, empathy is negatively related to neuroticism. People who are very anxious and easily stressed out are less likely to be able to put themselves into another person's shoes. Narcissism is also negatively related to prosocial behavior. Narcissists are self-centered and preoccupied with their own self-worth, so they, too, are unlikely to empathize with the feelings of other people.

Online, the personality types that seem more disposed to helping others in need are mostly similar. In one study, researchers invited women to participate in a Facebook discussion about informal topics with two other people in separate rooms. Those other two were actually confederates, however, and they used the same scripts for each real subject. The three women took turns posting a comment, and if they had nothing to say could just type "Pass." During the discussion, one confederate's script mentioned that she would like to get married but she wasn't legally allowed in her state, hinting that she was a lesbian. The other confederate's script then injected bullying comments, and they escalated to become quite harsh.¹⁸

Which types of women tried to stop the bullying in this online setting? More than 90 percent tried to intervene in some way, by changing the subject, telling the bully to stop, attacking the bully in turn, fostering discussion, or comforting the victim. The women who scored high on empathy were most likely to intervene, particularly by trying to change the subject. Extraverts were also more likely to try to stop the attack, but many of them chose a different method: launching an attack of their own against the bully.

How Does the Situation Affect Helping?

Relatively stable personality traits such as agreeableness or narcissism actually play a smaller role in helping than you might expect. It is the actual situation that matters most, and this is a key ingredient to how online environments affect prosocial behavior.

Research on the psychology of helping in face-to-face settings took off in the 1960s because of the shocking case of Kitty Genovese, which captured the news for many months in 1964. According to press reports at the time, she was returning to her New York apartment building when an assailant attacked her with a knife. As she screamed for help, dozens of people heard her and came to their apartment windows to watch, but none assisted her. No one even called the police for more than half an hour as she pleaded for help, slowly bleeding to death from stab wounds. The event haunted the entire country, and many blamed the New Yorkers' callousness. A recent investigation into the actual facts of the case suggest that misinformation and conjecture dominated those press reports,¹⁹ but its effects on social psychology research were profound nonetheless.

At the time, it was far easier to believe that normal people, like you and me, would have rushed to her aid and that there must have been some dreadful character flaw in all those heartless people who just watched from their windows. As the research progressed, however, it became clear that the actual situation at that apartment building contained many of the elements that reduce our willingness to offer help. It is true that some people are more altruistic than others in almost any situation, but all of us are affected by the environmental conditions. Under some circumstances, we will behave quite altruistically, and in others, we are far less likely to assist.

The Bystander Effect

One key feature of the situation that influences whether a bystander will offer assistance to a stranger is simply the number of people around. When many people are present, the chance that any one of them will help drops dramatically. In a classic study, Bibb Latané and James Dabbs demonstrated this by taking hundreds of trips in an elevator. When the researcher dropped a pencil or coin, the odds that someone would retrieve it for them were much higher when only one or two other people were present, compared with when the elevator was packed.²⁰ In other words, you are more likely to receive assistance

when there are fewer people around, not more. There may be safety in numbers, but not if you need help.

One reason for this bystander effect is that in a real-life situation, many of the bystanders in a large group may not even notice that someone needs help if they don't speak up or attract attention. On that elevator, you might be standing on the other side and not see that the person dropped a pencil. On a crowded urban street, a pedestrian falling into a faint might be overlooked by most of the bystanders hurrying by. In fact, some research suggests that helping may be less likely to occur in cities compared with less densely populated areas simply because of this "noticing" factor. Just the noise and commotion in crowded areas may make it more difficult for anyone in distress to attract attention. One study, for example, showed how the noise from a power lawn mower could decrease the tendency to help a person with a broken arm who drops a book.²¹ Apparently, the bystanders didn't even notice the cast when their senses were bombarded by the lawn mower's clamor.

Assuming a bystander does notice an event, the next step is to interpret it. You might see a person stumble and fall on a sidewalk, but your interpretation of that sight will affect whether you provide any assistance. If you see a whiskey bottle in the person's hand, you would interpret it one way. If you see a white cane you would draw quite a different conclusion.

Humans are highly social creatures, and another reason your chances of receiving help are lower when large numbers of bystanders are present is that people tend to rely on one another to interpret events around them. We take our cues about the relative seriousness of any situation from the others around us. In another experiment, Bibb Latané and Judith Rodin staged an accident involving a female researcher at Columbia University to find out whether the male subjects in the next room, who were filling out questionnaires, would rush to help. The woman handed the men some forms to fill out and then departed to her office next door. After a few minutes, she played a recording that clearly signaled an emergency, as though she had been standing on a chair to reach a high shelf and fell off, injuring her ankle. On the recording, she screamed, then moaned, "Oh, my God, my foot . . . I . . . I . . . can't move it."²²

When there was only one man in the next room hearing this simulated emergency, the chances that he would rush to help were high. Seventy percent of these men left their seats and raced to assist.

But when there were two men in the next room who were strangers to one another, the chances that either of them helped her dropped dramatically - to only 40 percent. The men were looking to one another to interpret the seriousness of the situation and, seeing few signs of alarm in the other, decided it was not very serious.

The same kind of thing happened in another experiment in which the researchers rigged a room vent so it would start pouring out smoke on demand. When a man sitting alone in the room filling out questionnaires saw the smoke, the chances that he would stop what he was doing, investigate it, sniff it a bit, and then report it were about 75 percent. When a couple of other men in the room were with him, though, the bystander effect becomes evident. As each one tried to stay cool and watch for signs of alarm in the others, the room fills up with smoke. Under these circumstances, the noxious cloud was reported far less frequently. Taking their cues from one another, they built a shared illusion that nothing was amiss even when the smoke started to make them rub their eyes, cough, and choke. These men elaborated on their interpretation by offering what they thought might be plausible explanations to one another. "Chemistry lab in the building," said one. "Truth gas," said another. No one suggested that it might be a fire.²³

Reduced Responsibility in Larger Groups

The sheer number of bystanders also affects the chance that a person in need will receive help because as group size increases, each individual feels less responsibility for offering to assist. Even if you notice the event, and interpret it as a possible call for aid, you still might ignore it because you assume someone else will step in. Of course, everyone will be thinking the same thing, so no one acts.

John Darley and Bibb Latané demonstrated this by manipulating the assumptions people were making about the presence of others during a simulated emergency. They invited students to participate in a group discussion on problems of urban life in which each person would sit alone in a separate cubicle, talking to the others over an intercom system, rather than in a face-to-face group. In fact, there was only one real subject in each "group," and one confederate who, unbeknownst to the subject, would soon have an emergency in his cubicle. Each subject was led to believe different things about the size of the group. Some thought it was just the two of them. Others

were told there were three people in the group, and still others thought they were in a group of six. They couldn't see the others, of course, but this was how Darley and Latané planted a sense of group size in their heads.

During the early part of the discussion the confederate casually mentioned over the intercom that he had epilepsy and city life seemed to be making him more prone to seizures. This set the stage for the sounds that came later: choking, gasping, crying, and then total silence. When that critical moment came, every person who thought he or she was the only one around to render aid came to the rescue. But that willingness to assist faded when the subjects thought someone else was around, and more than a third just ignored the incident when they thought there were several others who could take care of it.²⁴

The subjects who failed to help were not misinterpreting the seriousness of the event because they were taking misleading cues from others; there were no cues to take, no facial expressions to see. Instead, the bystander effect was due to the way responsibility for action gets spread a little thin when more people are around. Just as people feel less personally responsible for destructive acts when they are in a large group, they also feel less responsible to help another person. It seems we are almost calculating the amount of responsibility and dividing it by the number of people present.

Beyond Group Size: Time Pressures

Beyond the size of the crowd, several other aspects of the situation affect our willingness to help. One is simply time. People in a hurry, who are "late for an important date," are less likely to stop to help someone in need.

In a classic study illustrating this phenomenon, John Darley and C. Daniel Batson turned to the parable of the Good Samaritan, which is about a man on a journey who fell among robbers, who left him half dead. A priest walking on the road saw the man, and crossed to the other side. By and by a Levite came along as well, and also passed the man without offering help. Finally, a Samaritan approached the man and offered compassionate help, binding his wounds and then taking him to an inn. The Samaritan, whose social standing was far lower than either the priest or the Levite, paid the innkeeper to care for the man.

One might jump to personality differences in arrogance or elitism to explain the vast difference in prosocial behavior, but Darley and Batson thought it might also have to do with time pressures.²⁵ Compared with Samaritans, priests and Levites played important roles in their societies, with many pressing responsibilities. To test this hypothesis experimentally, they invited students at the Princeton Theological Seminary to prepare a short speech that would later be videotaped in another building on campus. Some were randomly assigned to talk about career paths for seminary students, while others were assigned to speak on the Good Samaritan parable.

To instill a feeling of being rushed for time, some students heard that the filmmakers “were expecting you a few minutes ago . . . you’d better hurry.” Others heard “It will be a few minutes before they’re ready for you,” to reduce time pressure. An “intermediate hurry” group was just told to “go right over.” In an alley on the way to the videotaping, a “victim” was slumped on the floor, coughing and groaning. Which students do you think stopped to help?

Only 10 percent of the students who thought they were late stopped to assist, compared with 63 percent, who thought they had extra time on their hands. The ones in the intermediate hurry group fell in the middle - 45 percent of those students offered help. Clearly, life in the fast lane is not very conducive to helping others.

Priming

Although the students working on the Good Samaritan speech helped a bit more than those crafting a speech about careers, the difference wasn’t significant. Later studies, however, show that priming people with prosocial themes does tend to increase their willingness to help, just as priming affects many other behaviors. The effect might even be unconscious.

For example, in one study subjects were asked to complete a “scrambled sentence test,” in which they saw a set of words arranged in random order and then had to try to make a sentence out of them.²⁶ For some subjects, the words included prosocial themes such as “to give,” “aid,” or “to lend.” For the others, the words were neutral (“piano,” “to read,” “landscape”).

After the test, and in a seemingly unrelated way, a confederate approached each subject to ask for a donation to help purchase textbooks for disadvantaged students. More than 80 percent of the

students who worked on sentences with prosocial words made a contribution, compared with 63 percent of the control group. In a follow-up study, this “prosocial priming” also led subjects to offer more help to someone passing in the hallway who dropped a load of books.

Mood

Are you more helpful to others when you’re in a really good mood? Or do you make yourself try to feel better when you’re down by doing some good in the world? Research on this is mixed, and both factors may be operating.

Experimental studies often find that when people experience events that make them feel good – finding some money, succeeding on a task, receiving a free gift – they do tend to be more helpful. In one classic study conducted when pay phone booths were still common on city sidewalks, the researchers induced a good mood in some people who entered the booth by leaving a dime in the coin slot for them to find. Others did not find any coins. They measured helpfulness by the “lost letter” technique, in which researchers plant an envelope that a stranger apparently left behind by accident. The subject can choose either to take the trouble to put it in a mailbox, ignore it, or perhaps toss it out. One handy feature of this technique is that it can be used in very natural settings – such as phone booths – and the letters that subjects mail will come back to the researchers, so they can analyze which conditions created more helpfulness.

In this study, the people who found the dime were far more likely to mail the letter, even if they had to buy a stamp to do it (eight cents, at the time). Studies such as this one, in which the researchers create a good mood in some way, often lead to more helpfulness.²⁷

Yet, people who are likely in a bad mood are also sometimes more helpful in certain settings. In another “lost letter” study, researchers put 100 letters under the windshield wipers of cars at the grand final game between two rugby teams from different towns in Australia, with a handwritten note that said, “Found near your car.”²⁸ The researchers identified which cars belonged to each team’s supporters by the streamers, posters, and stickers on the car. It was a hotly contested game, and more than 40,000 fans attended. Surprisingly, 58 percent of the letters placed on the losing team’s cars were returned, compared with just 38 percent from the winning team’s supporters. Perhaps the people who were rooting for the team that lost sought to put the

gloom behind them by doing something helpful. The winning team's fans may have been so excited that they paid less attention to the lost letters.

Who Helps Whom?

Who is most likely to receive help when they need it, and who will provide it? Gender, for example, matters, but in complex ways. Much of the early research on this topic showed that men helped more often than women did, particularly in the kinds of situations that involved bystander intervention in an emergency. For example, men are more likely than women to help a person who falls on subway stairs or who has a flat tire by the side of the road. Inspired by the Kitty Genovese incident, this line of research investigated many similar kinds of situations in which a bystander is offered the opportunity to render aid to a stranger in distress. Often, helping the stranger might involve some danger to the bystander. The majority of the research showed that men would help more often in cases like these.

But women are more likely to help in other kinds of situations, especially those that require emotional assistance or nurturance.²⁹ It seems that the willingness to help is partly dependent on culturally established gender roles, so men tend to leap into the fray in an emergency in which physical action and superior strength are a plus, but women tend to help more when nurturing and emotional support are called for.

In a study at a laundromat, for example, different helping patterns emerged. The researcher's confederates approached customers and asked them to help with either carrying a laundry basket or folding clothes. The male customers were more likely to volunteer their assistance to carry the basket, but the women customers helped fold more than the men did.³⁰ There are many subtleties to this gender phenomenon, of course, and people who do not adhere to traditional gender roles - more androgynous people - behave somewhat differently. More androgynous women, for instance, are less likely to provide assistance on traditionally female helping tasks but are more likely to help in ways that men do. The gender of the person who needs help also influences whether someone will help them. Men are more likely to help women, particularly attractive ones, while women tend to help men and other women about equally. Women also ask for more help than men do.

Another consistent finding is that people are more willing to help people who are similar to themselves in terms of age, race, culture, attitudes, or other characteristics. As we discussed in an earlier chapter, similarity leads to more liking, and we are more helpful toward people we like.

Lisa DeBruine conducted a study in which she manipulated similarity in facial resemblance by digitally blending, or “morphing,” each subject’s photo with that of a stranger of the same sex, so that the photo showed someone who looked somewhat like the subject.³¹ Then she asked subjects to play the “trust game” in which they could choose to trust or not trust another player to split a sum of money. The subjects sat alone at a computer and played the game with several different partners, none of whom was actually real. But they appeared either as the morphed image that blended the features of the subject and a stranger, or as one of a stranger that was left unblended. The subjects behaved in more prosocial ways toward the images that resembled their own faces, trusting them more on each turn.

We’re also more helpful to people we identify as members of our ingroup. A U.K. study of fans of football (or “soccer” in the United States) shows how this plays out.³² The researchers invited Manchester United fans to the lab, one at a time, to take part in a study about football teams. The subjects answered questions about which team they supported and why, how often they watch the team play, and other questions that were sure to make their allegiance to Manchester United very salient. Then the subject walked to another building to view a short video about football teams. On the subject’s way over, a confederate running by in shirt, shorts, and running shoes pretended to slip and fall, wincing in pain. Just as in the Good Samaritan experiment described earlier, the subjects could choose to help or not.

Did these Manchester United fans stop to help? That depended on the shirt the confederate was wearing. If he was wearing a team shirt for Manchester United, 80 percent of the subjects offered assistance. But if the confederate wore a plain shirt or one from a rival team (Liverpool), the subjects were far less likely to help.

PROSOCIAL BEHAVIOR ONLINE

As you can see, we know quite a lot about when and why people behave in altruistic ways in face-to-face settings. But how do these factors play out online? Some aspects of the online environment

appear to promote kindness and helping, while others may detract from it. Let's begin with the bystander effect.

Bystander Effects Online

Some of the early studies in which researchers put the subjects in a separate room to communicate with other group members by intercom hinted that the bystander effect will unfold online, just as it does in face-to-face settings. In some environments, it certainly appears to do just that. In 2008, a nineteen-year-old Florida boy told people on an online body building forum he frequented that he intended to commit suicide, and he posted a link to the live feed from his webcam in the forum, so they could watch. More than 1500 people viewed the scene, but none intervened until a seventeen-year-old forum member in India finally was able to alert the Miami police. By then, however, it was too late and the boy was dead. This incident is alarmingly similar to the Kitty Genovese case, except that the bystanders were all over the world - not watching the live scene from their apartments.

Many of those viewers might have just clicked the camera for a few minutes, then moved on, never really noticing that something was amiss. For those who did notice, many were convinced the boy was putting on an act, so they didn't interpret the situation as one that needed any intervention. They also were communicating with one another via chat as they watched, adding mocking comments. Although the bystanders could not see one another, they could draw conclusions about the severity of the situation from the behavior of others, much as the subjects did when they saw smoke pouring out of a vent and took their cues from one another about what to do.³³

Unlike the bystanders in the Kitty Genovese case who heard screaming, many of the online bystanders probably never interpreted the situation as a clear cry for help. This is one way in which bystander effects play out rather differently online, where ambiguity is heightened.

Bystander effects also play out in less dramatic online environments, such as the knowledge-sharing forums on topics such as finance, entertainment, or music. Researchers examined the sharing patterns in 333 different Yahoo! groups with almost 200,000 members³⁴ by posting a simple query to each group that read:

I'm so happy that I found this group. However, I have one question: Does anyone know how I can upload more than one picture at once. Thanks, Sam

The number of members in each group varied from just a handful to more than 10,000 members. As the bystander effect predicts, the researchers were most likely to receive a reply from someone in the small groups, with fewer than 100 members. Over one third of those queries were answered, compared with less than 10 percent for queries in groups with 100 to 250 members.

This study uncovered another intriguing feature of the bystander effect in online environments, because it also included queries to extremely large groups. The queries sent to those groups did not receive answers as readily as the ones sent to the small groups, but response rates were far higher than the medium-sized groups. However, the responses themselves were rather low quality in terms of how helpful they actually were.

Unlike face-to-face settings, the Internet easily supports groups of this size and larger, so the finding that the characteristics of helping might shift at this amplified scale is an important one, especially for businesses that depend on online communities for knowledge sharing. For example, managers intuitively assume that knowledge sharing works best when many employees are involved, so the more the merrier. But this research suggests that people in smaller groups, at least by online standards, may help one another in more meaningful ways.

Reversing the Bystander Effect?

Online, bystanders experience a rather different environment from a psychological perspective, in terms of physical distance, anonymity, self-awareness, visibility, and many other features. An intriguing study explored whether some of these differences could be tweaked in ways that might actually *reverse* the bystander effect that is so consistently found in face-to-face studies.³⁵

Subjects were invited to participate in a research project about “online communication.” When they arrived at the lab, they headed into separate cubicles with a computer and learned that they would be viewing posts from a real, ongoing discussion forum that had not yet received any response. They could respond if they liked, or just click “next message.”

The five messages were actually preprogrammed; the subjects were not actually visiting a live forum with real people in it. The messages simulated the personal stories of people who seemed rather distressed, to see whether subjects would be moved to respond in a prosocial way. For example, one simulated post mentioned thoughts of suicide, and another explained how her partner just learned his cancer had returned. One independent variable, as in most bystander studies, was the size of the group. The subjects were told that the forum was visited either by many people or by only a few. The subjects could see their own name along with the names of each person who was online in the “live” forum in the corner of the computer screen, along with the number of people in the forum (one for the small group, and thirty for the large one).

As the bystander effect predicts, the subjects who thought they were the only bystander in the forum were much more likely to respond to one or more of the messages, compared with subjects who thought there were thirty other people online. But these researchers added one other independent variable: public self-awareness. In addition to manipulating apparent group size, they also manipulated how noticeable to others in the forum each subject would feel, using a very simple technique. To make the subject feel more publicly self-aware, his or her name appeared in red on the computer screen, while the other name(s) were in black. The goal was to make the subject’s name more salient so the subject would feel more noticeable.

With this small change in the experiment - coloring the subject’s name red - the bystander effect was reversed. The subjects with red names who thought they were in a forum with thirty other people were *more* likely to respond to one of the messages, compared with those who thought they were the only bystander. Their names in red seemed to make them feel as if they stood out in the crowd and were more accountable.

The researchers repeated this study, but instead of coloring the subjects’ names red to induce public self-awareness in some subjects, they used a webcam. Those subjects couldn’t see the camera’s actual feed, just that it was pointed at them and its LED indicator light was on. The results were the same. The bystander effect was reversed when the subjects thought that the big audience in the forum might be watching them. They felt more accountable, as if their reputation were at stake. This fits the theory that people

sometimes decide to behave in a prosocial way after weighing the relative costs and rewards.

Mood, Helping, and Facebook

Mood affects our willingness to help in complex ways, as I discussed earlier. But how do online environments affect mood? Many of them trigger a positive mood, attracting visitors just for that reason. YouTube's funny pet videos draw millions of viewers, and online games can certainly lead to a better mood.

In one study, for instance, subjects in the treatment group played a popular casual game for twenty minutes, choosing among *Bejeweled 2*, *Bookworm Adventures*, or *Peggle*. During the session, the researchers took various physiological measures, and at the end, subjects completed a questionnaire to assess their mood states. Compared with control subjects who just surfed the net for the same period of time, the game players reported a better mood. They also showed changes in brain-wave patterns, consistent with improved mood states, and reductions in their heart rate variability - a sign of reduced stress.³⁶

Although certain environments appear to improve mood, others may do the opposite, and some research suggests that, overall, frequent Internet use is a mixed picture. One of the first longitudinal studies, for example, tracked people from the time they first started accessing the net in the mid-1990s. As time went on, those who used the Internet most often tended to show more depression, loneliness, and stress.³⁷ These negative outcomes appeared related to the way some people neglected their strong, face-to-face relationships as they spent more time interacting with distant acquaintances online or people they had never actually met in real life.

Much debate centers on Facebook and how that particular environment affects mood. Several studies suggest that heavy Facebook users may experience more depression. One study used "experience sampling," in which researchers texted subjects five times a day for two weeks, asking about their Facebook use since the last text message and about their current feelings of well-being, stress, and loneliness. They found that the more subjects used Facebook during one time period, the worse they felt when they answered the next text message.³⁸ One plausible explanation is that most people emphasize the upbeat in their status updates, so it may become depressing if everyone seems to be cheerier and more successful than you are.

A Facebook researcher along with two academic colleagues conducted an experiment in which they manipulated the news feeds of more than 600,000 Facebook users such that some saw more of the posts from friends that contained positive words (love, happy, joy), and others saw more posts that leaned negatively (sad, annoyed, worthless).³⁹ The randomly assigned users who saw more positive news about friends began adding more positive words to their own status updates, and the opposite was true for those who saw more negative posts. Their *actual* moods weren't assessed, however, so they may have been putting on a happy show for their happier audience or a sadder one for a sadder audience. (This study triggered ethical concerns and outrage among many Facebook users because they did not volunteer or consent to be subjects in such an experiment.)

While the way mood might affect prosocial behavior online is not clear yet, Facebook does encourage self-interest and a general egocentric outlook. Status updates and wall posts create mostly a one-to-many monologue, and that itself can promote a focus on self that is not very conducive to helping others. A study in Taiwan tested this out by inviting Facebook users to the lab.⁴⁰ For the first part of the experiment, some subjects were asked to log into their accounts and submit a wall post, but others were told the Internet was out so they couldn't log in. Then all subjects participated in an ostensibly separate study on decision making using the "dictator" game:

Imagine you are told that there is another, unknown person, in a separate room. The experimenter says that each of you have been randomly assigned to be the "initiator" in game, or the "recipient." You get the initiator role, and the experimenter hands you NT\$200 [-USD\$30]. The experimenter says you can keep as much as you want, and the recipient gets the rest. The recipient can reject the offer, but you will keep yours regardless. No one will know how much you kept for yourself or gave away. How much will you offer to this unknown recipient?

Generally, people in the dictator game don't offer an even split. But those who had just posted to Facebook were even stingier than usual. Their mean offer was more than 22 percent lower than that of the control group, who had not had that opportunity.

Findings such as this suggest that Facebook use does not bode particularly well for helping behavior, at least not for strangers. But other features of the site may be more promising for prosocial

behavior. For example, the people you identify as friends are not strangers. Presumably you already like them and they are similar to you in various ways, as I discuss in a later section. For instance, Facebook friends routinely respond to calls to help find housing, move furniture, or take care of pets. Wall posts may also promote some measure of public self-awareness, so you may be more likely to offer help. Posting a picture of that orphaned baby elephant you just “adopted” in Kenya is bound to generate quite a few likes.

Online Time Pressures and Microvolunteering

People in a rush for time are less likely to stop to assist in face-to-face settings, but what happens online? It is likely the same is true, with some intriguing differences. First, most Internet environments are asynchronous, which means that we can do something prosocial well after we hear of someone in need - at a time of our own choosing. Those students who hurried past the confederate coughing and wheezing on the sidewalk while on their way to make a videotaped speech about the Good Samaritan might have behaved differently if the event happened online. Then, after hearing about someone who needed help, they could first make the videotape, then log on with their smartphones to offer assistance. (Of course, they might be too late, depending on the circumstances.)

Another possible difference concerns the micro time slots we use to access the Internet, thanks to smartphones, tablets, and virtually ubiquitous mobile access. People are always filling short periods of spare time between their regular activities - waiting for a bus to arrive, a class to start, or a car wash to finish, for example. Some organizations find ways to tap the motive to fill these slots with something more worthwhile than a game or video by offering *microvolunteering* opportunities. For example, the BOINC platform includes many apps for smartphones so people with a few spare minutes can engage in one of those projects. Websites are springing up to help organizations offer very short-term projects - 30 minutes or less. On HelpFromHome.org, for example, the Open Elm Project encourages people to take a moment to record the sighting of Dutch elm trees on the Isle of Man in the United Kingdom, to help conservationists monitoring Dutch elm disease try to save that endangered species.

The Institute for Volunteering Research surveyed people who had downloaded the “Do Some Good” app offered through the Orange

telecom service in the United Kingdom to learn more about motives for microvolunteering.⁴¹ The findings suggest that compared with traditional volunteers, the microvolunteers are motivated more by the convenience and enjoyment of an activity that fills a chunk of spare time, rather than the altruistic desire to help a particular charity. Those charities hope that microvolunteering opportunities will attract more people to worthwhile causes, who might then go on to volunteer in more traditional ways. But it isn't yet clear that it works that way, as you will see in the next section.

Slacktivism

The Internet makes it very easy for people to support favorite causes, with as little effort as clicking a "like" button on the organization's social media site. But does offering this kind of token support make it more or less likely that people will offer more meaningful support?

Research on the *foot-in-the-door phenomenon* shows that people are more likely to agree to a large request if a smaller one precedes it. In a classic study, the researchers pretended to be volunteers for a safe-driving campaign in California, and they approached some homeowners to ask if they would be willing to put a tiny "Be a safe driver" sign in their windows. Two weeks later, they came back to ask if they could put a large and ugly sign in the front yard. Seventy-six percent agreed, compared with just 17 percent of the homeowners who had not been approached with the small request earlier.⁴²

Many charities are convinced that clicking "like" is the online equivalent of that foot in the door. But others think it leads to *slacktivism*, in which people think they've done their part with a small effort and earned a kind of moral license to stop contributing. In a *Saturday Night Live* skit, Seth Meyers quipped:

*Look, if you make a Facebook page we will "like" it—it's the least we can do. But it's also the most we can do.*⁴³

Some research that sheds light on how online token support affects our willingness to offer more meaningful support later suggests that a key ingredient is whether the token support is public or private. If your small support action is observable and your friends know you did it, you may be less likely to go the extra mile later because

you have already created the impression you wanted to create. However, if your action is private, impression management is not an issue. Instead, you may be more willing to do something meaningful because of cognitive dissonance and the desire to be consistent in terms of beliefs and behavior.

In one study that tested that hypothesis, subjects who signed a petition for a charity in front of other people were stingier with their time when asked later to do something more meaningful compared with subjects who signed the petition privately. The more meaningful support involved stuffing envelopes for the charity's mail campaign, and the subjects whose initial token was made privately offered almost twice as much of their time.⁴⁴ This finding might mean that charities can encourage more meaningful support if a person's token support - clicking "like," for example - is *not* broadcast to friends and family in a newsfeed or tweet.

ONLINE, WHO HELPS WHOM?

How do online environments affect who you are most willing to help? Just as in face-to-face settings, gender and similarity play a role.

Gender Effects

On the Internet, gender differences in helping style seem to parallel the results from the research on real-life helping. As I described, men help more than women do in situations that involve traditional male behaviors. One example is technical expertise, something people on the net need in abundance. Men are more likely to provide this kind of assistance, and many formalize it by staffing the help channels and discussion groups in their free time. Requests for technical assistance are some of the most common kinds of help calls on the net, and most are answered by males.

This gender gap is also present in another online environment: Wikipedia. One study found that more than 80 percent of the editors are men, a fact that is of some concern to the organization because it tilts the encyclopedia's content toward subjects that mostly interest men. However, women were far from silent. Although there are far fewer of them, the most active women on the site made larger revisions in the articles they edited compared with the most active men.⁴⁵

The situations in which women may be more likely to help on the Internet may be in the support groups in which people are sharing personal problems. A shining example was the late Glenna Tallman, who founded several online self-help support groups. As she herself was dying of acquired immune deficiency syndrome (AIDS), she participated in these groups very actively, sharing her own fears and experiences and trying to help others with theirs.

People like Us

While people are more willing to help others they think are like themselves in terms of race, culture, attitudes, age, or other characteristics, they may not have very accurate information about people online whom they haven't met in person. Many of the demographic features of the person asking for assistance might be obscure, and judgments about similarity might rely more on a convergence of attitudes and interests.

But on a social network, you will know more about how similar your friends are to you - how much you share political views, for instance, or tastes in music. In a study of Facebook users in the United Kingdom, subjects picked individuals in their network that they contacted weekly, monthly, or yearly. For each of those friends, subjects checked off the similarities in terms of shared religious beliefs, shared politics, same friends, support of the same sports teams, and other characteristics. They found that the more similar they were, the closer they were emotionally and the more contact they had. High similarity was also related to the subjects' willingness to donate a kidney.⁴⁶

People can often ascertain something about your attitudes just by the name of the Internet locale in which you meet. If you interact with people on a discussion group about golf, for example, you already know that you have something in common. The obscurity of some of the Internet niches allows people with very arcane interests to find one another, regardless of geographic distance - a fact that may further promote prosocial behavior.

Online environments offer some intriguing possibilities to manipulate many of the variables that affect helping behavior, either in very subtle ways or through outright deception, discussed next.

MANIPULATION AND DECEPTION

Few of us are above tweaking details of our online personas to craft a pleasing and likable impression, one that would garner more support from both friends and strangers. But sometimes this drifts into something more sinister, especially when it involves manipulating others into helping in large and small ways. Deceptive tactics and motives vary considerably, as the following examples show.

The Strange Case of Alex and Joan

An early and widely publicized case of online deception involved the Joan/Alex chimera, also known as the “case of the electronic lover.”⁴⁷ Alex, a New York psychiatrist, used the nickname “Shrink, Inc.” to chat on a discussion board. He began having online conversations with women who assumed he was a female psychiatrist. Titillated by the immediacy and intimacy of the conversations in which people thought he was a woman, he began logging on as “Joan” and created an elaborate and detailed persona to go with his new nickname. Joan was handicapped and disfigured but emerged as a model of the determined female who overcomes all odds to establish relationships and surmount her disabilities. Women chatted intimately with Joan and offered her all kinds of help, but when the most determined insisted on meeting her in person, Alex ended the charade. He first hinted at a serious illness and then said “she” was going to the hospital, where Alex would write her out of existence. Unfortunately, Alex embellished his masquerade with some telling details of time and place. Online friends wishing to send flowers discovered that the hospital had no record of “Joan.”

The fury over Alex’s deception was immediate, but the feelings of betrayal were complex and varied. He lied not only to solicit sympathy but to experiment with a female persona. This particular deception was an extreme case of a masquerade gone awry, but deception is not that difficult to achieve online. The Internet is an attractive venue for people motivated to deceive, such as those with a medical disorder called Munchausen syndrome.

Munchausen by Internet

Faking illness to avoid unpleasant chores or take a day off from work has a time-honored history. *Munchausen syndrome*, however, is far

more extreme, and people with the disorder will feign, exaggerate, or even induce physical or psychological injury to gain attention and take on the “sick” role for months or years.⁴⁸ In face-to-face settings, people with Munchausen might get away with it for a while, but absent obvious symptoms, family and friends may tire of the complaints and suspect faking.

Online environments, however, offer unparalleled opportunities for people with Munchausen to extend their manipulations. They can take time to craft and edit elaborate posts to online support groups, adding gut-wrenching stories and meticulous medical details drawn from online medical sources. They can also stage crisis events, miraculous recoveries, and final battles that end in death, when they disappear from the forum, at least under their current nickname.

In one case, Andrea, a forty-year-old mother, joined a support group for ovarian cancer victims, posting about her worsening abdominal pain. As time went on and support group members responded to her with a very sympathetic ear, Andrea announced that she had been diagnosed with stage 4 cancer. To bolster her story, she created sock puppet identities on the forum and posed as her own daughter “Brittney” and her daughter’s boyfriend, “Chris.” “Brittney” eventually posted that her mom had died and that she herself had now been diagnosed with cancer. When “Brittney” died, “Chris” took over the plot. The group finally became suspicious and confirmed it was all a masterful deception.⁴⁹

How can online support groups spot that kind of deception? Research suggests that the pattern of posting might offer some clues. For example, they may be very long and detailed even though the individual is describing some condition that would make it nearly impossible to sit at a keyboard for long. They may also alternate between near-fatal events and dramatic recoveries. The asynchronous, text-based, and relatively anonymous support groups are an inviting and welcoming environment for people with Munchausen syndrome, to the detriment of people who turn to online support groups with real need.

Charity Scams

Unscrupulous scammers manipulate people’s empathy online, relying on much of the psychological research described in this chapter

about why people willingly offer help. Major natural disasters are well known to bring out tremendous generosity, and scammers often take advantage of such events.

For example, when Hurricane Katrina struck the Gulf Coast in 2005, more than 4,000 Katrina-related websites sprang into existence, many of which, according to the Federal Bureau of Investigation (FBI), were fraudulent. A common trick is to launch a website or social media presence that looks very much like a legitimate charity, such as the American Red Cross. The scammers then send out email appeals to thousands of potential donors, with a link to the fake site.⁵⁰ These tactics not only drain donations away from the disaster's victims, they reduce trust, making it more difficult for nonprofits to raise money through online donations.

Another tactic is to pose as a victim of a well-publicized disaster or tragedy and share a heart-rending story through social media. After the tragic shooting in the Newtown school in Connecticut, a scammer in New York claimed to be the aunt of one of the victims to generate sympathy and collect donations.

How can people avoid falling prey to one of these charity scams? They are growing in number and sophistication, especially with the trend toward crowdfunding. They are also difficult to stop, partly because donors don't expect anything more than an email thank-you message, so may never know that they - and the charity they meant to help - were scammed. Donors should certainly check out the charity first, through sources that evaluate its financial health and transparency. They should also be very wary of following links in email, in which scammers use techniques described in this chapter. For example, the email might start by thanking you for your previous donation, tapping the foot-in-the-door technique. Knowing some of the tricks that scammers use to solicit donations online will help donors avoid the pitfalls.

Digital Manipulation

The online world is endlessly malleable in ways that face-to-face settings are not, and this characteristic opens up completely new opportunities to affect prosocial behavior. We know, for example, that people tend to like others who are similar to themselves and are more willing to help those people. While similarity can be manipulated in face-to-face settings in some ways - such as by wearing a shirt

emblazoned with the name of the sports team you are known to support - there are many more possibilities online.

Digital facial morphing is one example. As demonstrated by the experimental study of morphed images described earlier, people tend to behave in more generous ways toward someone who looks like them.

Immersive virtual reality offers even more opportunities for digital manipulation, especially to create controlled environments for research on human behavior. For example, researchers set up a virtual reality environment in which subjects, wearing head-mounted displays, found themselves at a bus stop on a city sidewalk lined with shops. While they explored the virtual neighborhood, they saw a car hitting a blind man crossing the street. The man dropped his white cane, fell to the ground, and said, "Help, I'm blind, can you please help me find my cane?" While some subjects ignored or mocked this virtual person, about 36 percent of the subjects offered some kind of assistance. The ones who helped also scored higher on compassion, agreeing with statements such as "When I see someone hurt or in need, I feel a powerful urge to take care of them."

In a follow-up study, subjects on the virtual sidewalk passed either a beggar asking for money or a businessman on his cell phone. Again, the subjects' score on compassion was related to their behavior in this immersive environment. The more compassionate subjects tended to stand closer to the beggar and gaze in his direction.⁵¹

Another study involving immersive virtual reality demonstrated that judgments of similarity are not just about appearance or attitudes. They are also about body movement. A virtual person who is facially similar to the subject and who mimics the subject's head movements (with a four-second delay) will be most persuasive. One might think subjects would easily detect that kind of mimicry, but they don't.⁵²

It is not a far leap to imagine an online fundraising campaign that taps the malleability of the digital world to incorporate features like these, individually tailoring the messages so that the person seeking help looks more like the potential donor, moves in a similar way, or wears a T-shirt of a particular team. Through the analysis of big data, combined with all the information you share with your apps and online services, organizations know quite a lot about how to influence your behavior. This chapter focuses on how online environments can promote prosocial behavior, but you can see that this kind of power can be applied in other ways that are far less appealing.

HOW MAY WE HELP YOU?

Psychologist John Grohol set up Psych Central on the web (psychcentral.com) to provide a wide range of resources to people looking for reliable information about psychological issues. He is not the only one who created a web presence for altruistic reasons. Many people provide some online service to others, not just show off their dog's pictures or their unpublished poems. Some of them spend hundreds of hours creating an Internet spot they hope will help someone out there.

Psychologists debate over whether altruism is primarily selfish behavior, in which the helper obtains rewards for helping, in the form of higher self-esteem, praise from others, a warm glow inside, or simply relief from the distress they feel as they watch someone else suffer. Some argue that truly empathic altruism really does exist, although it may not be the main reason people help one another. We know a great deal about why people behave in prosocial ways in some settings and much less so in others, and the Internet has features that affect us in both positive and negative ways. Fortunately for all of us, the good seems to outweigh the bad as a context for prosocial human interactions.

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7 THE PSYCHOLOGY OF ONLINE GAMING

My character is more “me” than me, or at least how I want to be. My elf is tough, strong, a can-do sort of person.

- Female, age thirty-seven, World of Warcraft player

I started Candy Crush to relax, but then my friends got on and we started a competition. Now it's a race to the next level.

- Male, age twenty-two, Candy Crush Saga player

Games have been an essential part of human societies for thousands of years, to teach skills, to earn rewards, to compete, or to escape boredom. Archaeological evidence suggests that human beings in some New World villages enjoyed dice games more than 5,000 years ago. The Royal Game of Ur, a board game still played in some parts of the world, dates back to 2600 BCE.

However, the computer, and later the Internet, transformed the essence of gaming. Now, you can play dice - and thousands of other games - with virtually anyone in the world, at any time of day or night, on a computer, smartphone, tablet, or video console. You can shoot enemy missiles, play cards, build cities, or team up with other players to bring down powerful bosses.

The term *video game* encompasses any kind of computer-based game, whether or not Internet access is required, and they share many characteristics. The most important feature is interactivity, which separates the video game from more passive media such as television, books, and web surfing. The *player* engages with the game, following its rules and recognizing its constraints. Beyond that, however, video games vary considerably, particularly from a psychological perspective.

TAXONOMY OF VIDEO GAMES

Just as it is not always clear how to categorize a book, movie, or song, it is a challenge to sort out video games into meaningful categories.¹ Is the movie a drama or comedy? Is the song bluegrass or country? Sometimes, media wind up in odd categories for unexpected reasons. Netflix categorized *Orange Is the New Black* as a comedy, despite its dark themes in a women's prison, because the company didn't want the show competing for Emmy awards against its dramatic blockbuster *House of Cards*.

Video Game Genres

The game developers sort their products into “genres,” such as those listed in [Table 7.1](#). These categories generally combine judgments about the game's themes and the nature of game play. In fast-paced *action games*, for example, players depend on quick reaction times to succeed. *Strategy games* draw on critical thinking skills rather than reaction time, and players can take time to make decisions.

Some games engage players for months or even years at a time, as they develop a character, build up resources, and join well-organized teams to explore and conquer the game world. Others test a player's accuracy and reaction time. *Spacewar!* was one of the first videogames, developed at MIT in the early 1960s. Its primitive interface enchanted players who competed to destroy each other's cartoon-like starships ([Figure 7.1](#)).

The *casual game* category has exploded thanks to the smartphones and social networks on which many of these games are played. For example, in *Candy Crush Saga*, players move candy pieces to match three in a row or column, and as they reach new levels in the game, achievements can appear in their Facebook status updates. The game mechanics also encourage a social approach because players who persuade their Facebook friends to play can progress faster.

The categories are fluid, however, and many games contain elements from more than one genre. Inside an adventure game, for instance, a player might encounter an activity that resembles one of the casual games.

Psychological Dimensions of Video Games

From a psychological perspective, the games differ along several dimensions. The companies that launch video games share two motives: to

Table 7.1. *Examples of video game genres*

GENRE	DESCRIPTION AND EXAMPLES	EXAMPLES
Action games	Require quick action, fast reflexes, and accuracy to overcome obstacles; includes first-person shooter, platform games, racing, and fighting games	Super Mario Brothers Burnout Paradise Halo
Adventure games	Slower paced, with game elements that emphasize exploration, problem solving, and a strong storyline	Myst Uncharted Grim Fandango
Action-adventure games	Hybrid that combines elements of action and adventure games	Assassin's Creed Legends of Zelda God of War II
Role-playing games	Players control one character and develop that avatar over a period of time; strong storylines	Final Fantasy Skyrim Diablo
Strategy games	Emphasize strategic thinking and managing resources	Civilization Starcraft Age of Empires
Simulations	Replicate real-life experiences and tend to follow real-life rules; include vehicle games, construction and management scenarios, and sport games; often used for training and education	The Sims SimCity Second Life Madden NFL FarmVille Business Tycoon Online
Massively multiplayer	Thousands play simultaneously, with team-based adventures, social interaction, team competitions, player vs. player duels, and support for guild structures. Most are massively multiplayer online role-playing games (MMORPGs)	World of Warcraft The Elder Scrolls Online EverQuest
Casual games	Short games with little or no storylines, played by casual gamers; include puzzles, casino games, board games, and word games	Candy Crush Saga Bejeweled Words with Friends Texas Hold'em Poker

make their games as “sticky” as possible so that players keep coming back and to attract more players. To affect human behavior in those ways, the designers must draw on fundamental psychological principles.

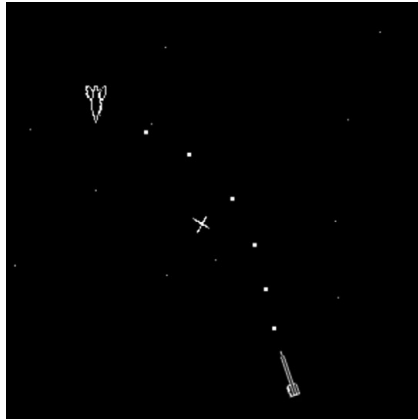


Figure 7.1. Screenshot from Spacewar!, an early video game developed by Steve Russell, Martin Graetz, and Wayne Wiltanen at MIT in 1962. (From <http://commons.wikimedia.org/wiki/File:Spacewar1.png>.)

One important dimension, for example, is the sheer complexity of the game and the cognitive effort required to achieve success. Some players will lean toward the casual games to keep that effort low, playing for a few minutes between classes or while watching TV. The learning curve is short, although it might take greater effort to actually succeed. In *Angry Birds*, for example, the instructions to play are just simple images showing how to use a slingshot to launch birds toward the pigs. But higher levels demand some knowledge of the laws of physics and materials science, as the pigs dig into concrete bunkers or ice shelters for protection.

Complexity raises the bar for newcomers, but it can maintain persistence in a game for many years. Vast databases are available for *World of Warcraft* players seeking highly detailed information about quests, gear, player stats, auction values, and other features of the game. Analyzing all this data absorbs the players, and the storylines create an intricate and endlessly entertaining game world. Some authors publish print novels that extend the dramas and build on the game's plot.

Another important psychological dimension is the degree and type of social interaction. While some games are single player, the multiplayer games support interactions through text chat, avatar body gestures, voice, or other means. On the *massively multiplayer online role-playing games* (MMORPGs) players can meet new people, trade items, and coordinate battle plans. On "life simulation" games such as

Second Life, inhabitants can dance, shake hands, and even create their own gestures with programmed scripts, complete with animations, sounds, and text chat. One script, for instance, mimics slipping on a banana peel. It starts with a squishing noise followed by an animation in which the character falls flat on the floor and says, "Oops!"

Multiplayer games also support asynchronous social interaction through social media messaging services. FarmVille players, for example, can send their Facebook friends a virtual "gift" - a new grapefruit tree or a small pond for their own farms. The social aspect of the games is enhanced even further as players post their game achievements in their status updates for others to admire.

A third psychological dimension is the level of competition among players. Some single-player games are low on this dimension, and the goal is mainly to achieve the next level. In others, players vie to move up a notch on the "leader board." In games that support teams, players might be tackling game world challenges rather than other teams, so competition among players is reduced. Games that support player versus player (PvP) competition or combat are highest on the competitive dimension.

The amount of adult-oriented action, imagery, and violence is another important psychological dimension. The legal environment in most countries relies on industry self-regulation to establish a taxonomy that helps parents and players assess game content and determine whether it is appropriate for different age ranges. In the United States, game publishers use the Entertainment Software Rating Board (ESRB) as the guideline for assigning a rating to games (Table 7.2). Rating systems in Europe differ somewhat, though they all attempt to protect minors from games that contain intense violence, blood and gore, and sexual content.

The rating systems used in the United States and Europe show some intriguing differences that reflect cultural attitudes. For example, a game with almost any sexual content would be rated "M" for mature in the United States but not in Europe. Judgments about violence also can be very subjective, especially when it is displayed in a cartoonish way. Angry Birds is rated "E" for everyone, with some versions also described as containing "comic mischief" and "mild cartoon violence." Grand Theft Auto earns an "M" rating with content descriptors indicating blood and gore, intense violence, use of drugs, and others. Violence is common in television cartoons for children, and that precedent is one reason Angry Birds gets a pass.

Table 7.2. Entertainment Software Review Board (ESRB) rating system used in the United States

ESRB RATING	AGE RANGE	DESCRIPTION
C	Early childhood	Intended for young children
E	Everyone	Generally suitable for people of all ages
E 10+	Everyone age 10 and up	May contain cartoon, fantasy, or mild violence; mild language; and/or minimal suggestive themes
T	Teen	Generally suitable for ages 13 and up. May contain violence, suggestive themes, crude humor, minimal blood, simulated gambling, and/or infrequent use of strong language
M	Mature	Generally suitable for ages 17 and up. May contain intense violence, blood and gore, sexual content, and/or strong language
Adults Only	Adults ages 18 and up	May include prolonged scenes of intense violence, graphic sexual content, and/or gambling with real currency
RP	Rating pending	Game has not yet been assigned a rating

Source: Entertainment Software Rating Board (ESRB). (n.d.). ESRB Ratings Guide. Retrieved from www.esrb.org/ratings/ratings_guide.jsp.

WHO PLAYS, AND WHY?

According to industry reports, 58 percent of Americans play video or computer games, and their average age is about thirty years old. Players are distributed rather evenly over the age ranges, with 32 percent under eighteen, 36 percent between eighteen and thirty-five, and 32 percent age thirty-six or older. About 55 percent of game players are males; 45 percent are women.²

The sector is experiencing explosive growth, partly due to the popularity of mobile games for smartphones. Worldwide, there may be half a billion or more people playing video games at least one hour a day. That means that together, people on the planet are spending 3 billion hours a week playing video games.³

Motivations for Gaming

Why do people spend so much time playing video games? Their motivations are as varied as the games themselves. The uses and gratifications perspective described in [Chapter 1](#) offers a valuable approach

to understand why people use media of all kinds. This theory emphasizes the active choices people make when they watch the evening news on TV or stay glued to a sports broadcast. The focus is not on what media does to people; it is about what people do with media, and why.

Applying this theory to game playing, researchers developed a scale similar to the ones used to assess motivations to view television, and then conducted focus group sessions and structured interviews of game players.⁴ Six principal motivations emerged:

1. Challenge
2. Competition
3. Diversion
4. Arousal
5. Fantasy
6. Social interaction

One person motivated by competition said, "I love trying to beat the guys next door or [my] brothers." In contrast, someone who plays for diversion said, "I like it because it's a break from studying and it's relaxing." A socially oriented player remarked, "I like it because it's just plain fun, just being with your friends." Challenge was the most common reason these subjects cited for playing games, followed by competition, diversion, arousal, fantasy, and social interaction, in that order.

Game developer Richard Bartle offered his own ideas about the psychological variables that affect the multiplayer environment, based largely on his own observations as an administrator of one of the MUDs, the early text-based game worlds.⁵ *Achievers* emphasize game-related goals such as building treasure or skill. A typical achiever would enter the game intent on mastering some puzzle or the conquest of some particularly difficult monster. The *explorers* enjoy mapping the topology of the game, learning obscure secrets about it, and gathering esoteric knowledge about how the game actually works. The third group is the *socializers*, who join primarily to interact with others. The focus of their interactions might be the game itself, but it could also include unrelated personal topics as the players come to know each other on a social level. Finally, a smaller number get much of their enjoyment by harassing others, often using the tools provided by the game to do it. On a game with player-killing enabled, these would be called, simply, *killers*.

Bartle freely admits he is no psychologist, but his analysis delves insightfully into the motivations and interactions of people he has

observed. Intergroup tension, for example, develops routinely among some player types because their motives for participating are quite distinct. Socializers and killers have the most fractious relationship because their motives for participating are, for all practical purposes, mutually exclusive. Remarking on the way killers treat the social types, Bartle points out, "They go out of their way to rid MUDs of namby-pamby socializers who wouldn't know a weapon if one came up and hit them (an activity that killers are only too happy to demonstrate), and they will generally hassle socializers at every opportunity because it's so easy to get them annoyed."

Research on player motivations in modern MMORPGs generally confirms what game wizards such as Bartle observed. In a study of 3,000 players, subjects rated the importance of forty different motivations, such as advancement, competition, socializing, relationship building, teamwork, discovery, escapism, and role playing.⁶ Some sample items were "Leveling up your character fast as possible," "Helping other players," "Doing things that annoy other players," and "Exploring every map or zone in the world."

Three main motives rose to the surface. The first was achievement and the desire to advance quickly, accumulating power and status in the game. People who played for this reason also tend to enjoy the analytical aspects of the game they played. Socializing was another major motive for playing, characterized by casual chatting, making friends, helping others, and playing on teams. The third motive involved immersion, in which people valued exploring the game world, finding hidden things, role playing, and escape from real life.

These motives were not necessarily mutually exclusive, and people might play for multiple reasons, at different times. After an achievement-driven raid, for example, players might enjoy socializing with guildmates in a virtual tavern.

Gaming and Personality

As you might expect, given the many reasons people play games, players' personalities also differ. Measures of the Big Five personality traits show relationships with player motives, game choices, and how they behave inside the game.

In one study, more than 1,400 World of Warcraft players completed the forty-four-item Big Five Inventory, measuring openness to experience, conscientiousness, extraversion, agreeableness, and neuroticism.⁷

They also completed an adapted version of the survey that was used in the study I just described, to measure motives for playing. Players who most valued socializing in the game showed higher scores on extraversion, agreeableness, and openness. Those who emphasized achievement in the game scored higher on extraversion and neuroticism, but lower on agreeableness, openness, and conscientiousness. And people motivated by immersion in the game world scored higher on openness to new experiences.

Personality also affects the kind of character each person chooses to play, and in many games the choices seem almost endless. To see how those choices unfold for different personality types, undergraduate subjects came to a lab to select the kind of character they would play.⁸ First they read descriptions of species common to many games, such as elf, dwarf, human, or orc. The elf, for instance, excels at archery and is comfortable with the natural world. Dwarves are sincere, gruff, serious, and hard working. The subjects also rated the characteristics of the character that would be most important to them, such as the avatar's appearance, mental abilities, or physical qualities. Before leaving, the subjects completed the Big Five Inventory.

These students chose characters that resembled their real selves. For instance, extraverts tended to choose gregarious species and said they most valued "charisma" - an attribute that draws others to them. People high on agreeableness often preferred characters that specialize in helping and healing other players, such as cleric or druid. Although some people chose a character with characteristics that deviated a great deal from their true selves, most people seemed to stick closer to home.

How does personality relate to the way gamers actually behave in the game? Are some of the "killers" Bartle described actually conscientious and agreeable introverts in real life? In general, no. As we have seen in other kinds of online behavior, people don't usually shed their true selves and invent a totally new personality, even if they transform into an evil elf, a bloodthirsty orc, or a powerful healer.

Another study examined how personality types relate to actual in-game behavior. More than 1,000 World of Warcraft players completed a survey to assess their Big Five personality traits.⁹ Then, researchers downloaded a huge dataset on their activities inside the game over a four-month period. As you might expect, people high in extraversion preferred group activities in the game, while the more introverted players leaned toward solo undertakings, such as questing, cooking,

or fishing. Those who had high scores on conscientiousness collected more vanity pets, which don't help in combat but take a certain amount of self-discipline to maintain. Fishing and cooking were their favorite pastimes, and these also require an organized and patient approach. Players high on openness to experience tended to create more characters and play on more servers for variety. They also did more exploring than fighting.

How did the most agreeable players behave? They are the ones who made good use of the game's tools to display emotion, such as waving, hugging, and cheering. They also preferred to explore rather than engage in combat. The least agreeable players - those with low scores on this trait - were the most competitive and aggressive, killing other players and spending more time in combat. On group quests, they also demanded more than their fair share of the loot, to the annoyance of the rest of the group.

Gaming and Gender

The stereotype of the gamer as a lonely teenage boy is belied by the statistics from the gaming industry, which indicate that women participate in games almost as much as men do, at least in the United States. However, men and women differ somewhat in the types of games they enjoy and in how much they play. A survey of college students, for example, found that women like online card games, puzzles, trivia quizzes, board games, and arcade-style games more than men. In contrast, the men prefer action games that feature sports, fighting, shooting, or racing, and also action-adventure and strategy games. The men also play games more hours per week compared with women.¹⁰

What accounts for these gender differences in game play? One reason may be that games are primarily designed by and for males, so they contain themes and activities that appeal to them or that they are especially good at. For example, men typically score higher on competitiveness, and many games make competition a salient component. Males also, on average, do somewhat better at mental rotation tasks, maze navigation, and target-directed motor skills, and these are the kinds of skills needed to succeed in many of the games. Navigating through a 3D virtual world, driving a race car, or shooting a mob that makes a sudden appearance are game activities that do tend to tap those abilities.

In the MMORPGs, males may make up as much as 80 percent of the player community, and here the game design may also turn off women. The male avatars - whether human, elf, or troll - appear physically very strong. As the players progress, they gain new clothing and armor, and these too emphasize strength. In contrast, the female characters appear more sexualized, with large breasts, tiny waists, and revealing clothing. One World of Warcraft player remarked that the images are a constant reminder that “this game is made for 13 year old boys, or men who still think like them.”¹¹

In 2014, a particularly brutal battle about sexism in the video game industry raged on sites such as 4chan and Reddit. “#Gamergate” began when some members of the gaming community viciously attacked a female game developer with death threats and harassment as she was trying to publish her own game. The plot thickened with charges of unethical journalism and other grievances mixed in, but misogyny was a consistent theme. The women who were the targets had to leave their homes in fear of their own safety.¹²

Gender Swapping in Role-Playing Games

For games in which people create an avatar and choose its gender, gender swapping is not uncommon. Women play a male avatar, for example, to avoid gender bias and the stereotypes associated with female game players, such as a belief that they are not truly engaged in the game or do not play well. Men may choose to play a female avatar to get more help from other players. Both men and women may choose to play the other gender with some of their characters for variety, but most often choose their own gender for the main character.

A study of people who played Final Fantasy as the opposite gender found some intriguing relationships between their views of themselves and their gender choices.¹³ These subjects completed the Bem Sex Role Inventory, which includes adjectives associated with traditional male and female roles, such as sympathetic, affectionate, child-like, assertive, analytical, and aggressive. On the inventory, subjects indicate to what extent they behave in that way. One female subject who scored high on masculinity said, “I wasn’t looking to find out who I was [by playing a male character], I wanted . . . people to look up to me . . . I bet I could’ve done it as a female character, but it would have been harder.” A male player rated as androgynous was interested

in the reactions of other people: “I wanted to see how people would react [to a female character controlled by a male player], but then I found out a lot of people did the same thing I did.”

Often, however, players who swap genders to see how others respond are surprised by the reactions. When a man in the same study disclosed in-game that he was a male playing a female avatar, the other players reacted very negatively, accusing him of lying. The friendships ended at that point.

Although more people are gender swapping in games and many players see it as a nonissue, the choice of your gender’s character can still be an important one. Pavel Curtis, a legendary figure in the early MUD world and architect of the socially oriented MUD called LambdaMOO, observes that a player’s gender is one of the most important variables affecting the way other players interact with you.¹⁴ Curtis notes that those who swap genders can be pressured to reveal their true genders and sometimes even asked to “prove” they are what they say they are. Like other Internet users in other online environments, game players find it disorienting to interact with someone whose gender is unknown.

GAME MECHANICS AND HUMAN BEHAVIOR

All games have rules, but video games involve far more than the simple rules of a board game. They rely on reams of program code that determine what players are able to do in the game world and what outcomes they can achieve. These underlying game mechanics affect the psychological aspects of a game, and even tiny tweaks can affect behavior.

Underlying Psychological Principles of Game Design

The game companies often hire behavioral scientists and data crunchers to analyze how game mechanics affect people’s behavior in the game, usually with the goal of enticing players to play more, click on more ads, bring their friends, or purchase more virtual goods (for real money). Social games such as FarmVille, for example, stress a constant stream of gift giving, sharing, and farm expansion to accomplish those goals. One thirty-one-year-old woman in Pennsylvania squeezes the game in between her responsibilities as a mother,

an accountant, and a college student: “It’s my little happy place to achieve goals and socialize. I have Farmville friends across the country and in China.”

Game developers rely on their own intuitions and experience, but they also draw heavily from principles of human behavior uncovered by decades of research that I discuss throughout this book. One example is *operant conditioning*, which B.F. Skinner identified in his classic studies of white rats.¹⁵ Organisms learn to associate any action that they perform with its consequences, and they will repeat behaviors that are followed by positive reinforcement. Skinner tested out many variations of this simple principle in the Skinner box - a cage equipped with a lever that an animal can press to deliver a food pellet into a small cup. Rats learn to associate lever pressing with the food reward and repeat that behavior over and over.

Skinner tested out many variations of this simple scheme, starting with *continuous reinforcement*, in which the rat receives a reward every time it presses the lever. This approach works best in the early stages when the rat is first learning the behavior. But Skinner found that later, once the lever pressing is well established, a partial reinforcement schedule is more effective. Rats are no fools. If they get a reward every time, they won’t bother to expend their energies on lever pressing if they aren’t hungry.

Skinner tried different partial reinforcement schedules, and the element that kept rats pressing the lever the most was unpredictability. For instance, on a variable ratio schedule, the pellet shot down the tube after the rat pressed the lever a few times, but the number of presses required varied. Sometimes the reward appeared after five presses, other times after eight or nine. You can probably see the similarity to a slot machine’s schedule of reinforcement. The variable interval schedule, in which the amount of *time* between food rewards was unpredictable, was also very effective.

Lever pressing is not something a rat would normally do, and Skinner found that in the beginning, he needed to deliver a food pellet when the rat just sniffed the lever, or put a paw on it. This process is called *shaping*; the technique rewards successively closer approximations of the desired response, and it works well.

As time goes on and the association between lever pressing and reward becomes established, much higher ratios will maintain the behavior. If it is very high, say 100 to 1, the rat would go

quite a long time before a reward appeared, and the lever pressing behavior would start to extinguish. However, once that food pellet dropped again the rat would jump back into the old pattern – patiently pressing, pressing, and pressing. Behaviors on these variable schedules are in fact, extremely hard to extinguish.

How does operant conditioning work in a game? In *World of Warcraft*, players start at Level 1 and quests are extremely easy – virtually every one results in a nice reward or a jump to the next level. The enemies barely fight back, as the player learns which keys to press and which paths to follow. This is the period of shaping and continuous reinforcement.

But as time passes, the game demands more work and skill to make progress, and the variable ratio schedules come into play. Monsters become a little more dangerous, and when a player vanquishes one, the chances of finding valuable weaponry on the corpse varies unpredictably. Those drop rates are tracked in the company's database of statistics, so players can even see what the variable ratio schedule actually is. That ratio gets very high for extremely valuable equipment that high-level players need. And of course, just as a casino can change the variable ratio on slot machines, the game's programmers can change the drop rates and other features of game mechanics.

Game mechanics encourage a high rate of “lever pressing” by using negative reinforcements in addition to positive ones. Skinner also found that rats easily learn to press the lever to turn off or avoid a shock. *FarmVille* uses something similar – the game designers introduced a feature in which the farmer who plants crops and doesn't come back soon enough to harvest them will find them withered in the field.

Conducting experiments in the 1930s and 1940s, Skinner used a cumulative recorder to track lever pressing. The device fed a roll of paper at a constant speed under pens that marked a tick whenever the rat pressed the lever or a food pellet dropped. Now, game developers tap an immense store of big data that tracks just about everything in the game. They know, for instance, that *FarmVille* players are more willing to spend cash to buy a colorful cow rather than a normal one, even though both cows deliver the same amount of milk. Armed with this data, the developers can tweak the game mechanics in very subtle ways to achieve their objectives.

Superstitions

For operant conditioning to occur, the reward must follow the behavior. But the behavior doesn't necessarily have to *cause* the reward. The reward might accidentally follow some behavior, and the organism will associate the two anyway. A rat that was scratching its nose just before the pellet arrived might start repeating that behavior in a superstitious way.

In games, superstitions commonly arise because the actual mechanics of the game are not well understood, and many accidental associations appear. A player might happen to don a wide-brimmed hat and then catch a string of valuable fish. Based on an algorithm, the random number generator determined whether each bite on the line was a fish or some junk, but sometimes it will spin several "heads" in a row, creating that accidental association. In real life, people are somewhat better able to shake off a "wide-brimmed hat" superstition because it has no rational basis. But in the game, who knows what the developers are doing? They can easily add a few lines of code so that a wide-brimmed hat does indeed bring a bit of "good luck" to the player.

Gamemakers can also squash superstitions if they interfere with the game. In *Dungeons and Dragons*, for example, "diplomacy" is an important skill that reduces the likelihood of monster attacks. But thanks to some accidental associations, the superstition took hold that the player with the highest diplomacy skill should use it on a treasure chest before other players touched it. The superstition grew so strong that some players would not even join a group unless it included someone with high diplomacy. Developers put a stop to that by writing code to make it impossible to use the diplomacy skill on invalid targets, such as a treasure chest.¹⁶

What Are the Rewards in a Game?

Skinner used food pellets, but psychologists and game designers understand that players have many different motivations for playing, as I discussed earlier, and they are not just repeating behaviors that are rewarded in the game. They are purposeful, and they have intrinsic motivation to seek out ways to satisfy their needs. The principles of operant conditioning alone do not necessarily lead to good game mechanics.

For example, players often cite challenge as a key reason they play games, and they pursue those challenges with considerable persistence. For some, the intermittent reward of a magical weapon is not enough to sustain this. Instead, they persist because of the sheer enjoyment of the task and the positive feelings they obtain from mastering a challenge. The designers must carefully craft the levels of the game so that each one is challenging, but not so difficult that the players who come to the game seeking that element become discouraged.

In fact, players who are intrinsically motivated to play - because they really enjoy the challenge, the teamwork, or the thrill of mastery - may actually lose interest if there are too many extrinsic rewards. In classic studies of extrinsic and intrinsic motivations, subjects entered the lab to solve some chess problems, and half received payment for their efforts. They all returned a week later, and could now choose to solve a few more problems during a free time period, without any payment. Compared with the subjects who never received any payment, the subjects who were paid on their first visit were less interested in the puzzles on the second visit. The extrinsic reward apparently crowded out any intrinsic motivation to tackle the chess challenges just for the enjoyment and mastery.¹⁷

Designers add all kinds of features to satisfy such intrinsic motivations. In-game socializing tools, for instance, can be quite elaborate. Special features for players who join guilds also support socializing, teamwork, and the esprit de corps that draw players back.

Other game mechanics appeal to players' interest in fantasy, excitement, competition, or diversion. MMORPGs, for example, offer players a choice of servers to play on, and the mechanics on the various servers are tailored to different motivations. One server might allow player versus player competitions in which duels to the death attract players whose main motive is competition. Another server might be designed especially for players who enjoy fantasy role playing; the expectation on these game worlds is that players will stay "in character" and adhere to the game's storylines.

Unintended Consequences of Game Mechanics

Even with a solid knowledge of psychology and human behavior, gamemakers embed mechanics that lead to unintended consequences and spell trouble for the game and its players. For instance, in many

game worlds, players can easily walk right through one another, as though everyone is made of air. They may look very substantial onscreen, but players really don't have to worry about blocking anyone's progress or bumping into them. In other games, a player's avatar blocks the space so that other characters must find another route. In an early version of EverQuest, for example, some "killer" players could use this feature of game mechanics to block other players who were desperately trying to exit a dangerous zone filled with monsters, just to watch them all massacred. An EverQuest poster described watching that happen:

I remember when an ogre and troll did that and prevented people from escaping a zone ... with trains [monsters] a comin' to zone. After everyone was killed, the ogre and troll would step back and zone out safely, wait a little while and do it again. Very annoying. - NinjaFox¹⁸

Another example of how game mechanics create unintended behavioral consequences involves the way gamemakers price death. When players die in games, the cost can be extremely high - they might lose their equipment or suffer other penalties. In games such as Super Mario, death is almost a nonissue. The players come back to life for another try with little or no penalty.

In its early versions, EverQuest placed a very high cost on death if the players couldn't get back to retrieve their corpses, but the game designers changed that code in later versions. Many players lamented the change because the high cost led to much more cooperation and relationship building in the game, leading to more friendships and prosocial behavior. One player writes,

Deaths are not a big deal now ... you can summon [your] corpse in the lobby [of a dungeon] and get rezed [resurrected] there pretty easy ... i remember many years ago ... [our guild] wiped at zone fully equipped ... after 16 hours and many deaths, we asked another guild to help us get our corpses back ... ahhh those old days, we will never forget. -Augur¹⁹

Gamemakers strive for a balance when they tweak these mechanics, trying to attract new players and retaining ones with different motivations. Each element can have intended and unintended consequences on the psychological aspects of the game.

PSYCHOLOGICAL EFFECTS OF VIDEO GAMES

Video games offer many benefits, as we will see later in this chapter. But much of the research in behavioral science targets their harmful potential, particularly in two areas. One area is compulsive overuse, sometimes called “Internet addiction disorder.” Tragic stories about players becoming so immersed in a video game that they are unable to care for themselves capture the headlines, with some cases actually leading to death. A young Korean couple, for example, spent so much time online nurturing a “virtual daughter” that their real-life daughter starved to death. A girl in China played World of Warcraft for several days straight, and when she died the online community held a virtual funeral for her.

Such cases are rare, and the people involved may have had mental disorders apart from their gaming. But video games are very engaging and some people who may be prone to overuse may find that their gaming is negatively affecting their lives in ways that resemble substance abuse or pathological gambling. I examine this aspect of games, and problematic Internet use in general, in [Chapter 11](#), so will not go into detail here.

The effect that violence in video games has on human behavior is the second major area of concern. Any glance at the top selling games reveals a very heavy dose of blood, gore, and killing. Grand Theft Auto V, rated M for mature, is a prime example. Players assume the role of a criminal who steals cars and shoots people in a city resembling Los Angeles, and the plot lines are replete with violence, drugs, sex, and evil people. The game cost over \$1 billion to make, but sales earned that investment back within three days after release.²⁰ Do games like these cause people to behave more aggressively?

Violence in Video Games: Effects on Aggression

Researchers have studied the effects of violent media of all kinds on human behavior for decades, and although debates still linger, the general findings point to negative effects, particularly on aggressiveness. Many studies explore exposure to video game violence, and the findings lead to the conclusion that heavy doses are associated with somewhat higher levels of several types of aggression, such as feelings of revenge and actual aggressive behavior toward other people. People who play a lot of violent video games are also more likely to be

desensitized to violence, and they have less empathy for people in need. The research runs the gamut from simple surveys to longitudinal studies that assess longer term effects and experiments that randomly assign subjects.²¹

In a correlational study, for example, undergraduates completed a questionnaire that assessed various aspects of aggressiveness, such as irritability, impulsiveness, hostility, anger, aggressive behavior, and delinquency, and asked about video game playing. The students who played violent video games were more likely to report aggressive behavior, such as having “hit or threatened to hit other students” or “attacked someone with the idea of seriously hurting or killing him/her.”

Of course, people who already have an aggressive streak are likely to choose more violent video games, so experiments are needed to separate out the actual effects of violence in video games. In a follow-up experiment, college students were randomly assigned to play a violent or nonviolent video game in the lab for 15 minutes. (The researchers gave them a cover story that the study was about how people develop the motor skills needed for tasks like video games.) After the 15 minutes were up, the students completed surveys similar to those in the correlational study that assessed aggressive thoughts and behavior. Then they played their assigned game for another fifteen minutes, followed by a cognitive test that uses reaction time to assess aggressive thinking.

A week later, the subjects returned to the lab and played for another 15 minutes. Afterward, they played another competitive game that assessed their actual aggressive behavior toward another human being. In this game, the subjects competed with another person on a reaction time test, and the loser on each trial would receive a punishment - a noise blast. The subjects thought the opponent was another person, but in fact it was a computer, and the computerized opponent behaved the same for all subjects, winning twelve trials, losing thirteen, and randomizing the level of punishment.

How did the students who played the violent game behave toward their “opponents”? Before each trial, they selected the intensity and duration for the noise blast that the opponent would receive, and the students’ choices depended on whether they won or lost the last trial. After their “win” trials, they chose noise levels that were about the same as the subjects who played the nonviolent video game. But after losing a trial, it seems their anger was provoked. They chose significantly longer noise blasts that would be delivered to their

opponent on the next trial, should the subject win it.²² In this setting, playing violent video games *caused* people who experienced a loss to act more aggressively toward an opponent.

Is It Competition? Arousal? Or Violence?

What is it about violent video games that affects aggressive behavior? These games differ from nonviolent ones in many ways, not just because they contain violence. They may also be more arousing and competitive.

To sort out this question, we need games that offer the same levels of arousal and competition but that differ only on the level of violence. Some of the sports games fit this bill, and in one experiment subjects played violent or nonviolent sports games, all of which contained about the same level of competition.²³ The violent ones were MLB Slugfest (Major League Baseball) and NFL Blitz (National Football League); in these games, players can wreak havoc and cause harm. For example, if batters get angry, they can burst into flames and attack the pitcher. Runners can also punch a first baseman in the face to avoid being called out. The nonviolent games - MVP Baseball (Most Valuable Player) and Madden NFL - are played on the field, but players can't break the rules by attacking one another.

While the subjects were playing one of the games, their heart rates and blood pressure were monitored to assess physiological arousal. After 20 minutes of play, the subjects completed various surveys and took tests to assess aggressiveness, such as the reaction time competition against an "opponent" described in the last section. One important finding was that all the subjects showed about the same level of arousal, regardless of whether they were playing the violent or nonviolent sports. But subjects playing the violent game chose more intense noise levels to punish the computerized opponent. This study suggests that it really is the violence in the video games that affects aggressive thoughts and actions, not competition or arousal.

Desensitization

Do violent video games reduce our ability to empathize with people who are suffering and in need? Do they desensitize us to human pain? Research on violent TV shows and movies finds that repeated exposure to blood, gore, and violence leads to desensitization. The same appears to be true for video games.

In one study, college students were assigned to play a violent video game, such as *Mortal Kombat* or *Duke Nukem*, or a nonviolent game, such as *Pinball* or *Tetra Madness*.²⁴ After 20 minutes, the subjects watched a videotape containing scenes of real violence with shootings, prison fights, and other episodes. The researchers also took baseline heart rate and galvanic skin response (GSR) readings during the study.

All the subjects showed increases in heart rate and GSR after they played the video game, regardless of its content, pointing to the way these action games add to physical arousal. But the two groups behaved very differently when they were watching the real-life violence afterward. Heart rate and GSR *increased* for the subjects who played the nonviolent game, but these measures *decreased* for the subjects playing the violent video games. Apparently, those students had become desensitized to the troubling scenes that ordinarily would have caused physiological arousal.

That kind of desensitization could easily lead people to feel less empathy and exhibit more aggressive behavior. Another study confirmed that desensitization leads to not just reduced arousal but actual aggressiveness. This time, the researchers deliberately chose subjects for the experiment who were either heavy users of violent games or who rarely played such games.²⁵ Half of each group was then randomly assigned to play violent or nonviolent video games, while researchers monitored their brain waves with electrodes on the scalp. After playing, all subjects viewed a series of images, some violent and some neutral, and then they played the competitive reaction time game against what they thought was a human opponent.

The subjects who rarely encountered violent video games in the past but played them in the experiment showed a desensitized brain response to the images, and they then gave their “opponent” stronger noise blasts. For the heavy users of violent games, however, it didn’t matter whether they played a violent or nonviolent game for a few minutes in the experiment. They appeared to already be desensitized to violent images.

Not everyone is convinced that playing violent video games leads to a big increase in real-life aggression outside the lab, pointing to the actual results - which are generally modest and sometimes difficult to interpret - and to studies that fail to find any relationship.²⁶ Also, some countries where violent games are extremely popular and widespread do not necessarily have higher crime rates - Japan is a key example. But strong evidence continues to mount. Given how fast the video game

industry is developing new products, how vast the game worlds have become, and how complex human behavior really is, this debate may not end soon, despite the troubling research findings. In any case, video games also have many positive effects, as we discuss next.

THE BENEFITS OF VIDEO GAMES

While much research on video games focuses on their potential for harm, recent studies are finding a number of valuable benefits for cognition, motivation, and other aspects of human behavior.²⁷

Cognitive Benefits

For players to advance, many games demand cognitive and perceptual abilities, such as spatial perception, mental rotation, and visual attention. This is especially true for the fast-paced action games in which players react quickly to unpredictable events - monsters jumping out of the brush or enemy snipers peeking over the rooftop. People who enjoy exercising these skills are more likely to play such video games. But these games also provide training in those cognitive skills, and that training leads to improvements.

For example, action video game players perform better than non-players on a variety of visual attention tasks that involve identifying objects in the field of vision, such as the one in [Figure 7.2](#). In a series of studies to demonstrate exactly how game players differ, subjects tried to determine whether an object that appeared briefly on the edge of a screen was a square or diamond.²⁸ On different trials, the screen contained more or less clutter. The game players continued to perform well even when the distracting clutter made the task quite difficult. It was as though they had a deeper reserve of attentional resources that they could apply to the task. Compared with nonplayers, the action game players see a larger useful field of view, so they can identify targets farther from the central focal point.

Action games often involve surprise targets that jump out at irregular but closely spaced intervals, but it takes skill to stay alert for that second target. People show what is called an *attentional blink* when they try to identify a second target that appears a few hundred milliseconds after the first one appears, as though their visual attention blinked out for a moment. As you might expect, action game players show a shorter attentional blink.

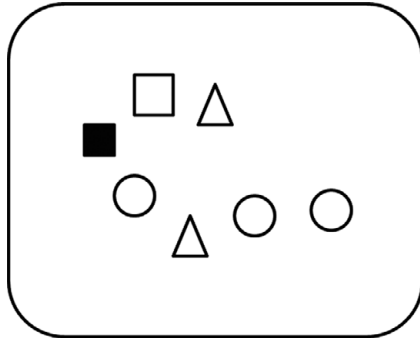


Figure 7.2. Action game players perform better on tests of visual attention, such as quickly identifying the shape of a black target in a field cluttered with distractors.

It is possible that action game players choose those games because they are inherently good at tasks such as these. But it is also possible that playing such games leads to improvements. In a follow-up study, subjects with no experience playing video games played either the first-person shooter game *Medal of Honor* or the puzzle game *Tetris* for an hour a day. *Tetris* requires spatial and motor skills, but players have only one object at a time to deal with. That is quite different from *Medal of Honor*'s fast-paced action.

After ten days, the *Medal of Honor* players did much better than the *Tetris* players on several cognitive tasks. They were able to spot targets amid more clutter, identify targets in a wider visual field, and recover from attentional blink faster.

Some research on spatial abilities focuses on gender differences. On average, men tend to perform better at some tasks, such as the ability to mentally rotate objects, although there is much overlap. Interestingly, some studies of gaming also show that such abilities are more malleable than many people thought and can be improved through training. The training doesn't have to be very long, and the results are also durable, meaning that the improvement does not vanish after a few days.²⁹ Training might also reduce gender differences. In one study, men and women with no video game experience took pretests to assess useful field of vision and mental rotation ability. As expected, mean scores for men were higher on both tasks. After the pretests, half of each gender group spent the next ten days playing *Medal of Honor* an hour or more a day, while the other half played a 3D puzzle game.

The women playing Medal of Honor improved considerably more than the men did and much more than the subjects playing the 3D puzzle game. The gender difference was essentially wiped out for the useful field of vision measure and greatly reduced for mental rotation. In a follow up after five months, these subjects scored at or above their post-test levels, pointing to the durability of training effects.³⁰

While action games are the genre implicated in most research on cognitive benefits, the strategy games may help players become better problem solvers. To succeed at strategy games, players need to think through a problem, explore alternatives, weigh options, and then act. Role-playing adventure games call on problem-solving skills as well, as players study the characteristics and fighting style of a particular boss, choose the best gear to wear, gather the best combination of players, and develop an attack plan.

In one longitudinal study of problem solving, high school students completed surveys in grade 9, then again in grades 10, 11, and 12. The surveys assessed their game-playing activities and their problem-solving strategies with statements such as “I think hard about what steps to take” and “I think about the choices before I do anything.” The students who played strategy games showed steeper increases in their self-reported problem-solving abilities over the four years. Another intriguing finding was that the students reporting higher problem-solving skills had higher grades, suggesting an indirect relationship between strategy game playing and academic achievement. This is a rare finding, indeed, given that most research links game playing to negative academic outcomes, particularly when it is excessive.³¹

Motivation and Persistence

Game developers are experts at motivating players, and the games provide just enough challenge to maintain persistence in the face of failure, matching the challenges to the player’s level. That kind of persistence is a valuable human trait, whether it involves the desire to achieve in school, in scientific innovation, in sports, or in any other field. If players are learning to persist inside the game, do they learn to persist in other areas? Do game players become more willing to work hard and try again despite setbacks?

One way to measure how persistent someone will be in the face of failure is the computer-based Anagram-Riddle Task, which presents a series of hard and easy anagrams and riddles on a screen, one at a time.

Feedback is immediate, and the subject can choose to skip a missed anagram or try again. The computer records how long each subject persists in trying to solve a difficult anagram or puzzle, or whether the subject gave up after a wrong try and skipped to an easier one.

In one study, subjects completed a survey about their video game usage; it also included some items that assessed how persistent the subjects thought they were, such as “I have patience when it comes to difficult problems.” The amount of video game play per week was significantly correlated with subjects’ self-reported persistence and with greater persistence on the difficult anagrams and puzzles. Subjects who spend a lot of time playing games will spend more time on the unsolved puzzles, that is, the ones they had the most difficulty with.³²

This study did not attempt to *promote* persistence by asking non-players to play a game for a week, and then giving them the anagram-puzzle task, so it might be that game players are already more persistent compared with nonplayers. But educators are certainly eager to draw on some of the compelling features of games in the belief that they will promote persistence when the going gets tough.

Emotional Benefits and “Flow”

One emotional benefit is easily described with a three-letter word: fun. Players play because they enjoy the game. Their motives might differ, as I described earlier, but a more positive mood is a common finding.

People often play casual games with relatively simple interfaces and short learning curves to relax, improve mood, and reduce stress. For instance, playing *Bejeweled II*, in which players earn points by creating matches of three elements in a row or column, is relaxing. In one study, randomly assigned subjects either played the game for 20 minutes or surfed the net, while researchers monitored their heart rate and brain wave patterns with electroencephalography (EEG). The *Bejeweled* players did indeed show physiological signs of relaxation and more positive moods, including a less variable heart rate and more alpha waves. They also reported feeling more vigorous with less fatigue.³³

Players often report experiencing *flow*, a mental state in which the person is completely absorbed in an activity and time just flies by. Activities that have the potential to create flow have much in common. For example, they create a delicate balance between the person’s ability and the challenge of the task, and they require intense

concentration and focus. They also offer clear goals, timely feedback, and a sense of control over what happens. While in the state of flow, the person experiences a loss of self-consciousness and a distorted sense of time.

A pianist might experience flow when attempting a new piece of sheet music, just a little more difficult than any she had tried before. A hobbyist carpenter might enter this mental state when focused on the renovation of an antique chest. From the description of flow and the kinds of activities that have the potential to generate it, you can guess that video games would be outstanding candidates.

I couldn't believe it when I finally went to bed and found I'd been playing for over 6 hours. Seemed liked just an hour.

-Female, age twenty-eight

Flow is a highly positive and motivating mental state, and it is associated with certain changes in the brain. In a study using functional magnetic resonance imaging (fMRI), researchers recorded the brain activity of men playing the fast-paced action game Tactical Ops: Assault on Terror. Certain types of brain activity appeared when the player was engaged in that balance of ability and challenge, such as when the player conquered an enemy. Dying in the game or tackling challenges beyond the player's ability did not generate flow, and during these moments, the subject's brain activity was different.³⁴ Studies such as this can lead to a better understanding of flow and the elements that make it up.

Social Benefits

Although early computer games were mostly single-player affairs, the Internet makes gaming a truly social experience. You can play a bridge game with friends in distant corners or meet new people who enjoy the same role-playing game. On the huge MMORPGs, players from all over the world and from every walk of life meet one another and find ways to work together. Joi Ito, tech entrepreneur and director of MIT's Media Lab, has been a regular on World of Warcraft, a game he especially values because of the social aspects. In one sense, it is like the "new golf" where tech-oriented innovators can meet and make business connections. But it also offers endless opportunities to learn new leadership and teamwork skills within highly diverse groups.

On a raid, for instance, the raid leader must coordinate the actions of dozens of people of all ages and backgrounds, making decisions on the spot, encouraging cooperation, settling disputes, and resolving conflict. Ito says, "Warcraft is like a really, really well designed UI [user interface] for real-time, ad hoc group collaboration and management of tons of people."³⁵

Some research points to a relationship between cooperative game playing and prosocial behavior.³⁶ A survey of Singaporean youth, for example, asked students what their favorite games were and how often people helped or harmed others in the game. Their prosocial behavior was measured with items such as "I feel happy when I share my things with others" and "When I see a student who is upset, it really bothers me." The students exposed to the prosocial games in which players helped one another were more likely to say they behave in more prosocial ways in real life.

The same researchers conducted a longitudinal study in Japan and found that playing games cooperatively can boost prosocial behavior over the longer term. Here, students completed surveys similar to the ones used in the Singapore experiment, and then a few months later completed them again. The researchers found an upward spiral for prosocial behavior for the students who reported more cooperative gaming in the first survey. However, those who played the more antisocial games showed a downward spiral.

In the final study, to demonstrate cause and effect, randomly assigned college students in the United States played a prosocial game, a violent game, or a neutral game for 20 minutes. After the game, the subjects worked with partners who would be completing eleven tangram puzzles that the subjects could select for them. There were thirty puzzles to choose from, some hard, some easy, and some of medium difficulty. Subjects heard that if their partner could complete ten of the eleven puzzles within 10 minutes, the partner would win \$10.

Which puzzles would subjects assign to the partner? They could choose to help the partner in a prosocial way, by choosing easy ones, or they could sabotage the partner by choosing hard ones, ensuring that the partner earned nothing. The most helpful subjects were, as you might expect, the ones who just finished playing a cooperative video game. And, as you might also predict, the subjects who were most hurtful toward their partner were the ones assigned to play the violent video game for 20 minutes.

The Proteus Effect

An avatar is a curious thing. It is your virtual self, and in some games you have considerable control over how it looks, what abilities it has, and how it behaves. You can make it stunningly attractive, downright ugly, or otherworldly. You might agonize over a dazzling number of choices you must make for your hair style, skin color, dress, eye shape, piercings, or tattoos. On one level, you are the master of your avatar, but on another, the avatar you choose - or are assigned - affects your own behavior.

Nick Yee and Jeremy Bailenson named this the *Proteus effect*, after the sea god in Homer's *Odyssey* who was able to change his shape into a lion, boar, serpent, or tree.³⁷ They first explored how an avatar's attractiveness affects its owner's behavior, drawing on a virtual reality setup in the lab with a virtual mirror. As a cover story, the researchers said the experiment was about social interactions in virtual environments. Subjects then donned head gear that displayed the virtual room in which they could see the avatar they were randomly assigned in the virtual mirror. As they turned around in the virtual room, another virtual person of the opposite sex appeared - a confederate of the researchers. The confederate, who only saw a bland human face and did not know which avatar the subject was actually using, then asked subjects to move closer and introduce themselves. The subjects who believed that the other virtual person was looking at an attractive avatar did indeed behave differently. They walked almost one meter closer to the confederate in the virtual room, and they also revealed more information about themselves.

As I discussed in [Chapter 2](#), looks matter. If someone thinks you are good looking, they will treat you better, and then you, in turn, will become more confident and friendly. But in this experiment, the confederate never saw the actual avatars and didn't know which avatar each subject had. The only reason the subjects with attractive avatars behaved differently was because they *thought* the virtual person could see them.

In a follow up, these researchers tried manipulating height to see how people behave when they believe the other person is seeing a taller avatar. This time, the subjects played four rounds of a money-sharing activity with the confederate, in which one person decides how to split up a hypothetical pool of \$100, and the other accepts or rejects the offer. Virtual height made a difference; subjects with taller avatars negotiated more boldly and confidently. They were more

willing to offer unfair splits to the confederate, compared with the subjects who were assigned the short avatars.

In the games, players can usually choose their own avatars, so they have more control over any Proteus effect. As it turns out, tall, attractive avatars tend to reach higher levels in World of Warcraft, suggesting that people who play the most, and most successfully, may choose avatars that create a positive Proteus effect.³⁸ One Human Warrior said, "I'm just a short kid 13 old in rl but here I am a big man! Its great." Perhaps the Proteus effect will help that boy gain confidence at school and later, if he doesn't fall into the trap of playing far too much.

SERIOUS GAMES: GAMIFICATION IN EDUCATION, TRAINING, AND HEALTH

Given how engaging games can be, it's a natural leap to try applying them to more serious applications in areas such as education, training, and health. Indeed, these *serious games* - intended to serve a useful purpose for learning, skill development, rehabilitation, or other applications - are flooding the market as researchers and publishers attempt to draw on the compelling features that games possess.

A serious game should have the same kinds of features that define computer and video games in general, including interactivity, rules and constraints, clear goals, challenges, and feedback. Many games add competition, against a computerized or real opponent or against oneself. And some add storylines and plots to immerse the player in a gripping drama that unfolds as the game progresses.

Education and Training Applications

Games began entering the worlds of education and training very early, with "edutainment" titles such as the still popular *Where in the World Is Carmen Sandiego?*, with its mystery themes and bad guy chases. The explosion in such games, including online versions that teachers can use for free, testifies to the belief of many educators that games can engage students in ways that enhance cognitive abilities, motivation, and cooperation.

The traditional sequence in education is instruction, practice, and assessment. In math, for instance, a teacher might present a lesson that explains how to multiply fractions. Then the students would practice

a few problems, and finally take a test to assess their mastery of the concept. Games do not follow that sequence and often include little or no instruction - relying instead on players to figure things out on their own, drawing on whatever resources they can find.

Corporations are also gamifying some of their training programs to help employees acquire the knowledge and skills they need more quickly and effectively. Gamification for this kind of training is one of the top technology trends, and companies are embracing the approach in innovative ways. At Sun Microsystems, for example, new employees enter a 3D world called *Rise of the Shadow Specters*. Playing as lost colonists, the newcomers begin settling the world with the goal of building an information network and knowledge base so they won't lose their way again. During the game, the employees learn Sun's corporate culture, values, and structure.

The military has been developing and relying on simulation games for decades to provide training out of harm's way. In fact, the Pentagon funded the development of the game *Spacewar!* mentioned earlier. Flight simulators are an essential ingredient for pilot training, and an immersive game interface that simulates city streets is a far safer way to learn effective tactics for urban combat. The kind of fighting that soldiers do today differs a great deal from the battles in World War II, and games such as *Virtual Battlespace 2* can simulate improvised explosive devices (IEDs), ambushes, evacuations, and other fast-paced action to help trainees improve the split-second decision making and visual attention skills they will need.³⁹

Health Applications

While still in its infancy, the use of games to help people improve health outcomes is showing enormous promise and growing quickly. As we saw, fast-paced action games can help patients improve some cognitive skills, and casual games can reduce stress and anxiety. Games that incorporate biofeedback can also help patients manage anxiety. Just as they do for corporations and the military, simulation games are also helping to train health professionals.

Tailor-made games are in development to address specific issues, with remarkable success in some cases. For example, one thorny problem in health care is finding ways to encourage patients to comply with their medication treatment program, even though it might cause unpleasant side effects, such as nausea. A team of biologists, nurses,

oncologists, and psychologists worked with children who have cancer to develop the game “Re-Mission,” which features a nanobot called Roxxi. The 3D first-person shooter has twenty levels, and the children pilot the bot through fictional cancer patients, completing missions to knock out their cancer cells, build up their immunity, and deal with side effects. To test this game’s effectiveness, cancer patients at medical centers in several countries received small computers and then were randomly assigned to play either Re-Mission or the commercial game *Indiana Jones and the Emperor’s Tomb*.⁴⁰ The results demonstrated that Re-Mission did its work. The children who played that game were more likely to adhere to their treatment programs. They also scored higher on self-efficacy and cancer-related knowledge.

Evaluating Serious Games

Attempts to determine whether these serious games work must first define what is meant by “work,” and how we frame the question, “compared with what?” Many studies describe how the games affect people, often in glowing terms, but they don’t use any control or comparison groups. Other studies, such as the one that tested Re-Mission, use more rigorous methods - randomly assigning subjects to treatment and control groups and carefully selecting the activities for each group so that the effects of the serious game can be compared with more conventional approaches. With so many games and so many alternative approaches, it’s not surprising that results are mixed.

One study, for example, explored whether a serious game could help students improve their persuasive writing skills. Students assigned to the game entered an interactive graphical world in which a town is facing a plague.⁴¹ They meet and interact with the doctor and other characters, and as they grapple with ethical dilemmas, they try to persuade game characters to agree with their point of view, offering convincing arguments and receiving positive or negative feedback from different characters. The comparison group read a novel, and for them, the teacher used lectures and assignments to reinforce the mechanics of persuasive writing. Both groups showed improvements in persuasive writing, but the ones playing the serious game improved more. They were also far more engaged. When asked if they wished they were doing something else, 71 percent of the game players said, “Not at all.” But 70 percent of the comparison group answered that question, “Definitely.”

Yet other studies find the opposite - either that there are few differences or that traditional approaches are more effective. In one review of thirty-nine studies that investigated the cognitive and motivational effects of serious games compared with other approaches, the conclusion was that although results are mixed, the game players did appear to learn and retain more content. But evidence that the games affected motivation was not convincing.⁴²

My own work as head of a research project to develop a math adventure game called Descartes' Cove illustrates some of the challenges serious game developers encounter.⁴³ As the game begins, middle-school players find themselves marooned on an island once inhabited by René Descartes, and they must solve math puzzles and challenges as they work their way through underground tunnels, jungles, volcanos, and caves. In the early prototype, based largely on input from teachers, the game started with detailed verbal instructions, and included pop-ups to let players know what was expected at each point in the game. The teachers seemed to be trying to replicate the usual sequence - instruction, practice, and assessment - but the students did not like this at all.

I rewrote the storyboards so they matched a strategy/role-playing game environment, eliminated instructions and lectures, and added quests, advanced levels, rewards, hints, and increasingly difficult challenges to complete before the endgame - a final quest to construct an escape vehicle. Players pick up a backpack, a map, some coins, and a book with some of Descartes' notes in it, so they can look up things themselves if they get stuck. When students played the version we finally released, they had no trouble figuring out how to get started, but teachers with no game-playing experience asked, "What do I do next?"

Many so-called educational games fall short because they do not really implement the features that make games so compelling and motivating. Instead, they are like chocolate-covered broccoli, and the players recognize the difference. We may not fully understand what all those features are, but we have enough provocative evidence that they are well worth pursuing.

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CHILD DEVELOPMENT AND THE INTERNET

GROWING UP ONLINE

On a typical evening, twelve-year-old Jason splits his time between texting friends, completing math homework, commenting on YouTube videos, playing video games, and listening to music. He eats dinner with his parents and sister, a rule the parents insist on. But during dinner his eyes frequently gaze down to check his smartphone and he replies to texts.

If you were born in the 1980s or early 1990s, you are most likely a member of the first generation of *digital natives*.¹ Some of you might have played Reader Rabbit on your home computer and learned to type long before you reached high school, when typing classes were offered. After the first web browser burst on the scene in 1993, you found wonderful new ways to use the net to communicate with friends, show off your personality, search for information, amuse yourself, and do your homework.

When you reached college, your professors wondered if you really were a different breed of human. They are *digital immigrants*, who adopted some of these technologies as adults. But you grew up with early versions of these technologies. Your younger siblings - the second generation of digital natives born in the mid-1990s or later - are far more connected and comfortable than even you are. In a short YouTube video, a one-year-old daughter confidently swipes an iPad touchscreen. But in the next scene, she tries to use the same finger motions on page after page of a printed magazine - apparently coming to the conclusion that the print version is a broken iPad.²

Lamenting the various failings of each new generation is certainly nothing new for older generations, but this time, the context of child development and parenting is different. For example, some parents

deeply regret buying a smartphone for their child, but the psychological attachment is so strong that they can't take it away. They try making rules, but it seems a constant tug of war that undermines relationships.

How are these emerging technologies affecting child development? When an infant expects a magazine to respond to finger gestures, will she ever enjoy reading a good book? Can a teenager disconnect from his virtual world for long enough to share a pleasant, uninterrupted family dinner? Research on the impact that cyberspace has on child development is expanding, even as the technology continues to advance. As you might expect, we see both positives and negatives and many unanswered questions.

THE ECOLOGY OF HUMAN DEVELOPMENT

Children grow up in a web of intersecting environments that interact with one another and that the children themselves can influence. Urie Bronfenbrenner first emphasized the need to look at the whole ecology of human development, taking a systems approach that recognizes all the different contexts and their relationships to one another.³

For example, the *microsystem* is the immediate environment of parents, siblings, home life, school, and peers, and the *mesosystem* is a system of microsystems and the relationships between them. The quality of those interactions, such as the relationship between the parents and the child's school, affects the child's development. The *exosystem* brings in the larger context in which these microsystems exist, such as the neighborhood, the mass media, the transportation networks, and the major institutions of society. The *macrosystem* refers to the overarching culture in which the child grows up - its political and legal institutions and its social, educational, and economic opportunities. Consider, for example, a child growing up in a loving family, but in a country torn apart by civil war. That child's microsystem contributes very positively, but in the context of a very dangerous macrosystem. Finally, an even broader component of the ecology is chronological - the child's time in history and how that changes over the lifespan.

How do all the technologies fit into this ecology? As part of the microsystem, they emerge as connected computers and laptops, smartphones, tablets, video game consoles, e-books, and all the

environments that the Internet has to offer. They may not even seem like “technologies” at all. Instead, they are woven into the fabric of the child’s surroundings, like furniture, toys, and appliances. They also play a less obvious role in the macrosystem, as companies vie with one another to attract more “eyeballs”; governments censor content; hacking and electronic surveillance erode privacy; or lawmakers struggle with ways to protect children without limiting freedom.

Cognitive, social, emotional, and physical development all occur within this ecology, and teasing apart the role that one component plays is not easy. The mind-numbing pace of change in the technology layer adds to the difficulty, so researchers often find themselves reporting on yesterday’s trends, not today’s or tomorrow’s. That said, we are gaining a more nuanced understanding of the role the Internet and other digital environments play in human development, thanks to research that examines specific applications and online neighborhoods rather than broad-brush investigations of overall Internet or computer use.

What Are Children and Adolescents Actually Doing?

With all these choices, what are young people actually doing when they pick up a smartphone, swipe a tablet, or tap at a keyboard? Generation M2, a study of more than 2,000 children and adolescents, finds that they are adding these digital activities to all the other media they use, including TV, music, printed materials, and movies.⁴ Their average total media use was more than seven and a half hours a day, an increase of 20 percent from five years earlier. They are also doing more multitasking and multiscreening, so their *total* media exposure, on average, jumped to ten hours, 45 minutes.

The majority of that time is still spent watching TV and listening to music, but time spent on computers and video games increased dramatically. Eighty-four percent have Internet access at home, and a third can access the net from their own bedrooms. The loser was print media, dropping from 43 minutes to 38 minutes over the five-year period. The patterns changed somewhat for different age groups, with the middle-school children age eleven to fourteen consuming the most media, especially TV, computers, and video games. High school students were big music consumers.

This study did not include the time children and adolescents spend talking on a cell phone or sending text messages, an activity that takes

up another large chunk of time - especially from middle school on. Texting occupies an astonishing one and a half hours a day for seventh to twelfth graders.⁵

Drilling down into the actual content, the online neighborhoods visited by teens on mobile devices most often tilt heavily toward communications and social media. Mobile apps that support text messaging and photo sharing are particular favorites, such as WeChat, Vine, Flickr, Snapchat, WhatsApp, and Instagram. A survey of 7,000 teens, for instance, found that 87 percent texted every day, compared with 61 percent who used Facebook.⁶

A study of younger children, aged eight to twelve, found that some of their favorite sites are not age appropriate.⁷ YouTube, which Common Sense Media rates as a site appropriate for age thirteen and up, was the most popular site for these younger children. Facebook was second, even though the site specifically requires members to confirm that they are thirteen or older. To create a profile, children under thirteen must lie about their age, sometimes with the consent of their parents. One survey of parents found that 38 percent of the children with Facebook accounts are under thirteen, and 4 percent are actually under seven.⁸ Other popular sites were more age appropriate, including Webkinz and Disney's Club Penguin.

Whether activities are really "online" is increasingly difficult to pin down, given the blurry lines between online and offline. For example, a math software program that a child mostly uses without the need for any Internet connectivity may upload data to a website for reporting purposes. We will look at the research that touches on how children and teens are using all kinds of digital media - whether they are packaged CDs with educational software, games played on video consoles, or movies that might be viewed on regular TV or through Netflix.

Let's start with cognitive development, an area in which research studies find mixed results about potential benefits and downsides.

COGNITIVE DEVELOPMENT

Parents, school administrators, policy makers, and governments - virtually around the world - strive to improve educational outcomes for children, and many see computers and Internet access as critical ingredients toward this end. The Internet delivers an almost limitless array of information resources and new tools, and embracing these

technologies to enhance cognitive development seems obvious. In many countries, significant government funding goes toward expanding broadband access, especially for schools, libraries, and low-income families.

Computers, Internet Use, and Academic Achievement

Some studies confirm the value of computers and the Internet for academic achievement, often using scores on standardized tests as a measure. For example, a two-year government-sponsored study in the United Kingdom examined the relationships between computer and Internet use, both inside and outside school time, and the students' scores on national tests in English, math, and science from age ten to sixteen.⁹ Students who used computers and the Internet the most made the largest gains over the two-year period.

Other studies point to special value for disadvantaged students, perhaps because there are larger gains to be had. A school in Nebraska adopted a "one laptop" per student policy, and many poorer students, who had not had a computer with broadband access at home before, received one of them. After a year, those students made the largest gains on their standardized test scores compared with students from families with higher incomes, whether or not those students already had access at home.¹⁰

But some studies paint a less rosy picture, finding very small or insignificant effects, or even negative effects - particularly for students who use computers the most. The Organisation for Economic Co-operation and Development (OECD) administers academic tests periodically to students in member countries, partly to compare academic progress in one country with another and also to see how students in each country are doing from year to year. In 2003, these tests, known as the Programme for International Student Assessments (PISA), focused on math, reading, science, and problem-solving skills. The students, who were aged fifteen to sixteen, were also asked about their use of computers and the Internet, with questions such as "How often do you use the Internet to look up information about people, things, or ideas?" and "How often do you use games on a computer?" One key conclusion from this study was that students who report using the Internet the most earned *lower* scores compared with the "medium" users.¹¹

In another study, tenth graders in Ohio kept a log of their computer and Internet use for a week. There was no relationship between the

amount of time those students spent on the Internet and their grade point averages (GPAs). These researchers also found no particular relationship between what the students were doing online - such as playing games, doing homework, communicating with friends, or surfing - and their GPAs.¹² Other studies find that moderate use of the Internet is related to higher academic achievement, but heavy users fare worse than students who rarely access the net.

A study in Brazil adds further caution to the generally held view that more access to computers and the Internet inevitably leads to gains in academic achievement. Every two years in Brazil, randomly selected students in grades four, eight, and eleven take achievement tests in reading and math.¹³ In one study, more than 125,000 students also answered questions about their computer and Internet use at home and at school. Very few relationships with test scores were found, and some of those that did appear were negative rather than positive. For example, the lower income fourth and eighth graders who had Internet access at home did significantly worse than those who lacked such access.

In more controlled investigations in which children use specific types of educational software or online resources, the findings are also inconsistent. For example, a study of more than 4,000 students in elementary and middle school who used MathFacts in a Flash to improve their computational fluency performed significantly better than a control group on the final math test.¹⁴ But a U.S. government report that evaluated the effectiveness of reading and math software products in use in 132 schools found no evidence that students in first- and fourth-grade classes that were randomly assigned to use the products had higher test scores at the end of the year compared with controls.¹⁵ A follow-up study the next year looked at the same classes, assuming that the teachers would now have more experience with the software packages.¹⁶ That study painted a more mixed picture. The math software still had no significant effects on math test scores, but one of the reading packages helped fourth-grade students improve reading scores.

What can we make of these conflicting findings? The studies vary enormously, involving different grades, countries, software products, and research designs. Some of these studies use a broad-brush approach that relies heavily on correlations and general questions about overall Internet or computer use, so they will miss the nuances of what children and adolescents are actually doing in any of the Internet's

environments. They also rely mainly on self-reports, so the respondents might be exaggerating time spent in activities they think make them look good and underestimating time spent on games and texting. Heavy Internet users, for example, might suffer academically because they spend too much time playing online games instead of doing homework, but they don't like to admit that.

Another reason not to dismiss the potential educational benefits is that this is a new field; educators, software publishers, and parents are learning about it through trial and error. Early educational software was clunky and often just reproduced a worksheet on a computer screen. But many innovative and lively products are emerging that are far more engaging, such as the Khan academy videos and also mobile learning applications for children.¹⁷

Success stories are mounting, as we learn how to engage students in ways that will not only boost academic achievement, but also offer opportunities to learn new skills. One area that may be a particularly useful one to better understand engagement involves the lure of digital games. While games present one of the chief concerns we have about children, computers, and the Internet, they also have some positive effects on cognitive development, as I described in [Chapter 7](#).

Online Learning

An important contribution the Internet makes to cognitive development is online learning, a trend that grew quickly for college-age students, but also continues to gather momentum for younger students. Many states have already launched virtual schools, and many online courses are widely available for students of all ages, including the elementary level.

Why do students take online courses? Most students enroll as a way to recover credit, supplement their regular school curriculum, or make academic progress during times when school is out. Online learning opportunities also help expand academic options for students whose schools may not be able to offer a wide range of courses. Advanced Placement courses, for example, are some of the most popular online enrollments for high school students seeking to build up their resumes for their college applications.

Hundreds of thousands of students enroll in online programs full time for various reasons. Some are home-schooled, while others may not be able to attend a regular school because of illness or work

obligations. Child actors, for instance, can pursue their acting roles on location without interrupting their education.

How does online learning compare to face-to-face classes? That question generates considerable debate, particularly because the answers are so important to the entire educational system, built around brick and mortar schools and face-to-face classes headed by teachers. Hundreds of studies have been conducted over the years, but comparisons are difficult to make because online learning varies so much. Some versions simulate face-to-face classes, and students attend “live” class sessions using web conferencing software. Often the sessions are recorded so students who can’t attend can view the lectures later.

Many of the *massive open online courses* (MOOCs) fall into this category. These are the free online courses that are offered to large numbers of people around the world who are interested in the topic and sign up to take the course. Faculty provide little or no individual feedback to the students in these enormous classes, and most students don’t actually complete the courses. However, many never intended to complete and instead wanted to sample a few lectures or zero in on a particular module.

In other models of online learning, teachers might be the “guide on the side, not the sage on the stage.” Here, students would view videos, read texts, do projects and assignments, collaborate with other students, and take tests, and the teacher’s role is to guide, encourage, and provide extensive feedback. In more self-paced versions of online learning, a teacher may not even be involved. Instead, students work their way through online lessons on their own. In some settings, they can post questions to an online discussion forum that may be answered by other students or by people with some expertise in the subject. To help judge quality, people on the site can cast votes for the best answers or click thumbs down for an answer they think is not helpful.

The U.S. Department of Education summarized more than 1,000 studies that compared outcomes in online learning with face-to-face classes and found that the students in the online learning environments performed slightly better than their counterparts who received face-to-face instruction.¹⁸ The online advantage was largest when teachers led the courses and when students had opportunities to collaborate virtually. Student performance in the online independent learning courses was about the same as it was for students taking face-to-face classes.

The students in most of these studies were college level, but younger students also benefit. For instance, students taking seventh-grade science participated in a study to compare outcomes when the course was taught in a face-to-face class or in a virtual world called Virtual Events where they could control their own avatars, which is an environment similar to Second Life.¹⁹ Those learning from the teacher in the virtual worlds performed just as well as the students learning from the same teacher in a classroom. The online students also enjoyed their course more.

For younger students, online learning can be especially helpful for certain populations that may not fit as well into a regular class, perhaps because they show very high ability in certain subjects or need more time and assistance. My own studies of online learning among high ability students in grades K to twelve illustrate how courses can be specially tailored to the academic needs and interests of each student.²⁰ Online, such students need not wait for the rest of the class. Guided by their instructors, they can leap ahead at a pace that matches their abilities in a subject they are passionate about or just skip topics they have already mastered.²¹

Psychologically, online learning offers students some unique advantages as well. For example, students who feel shy or awkward in a regular classroom become more outgoing and confident in their virtual classes. This can happen because the students have more time to think through what they want to contribute to a discussion forum, for instance, and are less self-conscious. They don't have to worry about their looks or dress, and they can't see fellow students roll their eyes at some idea they propose. In that kind of setting, they become more willing to offer innovative ideas and defy the norms that classrooms and other students impose. As I discussed in the [last chapter](#) on gaming, that kind of experience could well lead to a Proteus effect in which the confidence carries over to the child's real life. Online classes can also offer opportunities to interact with students around the world, not just in their own school, which can expand their horizons even further.²²

While online learning has many positive features, the research suggests that the best learning environments are those that blend online with face-to-face settings. Most students taking online courses are not full time, and instead take an online course to supplement their regular schoolwork. That approach combines the best of both worlds and ensures that students enjoy the social and emotional benefits of interacting with their peers.

Games and Cognitive Development in Children

How much do children and adolescents play digital games? The Generation M2 study described earlier found that on average, these youth played about 90 minutes a day.²³ Their overall use of media of all kinds has risen considerably over the years, largely because many of them now have smartphones handy all day long. Game playing rose as well, again because so many young people play games on mobile devices.

For some youth, game playing can lead to a cycle of compulsive overuse that can have negative consequences. For example, they suffer signs of withdrawal when they are unable to access the Internet for a period of time, and despite their efforts to reduce their online time, they continue to return. Their grades might be declining, and their Internet use is taking a severe toll on their relationships with family and friends. Gaming is one of those Internet neighborhoods that appears frequently in such cases, but it is not the only one. Social media, chat rooms, and email are also implicated. I take up the topic of problematic Internet use in [Chapter 11](#), so here I will mainly describe the relationships between gaming and cognitive development in children.

Much research shows that playing certain kinds of digital games can boost some cognitive abilities, as we discussed in the [last chapter](#). Fast-paced action games, for instance, in which players must react quickly to unpredictable events and hit tiny targets that might appear anywhere on a large screen, can improve visual attention, spatial abilities, and related cognitive abilities. Most of those studies involved adults, not children, so effects on cognitive development are not yet clear.²⁴ Nevertheless, the findings are promising and point in the same direction.

One study investigated whether practice with a game that requires spatial skills might help improve spatial abilities in ten-year-olds, much as it does in adults. The researchers first asked the children how much past experience they had with video games, and then they measured spatial abilities using a computer-based test. The girls and boys were randomly assigned either to the experimental group, which played *Marble Madness* for several days, or to the control group, which played a word game that did not involve spatial skills. In *Marble Madness*, players guide the marbles through a maze on the screen, judging their speed and distance and avoiding traps. At the end of the experiment, all the children took the spatial ability tests again.²⁵

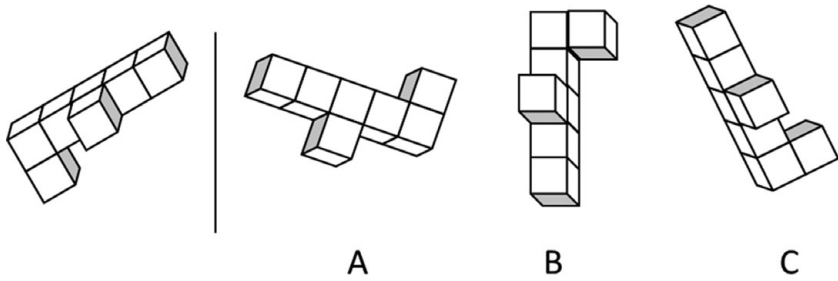


Figure 8.1. Example of a question that assesses mental rotation ability: Choose the shape that is the same as the one on the left but rotated.

The experimental and control groups did not differ before they started playing the games, but afterward, there were marked differences. The average spatial skills for the children who played *Marble Madness* improved significantly, and most of the improvement occurred in the kids who started out with weak spatial skills. Those who already had strong spatial skills showed less improvement.

Studies using *Tetris* as the experimental game come to similar conclusions for older adolescents.²⁶ As geometric shapes drop from the top of the screen, players press keys to rotate them in a way that will best fit the shapes that are already on the bottom. Players must be able to imagine how each tile can fill the spaces and can build a platform that makes it easier to embed new tiles. To assess spatial abilities before and after playing the game, the researchers used tests that involved mental rotation of objects, some of which were similar to the shapes in *Tetris*. Compared with the subjects who played a word game, the ones who played *Tetris* showed significant improvement in spatial abilities post-test. [Figure 8.1](#) shows an example of a question that assesses mental rotation abilities.

For younger children, playing *Tetris* also helps improve spatial abilities, particularly in mental rotation.²⁷ Third-grade boys and girls took a simplified mental rotation pretest and then were assigned to play either *Tetris* or *Where in the World Is Carmen SanDiego?* - the mystery game that helps students learn geography. On their post-tests, the children who played *Tetris* performed significantly better, and once again, the ones whose mental rotation skills were weakest benefited the most. An interesting finding from this study was that initially, scores on the mental rotation task and skill at playing *Tetris* were not

correlated, meaning that the children were using different strategies to do the test and to play the game. But after playing Tetris for several weeks, their scores on the post-test and their skill at Tetris were more closely aligned. They learned something from Tetris that they could then apply to the questions on the test.

Boys tend to do better at some spatial tests, particularly mental rotation, and gender differences appeared in these studies. But game playing can minimize or even erase that gender difference. For the third graders, although some girls did just as well as the boys, the mean for boys was almost 15 percent higher than the girls' mean. But the girls who played Tetris caught up, and there was no gender difference on the post-test for the experimental group.

It appears that games that draw on spatial abilities offer training that helps improve those skills, regardless of age. But the children who benefit most are the ones who have the most to gain.

Strategy games may offer a different kind of benefit for cognitive development in areas such as reasoning skills and problem solving. In a study of the way children solve mathematical puzzles in the online game called Railway Repair, researchers observed how children gradually move from simple problem-solving strategies to more advanced ones.²⁸ Children choose different lengths of track labeled with decimals to fill gaps in a train track, but they can use each length only one time. They initially start out by choosing a length that exactly matches the gap - for example, a length of 0.8 to fill a 0.8 gap. But soon they run out of exact matches and need more complex strategies that combine two or more lengths to accurately fill each gap. Eventually, they run out of those and find that they can't complete the task because they ran out of smaller pieces to fill the remaining gaps. As they start the game over, they adopt more advanced strategies, particularly planning ahead and not using up their exact matches so early.

The allure of digital games for children leads to widespread efforts to create educational games that tap their compelling features. These *serious games* that I described in the gaming chapter come in many forms for children, and they especially emphasize the engagement factor. For example, LearnMem1 is an adventure game developed in Greece that helps students learn computer science terms. It includes many of the most important features of games: rules, clear and challenging goals, fantasy story, progressive levels of difficulty, interaction, high level of control, uncertain outcomes, and immediate feedback. Students must collect flags in different rooms, negotiating obstacles,

bombing walls, and avoiding robots, and also collect information and tips about the terms they need to know in order to answer questions and earn points. Compared with control students who went online to study the computer terms and then took the quiz, the students who played the game not only earned better scores on the test, but also found the game environment to be more motivating.²⁹

Preschool Children and Digital Media

Most of the research on development involves school-age children, but some researchers are looking more closely at how digital media affect younger children. Even very young children can use a mouse and certainly a touch screen. So far, the findings are mainly positive for children nearing school age. Children who have access to computers as preschoolers seem to be a bit better prepared for school.

For example, in a study of more than 1,500 preschool children in Canada, the parents reported how much the child used a computer at home and what role the parent played in teaching the child reading skills. The four-year-olds participated in a variety of cognitive assessments to better evaluate their progress in learning to read, such as their knowledge of the letters of the alphabet. The study found a relationship between the amount of computer use and knowledge of letters, even after controlling for income and other variables.³⁰

Access to age-appropriate digital media may be especially helpful for lower income and disadvantaged preschoolers. In a controlled trial at a Head Start program, researchers randomly assigned children to a control group that received the regular Head Start curriculum or to an experimental group in which the children also had daily access to computers equipped with educational software such as Dr. Seuss's ABC, and Millie's Math House.³¹ Before starting the program, the children were given a variety of cognitive pretests, and then were tested again as they were graduating from Head Start. The children in the experimental group performed better than the controls on several of the cognitive tests.

Caution is very much warranted about computer use for young children, however, given the limits of the research thus far. The American Academy of Pediatrics discourages any screen time for children younger than two. While some exposure to high-quality software appears to help preschoolers gain ground, parents should be very much involved in the choice of materials and the amount of

time children spend on them. Especially at this young age, children need the stimulation they can get only by interacting with real people and real objects.

Media Multitasking in Children and Adolescents

Human beings have always had the capacity to manage more than one task at a time, especially to stay alert to any sign of danger as we go about our daily routines. But the Internet, and mobile technologies in particular, offer opportunities to multitask in completely new ways. Children might have several windows open on the computer, one for homework, a second for chat sessions, another for web searching. At the same time, they are listening to music and glancing at their smartphone every few minutes, checking for incoming texts, tweets, or Snapchat photos.

Observations of how middle- and high school students multitask show how common it is. Researchers visited the homes of more than 250 students and watched them work on their homework, recording what they did every moment for 15 minutes.³² On average, they were on task for just 65 percent of the time and rarely went for more than 4 or 5 minutes without checking social media, sending a text, or doing something else off-task.

Jason - the boy I mentioned in the beginning of this chapter - is confident that he can easily manage two or more activities at the same time, and even that he gets more done that way. My studies of children with high academic ability find similar beliefs, especially for adolescents who frequently multitask when doing homework.

In fact, humans *can* multitask reasonably well when one of the tasks is a highly practiced, almost automatic one, such as walking, exercising, or knitting. Some multitasking can improve performance on less complex tasks, because it adds stimulation and prevents boredom. But when the tasks demand more cognitive capacity, we don't actually multitask, we engage in *task switching*. We toggle back and forth from one to the other, dropping a bit of efficiency with each transfer.

The cognitive costs of rapidly switching from one task to another can be very high, depending on what the tasks are. Completing two complex tasks when you are switching back and forth between them can actually double the time they take, compared with completing one task at a time.

In one study, subjects watched a screen and when a number appeared, they pressed a key to indicate whether the number was odd or even.³³ This task is mixed in with a second task, in which the subject presses one key if the number is high and another if it is low. It certainly sounds simple enough, but results show that the cost of cognitively changing gears to handle a different task is significant. The subjects' response times drop each time the task is switched, and they also make more errors.

Distractions can also lead to multitasking, making it more difficult to focus on a single task even if the distraction doesn't actually require any response. In a study in Italy, children watched a five-minute video clip with scenes such as a girl making a phone call or a man stealing money from a wallet.³⁴ After the video, the children tried to recall as much as they could. To see how distractions affected their ability to recall the events, the researchers assigned the kids to different groups. One group stared at a blank TV screen while answering the questions, a second closed their eyes, a third looked at a screen flashing foreign language words, and a fourth heard the words spoken aloud. The children did the best when they closed their eyes or stared at a blank screen, blocking out visual distractions. You can imagine how the relentless ring tones and incoming texts could play a distracting role similar to those foreign words, impeding performance on homework or tests.

Research on the seemingly universal multitasking in which teens combine music with homework and practically everything else they do leads to mixed results. Some studies find that listening to music that you like can improve cognitive performance on certain tasks, but others find negative effects. It seems to depend on your personality, age, and the nature of the main task you are trying to accomplish. Some people - introverts, for instance - seem to suffer more impairment when music is playing. It also depends on the type of music.

In one study, researchers randomly assigned subjects to one of four groups as they read four passages of text and answered questions about them, similar to questions that would appear on the College Board's SAT. One group listened to music with lyrics that they liked, another listened to lyrical music they said they did not like, and a third listened to instrumental music. The "liked" music came from artists such as One Direction and Katy Perry. The fourth group was a control, who read the passages with no music or noise in the background.³⁵ The subjects performed best when it was quiet, followed by the

condition in which instrumental music was playing. Music with lyrics, which is what teens typically play, caused significant drops in reading comprehension.

Studies using functional magnetic resonance imaging (fMRI) scans and other measures of brain activity suggest that multitasking may have effects on how people learn, a finding that could be extremely important for cognitive development. In one study, subjects used trial and error to learn how to predict the weather (rain or sun) for two different cities using different cues, while high and low tones sounded in the background. Researchers told some subjects to ignore the tones, but the others had to listen and count the high tones. The subjects who didn't multitask did a little better as they were learning the task. But afterward, it became clear that the impact of multitasking was even greater. They took a test to determine how much they could apply what they learned - actually selecting cues that would best predict rain or sun, rather than predicting from the cues provided. On this test, the subjects who were not multitasking during the learning phase did very well when they were applying knowledge. But those who were also trying to count high tones while they were learning the task were far less able to correctly apply what they learned.³⁶

Why did the multitaskers perform reasonably well during learning but fare badly when they tried to apply their knowledge? The results from the brain scans shed some light, because those scans also differed depending on whether the subject was multitasking. When not distracted, the subjects showed most activity in the medial temporal lobe, an area that supports memory and recall. One of its important structures is the hippocampus, which is well known as a critical region for memory formation. But when the subjects were multitasking, their brains showed more activity in the striatum, which is involved in the formation of habits. One hypothesis is that learning while multitasking can lead to a kind of learning that looks more like the way we acquire habits, with little flexibility to apply the knowledge in a new context.

What that means to learning outcomes for children and adolescents - the digital natives - is not entirely clear. Their multitasking learning style may mean that they acquire information but have less flexibility to apply it. Perhaps it means that they can pass multiple choice tests that don't ask for much critical thinking or application. Subtle effects like these may be more difficult to recognize but are very important to explore further because of their longer term significance.

PHYSICAL DEVELOPMENT

Surrounded by technology and connected most of the time, digital natives may also show somewhat different physical development. The areas that trigger the most concern involve sleep patterns and obesity.

Sleep Patterns

Imagine Jason's bedroom at 10 PM, his putative bedtime. His smartphone is charging on the night table, and his laptop is on the floor. Across the room is a flat-screen TV on the dresser, with a video game console next to it. With all those tempting technologies, can he get to sleep?

A longitudinal study in Finland suggests that his sleep patterns are definitely affected because of such easy access to technology.³⁷ Children in fourth and fifth grades participated in a study lasting eighteen months, in which their sleep patterns and technology use were assessed. These researchers found that children who used a computer or watched TV the most slept less than the others and went to bed later.

Another study of more than 2,000 Swedish children from six to sixteen years old found that those who slept less were more likely to be heavier users of the computer and TV and were also more likely to say they did not enjoy school very much.³⁸ The youngest children didn't have much difficulty getting to sleep at night, but the adolescents did. They also had more trouble waking up, and felt tired in school a lot of the time.

Children and adolescents who don't get enough sleep are at risk in many ways, not just in their performance at school. Sleep loss reduces their capacity to pay attention, and that can affect their safety. An experiment tested the effects of sleep restriction on teens using virtual reality. The subjects entered the virtual reality world as pedestrians and attempted to cross a busy street.³⁹ When deprived of some sleep the night before the test, they delayed longer before entering the crossing; they left less space between themselves and the moving virtual cars; and they had more close calls in which they were nearly struck.

Although the mechanisms are unclear, the research suggests that heavy computer and Internet use is linked to poorer sleep patterns in children. Having easy access to these tempting devices in the bedroom is certainly a likely reason. Some research also hints at a relationship

between the computer's bright display of blue light and the production of melatonin, a chemical that regulates sleep cycles. In the evening, melatonin typically rises, but some studies find that the bright displays may suppress that hormone.⁴⁰ That would just compound the problem for children who are already getting too little sleep. Taking this into account, parents might want to ban screen time after a certain hour, and not just for their children. Their own sleep could benefit as well.

Childhood Obesity and Physical Exercise

Do children who sit at a computer for long hours become overweight, contributing to the obesity epidemic? The explosive increase in childhood obesity corresponds with the growing use of computers and smartphones, but that correlation isn't a smoking gun. We do know there is a strong relationship between amount of TV viewing and obesity in children, but the evidence that computer use makes its own contribution is not as clear.

In a large cross-sectional study of preschoolers, researchers assessed their TV viewing habits and computer use, along with their weight and other signs of risk for obesity, such as the thickness of the skinfold on the arm.⁴¹ There was no relationship between computer use and the child's actual weight, but there were signs that a relationship might be emerging. Any computer use at all among these children was associated with thicker skinfolds, suggesting that they may be on a path to becoming less active and overweight.

For older children and adolescents, results are also suggestive. For example, one study of American teenagers found a relationship between amount of computer use and obesity in girls but not in boys. But in a large study of Finnish children, researchers followed the boys and girls from age eleven to seventeen and a half, obtaining data from the subjects and their parents at various intervals.⁴² They found that the more these subjects reported using a computer, the more they were at risk for becoming overweight, and this finding applied to boys as well as girls. They also discovered a relationship between cell phone use - as measured by the size of their cell phone bill - and body mass index.

The reasons that computer use may lead to obesity probably include the fact that it is a typically sedentary activity and might take time away from physical activity. It can also lead to more

snacking, just as TV viewing does. But certain types of computer use may work in the opposite direction, by getting kids up off the couch to do “exergaming,” with technology such as the Nintendo Wii and innovative software that promotes physical activity.

Exergaming may be beneficial for cognitive development as well. In one study, children aged six to nine engaged in one of four activities each day for several days.⁴³ For some periods, the children did “exergaming,” in which they jogged in place to move a character on the screen, zigzagging to avoid the online pits, rolling logs, and other obstacles. In another session, the children played Marathon, an exergame in which the child moves the character forward by just jogging on a mat. The third activity was an engaging video game (Super Mario World) that didn’t involve any physical activity, and the fourth was a video on healthy living habits.

After each activity, the children took a child-friendly version of the “flanker” test, in which a yellow fish appears in the center of a screen, and the subject quickly presses a key to indicate which way it faces. For some trials, the fish is surrounded by other fish facing the same way, and for the others, the surrounding fish are facing in the other direction. It takes longer to judge the direction of a fish facing the “wrong” way, and longer still for children with cognitive impairments. This test is a measure of *executive functions*, which include the cognitive processes that help a child think and behave in controlled, goal-directed ways. The exergamers performed better on the flanker fish test than those who were sedentary, suggesting that physical exercise is not just about avoiding obesity; it is a valuable ingredient for cognitive development. If such software encourages more exercise, so much the better.

SOCIAL AND EMOTIONAL DEVELOPMENT

Sophia starts texting her friends as soon as she boards the school bus heading home, even though she just left them. She reports, “omg dg 53xe,” translated as “Oh my god, D.G. is so sexy” (D.G. is a boy on the bus). The eighth grader sends about seventy-five texts every day, including a few to say good night to the same friends before she falls asleep. According to a Pew report, Sophia texts less than most teens between fourteen and seventeen, for whom the average is a hundred texts a day.⁴⁴

Friendship Patterns

Clearly, the Internet, mobile phones, and all the related technologies are having important effects on social development and relationships, especially for children as they transition into adolescence and as peer friendships overshadow family relationships. The technology environments children venture into are also changing very fast, so parents, educators, and researchers have trouble keeping pace. For example, teens adopted texting as a favored means of communication at a breathtaking pace, quickly overtaking phone calls and email. Sophia rolls her eyes whenever her parents ask what apps she uses, loathe to explain all the cool new tools she and her friends try out.

When the Internet was young, many concerns revolved around the dangers of meeting strangers online or the risks of developing weaker friendship ties online that could interfere with real-life relationships. While those concerns have not evaporated, most children and adolescents use their constant connectedness, as Sophia does, to communicate with people they already know in person.

Indeed, the *rich get richer hypothesis* predicts that the outgoing, extraverted teens who are socially adept and have strong face-to-face connections will also be the ones to use the Internet the most to communicate with friends, further strengthening their ties. In a study of Dutch adolescents aged ten to sixteen, researchers asked how much they used the Internet to communicate with friends or strangers and how close they felt to their friends. Example items included “When my friends know that something is bothering me, they ask me about it” and “My friends help me to understand myself better.”⁴⁵ The “rich,” in terms of how close they felt to their friends, were also the ones who used the Internet to communicate with them the most.

But what happens to the “poor,” the young people who are more socially anxious or shy in face-to-face settings? Are they losing ground? The *social compensation hypothesis* predicts that adolescents who suffer from more social anxiety choose to use the Internet to communicate with their peers because they have difficulty with face-to-face interactions. The Dutch adolescents who reported more loneliness and anxiety, the boys especially, used the Internet less often than the extraverted ones, but they also said that the Internet was a better place for deeper, more intimate self-disclosures and intimacies. For these youngsters, the Internet is less important as a means to maintain a lot of friendships than as a place where they can talk about intimate

topics that they can't discuss offline. Those teens view online communication as less "risky," compared with face-to-face communication, because they have better control over what they say and can avoid embarrassing fumbles.

Online environments can also be a welcoming home for adolescents who find themselves isolated or marginalized in their face-to-face settings. As I discussed in [Chapter 6](#), online support groups can be very important for people in special circumstances. A study of the way pregnant teens or teen mothers use such forums found many instances of emotional support and information sharing that help them cope and improve their well-being. One poster wrote:

I'm so happy to know that other people are in the same boat as I am, i've said it a million billion times already but i'll say it again, i do not know where i'd be without this site! Its a total life savior.⁴⁶

Identity Development

At the same time online communication among friends is exploding, adolescents begin struggling with identity issues - who they are, what they believe, what occupation might suit them best, and how they want to relate to family, friends, and their culture. Erik Erikson's classic work in developmental psychology stressed that achieving an identity is a lifelong task, but it is the major task of adolescence, when the child is maturing emotionally, socially, and sexually on the way to adulthood. The task can span years in which the teen experiments, explores, and finally comes to some conclusions that seem to fit best. James Marcia identified two important elements in this journey, with different outcomes ([Table 8.1](#)).⁴⁷ The children who don't have opportunities to explore may fall into "identity diffusion," not really committing to much of anything. One might say, "Politics? Oh no, I don't really care much about that - never did." These kids might also fall into an identity foreclosure pattern, in which they make commitments without having looked into options. Jack, for instance, said both his parents are doctors and that's what he'll pursue, too.

Children who actively explore different options - and the Internet offers them plenty of ways to do that - might eventually come to make a commitment based on what they've learned about themselves and their beliefs, and then achieve a stable, satisfying identity.

Table 8.1. *Assessing the outcomes of an adolescent's quest for an identity*

	COMMITMENT TO THE IDENTITY CHOSEN		
Active Exploration	<i>No</i>	<i>No</i>	<i>Yes</i>
	<i>No</i>	Identity diffusion	Foreclosure
	<i>Yes</i>	Moratorium	Identity achievement

Adolescents who explore but who hesitate to commit fall into the “moratorium” quadrant, putting off decisions.

For digital natives, the process is tightly connected to their online worlds. As they choose nicknames for chat rooms or email and develop their profiles on a social networking site, adolescents have plenty of room to experiment. Indeed, online worlds are like identity labs in which people of any age can try on different personas to see how they feel and how others react.

Sonia Livingstone, who directed the UK Children Go Online project in the United Kingdom, found that girls especially loved to tinker with their profiles. Danielle, for example, said that what she enjoys most “is that you can just change it all the time [and so] you can show different sides of yourself.” You can also start over if things don’t go as you hoped. Leo, speaking about his MySpace profile, said, “The one I made before I thought I didn’t really like it, so I thought I’d start again. I’d start a new one . . . it was just . . . people I didn’t like had the address, so I thought I should start fresh.”⁴⁸

Think for a moment about a teen who might want to experiment with a tattooed biker identity but, a year later, realizes the crowd doesn’t suit him. It’s much easier to start a new profile page than remove a tattoo. However, digital footprints don’t disappear, and youthful identity explorations may come back to haunt adolescents as young adults on the job market. According to an article in the *Wall Street Journal*, former Google CEO Eric Schmidt predicts that “every young person one day will be entitled automatically to change his or her name on reaching adulthood in order to disown youthful hijinks stored on their friends’ social media sites.”⁴⁹

Most of the major websites do allow users to delete their own postings, and a California law passed in 2013 requires all websites to prominently feature an “eraser button” for minors, so they can change their minds. Software tools are also emerging that promise to make Facebook posts self-destruct or delete instant messages. Although such

steps are helpful, they may also lead adolescents to believe their digital tracks are easily erased. Once online, a post or image is basically “in the wild,” where it could be photographed, retweeted, forwarded, or uploaded to any website. Even Snapchat photos, which vanish ten seconds after the recipient opens and views them, are easy for any quick thinking recipient to preserve.

Particularly because most adolescents interact online with people they already know in person, they don’t tend to stray too far from reality when they craft an online persona. Occasionally they do invent a whole new character and put on a masquerade. Some are created as part of a cyberbullying effort (discussed later), but others are fanciful efforts to experiment with identities. They often drop them after a while, which may help explain why social networks have millions of fake or discarded profiles.

The way online environments promote self-disclosure and disinhibition also affects identity development. In one study, the researchers found that most of their late adolescent subjects were in the moratorium state and that they showed a “culture of self-disclosure” on Facebook. It may be that Facebook is an especially attractive venue for adolescents in the moratorium state, because it offers that identity lab in which they can safely experiment.⁵⁰ These subjects also seemed mindful that their online profiles and postings don’t quite show the real “me,” perhaps because the real “me” continues to shift. One explained, “It’s not accurate about who you are all the time; it doesn’t show the whole picture.”

Clearly, the social network plays an important role in these adolescents’ identity development. One of the subjects said, “I don’t know how to separate my digital life from my real life.” Perhaps that is no longer possible.

Navigating the Collapsing Context

The *collapsing context* on social networks often causes confusion, as I discussed in [Chapter 2](#) on impression formation. When you have hundreds of “friends” - from very close ones to distant relations and employers - how do you craft a clever post that will amuse your audience, reflect your personality, and avoid offending some people? The answer is, with great difficulty. Face to face, you can see exactly who your audience is and have a reasonably clear idea how they will react to something you say or do. Although tools exist to segment

your hundreds of friends or followers, the task is very labor intensive and error prone.

Consider how eleven-year-old Susie customizes messages one after the other to her grandparents and her friend, as researchers watch her type on her keyboard:

To Gran and Grandad, We arrived home safe and well. Helen is really pleased with her necklace and sends her thanks. Thank You for having us we really enjoyed ourselves. Thanks again for having us, love from Susie XXXX

*howd the move go? i cant wate 2 c yor new howse come round when you can!!
from Devilduck⁵¹*

If Susie posts to a social network, what could she possibly say? It takes considerable cognitive resources to segment audiences, and slip-ups are common. This may help explain why Facebook use among teens is declining, rather rapidly according to some reports. Between 2011 and 2014, the number of teens aged thirteen to seventeen using Facebook dropped from 13.1 to 9.8 million – a drop of more than 25 percent. The fastest growing demographic on the Facebook network is middle age and older. During that same time period, the number of users aged fifty-five and up shot up over 80 percent.⁵²

Cyberbullying

A twelve-year-old girl in Florida suffered so much abuse from cyberbullies that she jumped to her death from a tower at an abandoned cement plant. The perpetrators, two girls aged twelve and fourteen, sent her frequent messages encouraging suicide, including a photo of the girl with razor blades on her arm. Remorse for their actions was in short supply. One posted, “Yes ik [I know] I bullied REBECCA nd she killed her self but IDGAF [I don’t give a f**k].”⁵³

Bullying in the digital age is not quite the same as the face-to-face bullying that happens in schools around the world. One major difference is that the perpetrator can torment the victim around the clock, regardless of where the victim is located. While traditional bullying occurs mostly in school or on school buses, cyberbullying is a 24/7 phenomenon. The bully can send texts, create humiliating websites, upload photos, or spread damaging information all day and night for months on end.

Another key difference is that the potential audience for cyberbullying is vast. If the bully posts a humiliating photo online, it could

reach thousands or millions overnight. It also may never be deleted, so the victim continues to suffer month after month, even year after year. In the school yard, only a handful of people might observe the event, so the victim's exposure would not linger - unless a bystander recorded it on a cell phone and chose to add cyberbullying to the traditional bullying event.

Third, cyberbullying occurs in the context of online communications, with all the psychological factors that affect how we behave online in general. The perpetrators feel more anonymous, and often they are. In a large survey of middle-school students, 11 percent said they were victims of cyberbullying at least once in the last two months, and almost half of them had no idea who the perpetrator was.⁵⁴

A longitudinal study demonstrated that a teen's attitudes toward anonymity actually can predict whether he or she will begin to approve of cyberbullying, and then become someone who engages in it. The teens completed surveys four times over the school year, with items such as "Sending mean emails or text messages is easy to do because I am not face-to-face with the other person" and "It is acceptable to send mean emails to others when they deserve it." The researchers found that those who felt more anonymous when they were online were also the ones who developed more positive attitudes toward cyberbullying and to engage in it themselves.⁵⁵

Mobile apps that support anonymous messaging have been linked to cyberbullying, particularly because they reduce accountability. Such controversial apps rise and fall in popularity, and some countries ban them completely.

Amplifying the effects of anonymity is simply the physical distance. Cyberbullies feel safer from retaliation, and the resulting disinhibition can unleash very troubling behavior. The perpetrators also can't observe the victim's reaction, so they are less likely to experience any empathy for the person in pain. The inability to observe the victim applies to the bystanders as well. They, too, can't see the effects on the victim, so they may be less likely to intervene. Indeed, they may trivialize the effects, thinking that there is a major difference between a punch in the nose and a string of digital text.

How prevalent is cyberbullying? A review of several studies found that from 10 to 40 percent of youth report having been bullied online, and 7 to 11 percent say they cyberbullied someone else. Estimates in

different studies vary widely, though, partly depending on how the phenomenon is defined and measured. Boys are most likely to bully their victims in traditional ways, but cyberbullying is a type of indirect aggression, the kind that girls favor. Studies show that girls and boys become cyberbullies in equal numbers, and some find more girls choosing that route. Middle school is when cyberbullying seems to peak, tapering off in high school and college.⁵⁶

Online environments may be especially prone to draw out bullying in kids with certain personality characteristics, especially a lack of empathy. The girl's cavalier dismissal of the Florida teen's suicide illustrates how unsympathetic cyberbullies can be. They often believe the victim provoked them and deserves what they get. Cyberbullies also tend to score higher on narcissism, holding a grand view of themselves and willing to taking advantage of others for their own personal gain. Not surprisingly, victims tend to show more depression and anxiety and lower self-esteem. The long-term cost of being cyberbullied can be high, indeed.

How can adults protect young people from cyberbullying? Much of the time, the parents don't even know about it, because children and teens don't report it. Some youth believe that they should be able to manage communication technologies on their own, especially ones that the parents may not know how to use. They also may think it is childish to complain or that their parents might then restrict further technology use. Taking the mobile phone away or setting restrictive privacy settings are drastic ways to protect a victim, and it may not stop the cyberbullying in any case. Although the victim would no longer see hateful messages, others would see them, along with any humiliating photos or videos that the bully spreads. The victim's level of anxiety would only grow while not knowing what others were seeing.

Parents can help fight cyberbullying by knowing more about what their children are doing online, what services they use, what their privacy settings are, and how they are communicating with others. They can also educate young people about this growing problem, encouraging empathy and emphasizing how serious cyberbullying is. Young people should be aware of consequences, not just from parents, but from the school and law enforcement. While they have been slow to respond to new technologies, many state legislatures are passing laws that permit schools to discipline students for off-campus harassment using electronic devices.

SEXUAL DEVELOPMENT

As in practically every other area of development, the Internet offers both positives and negatives for adolescents as they mature sexually. On the plus side, young people can learn the facts about sexual maturation, reproduction, pregnancy, homosexuality, sexually transmitted diseases, and other topics that they might not be comfortable discussing with their parents. Misinformation abounds, of course, but schools are putting more emphasis on information literacy to help students judge the quality and accuracy of online information.

Adolescents can also explore romantic relationships with communications technologies that they judge less risky in terms of potential embarrassment. Fifteen-year-old Jarrod reports that it is much easier to “like” a girl’s vacation photo to show some interest, compared with asking her to dance or texting her. If she ignores the “like,” that suggests she probably doesn’t want to pursue anything. Jarrod might feel sad, but at least he wasn’t rejected to his face or in front of his friends.

Communicating romantic interest in the online environment is challenging, and teens puzzle over constantly shifting, subtle meanings. On HeTexted, a website where visitors submit questions about how to “interpret” a text message, one girl anxiously explained how a boy she had been communicating with started ending his text messages with a period. She thought it meant he was angry or annoyed, but wanted advice from other users. Why would the boy end a sentence with a period rather than a wink - ;) - or an exclamation point, or even nothing? The question generated considerable discussion, with no consensus reached.

The Internet also exposes children and adolescents to new temptations that, like cyberbullying, are facilitated by the disinhibiting online environments. A key example is sexting.

Sexting

A neologism that combines “sex” and “texting,” *sexting* took off in the early 2000s, and was added to Merriam-Webster’s Collegiate Dictionary in 2012. It refers to sending sexually explicit messages, including photos, typically from one mobile phone to another. Risqué selfies are especially popular and easy to create alone, especially with the help of “selfie sticks” that extend the arm so the user can snap selfies from any angle. Mobile apps make it a very simple matter to embellish the image and click “send.”

The prevalence of sexting is difficult to pin down, but combining results from several surveys leads to the conclusion that between 2.5 percent and 21 percent of minors in the United States report that they have sent at least one sext. Somewhat more report that they received a sext, particularly the older adolescents. Among seventeen-year-olds, 30 percent said they received a least one sexually explicit message. Among adults, sexting is even more common, and females of all ages report more sexting than males.⁵⁷

Most research on sexting focuses on its serious risks as a deviant behavior, one that can lead to very negative consequences. One possibility is cyberbullying in which the recipient simply shares the photo or video with other people. An Ohio middle-school girl sent a racy picture of herself to her boyfriend, but after the couple broke up, the boy sent the photo around by email. Her classmates called her a whore, in a reaction called “slut shaming.” Suffering from depression and fearing the taunts of her classmates, the teen started skipping classes, and she eventually hung herself.

Another risk comes from the legal side and laws that criminalize sexting in hodgepodge ways. As so often happens, laws do not keep up with modern technology or youth trends, and legal systems are poorly prepared to deal with youth sexting. Many cases are adjudicated under the severe laws covering the transmission of child pornography, which carry steep punishments, jail time, and registration as a sex offender. Some states are passing laws that deal more directly with youth sexting, partly because legislators and educators argue that child pornography laws do not quite fit and that their penalties are overly harsh. Others have found ways to apply reduced penalties or require education so that teens caught sexting are not grouped with online predators who exploit children. Even so, state laws vary dramatically, and under federal law, sexting involving minors is illegal and can carry severe penalties.

Given the risks, why are adolescents sexting? When undergraduates were asked why they sexted as minors, 44 percent said it involved a “mutual interest between exclusive romantic partners.” With sexual maturation comes a strong need for intimacy and romance, and sexting can show that the partners trust one another not to abuse that kind of dangerous self-disclosure.

Another motive they cited was “to impress/flirt with someone in whom I was romantically interested.” Peer pressure was also mentioned, but only 1 percent of this sample thought that was an

important driver. They did say, however, that they felt “compelled to respond” to a sext that someone else had sent to them. Another finding from that survey was that very few of the subjects recalled any negative effects from their teenage sexting, but 71 percent said they knew someone who suffered humiliation, tarnished reputation, and bullying. Even though most of them escaped harm, and most had no idea sexting could be prosecuted under child pornography laws, they did recognize that sexting is risky behavior.⁵⁸

Some argue that consensual sexting is simply an expression of intimacy in the digital age, even for teens. But given the harsh legal penalties and the potential for cyberbullying, this kind of expression poses an extremely serious risk that youth underestimate.

Pornography and Online Predators

Protecting children from pornography has always been a top priority for society, and it is generally an uphill battle. Porn sites are abundant, and links to them spread in ads, email spam, tweets, social network posts, texts, and mobile apps. Surveys suggest that most young people have run into online pornography at one time or another, although they may not have mentioned it to their parents. For example, in the UK Children Go Online study, which surveyed young people aged nine to nineteen and their parents, 57 percent of the youngsters said they had seen online pornography at least once. A substantial proportion of the subjects also reported that they are sometimes harassed online, with unwanted sexual solicitations and comments in chat rooms, email, instant messages, or texts. Among the U.K. children who went online at least once a week, almost a third said they had that kind of negative experience.

Parents, however, underestimate how frequently these events occur. Only 16 percent of the parents thought that their child had encountered any pornography, and just 7 percent thought their child had received any online sexual solicitations.⁵⁹

Findings for youth in the United States are similar. In a telephone survey of a representative sample of youth aged ten to seventeen, 42 percent said they had been exposed to online pornography in the last year.⁶⁰ Not all the exposure is unwanted, of course. In the phone survey, more than a third of the young people who had encountered pornography - mostly boys - said they went to some adult websites on purpose.

How does this exposure affect young people? In a study in Europe, researchers interviewed thousands of children aged nine to sixteen, and one question they asked was “What things on the Internet would bother people of about your age?” So the children could answer more honestly, they wrote their answers privately on a sheet of paper and sealed it in an envelope, so neither parent nor interviewer could link them to their comments. Thirty-eight percent identified one or more risks, and one in five of those mentioned pornography, which was more than any other category. Here are some examples of what they wrote⁶¹:

Ugly pictures, ugly videos that suggest sex really bother me.

- Boy, 11, Slovenia

I think it is not appropriate for children of my age to see images of naked women, as in online advertisements that pop up when I am not looking for it, such as on the website where I check my email.

- Girl, 15, Italy

A striking finding from this study was the sheer diversity in the risks these children wrote about - cyberbullying, vulgar language, viruses, fraud, being tracked online, violent and gory videos on Youtube, images of animals being abused, and many others. Clearly these children thought more broadly about online risks, and what is really bothering them, than most adults might assume.

On a positive note, unwanted exposure to pornography is also declining for children, thanks to filtering software. Also, unwanted online sexual solicitations are becoming less and less frequent, according to data from the Youth Internet Safety Surveys, which are conducted periodically in the United States with children aged ten to seventeen. In 2000, 19 percent reported events such as someone trying to get them to talk about sex when they didn't want to or someone asking for sexual information when they didn't want to answer questions like that. That figure dropped to 13 percent in 2005, then to 9 percent in 2010.

By and large, the people who are contacting children and adolescents in this way are not the strangers they might encounter in open chat rooms - the “Internet predators” who troll such venues for lonely kids. Instead, the solicitors are increasingly people the children know in person - youthful friends and acquaintances. Most solicitations appear to occur in the context of social networking sites, where people already know one another. A child's network of friends might include

one or two people who are not exactly “friends,” which is something for parents to consider.⁶²

CHILD DEVELOPMENT AND THE INTERNET: PROMOTING THE GOOD, AVOIDING THE BAD

The public and the press swing back and forth on the Internet and the role it plays in child development. A tragic case of cyberbullying or the arrest of a child pornography ring capture news headlines, and the press, in its 24/7 news cycle, explores every possible angle. Our hearts go out to the families whose children were egregiously harmed, and we demand that educators and policy makers pay attention to the growing online risks for children and adolescents.

But are we going overboard with moral panic about the Internet’s dangers for child development? Human beings often show an *availability bias*, in which we judge the likelihood of events based on how readily they come to mind. After reading about a tragic suicide due to cyberbullying, we will overestimate how much it occurs and how high the actual risks are.

That is not to say there are no risks when children go online. Beyond the ones described in this chapter are several that all Internet users face. Viruses, spam, phishing, and tracking are all part of the online experience now, and children need to learn early how to protect themselves and their computers. The Internet is far less the “Wild West” that it was in the 1990s and now is more dominated by hard-driving commercial interests and highly sophisticated business strategies. All of those “free” services - from Facebook and Twitter to Candy Crush Saga - carry their own costs for privacy.

Children also come to love aspects of their virtual lives, whether it is their character on Club Penguin or a virtual pet. When Zynga made the business decision to terminate its free game called PetVille, the company gave just two weeks’ notice. Outraged players who for years had been nurturing their own virtual pets on the site poured out their anguish. One mother wrote,

My autistic son and I had played Petville together for two years. It was something we could do together, and made us very happy. I wish you “people” could have seen the streams of tears running down both our faces as we played our last session. We even took photographs. I guess money trumps everything.⁶³

Yet denying children the opportunity to go online deprives them of its many highly positive elements and the contribution they can make to development. Finding the right balance between unlimited and tightly restricted access is the job of parents and educators, who have many tools at hand, including filtering software, passwords, and other types of technical controls. For instance, schools often restrict access to YouTube on school computers, but surveys show that once the students get home, YouTube is one of their favorite destinations, whether for fun or for schoolwork. That disconnect led Google, YouTube's parent company, to implement "YouTube for Schools," a network setting that schools can use to allow access to the site's educational material but still filter out the rest of YouTube's content.

Kids often find ways around technical attempts to prevent them from entering risky environments, so education, awareness, and simple rules will always be important. Some parents, for example, set a bedtime "check in" rule, in which mobile phones and laptops are safely stored outside the bedroom, when it is time to go to sleep.

Finally, parents should start early to know how their children are using the Internet, what kind of sites they visit, and who they communicate with. As the child grows, parents can educate children about risks, trusting that the child will become increasingly competent to deal with them and will know when to inform parents. Yes, there are risks, but they can be reduced so that the Internet remains a positive part of child development.

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GENDER ISSUES AND SEXUALITY ON THE INTERNET

Gender has not vaporized in cyberspace, and issues related to gender roles and stereotypes have, in some ways, been exacerbated as we migrated to online environments in large numbers. I have touched on some gender issues in previous chapters as they relate to impression formation, social networking, aggression, helping, and other aspects of the psychology of the Internet. To understand why gender is relevant to our online behavior, and why this environment appears to magnify certain issues, we first need to look closely at the stereotypes people often hold about men and women, in particular, where they come from and how they affect our behavior in face-to-face settings.

MALE AND FEMALE: NOT OPPOSITE SEXES

Calling men and women “opposite” sexes has probably biased our thinking about gender roles. The truth is that there are far more similarities than differences. A major review of the huge body of research that examines gender differences came to the conclusion that when differences are found, the vast majority are quite small.¹

Even when statistical differences are found on some measure, the variation *within* each group is almost always extremely high. If, for example, a study finds that the mean score for men on a spatial abilities test comes out higher than the mean score for women, the finding is often reported with the headline, “Research confirms that men have better spatial abilities than women.” The underlying data would have shown considerable overlap, with many women outscoring men, but that is not the way it appears in the press. We like things

simple, and it is just easier to slap labels on people than to struggle with the complexity underlying any kind of human behavior.

Are You Adventurous or Affectionate?

Consider, for example, a large multinational study in which researchers described two different people.² One person is *adventurous, coarse, dominant, forceful, independent, and strong*, while the second is *affectionate, dependent, dreamy, emotional, submissive, and weak*. In country after country, the subjects came to the same conclusion: the first one is a man and the second one is a woman. The adjectives we tend to associate with each gender seem quite opposite, even though the reality underlying them is far more complicated.

Research on behavioral differences between demographic groups is often controversial because results are so easily misreported, misinterpreted, and potentially misused. They are also quite slippery, and differences that appear in one study can easily vanish in the next. Yet news stories about differences in achievement test scores, personality measures, brain functioning, and so on can be blown out of proportion and used to perpetuate stereotypes and discrimination, especially when the details are lost in the fine print. But politics and oversimplifications aside, researchers have found differences between men and women in a variety of behaviors. Sometimes these are negligible and never appear again in later studies. Sometimes they are larger and more stable, though there is always that overlap.

Some of the differences match the stereotypes, while others counteract them. On personality tests, for example, men - especially young men - often do, on average, come out higher on aggressiveness, competitiveness, dominance, and task orientation. Women tend to show more orientation toward connectedness and relationships, more empathy, and more sensitivity to the emotions and feelings of others.³ Many studies have found that when women look at images of people showing some emotion, they often are, on average, better able to interpret that emotion correctly, but even here, many nuances emerge. Anger, for instance, is an emotion that both sexes recognize, especially if the person displaying it is male.

Gender and Social Networks

That women orient a bit more toward connectedness and relationships plays out in online social networks, where they use their sites

somewhat differently compared with men. A study of more than 1,000 Facebook users from around the world found that women spend more time on Facebook, have more friends, and are engaged in more relationship building with family and friends.⁴ Younger women were especially active and interested in checking the relationship status of other people.

Although an orientation toward relationships offers many positive benefits in terms of stronger friendships and connectedness, it also has some drawbacks for social network users. A lot happens on a network, and people see some things they may not want to see or that they misinterpret. In [Chapter 5](#) I described studies showing how Facebook use can promote jealousy because people often don't have a reliable context to interpret what they see. A woman might notice a new female friend added to her boyfriend's network, and her stronger orientation toward relationships may increase her anxiety and jealousy.

A survey of undergraduate students who were in a romantic relationship asked about their feelings of jealousy, with items that assessed behaviors such as "worry that partner uses Facebook to re-connect with past partners," "suspicions about partner's private messages," and "jealous over wall message received by partner."⁵ Then they filled out the questionnaire a second time, but instead of answering for themselves, they were to answer how they thought their partner would answer.

Based on the first round, women were more prone to jealousy triggered by Facebook events - imagined or real - compared with the men. "Mate guarding" was especially pronounced, in which the woman spends more time monitoring the partner's Facebook activity and feeling anxious about it. Responses to the second round showed that women did not perceive themselves as more jealous than their partners, but the men thought women would behave in more jealous ways.

Let's turn now to the actual words people speak or type and how gender relates to them.

GENDER AND LANGUAGE

Sometimes I don't even understand some of the stuff my girlfriend texts me. Girls have so many weird abbreviations they use I can't even keep up. I feel like they make up a new one every day.

- Male, college sophomore⁶

Do men and women use language differently? The relationship between language use and gender is very important to understand how differences might play out online, and not just in the text messages the college sophomore is talking about.⁷

People use words differently for many reasons, and each of us can quickly adapt our linguistic performance to the social context and audience. To a friend, I might say, "How about lunch tomorrow?" To a professional colleague, I might say instead, "Are you available for a lunch meeting tomorrow?" thereby embedding a hint that I would like to discuss professional issues. To my daughter, "Let's grab some Chinese food" would be appropriate. The context plays a major role, and so do many other factors - culture and professional setting, for example. But gender differences also appear.

Gendered Language in Face-to-Face Settings

In some contexts men generally talk longer than women do, and women tend to use more verbal fillers - such as "you know." Women tend to use more intensifiers, as well, with words such as "so," "awfully," "quite," or "really." Hedges and qualifiers that soften the statement in some way are also somewhat more common in women's speech. Phrases such as, "It seems to me that" or "Perhaps it is" are more reluctant and less definitive compared with "It is the case that" or "Obviously." A study of Ernest Hemingway's novels demonstrated that the author certainly drew on these tendencies when he penned dialog for the women.⁸

Women also ask more questions in conversation and show more agreement with the partner than men do. They also tend to use more justifiers in their speech, in which they make a statement and then follow it up with a reason. Compare "We should do it this way" with "We should do it this way because I think it is the fairest approach." The overall impression from these differences is that in some circumstances women may be using speech in more tentative and hesitant ways and in styles that emphasize the relational aspects of the social environment, rather than a task-oriented approach.⁹

In some cases, these sex-differentiated softeners are built into the grammatical structures of the language itself. The Japanese language, for example, has certain forms that are used only by women. The particle *wa* appears at the end of some sentences used by women, and its role is formally called a softener.

A study that involved face-to-face conversations between same-sex or mixed-sex pairs illustrates that there appear to be slight differences in speech patterns but also that people adapt, depending on the characteristics of the other person.¹⁰ Each of the conversational pairs took 5 minutes to discuss a burning issue about their university's financial crisis, and the researchers analyzed the transcribed recordings.

Regardless of who they were talking with, the women used more justifiers and intensifiers than the men, and they also expressed more agreement with their partners. Men used more vocalized pauses such as "ahh," "err," or "umm." Interruptions and conversational overlaps showed some interesting differences, depending on whether the pairs were same-sex or mixed-sex. Interruptions, defined as simultaneous speech in which a listener speaks at a point that was not a possible completion point in the speaker's utterance, occurred more frequently in mixed-sex pairs. The same was true for overlaps, in which someone starts speaking just before the partner came to an ending point. Perhaps the mixed-sex pairs were more involved in the discussion and eager to talk.

Gendered Language and Power

Differences in language use may have more to do with power than with gender, and more powerful women may adopt "male-like" speech patterns. In one study, researchers artificially rigged the power equation between pairs of people who were role-playing scenarios in which one person tries to sell a car to the other.¹¹ The seller always had a backup position - an offer from a dealer - so the seller could always refuse the buyer's offer. In different scenarios, however, the dealer's offer was higher than in others. The sellers with the higher backup option would, in principle, have more power in the negotiation with the private buyer and would not need to compromise as much to make a profit. The sellers whose dealer offered the bare minimum had far less power.

Analysis of the conversations focused on the use of direct or implied threats. Threats are certainly a power-oriented verbal strategy; people with little power are not likely to use that technique unless they are extremely good bluffers. In a bargaining situation such as this one, a threat could surface as a statement like, "Unless you improve your offer, there is no deal." A less obvious example might be, "I have a good offer for the car now." The telling feature is that the person is threatening to wield power.

The results support the notion that power may be more important than gender when people choose their verbal strategies. Both gender and power differences affected the use of threats, but power was more important. Women who were in positions of power used threats just about as often as the men did, and men who were in low power positions used fewer threats. Gender, though, was a key element in the kind of threats the people in the higher power positions used. The men were more likely to use direct and explicit threats, while the women preferred a bit more subtlety.

This study is especially intriguing because it highlights the situation and its effects on how humans behave in different settings, regardless of gender. It is always problematic to state that x , y , and z differences exist between men and women when all of us are so influenced by the environment in which we are behaving.

Interaction Styles

Gender differences in interaction styles also appear. On balance, women seem to place greater emphasis on the socioemotional role that words play to maintain cohesion and cooperation within a group, while men are more likely to take a task-oriented tack with their speech. For example, I mentioned earlier that women indicate agreement more than men, while men are more task oriented. A simple speech act of agreement, such as “Yeah, good idea,” tends to build cohesiveness in a group. This remark can make women seem friendlier in group settings and more willing to engage in behavior that has less to do with their own power and prestige and more to do with the maintenance of the group as a smoothly functioning team. The greater task orientation that men show creates a “getting down to business” atmosphere.

Research shows that both styles can each lead to productive results, but not necessarily for the same kind of work. In one study, same-sex groups worked on a task to identify the personal characteristics likely to make someone a successful person.¹² However, different groups received different instructions about how to go about the task. Some groups were told to approach the task as a brainstorming session and to come up with as many solutions as possible to the problem. Others, however, were instructed to come up with the single best solution and to prepare an essay to justify their conclusions. The two sets of instructions required the people in the groups to relate to one another in

different ways. In the brainstorming session, group members could be extremely task oriented because there was no need for any group consensus. However, the “best-solution” approach required some group rapport and cooperation to accomplish the task.

Task-oriented remarks formed the lion’s share of the conversation, particularly for all-male groups, while positive socioemotional remarks were slightly more common in the all-female groups. Notice that although some differences appeared, they were small. As I discussed, men and women are not opposite sexes, and there is considerable commonality in the way the genders approach a group effort. We are not separate and alien species from Mars and Venus.

As for the results, women did a better job on the task requiring consensus, while the men did better on the brainstorming sessions by generating more ideas. Again, the differences weren’t large, but they suggest that the interaction styles of men and women can affect group productivity in ways that depend on what the group is trying to do.

Much group work involves completing a project on time rather than brainstorming, so one might assume all-male teams might be at a disadvantage in some real-world settings. One study of business majors at a university in the United Kingdom found some support for that hypothesis. During a five-year period, more than 1,000 students worked in small teams that were all-female, all-male, or mixed. The performance of the all-male teams was slightly lower than teams of other gender compositions.¹³

Another nuance about interaction styles in same-sex groups involves the pace and timing of conversations.¹⁴ Recordings of such conversations highlight the “conversational floor” and how men and women use it a bit differently. For men engaged in an informal chat, there is little or no overlap in their speech. Each man speaks his piece, or takes over the floor, in his turn. Among women, however, a more collaborative floor often emerges in which people speak at the same time, finish one another’s sentences, or add a supportive point right in the middle of someone’s sentence. Men tended to take turns on the floor, while it looked like the women were dancing together on it, or holding a musical jam session. One of the fallouts from these conversational styles is that the two genders might interpret overlap and interruption differently. Men might perceive it as a rude power play to grab the floor, while women could see it as a contribution to a shared narrative.

LANGUAGE ONLINE: ARE WE TYPING IN PINK AND BLUE?

When men and women show up in cyberspace, can you tell who is who by what they say and how they say or type it? Much of the time, the gender is obvious because the person uses his or her real name or shows a photo. Other times, each person chooses a nickname that strongly suggests male or female, such as “BadDude,” or “Eliza129.” The content of the post, however, might also point in one direction or another, even without the more obvious clues.

Automatic Profiling

Software programs can be trained to sort out linguistic elements of the language people use online, and some have become rather adept at predicting people’s demographic characteristics, including gender. Essentially, the software taps machine learning by first delving into a large volume of documents in which the gender is known, identifying features that discriminate the male posts from the female posts. Those features may or may not be apparent to human observers, but the software doesn’t carry any previous biases or stereotypes about how men and women talk.

In one study, the software examined blogs by 19,320 authors whose gender was known, so accuracy could be determined. Relying on stylistic features, the software was correct 72 percent of the time.¹⁵ Men, it appears, use words such as “the,” “of,” and other prepositions more often than women, and women use more personal pronouns. Adding subject content, the software became a little more accurate – 76 percent. Here, men were more likely to use words such as “system,” “software,” “game,” and “site,” whereas women use more relational terms – “love,” “boyfriend,” “mom,” “feel,” and “cute.” This program was even a little better at guessing the blogger’s age group, based on the use of words like “haha” and “lol” by teens and words such as “office,” “work,” “wife,” and “children” for older people.

Gendered Language on Twitter

With just 140 characters to work with, can we distinguish tweets from men and women by the style? David Bamman and his colleagues at Carnegie Mellon retrieved over nine million tweets from 14,464 users to answer that question, filtering out the unanswered tweets directed to celebrities, along with tweets from infrequent users and those with

ambiguous names.¹⁶ Their software program confirmed that women use pronouns and acronyms such as “lol” more often and that men are more likely to use articles such as “the” or mention numbers and technology. In this tweet sample, women were also more likely to tack on emoticons, lengthen words by adding more letters (such as “noooooo” or “yayyyy”), and use more nonstandard spellings, such as “vacay.” Men used more swear words.

Interaction Styles Online

What happens in less free-wheeling, more business-oriented settings? One illustration of gender differences in online interactions comes from a study of students who received an email from a university official that read, “Dear Student, The records show that you have failed to submit your last piece of work . . . Therefore, you are required to write the reason for your failure.” For some students, “Miss Jane Cook, Administrative Officer” signed it, and for others, the sender was “Mr. Mark Cook, Administrative Officer.”¹⁷

The findings show marked differences in the way students replied that depended not just on the subject’s gender, but also on the gender of the supposed letter-writer. When replying to “Mark Cook,” the male students were more likely to request assistance and plead for lenient treatment. The female students leaned toward thanking “Mark” and mentioning an emotional state. When replying to “Jane Cook,” men chose a different tactic: emphasizing past diligence. Women were more likely to add a friendly signature and request assistance to resolve the problem. Whether consciously or unconsciously, people take into account the gender of the audience, and that leads to different online styles. The study, incidentally, also found that status matters. Emails signed by “Dr. Mark Cook” or “Dr. Jane Cook” led students to emphasize personal situations or physical illness more frequently.

When men and women are interacting online in groups, as in mailing lists or discussion groups, some similar trends unfold. Susan C. Herring examined the structure of posts made to two professional mailing lists that included both men and women, looking first at the way posters organized their messages, and second at the content.¹⁸ One mailing list was Linguist, a discussion forum for academics involved in the study of linguistics, and the other was WMST, another academic list for people interested in women’s studies. WMST subscribers are mainly women, while members of Linguist are mainly

men. The discussion on the Linguist mailing list centered on the term “cognitive linguistics,” a controversial one to linguists, while the WMST discussion was about sex differences in the brain.

Herring first identified five sets of macrosegments that commonly appeared in the messages. Two were epistolary conventions: a salutation at the beginning (such as “To Joe:”) and a signature file or other kind of formal closing at the end. Within the messages, a common macrosegment was an introduction that might serve various purposes, such as making some link to the content of a previous post. The body of the message might do different things as well: express the author’s views, request or provide information, express feelings, or suggest a solution. Many messages also contained some closing remark. These were rarely formal closings, but they wound down the message and made a more casual exit with an appeal to hear others’ views, an apology for long-windedness, or perhaps a snide remark.

On the surface, the message structures were rather similar for both lists. Few added any salutations, for instance, and on both lists, many posters linked to someone else’s post at the start. But the content varied. Women were more concerned with the exchange of information and asked more questions, while men were more likely to express their own opinions.

Another gender difference in Herring’s findings supports the notion that women engage in online discussions in more relationship-oriented ways. On WMST, the women were more likely to start with a link to someone else’s post and then go on to align with it and expand it in some way. This happened less on the male-dominated Linguist. Instead, posters linked to someone else’s post, but rather than support it, the Linguists contradicted it, with statements such as, “J.K.’s remark took me by surprise because it is so completely without data to back it.” That kind of stark disagreement is reasonably polite in professional forums like these, but they can burn a hole in your screen on others.

Adapting to the Majority

One other finding from Herring’s study was that women on the Linguist list aired more disagreeing comments compared with women on WMST. One possible explanation might be that women linguists are just more irascible and argumentative than women involved in women’s studies programs. Another, though, and one that may be more

plausible, is that women - as the minority gender on Linguist - are adapting their posts to the dominant male style. The minority gender on WMST - the men - may also have modified their style. One male poster, for example, contributed a post arguing that a biological basis for certain sex differences should be considered, but he was rather indirect about it and included hedges such as "it seems to me" and "perhaps." Recall that these hedges are slightly more common in women's speech compared with men's.

In the Twitter study I described earlier, people also appeared to adapt to the language patterns based on the composition of their networks. Women whose posts classified them as strongly female by the software were more likely to have networks with a very high percentage of women. In contrast, women whose tweets were more ambiguous in terms of the presence of "female" markers were more likely to have an evenly balanced set of followers, gender-wise. The trend for men was similar. On average, the men's networks were about 67 percent male, but that figure went up to 78 percent for men whose own language was dominated by the "male" markers. One plausible explanation is that we adjust our language choices based on the norms of our networks, which shift somewhat depending on their composition.

Clues to Gender, Gender Bending, and the Turing Game

The fact that there are some differences in how men and women use language online suggests that we should be able to make a guess about gender when it is not apparent. Can we draw on knowledge of "gendered language" to guess the gender of the person we're communicating with?

College students in New Zealand logged onto a network every few days to reply to a "netpal."¹⁹ As expected, small gender differences in the students' language appeared, similar to what other studies find. Men used slightly more words, for instance, and women made somewhat more references to emotion and used more intense adverbs. In a follow-up study, sixteen of the messages those male and female students wrote were shown to a new group of students, who tried to guess whether each author was male or female. The students did better than chance, especially when the author was female.

But other studies suggest the picture is not that clear. Notorious cases in which someone masquerades as the opposite sex online, fooling people they are interacting with for months at a time, show

that the amount of overlap is more than enough to allow plenty of room for wrong guesses. (See the case of Alex and “Joan” in [Chapter 6](#).)

Nevertheless, when people attempt *gender bending*, they often overdo it by using very stereotypical styles, so that suspicion is aroused. In chat rooms and MMORPGs, for instance, “female” characters who behave in overtly sexy ways are typically thought to be men posing as women. The same trend shows up in experimental research of gender bending. In a study using email communications, subjects tried to convince a “netpal” partner that they were the opposite gender. To do that, they relied mainly on the choice of discussion topics they thought would be most interesting to one gender or the other based on stereotypes. They relied far less on linguistic cues, and they weren’t too successful at the masquerade. Their netpals became suspicious and claimed that the sender was “too male to actually be male” or that “a real male [or female] would never say that.”²⁰

An experiment using the Turing Game shows that in some settings, gender bending can be more difficult to spot. Developed by Joshua Berman and Amy Bruckman, the online game pays tribute to Alan Turing’s imitation game - the Turing Test - in which an observer uses text messages to question a live human being and a computer, and attempts to tell which is which from the answers. Rather than “humanness,” the Turing Game offers a way to explore identities - how they unfold in an online environment and whether people can successfully pretend to possess an identity different from their true one.

To play, a panel of men and women (contestants) attempt to convince their audience (judges) that they are all men or all women, so that some are telling the truth and others are not. The members of the audience try to identify the imposters by asking questions and analyzing the typed answers.²¹ For example, Fran, a forty-eight-year-old woman, pretends to be a man and starts out with “I’m 6’3” Blk h[ai]r, 220 lbs.” Roger, a thirty-four-year-old man on the same panel, begins with “Hello, Go Seminoles.”

Logs from the publicly available online game were coded for gendered content, linguistic style, actual gender, and other variables over several months. The contestants definitely presented themselves in stereotypical ways when they were gender bending, choosing content such as sports when pretending to be male, or shopping and relationships when imitating a female. Contestants also gave off cues to their true gender through their stylistic choices, but the judges relied mainly

on content rather than style to spot imposters. As a result, they missed the linguistic cues and were not very successful at guessing contestants' true genders.²² It seems that we carry stereotypes of how men and women talk, or at least what they talk about, but subtle differences in communication styles may go unnoticed.

THE INTERNET AND LGBT ISSUES

The Internet can be extremely valuable to lesbians, gays, bisexuals, and transgendered individuals, as well as other nonheterosexuals who might include people who identify as queer, asexual, or uncomfortable with any particular label because their sexuality is more fluid. The ability to reach across geographical boundaries to meet people, find social support, and obtain information is especially important.

Online Social Networks

For LGBT youth in particular, online resources and social support are vital. These young people are in the midst of exploring identities, and the access to information and connections outside their local school can offer great value. Even in societies in which same-sex relationships are recognized, and in which LGBT identities are more prevalent in the media, the Internet plays a critical role for that transition to adulthood.

Gary Downing at the University of Reading interviewed LGBT youth aged sixteen to twenty-five in the United Kingdom, learning how they are actively shaping their own lives as they seek an identity, and what role the Internet plays.²³ Specialized social networking sites are especially central for many in the LGBT community, especially because they serve as a safe place for youth to ask questions they might not ask their face-to-face friends, and get answers from people who shared their concerns. Even in sex education classes, topics that touch on sexual diversity are rarely raised. Hannah, age eighteen, complained, "in all the millions of hours I've had being lectured about sex (and why you shouldn't do it) I never had something that even CONSIDERED the possibility of anyone being gay ... completely useless, most of it."

About one of the social networking sites, Philip, age 23, said,

It was one of the most essential parts of me coming out to be honest. When I had the kind of curiosity about my sexuality, I searched the Internet ...

without me doing that research I would always be curious . . . there would always be a big question mark hanging over me . . . thinking “is it just because I’m young” . . . or “is this really because I do actually like men.”

The social networks designed for the LGBT community vary considerably, each with their own norms, practices, and reputations. Some are mainly for people who want to share information about lifestyles and safe practices or to organize for political action. Others are more for meeting and dating, with varied reviews and reputations, similar to the kinds of widely varying evaluations that users contribute about other dating sites.

Some sites are organized and promoted by the health professions, particularly because this population is more vulnerable to human immunodeficiency virus (HIV), and that risk can be reduced through education and information.²⁴ In an online focus group moderated by health professionals, male youth aged fourteen to eighteen logged in twice a day to answer questions, reply to the moderator, and engage in discussions with one another.²⁵ The experience was especially welcome to the participants who did not yet have any sexual experience. One said, “It was an amazing experience . . . taught me so much more than I thought it would.” The sexually experienced participants were not quite as effusive, but they all asked the moderator to open up new threads to talk about more personal interests beyond health, such as music, friends, family, and school. Clearly, the participants welcomed an opportunity to share life experiences, and not just use the online groups as an information resource.

Online Performance Strategies

On the Internet, people craft personas and make impressions using their typed words, their photos and videos, their nicknames, and those online behavioral residues described in [Chapter 2](#). Interviews with LGBT individuals show quite a variety of ways in which they use the social networks to create not just one persona, but several, as you might expect from the uses and gratifications theory. Although joining a site such as [Gay.com](#) would be a relatively strong signal about sexual orientation, joining Facebook is not, unless the individual crafts the profile that way. Many gay men are fully out to family, friends, and coworkers, so their profiles on Facebook confirm their status by, for instance, listing “interested in men” or including the name or photo of their partner.

Others want to use Facebook differently, as David Gudelunas at Fairfield University found in his interview study. A thirty-five-year-old man explained how he manages the audience:

I say I am interested in men, because I think Facebook is a good way to meet guys who I might want to date or whatever. But I'm not out to my entire family, my cousins and stuff, and I don't really care, but I guess I just don't want them to find out through Facebook, so I simply don't friend them. I feel bad ignoring their requests, but you do what you gotta do.²⁶

Another man in the study changed the spelling of his name on Facebook, so curious relatives would not find him. Thus, erecting boundaries to segment the audience is a common strategy to deal with potential context collapse.

Almost all the interviewees in this study had another profile on a different site, and some had as many as twelve active profiles. Thus the multiple identities strategy was a popular way to manage their presentations to different audiences. One man who shaved his head suddenly realized how he had to rush to change all his profile pictures before someone thought it was a deliberate fake.

While LGBT individuals benefit enormously from the Internet's resources, they are not immune to its risks and hazards. Sexual harassment is a key example, as we discuss in the next section.

SEXUAL HARASSMENT ONLINE

Just as in the case of cyberbullying, the nature of many Internet environments can facilitate sexual harassment, with perceived anonymity, physical distance, and relative safety from retribution – legal or otherwise. Let's first examine the different types of sexual harassment to see how these forces play out.²⁷

Types of Sexual Harassment

Gender harassment occurs when someone makes insulting comments that degrade people because of their gender or sexual orientation. Making derogatory remarks about women at work or posting pornographic images in a car window fall into this category. *Unwanted sexual attention* is another type of harassment and includes uninvited and unwelcome behavior that signals sexual desires toward someone.

Sexual coercion is a third type; here, the perpetrator puts pressure on someone to obtain sexual favors, either through threats or promises of reward.

Gender harassment and unwanted sexual attention are the most prevalent types in the online world. For instance, the comments sections that appear after articles in online magazines and newspapers routinely contain sexist remarks that qualify as gender harassment, with little moderation or restraint. To gather empirical data on commenting behavior, researchers analyzed 831 comments that readers posted in response to articles that appeared online in the *New York Times*, *Discover* magazine, and *IFL Science*.²⁸ The articles were reporting on an academic study that found that science professors gave higher ratings to applicants for a lab manager position when the resume indicated a male candidate compared with a female candidate with the same qualifications.²⁹

Those particular online magazines are hardly backwater corners on the Internet, and you might expect commenters to display a certain decorum. Many did, but the comments also included a significant number of highly negative and sexist remarks. One example: "The reason why there is gender bias is because there are only a limited amount of experiments that can be conducted in the kitchen." Comments like that could land the speaker in serious trouble in the workplace, where employment laws apply.

Is the online environment drawing out more gender harassment? One possibility, of course, is that the online comments of some of these posters reflect their actual views, ones they can't publicize at work or school. But as I've discussed in other chapters, the disinhibiting effects of online environments can amplify any underlying sexism and unleash some troubling behavior.

Unwanted sexual attention is also common in many Internet neighborhoods. In chat rooms, for instance, both males and females might receive private messages containing sexually explicit language or with pornographic images attached. Another venue in which such attention is common is in games, the MMORPGs in particular. Most players are male, and women playing as female avatars may experience ogling and catcalling. Some women deliberately choose male avatars to avoid such attention. Ironically, men sometimes choose female avatars for other reasons - to get more help in the game or just for variety. One man playing the female avatar in an MMORPG remarked, "I never realized how irritating it can be to have to put up with unwanted advances."³⁰

Sexual harassment can have quite severe effects on victims, ranging from increased stress, depression, feelings of helplessness, reduced performance at work, and interrupted careers. One study showed how harassment can easily interfere with a person's success at a job interview.³¹ Fifty women volunteered to interview for a job as research assistant, and half of them - assigned to the experimental group - experienced subtle sexual harassment from the male interviewer. He asked questions such as "Do you have a boyfriend?" and "Do people find you desirable?" Controls heard surprising questions, but not ones that rated high on the sexual harassment dimension. One example of a question posed to controls was "Do you think it is important for people to believe in God?"

The women hearing those subtly harassing questions did a poorer job on their interviews, speaking less fluently and giving lower quality answers. That kind of milder harassment has negative effects, and when it occurs in the context of a job interview, it could affect whole careers.

Although women are the targets of the majority of sexual harassment occurring online, men are certainly not immune. Men are more likely to experience same-sex harassment, that is, harassment from other men. The character and type of harassment also appears to be somewhat different for men. According to a Pew Research Center survey of adults, 44 percent of men reported that they experience some online harassment, compared with 37 percent of women, but the type of harassment men say they experience is less severe - such as being called offensive names - compared with stalking or sexual harassment.³²

A common theme of the kind of harassment men are more likely to receive from other men is humiliation and ridicule for failing to behave in stereotypically masculine ways. Just as women are often the targets of sexual harassment when they step out of a feminine stereotype, men receive abuse for acting too much like a "girl."

To learn more about how men react to this kind of harassment, male volunteers participated in a study to investigate "the effects of strength training on academic performance."³³ The study began with a handgrip test of strength, which served as the baseline. Then, half the subjects were randomly assigned to the "harassment" condition, and they heard that their handgrip performance was "strange" - closer to the results for women. In a mocking tone, the female experimenter said that the subject squeezed the handgrip "like a girl," regardless of his actual scores. Men in the control group received no feedback on their performance.

After the handgrip test, all subjects took a test of cognitive ability in which they tried to solve as many anagrams as possible in 5 minutes. The Stroop test followed that, which is a measure of attentional capacity. Subjects name the color of words printed on cards when some words contradict the font color. For instance, one card might read “green,” but the word appears in a red font.³⁴ Finally, all subjects took the handgrip test once more, to see if they performed differently the second time.

The harassment was psychologically draining for those men, and subjects who thought their scores were similar to those of women did worse on the anagrams compared with controls and worse on the Stroop test measuring attentional capacity. On the handgrip test, though, they performed *better* than controls, suggesting that they had something to prove and put everything they had into the task.

We know that sexual harassment has many negative effects on women, and research such as this suggests that men do not just shrug it off.

The Mr. Bungle Affair

Sexual coercion may not be as common online, given its nature, but one early case illustrates a dramatic example that raised many questions about virtual life and online sexual harassment. The Mr. Bungle affair happened on LambdaMOO, one of the forerunners of the MMORPGs, in which players communicate through synchronous text chat.³⁵

The case involved a character named Mr. Bungle, and the crime was cyberrape. Mr. Bungle, a male-presenting clown-like character whose description was laced with obscene and repugnant epithets toward women, was in the crowded Living Room on the MUD one evening with several other players. Around 10 PM, Mr. Bungle used a programmatic device called a voodoo doll to make it appear as though legba, one of his victims, was performing sexual acts for his pleasure in front of the others. On their computer screens, the players in the Living Room saw statements scrolling up their screens describing legba’s performance, and the voodoo doll made it appear as though legba were voluntarily typing in these actions herself. Mr. Bungle left the room but continued his assault from another location in the Lambda mansion, using his programmatic magic trick to make it appear as though another player, Starsinger, was engaging in sexual activities with the

others who were still in the room. Eventually a player silenced Mr. Bungle using a virtual gun with special powers that could envelop its target in a cage to prevent the use of such voodoo dolls.

The real human beings whose onscreen characters were legba and Starsinger felt violated and were furious and distraught. The next day legba, who in real life was a graduate student working on her doctorate, denounced Mr. Bungle publicly and called for his “toading” - the equivalent of a death sentence for his character.

Most players were outraged and sympathetic, and a large group gathered online to discuss what actions to take. The discussion drifted to many related topics about virtuality, freedom of speech, sexual violence, and due process. Though the group unanimously condemned Mr. Bungle, some were reluctant to endorse toading because of its implications for free speech and due process. The participants eventually wandered off and logged out back to their real worlds, with no consensus reached and no action plan endorsed. One of the wizards, however, decided to take things into his own hands and later that night permanently banished Mr. Bungle from the database.

Julian Dibbell, the journalist who first documented the case, wrote, “Where before I’d found it hard to take virtual rape seriously, I now was finding it difficult to remember how I could ever *not* have taken it seriously.” Words do matter.

SEXUALITY ON THE INTERNET

“Sex” is one of the most commonly entered search terms on the net, and Internet neighborhoods devoted to the topic have flourished from the beginning. The way sexuality unfolds online illustrates the good, the bad, and the ugly about the Internet and how we behave when we enter its many environments.

The Internet as Information Resource

When people enter “sex” as a search term, their motives vary considerably. Many of them are just looking for information, which can often be difficult to get in face-to-face settings. Some might be too embarrassed to ask certain questions or fearful that the questions themselves might disclose too much sensitive information. In one survey, respondents frequently mentioned being motivated by a desire for

knowledge, curiosity, and simple embarrassment - not daring to talk about certain sexual topics offline.³⁶

Online information is especially valuable for adolescents in the process of forming a stable identity as they transition to adulthood. Many seek information about sexual health, topics that might or might not have been covered in a sex education class in high school. One woman explained how she became the local expert as a teenager because of her extensive online research:

And as soon as we learned about sex and all that, and as soon as it really started to cross my mind as something I might be interested in, I started researching online everything I could possibly find. Like bad things that happen because of sex, STDs, pregnancy, so birth control, ectopic pregnancy. Everything that could possibly result from sex I wanted to know about. So I became this well of information. My friends would come to me and ask, "Could I get pregnant from this?"³⁷

One major drawback to the Internet as a source of information about sexuality is the questionable quality of many online resources. An analysis of 177 websites that adolescents visit to obtain information revealed that quality and accuracy varied considerably.³⁸ Almost half the websites that dealt with the topic of contraception had at least one inaccuracy. More than 25 percent of the sites that discussed sexually transmitted diseases and HIV had at least one mistake. Sites ending in ".org," which might signal to visitors that the organization behind the site was nonprofit - perhaps a medical institution - had some of the highest error rates. Unlike ".edu" or ".gov," the ".org" top-level domain is open to any organization, just as ".com" is.

These websites also often lacked many of the features that people should be using to judge the quality of the site's information. Only 26 percent of the sites, for instance, displayed the name of the person or organization that contributed the information, and even fewer included their credentials. About half failed to display the date the information was created or last updated, so much information was likely out of date.

Most people are not very adept at judging the quality or accuracy of any website, let alone websites that cover sexual topics, and they often don't bother to check those quality markers. Clearly, the Internet could be a far more valuable resource for information about sex if people were better able to evaluate the sites they visit.

Virtual Passion and Cybersex

Perhaps the least understood component of interpersonal relationships on the Internet is cybersex, in which two people become sexually excited by sending explicit messages to each other over the Internet. It might involve synchronous chat rooms, instant messaging, video chat, or some areas of the graphical metaworlds. The practice of sex in cyberspace goes by many names, and all indications are that varieties of virtual passion are very popular, partly because the medium supports and encourages hyperpersonal communication quite well.

Who engages in cybersex? At one time, the term “cybersex” was mainly associated with online sex between strangers, and that might have been true when the net was young. But like almost every other activity on the Internet, that changed; cybersex is now more common between people who are already partners in real life. In a survey of men and women who had had at least one cybersex experience, 82 percent of respondents said that at least one such experience was with their primary partner. In contrast, only 37 percent reported having had cybersex with a stranger, and fewer still said that they *only* engage in cybersex with strangers (6.5%).³⁹

One might expect that men would participate in cybersex more than women, but at least some studies find that women participate as much as men do, especially in their middle years. A survey of several hundred Swedish adults found that 38 percent of the men in the youngest age group (18–24) said they experienced cybersex, compared with 34 percent of the women. But that figure continued to increase for women in older age groups, only dropping for those over fifty. For men, the percentage dropped continuously after the age of twenty-four.⁴⁰

Cybersex can have both positive and negative consequences. On the positive side, the Internet affords opportunities to explore sexuality in new ways, with a greater degree of safety compared with real-life encounters. The increasing number of women who participate may indicate that many of them are doing just that, empowered by the disinhibiting effects of the online world as well as the reduced risks.

An interview study of cybersex participants on Second Life actually used an avatar as the interviewer, one whose characteristics and accessories matched the role of “researcher.”⁴¹ For his dissertation, graduate student David Smith purchased a small private island on the virtual world and created a “research station” called the Trout Farm, a name

drawn from Shakespeare's *Measure for Measure*. Rather than building an office, he made it a more relaxing setting with seagulls, a wharf, deck chairs, and trout pens.

He found tremendous variety in the way the participants thought about cybersex in Second Life and how it was integrated (or not) into their real lives. To some, it was mainly fun with no commitment. Others saw it as deeply intimate and connected. One said, "It's love-making, to me. It's committed. It's entirely personal, emotional, and the context is always in a love relationship."

Several interviewees used Second Life cybersex as a way to play out fantasies that were not feasible, or even possible, in real life. One person in a dominant/submissive relationship online typed, "life doesn't always allow us to be who we really are, not and maintain a professional job . . . It [Second Life] allows me an outlet for it, so it makes me a happier person I think."

Second Life also hosts "avatar sex workers" who approach players with notecards that explain their services and fees, all paid in Linden dollars, the world's virtual currency. Salena, for example, is a health professional in her late twenties who moonlights as a sex worker in the virtual world. She believes she has been able to enhance her own real-life sexuality because of what she learns online through experimentation, such as with audio chat: "So here I learned how to use a very sensual voice and now I feel a difference in real life, because for me it is easier to use the same words and voice with my sexual partner in real life."

Cybersex participants also have different views about whether their online sexual activities can be called infidelity, and whether their real-life partner should feel justifiably jealous. However, a survey of their partners, who discovered that they were engaging in cybersex with other people, found widespread agreement that cybersex is cheating, even if the encounters never lead to anything beyond the computer screen.⁴² About two thirds discovered evidence of their partner's activities on the computer, smartphone, or other device, and 87 percent said it had negative consequences for their relationship, particularly through the loss of trust. One said, "Trust has been SHATTERED beyond belief."

As I discussed in [Chapter 5](#), on interpersonal attraction, the Internet offers a unique environment in which people can come to love one another, even without meeting in real life. And it also is a place in which people can unleash their passions in new ways. But cybersex, like so much else on the Internet, carries pitfalls and risks as well.

INTERNET PORNOGRAPHY

Sexually explicit materials are available in adult bookstores, through 900-number phone lines, and - in great abundance - on the Internet. How is pornography evolving online, and what effects is it having on human behavior?

Psychological Aspects of Pornography

Some social scientists maintain that the use of sexually explicit materials is harmless and that it can also be functional, healthy, and liberating in some contexts because it provides education, erotic enhancement, an outlet for exploration, and entertainment. It can also be useful in some therapeutic treatment programs for sexual dysfunctions. Others, however, point to the ethical and moral issues involved - particularly the exploitation and objectification of women. Males are the principal users of pornography, and a major concern is that so much of the material depicts women in dehumanizing ways.

The fact that most countries restrict the use of pornography in one way or another indicates that many people around the globe believe pornography has some harmful effects. But Denmark's experience suggests that legalizing pornography can lead to some societal good. The laws in that country were changed in the 1960s so that all restrictions on the production and distribution of pornography were removed. Contrary to what many expected, the incidence of sex crimes such as exhibitionism, Peeping Tomism, and child molestation decreased almost immediately, supporting the hypothesis that some types of pornography may be harmless or even beneficial. Perhaps the easy availability of erotic material for people with those inclinations made it less likely they would act them out in real life.

Behavioral research on the psychological effects of pornography was just about nonexistent until the 1970s, but since then, research has clarified certain aspects. One consistent and not too surprising finding is that erotica is often sexually arousing to both men and women. When people view explicit photos, read stories, watch films, or listen to audiotapes, many report feeling aroused, and physiological measurements confirm this.

Some laboratory-based experimental studies have been conducted, and generally the results point to negative consequences, especially for pornography that depicts women in objectifying ways. For example,

prolonged exposure can lead to more sexist attitudes and a greater willingness to accept myths about rape that blame the victim. It also leads to changes in attitudes about premarital and extramarital sex.⁴³

In another study, men who viewed photographs of extremely attractive centerfold models and watched passionate, consensual sex in videos become somewhat less enthusiastic about the attractiveness of their own real-life partners.⁴⁴ Probably, a contrast effect is occurring, such that viewing beautiful models in sexually explicit settings makes people less satisfied with their lot in life and their own real-life partners. Although the pictures or the movie may have been temporarily stimulating, the longer-term effects on the men's personal relationships may not be promising.

Inadvertent Exposure

Exposure to online pornographic materials accidentally is a common experience - through email spam or typos, for instance. "Whitehouse.com" once featured very profitable adult content until its owner decided to sell the name, insisting the buyer not use it for pornography because so many visitors happened upon the site by accident. Concern about this kind of exposure among youth is especially acute. On the positive side, surveys suggest that the incidence of inadvertent exposure has been declining, from 34 percent reporting such exposure in 2005 to 23 percent more recently. The widespread use of filtering software probably accounts for a good part of that drop.⁴⁵

Young people react in different ways when they stumble on sexually explicit materials online. In one survey, less than half said they told someone about it, and even fewer said they told a parent - even if the parent had specifically had a talk with the child about Internet risks. Most of the children used a passive coping strategy - usually just logging out or leaving the site - but about one quarter said the incident made them feel upset, embarrassed, or frightened. Fortunately, many of these children put the incident behind them, but about 20 percent said they couldn't stop thinking about it.⁴⁶

Adults may also be affected in different ways by inadvertent exposure. In one study, for instance, researchers found that such exposure can increase men's interest in pornography, particularly of the hard-core variety, provided the man feels relatively anonymous when the exposure occurs.⁴⁷ College men were invited to the lab, ostensibly to participate in a study about keyword searches in online newspapers.

But after they completed a brief survey, a ten-second pop-up appeared - apparently by accident. For half the subjects, the brief video was pornographic and degrading to the woman, while the control group watched a history professor talking about American railroads. Within those two groups, the men were assigned to either an anonymous condition, in which they were told they would not be monitored or tracked, or a nonanonymous condition, in which a webcam and software would be tracking their choices.

The men who saw the sexually explicit video reported more sexist attitudes, and when that video was combined with feelings of anonymity, the men also expressed more interest in viewing hardcore pornography compared with men in the other conditions. Whether that kind of exposure would have longer lasting effects isn't known, but the fact that a ten-second surprise video clip can influence attitudes toward pornography and women in general suggests that even a short-duration inadvertent exposure is not trivial.

Effects of Violent Pornography

When the U.S. Commission on Obscenity and Pornography determined in 1970 that scientific evidence did not support the view that pornography was harmful, most of the erotica on the market was of the nonviolent, consensual variety. But images and stories depicting aggression toward women and sexual violence became more frequent and widely available during the 1970s, probably because the general attitude toward all kinds of pornography relaxed. Now, online, one can find horrendous examples of the most violent and vicious pornography imaginable.

Psychologically, violent pornography is especially dangerous in terms of negative consequences. In a classic series of experimental studies, Edward Donnerstein at the University of Wisconsin found that the kind of videos men watch affects how much aggression they show toward women.⁴⁸ In one study, he randomly assigned male subjects to watch different films, some neutral, some erotic but not violent, and some involving a rape. Later, the men participated in what they thought was a totally separate experiment in which they played the role of "teacher" and were supposed to administer shocks, at a level they themselves could choose, to another subject when he or she failed to learn nonsense syllables. The other "subject" was actually a confederate of the experimenter, and the real point of the study was

to find out whether exposure to those films influenced the men's behavior toward women. It did.

The men who watched the neutral film were the least punitive, and chose rather low-level shocks for both the men and women "subjects." Watching an erotic but nonviolent video caused the men to show a little more aggression toward the male "pupils" but not the women. The violent rape scene, however, was a different matter. Men who watched that film increased the shock levels, but only for their female victims - not for the men. Recall that all men were randomly assigned to these conditions. The experiment provided some evidence that exposure to sexually explicit and violent material influenced these men in a way that made them more aggressive toward women.

Much of the aggressive pornography out there perpetuates the rape myth - the view that women say *no* but don't mean it and that they enjoy sexual coercion. Donnerstein looked more closely at whether men behaved differently toward those women "pupils" depending on the kind of aggressive pornography they watched. He created two films depicting a rape scene, but each ended differently. One showed the woman smiling at the end; the other version indicated she found the experience humiliating and disgusting. Men who watched either version delivered higher levels of shock than men who watched neutral or nonaggressive pornography and, again, only to the women confederates - not the men. But the subjects exposed to the rape myth version of the story administered the highest shock levels.

The implication is that violent pornography, particularly the kind that supports the rape myth, is not harmless at all. Certainly each man's personality and susceptibility may moderate the effects of such exposure,⁴⁹ but the experimental evidence points to potentially very negative consequences on attitudes and behavior.

GENDER ISSUES AND SEXUALITY ON THE FRONTIER

We still have much to learn about sexuality and gender issues online and how they are unfolding in a world in which so much is accessible with just a few keystrokes. I've often heard the Internet compared to America's "Wild West," and I use that analogy myself. The folklore and myths surrounding this period in American history stress how men and a few adventurous women went out first, seeking fortune and glory. There were few people, fewer laws, and almost no one to enforce

them anyway. Women were in the minority, but as they moved west their presence brought order and conduct control, as well as safer environments to raise families. The Internet started out as a lawless and male-dominated place, and even now, after the towns, cities, and shopping malls were built, some of its characteristics remind us of the “frontier” images we hold in our imaginations.

Like most analogies, this one breaks down quickly when it is carried beyond the superficial. Cyberspace itself is not physically dangerous, and superior writing, typing, and technical skills mean more than superior strength. The Internet is no longer dominated by pioneers. When you see www.pizzahut.com on a passing van, or preschool children playing an online game together, you know civilization has arrived. Yet some elements of that frontier may linger a bit longer than others in certain Internet neighborhoods, and may even flourish. Gender stereotyping and discrimination, adventurous sexuality, and unfettered, extreme pornography are examples.

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THE PSYCHOLOGY OF ONLINE PRIVACY AND SURVEILLANCE

When was the last time you read the end-user license agreement (EULA) before installing an app on your smartphone? These EULAs stretch to thousands of words of legalese, and many of them require you to relinquish a considerable amount of privacy before you can use the app. Embedded in all that tiny print are terms that might allow the company to collect data on usage patterns, your location and movements, your purchases, your messaging habits, and more.

How do people think about online privacy, and what strategies are they using to protect it? Perhaps many of us have just given up and are taking the advice of Scott McNealy, the co-founder and former CEO of Sun Microsystems. Back in 1999, long before Facebook's breaches, Edward Snowden's revelations, and the hacked records at the Office of Personnel Management. McNealy said, "You have zero privacy anyway. Get over it."¹

Intellectually, we may suspect that privacy in cyberspace is an endangered species, but we often don't act like it. People rant about their bosses online in ways they would never do at the office. They attach compromising photos to their text messages, but certainly won't slip the same photo into a 9 × 12 envelope and drop it in the mail. We profess to value privacy, but we still click "install" without reading the fine print.

This chapter focuses on the ways in which online privacy and surveillance are evolving, how people are reacting to the changes, and what psychological effects the overall erosion of privacy is having. To start, however, let's look at what the term actually means and how our understanding of privacy continually changes.

THE HISTORY AND MEANING OF “PRIVACY”

Although much writing on the concept of “privacy” is relatively recent, anthropologists contend that the drive to keep certain things private dates back millions of years. For a hunting and gathering group, individuals might want to withdraw from interactions at times or conceal some of their actions from other group members. But as human beings settled into larger agricultural communities, they no longer knew all the members quite as well, and they had fewer opportunities to form strong, trusting bonds with all those people. That may also foster a greater interest in privacy along with social norms that define what constitutes intrusions.

Privacy’s Legal Roots

Modern ideas about the nature of privacy and privacy rights in the United States emerged mostly from the legal sphere, with a groundbreaking essay published in the *Harvard Law Journal* by Samuel Warren and Louis Brandeis in 1890. They fully understood that privacy is not just a legal matter but also a psychological concept. Writing about how the law had evolved to first protect the right to life, and then the rights to liberty and property, Warren and Brandeis argued that it was time that a new right was recognized: the right to privacy. Their concern with the psychology of privacy was clear:

This development of the law was inevitable. The intense intellectual and emotional life, and the heightening of sensations which came with the advance of civilization, made it clear to men that only a part of the pain, pleasure, and profit of life lay in physical things. Thoughts, emotions, and sensations demanded legal recognition . . .²

These legal scholars defined privacy as the “right to be left alone” and maintained that any violation could be considered a tort – a wrongful act that could be addressed through the civil legal system, with awards for damage done. They also understood that they were opening a new legal frontier and that the new right needed limits. For instance, they warned that the right to privacy “does not prohibit any publication of matter which is of public or general interest . . . Peculiarities of manner and person, which in the ordinary individual should be free from comment, may acquire a public importance if found in a candidate for political office.” This caveat offered cover for

journalists investigating a politician's scandals. Another caveat added that it mattered not at all whether the privacy violator was publicizing something that was actually true. It mattered only that the victim's privacy was violated.

Warren and Brandeis pointed to an intriguing motivation for their argument: "recent inventions" that called for better privacy protections. The invention they referred to was photography, and the notorious case involved a Broadway actress who complained that a photographer took pictures of her in tights while she was onstage, without her consent. She did not want the photo publicized and obtained a preliminary injunction to prevent it. Those prescient scholars recognized that emerging technologies would continue to introduce new ways to violate privacy, although even they would have been astonished by the scope of what the Internet would mean for privacy.

Defining Privacy in Legal Terms

While the "right to be let alone" was a first cut at a definition for "privacy," it lacks precision, particularly in any legal context. The legal systems rely heavily on case law to sort out the details of such things. But more than 120 years after Warren and Brandeis offered their opinions, the details are still muddled and contradictory.³

Many privacy violation cases that make it to courts involve criminal suspects who claim that police conducted a search without a warrant, so whatever evidence they collected is unusable. The U.S. Constitution doesn't actually mention privacy, but the Fourth Amendment provides protections for citizens against "unreasonable search and seizure" by the government, provided the citizen has a reasonable expectation of privacy. This may seem straightforward on the surface, but what constitutes a "reasonable expectation of privacy" is not so obvious. For example, the courts went back and forth on one case in which police tapped a public phone booth that a man was using for his illegal bookmaking business. One court agreed with the police; it was a public phone so there was no expectation of privacy. A higher court disagreed, saying that the man expected to be *seen* in the glass booth, but after closing the door and paying for the call, he did not expect to be *heard*. Of course, public phone booths have virtually vanished in the twenty-first century, but you can imagine the corollary of these cases for loud cell phone users. Courts would not likely

grant suspects the benefit of the doubt if they claimed they had an expectation of privacy for their annoyingly loud utterances, at least not for their end of the conversation.

The “garbage” cases also show how uncertain and shifting these definitions can be. Can police search your garbage? That depends. In one case, a suspected drug trafficker left his plastic bags at the curb for pickup, and the garbage collector handed the bags to the police. The trial court dismissed the case because the police didn’t get a warrant to search the garbage first. But when the case went to the U.S. Supreme Court, the justices disagreed; the majority concluded that plastic garbage bags left for pickup were fair game, with no expectation of privacy. In another case, however, the suspect’s garbage was not in plastic bags, but in a can with a lid, a few feet away from the curb. The court decided that this suspect *did* enjoy an expectation of privacy for his garbage.

When the government is not involved as the defendant, the Fourth Amendment doesn’t apply, and the privacy violation cases often fall into categories such as these:⁴

- *Intrusion*: Intruding on another person’s solitude in an offensive manner, or into the person’s private affairs.
- *Private facts*: Public disclosure of embarrassing private material about another person, which does meet the test of public value or interest.
- *False light*: Publicizing offensive material about another person that leads to a false impression of that person in the public’s eye.
- *Appropriation*: Using another person’s name or likeness without consent.

Here, also, clarity about the details is still elusive. For example, the term “doxing,” which combines “document” and “dropping,” involves public disclosure of private facts that the target would prefer not disclosed. A hacker might use doxing to seek revenge on someone by posting mobile phone number, home address, net worth, credit reports, email address, and other personal information. Doxing could wreak considerable havoc for the victim, but is generally not illegal as long as the information was obtained legally and the hacker does not use it for purposes such as harassment or stalking.

Cases that land in court also illustrate how elusive the concept of privacy can be. In one Pennsylvania case against Google, the court

came to some head-scratching decisions. The Borings live up a private road on which they had posted a sign: "Private Road, No Trespassing." Not to be deterred, Google's driver ignored the sign, drove up the road, and snapped images of the property for the company's Street View application, which were then posted on the Internet. The Borings sued Google for privacy intrusion and the public disclosure of private facts, along with other wrongdoings, including trespassing. This may seem like a cut-and-dried case, but the Pennsylvania court agreed only with the trespassing charge, and awarded the Borings \$1.00 in damages.⁵ However, since that time courts in the United States and many other countries have pushed back on Google's Street View because of privacy concerns.

Psychological Aspects of Privacy

Most people are not lawyers, and their views about privacy are what matter from a psychological perspective. When we think about privacy, we think about more than intrusions that might be highly offensive. We certainly tie the right to be left alone to privacy, but we also emphasize control, especially over information. We want to be able to control what private information is made available to others, who those others are, how they access the information, and how it might be used. The Borings, for instance, certainly felt that their privacy had been violated, even though the court didn't see it that way. They lost control over the images of their home, and the Internet amplified the public disclosure exponentially.

The emphasis on control doesn't mean that most people think that the more privacy they have, the better. Much of what people do online, for instance, is share information, often very private information, and that desire for control is why social network users often become outraged when they perceive that they lost control.

Another psychological aspect of privacy is a sense of autonomy. We desire freedom of choice, and the ability to choose among options independently. Youth mention this frequently, perhaps because their freedom of choice is more limited due to age. For example, a study of children and young people, ranging in age from four to nineteen, found that they often connected independence to privacy.⁶ When they were asked to explain why they thought certain situations had privacy, they said, "I felt independent," or "I could have my own opinions."

In that study, four predominant meanings for the concept of privacy emerged: “controlling access to information,” “being alone,” “no one bothering me,” and “controlling access to spaces.” In one sense, privacy is about control over inputs - those intrusions by unwelcome others - and outputs - what information about oneself is released.

An additional psychological ingredient to privacy is that it is not just at the individual level, as it is typically considered in a legal context. There, laws protect the individual’s privacy, and the cases center around the privacy rights a person may or may not have. But in human societies, privacy is not just about the individual; it is a group phenomenon. The notion of privacy is a fluid one that depends heavily on social relationships and culture, and the social norms that groups adopt.

For instance, while all cultures appear to value privacy, they may not approach it in quite the same way.⁷ Some cultures maintain what appears to be a minimum level of privacy, partly because their environment does not support the “right to be let alone” very easily. The Pygmies of Zaire, who fall into this category, live in small hunting and gathering communities in huts made mostly of leaves. As a group, they have little privacy in that they are in relatively constant contact with one another, and no one could put up a sign saying “Private property, keep out.” But within the group, they use cultural strategies to regulate interactions. For example, they rearrange the entrances to their huts to avoid certain neighbors when they go in and out, and sometimes put up “spite” fences between huts. They also separate into small family groups for weeks at a time, and then return to the communal encampment when they had enough alone time.

As we will see, this social aspect of privacy is especially important on the Internet, as is the emphasis on control.

ONLINE PRIVACY

The characteristics of the online world make privacy an explosive topic that introduces new twists and turns, well beyond the confusion surrounding a “Private Property” sign or lidded garbage can. First, anything uploaded to the Internet can potentially be viewed by anyone with access to the net, a number climbing into the billions. Second, the information is, in all likelihood, there to stay. As we have seen, it is no easy matter to erase digital footprints once they are laid down because digital copies are created at lightning speed, passed

around to different servers around the world, and stored on any number of local devices. A racy photo meant just for the eyes of a significant other can go viral on Twitter in minutes, with no way for the sender to exert control over its release or its viewing.

Losing Control

Not only has the sender lost control of the information, he or she has no idea who is accessing it or how they will use it. Try suing millions of people for unlawfully sharing your photo without your consent.

The loss of control over how people use your information is especially perilous. In 2003, a fourteen-year-old boy in Canada made a video of himself pretending to be a Jedi knight brandishing a light saber, and his classmates uploaded it to the net. The video went viral, and the boy suffered years of cyberbullying and harassment, including death threats. He eventually quit school and underwent psychiatric treatment for severe depression. School officials hesitated to get involved, and the police could do nothing. His parents tried suing the families of the children who uploaded the video, but the video was already out there.

Years later, as a grown man, he thoughtfully reflected on his unwelcome, instant celebrity:

Every single talk show in North America wanted me as a guest . . . But why were they inviting me? They wanted to turn me into a circus act. Having your 15 minutes of fame, when you've done something truly worthwhile, is one thing. When you earn it for something humiliating, that's entirely different.⁸

The Privacy Paradox

The Internet's characteristics do not just complicate privacy because of the way they make it so easy to release information, and then amplify its exposure to a worldwide audience. They also affect the way we behave, as the other chapters in this book illustrate. The online world promotes disinhibition, in particular. People are more willing to disclose sensitive information online, not just about themselves, but about other people. The physical distance, along with a heightened perception of anonymity in many Internet neighborhoods, combine to promote behavior that makes it seem as though we no longer even care about online privacy.

We also continue to use a service like Facebook despite the company's checkered history of privacy abuses. In 2007, for instance, Facebook launched what users called a "creepy" service that tracked their actions on third-party websites, and then broadcast the information to their friends. Facebook dropped that practice, but then in 2010 the company decided to default users' privacy settings to "everyone," meaning that anyone could view the user's site, not just "friends." Facebook reversed course on that as well but continues to trigger outrage and class-action lawsuits for many other practices that leave users with little control over their information.⁹

Yet people keep posting. And they keep "friending" people they know little about. A Missouri University student did an experiment that showed how willing people are to add "friends." He wrote a computer program that generated requests to add him as a friend, and sent it to 250,000 people. Almost one third of them accepted the request, even though they had no idea who he was. Many Facebook users found his experiment infuriating, and they sent him hate messages and obscenities.¹⁰ His results, though, illustrate how eager many people are to bloat their "friends" list.

The *privacy paradox* is that people say they are concerned about the issue; they also say they have at least some knowledge about how to configure privacy settings. But at the same time, their behavior often does not mirror those concerns. People reveal detailed, personal information to large numbers, and they are sharing more than ever before. Indeed, "sharing" is a key component of Web 2.0, and the development of software tools to facilitate it is big business. Privacy concerns don't seem to be related in any direct way to how much people disclose about themselves, and such concerns also don't lead to sustained efforts to modify privacy settings in meaningful ways.

One study, for example, surveyed college students and found that only about half said they restricted their profile so that "only friends" could see those details, which often include personal and sensitive information. On the surface, that sounds like a smart step. But consider how many Facebook users add "friends" to their network about whom they know little - who might be loosely considered friends of friends, or even complete strangers, as that Missouri student's experiment showed.¹¹

What accounts for this paradox? One possibility is that people really don't know how to manage their privacy online, even though

most proclaim that they have at least some knowledge. Privacy settings are getting more and more complicated, and companies continually change policies. The policies themselves are tiresome to read, difficult to interpret, and often not enforced anyway. Facebook and Instagram, for instance, ban users from impersonating others, but that certainly happens. Law enforcement agents, for instance, impersonate people on those sites to trap criminals, with or without a judge's approval.¹²

Another possibility is that people have a general concern about privacy but don't always connect that concern to their own online activities. In fact, one study confirmed that people think that others are more vulnerable to privacy risks than they themselves are.¹³ A survey of a national sample in Korea asked two key questions. One was, "How likely are you to fall victim to improper use of online personal information?" The other question substituted "others" for "you" in the same question, and added an age group for those "others," from teens to people fifty and up. Overall, people were more optimistic about their own risks compared with the risks they thought others were taking on, particularly if the others were teenagers.

A third possibility to explain the paradox is that a social network is an especially precarious online environment for privacy, both psychologically and technologically. People imagine that their posts are restricted to the audience they invited - mainly, their "friends." They may disclose general facts about themselves in more public arenas, but they think of their social network site as a private circle and feel freer to share more sensitive information. Indeed, self-disclosure is a key reason for joining a network to begin with. It is fundamental to developing and maintaining relationships. If you post only about the weather, you are not taking advantage of the networking site to build stronger bonds and connections.

But as a person's network grows, privacy risks grow with it. What was once a tight circle of college buddies suffers from the context collapse I discussed in [Chapter 2](#). Parents, coworkers, bosses, aunts and uncles, friends of friends, and random acquaintances see the same disclosures, unless the individual takes great care to segment the audience. Even then, blunders happen. A friend might widely share a photo you intended to display to close friends only, without your consent or knowledge - until you see it trending on Twitter. Your friend thinks the photo is hilarious, not embarrassing, and thought you would as well. If you disagree, it's too late.

Finally, a conflict of interest exists between users concerned about privacy and the companies that launch these very alluring “free” services, as we discuss next.

BUSINESS MODELS AND “BIG DATA”

On most of the popular social network sites, people can create an account for free and begin crafting their online personas by entering their personal information, uploading photos and videos, and inviting friends. The companies who develop and support the sites have expenses for servers, payrolls, and bandwidth, and the more users who join the site, the higher the expenses.

YouTube, for example, launched in the spring of 2005 with bills of a few thousand dollars per month. By the end of that year, “hyper-growth” was under way. Users were uploading thousands of videos every day, and by mid-2006, uploads reached *millions* of clips daily. The company still had few employees, but monthly web hosting fees alone topped \$1 million.¹⁴ Often, venture capitalists will help pay such bills, betting that the new application will become a big winner and that one of the cash-heavy tech giants will buy them out for a princely sum. That happened to YouTube. In 2006, Google snapped up the video-sharing company for \$1.65 billion, making the site’s creators very wealthy, indeed.

Free sites also earn revenue by charging for premium services, as LinkedIn does, or by selling virtual goods, as Second Life does. But the most important source of revenue comes from marketing. The social networks, however, offer marketers far more than just a banner ad on top of a public web site that almost no one clicks. They offer access to your data, and that is extremely valuable.

Targeted Marketing

If you are the marketing director for a company that makes athletic footwear, how should you allocate your marketing budget? Would you buy space for a colorful full-page ad in a print newspaper? Would you buy time on ESPN for a thirty-second TV commercial? The sports channel is more likely to draw an audience that is interested in athletics, so that might be a better choice. But because of the Internet, you have an infinitely greater set of options for reaching the audience you want to reach, with just the right message. You can use the data

that people themselves contribute to social networks to target, for instance, single women in their twenties who belong to a gym and list jogging as an interest. Then you display an ad that features shoes in the target's favorite color.

The more users in the social network, and the more useful marketing data those users contribute, the more revenue the site will earn from advertisers. This is a key reason for that conflict of interest between privacy concerns and the goals of the social network site. The users are not really customers of those sites; they, and the data they provide, are the site's assets - the products that generate revenue. And that data can be combined with other digital trails the user leaves behind, from visiting websites, checking into a location, making purchases, or posting comments.

Social network users may not realize - or even notice - that the ads they see are not the same as the ones their sedentary friends who hate jogging see when they log in. Some may appreciate the targeted marketing, so they see special deals on just the kinds of products they would actually purchase. But privacy advocates are deeply concerned about just how much data are being collected about people by companies as well as governments. It is called *big data*, but "big" doesn't even begin to describe it.

Going Viral

In addition to targeted marketing, social networks offer advertisers unique opportunities to tap into word-of-mouth advertising and find those influential people whose opinions everyone respects. Your friend's post about a great new restaurant carries much more weight than any ad the restaurant paid for, especially if the friend is someone you trust.

Considerable effort goes into mathematically analyzing the activity on social networks to see who might be the most valuable "influencer." One study, for instance, explored these influence relationships by analyzing the ratings people in the network gave to one another's posts, and the number of supporting and opposing interactions among the users. Someone whose posts are frequently liked or retweeted by many different people in the network, for instance, would be one of the influencers. And within a network, there are often some key individuals who jointly can be quite powerful opinion leaders - the "in" crowd that sets the norms and that others follow.¹⁵

The psychology of going viral is also getting more research attention, especially because that kind of word-of-mouth promotion - which costs nothing - is incredibly valuable to marketers, celebrities, politicians, and anyone who wants a big, supportive audience. Internet memes can gather an astonishing amount of momentum in a short period of time, engaging thousands or millions in a shared theme.

What features make people want to spread certain items to their networks and beyond? In one set of studies, researchers used infrared eye-tracking scanners to follow what people were actually looking at when they were shown different video ads; they also analyzed the subjects' facial expressions for emotional expression.¹⁶ The goal was to find out which ads people are most likely to watch to the end and then share with their networks.

One finding is that two key emotions play the most important role in keeping viewers engaged in an ad: joy and surprise. Online, people get bored quickly and will stop watching, so the strategies that TV commercials of the past used - building toward a dramatic or surprise ending - don't work. TV watchers can't just stop an ad with a click, but online viewers can. Triggering joy or surprise in the beginning is the best way to hold their attention. Bud Light's "Swear Jar" ad, for instance, starts out by showing that workers have to drop a quarter into a jar for any curse word they utter. When one worker learns the money will be used to buy Bud Light for the office, he immediately swears, and happily drops in a quarter to build up the pot.

The Tip of the Iceberg

Social network sites are like icebergs in terms of how the users perceive the information they contribute and what is actually collected and stored. What they see, and what they share, is just the tip. Underlying that is the enormous amount of personal data that is collected on each user, drawing from what users themselves voluntarily add, but also from visiting websites, adding "likes," posting comments, and checking into location apps. Big data can also draw on records about marriages, deaths, divorces, net worth, home address, charitable donations, criminal offenses, and more. As the Internet of Things expands, that smartwatch on your wrist might add your heart rate into the mix, or your refrigerator might relay your midnight snacking habits.

The technology to collect, store, and analyze all of this big data has advanced by leaps and bounds, and social network companies have

huge incentives to encourage people to keep contributing data. To this end, they design software that makes it extremely easy to ignore privacy concerns. Clicking “update” without thinking about privacy implications is astoundingly easy. Spontaneous sharing of that impromptu photo on Instagram or video on Vine is equally effortless.

On the flip side, the software developers erect high hurdles for those who are reluctant to post sensitive information online. Social networks constantly remind you to update your status, check in with your friends, or send someone in your network a virtual gift. Prompts to complete your profile seem endless, with promises of more friends and a richer network. On one service I was testing, I just used initials and some numbers as my “name,” but the software detected that and prompted me to “correct” that.

Nevertheless, companies must be careful not to alienate their users to the extent that they delete their accounts because of privacy concerns. So it is in their interest to keep users’ focus on the iceberg’s tip and not draw attention to the vast and rapidly growing big data under the surface. When a misstep triggers a wave of user outrage, a few people will protest by moving onto a rival’s service. However, because of network effects, this risk is not that big for the major social networks. Switching costs are extremely high because users would want to persuade all their network friends to switch as well, abandoning all their digital assets and histories and starting over.

SURVEILLANCE

With more and more sensors, cameras, and chips in the Internet of Things, we can expect more surveillance as well. But who is doing it?

The Agents of Surveillance

The business models of the online services depend on data collection and surveillance, but they are not the only ones who have an interest in such tracking. Governments also launch programs that collect enormous amounts of data, albeit for different reasons. Government interests cover a wide range - from tracking political opponents and dissidents to preventing terrorist attacks and apprehending criminals.

Social media are a particularly rich target for government surveillance. Egyptian authorities, for instance, solicited bids for a new surveillance system that would systematically monitor activity on

Facebook, Twitter, Skype, and YouTube, along with popular mobile phone apps such as WhatsApp. The system would flag communications that suggest defamation of religion, illegal demonstrations, strikes, sit-ins, and violence.

Surveillance is not just about being watched by businesses and governments. It also includes *mutual* surveillance. Social media give everyone a stage to perform on, and a pair of binoculars so that we can all watch. It becomes an Internet “omnopticon,” with people watching one another. We might think that our performances would interest only friends and family, but when they go online, they can reach far further.

A surprisingly large amount of surveillance happens because we agree to it, often enthusiastically. We sign up for those free services that are the bedrock of online surveillance, without reading the terms of use, because the services are so useful. We welcome the suggestions from Amazon’s recommendation engine, not minding where the company got all that information.

Coupons, discounts, and prizes also play a role in this kind of “do-it-yourself” surveillance. Progressive Insurance, for instance, launched a program called the MyRate plan for customers who agree to put a device in their cars to track their driving habits. The drivers can get discounts as high as 30 percent for a good driving record, but they could also pay more if the reports show speeding, jack-rabbit starts, or panicked stops.

The Internet of Things

The age in which objects all around us are connected to the Internet is upon us, and we may or may not be consenting to surveillance by all those “things,” as Progressive’s customers are encouraged to do. The Internet of Things is the next trillion-dollar business, and it requires a major upgrade to the Internet’s original addressing scheme to accommodate billions more connections.

What are all these objects, besides the obvious smartphones and tablets? Cameras on utility poles, sensors embedded in roadways, toll collection sensors on windshields, and event data recorders or “black boxes” installed in the vast majority of new cars are a few that track driving behavior. In the home, TVs and security cameras are already connected, and thermostats that track your energy usage are spreading rapidly. General Electric announced a new line of connected ovens and refrigerators, so you can preheat your oven with a

smartphone and receive an email reminder from your refrigerator if you accidentally left the door open.

Health monitoring via connected devices is a major category for the Internet of Things, with devices to track your heart rate and oxygen saturation as you exercise, or bracelets to monitor your exposure to ultraviolet rays. For instance, one device attaches to your smartphone and contains a sensor to estimate your blood alcohol level from your breath. The device and the app are promoted as a means to help people make informed decisions about whether they should drive, and the online service also tracks your data.

Much of this innovation will benefit all of us, but in the rush to embed chips in children's toys and household appliances, the potential for surveillance and threats to privacy is not getting much attention. One legal scholar bought the breath-testing device to look into privacy issues, and he was quite troubled by his findings.¹⁷ The instruction manual contained no mention of a privacy policy that covered the data the company collected, nor was privacy mentioned when he downloaded the app to his smartphone. He found a barely visible link to a "Privacy Policy" at the bottom of the company's web page and learned that this very sensitive data would be stored indefinitely in the cloud; users appeared to be unable to delete or correct it.

Surrounded by objects that collect and store all kinds of information about human beings, a host of privacy issues come to mind. But how does surveillance affect human behavior?

On Being Watched: Psychological Effects of Surveillance

Much behavioral science research demonstrates that "being watched" has significant effects on the way we behave. As I discussed in [Chapter 3](#), the mere presence of other people makes a difference. In general, our performance tends to improve when other people are present, at least for the more automated kinds of tasks that don't require intense concentration. Arousal goes up, along with alertness. In one early study, for example, subjects came to the lab to perform a rotary-pursuit task in which they used a wand to track a target moving around in a circle. Their goal was to keep the wand on the target as it rotated for as long as possible.¹⁸ Some subjects performed the task in a room with another person sitting passively off to the side, out of the subject's view. These people performed considerably better compared with controls who performed the same task in a room by themselves.¹⁹

People also show more prosocial behavior when others are watching them. A study conducted in various London neighborhoods investigated whether people would donate more money to a charity if the door-to-door collector used good eye contact. Regardless of neighborhood, those collectors who gazed into the eyes of the person who answered the door raised considerably more money compared with the collectors who avoided eye contact.²⁰

The feeling of being watched, even when another person isn't present, also has effects on charitable giving. Researchers in the United Kingdom demonstrated the "watching eyes effect" by inviting subjects to participate in a study that ostensibly would examine how personality and faith affect prosocial behavior. When the subjects arrived, they went to a cubicle in which they were supposed to complete a variety of personality tests on a computer. On the desk sat a charity jar in which subjects could voluntarily drop coins to help a well-known organization that provided ambulance services. On the wall in front of them was a sign that said, "Please do not consume any food or drink in the cubicle." For half the subjects, just above that sign, the researchers tacked a photo showing a man's eyes, gazing straight ahead. The image for the control subjects was the logo of the Institute of Neuroscience, where the research took place. The "watching eyes" worked. Subjects who took the personality tests with the eyes "staring" at them contributed significantly more to the charity by dropping more money in the jar.

Cameras are becoming nearly ubiquitous in public spaces of major cities around the world, and these "eyes" are watching citizens all the time. Many argue that the cameras help deter criminal activity and other kinds of antisocial behavior. A study conducted in Cincinnati over a four-month period found just that - at least for the first couple of months.²¹ After that, the cameras' effects waned, as though people ignored them or forgot they were there. The cameras might be more effective if someone mounted a pair of "eyes" over them, or at least a sign reminding people about the surveillance.

Cameras are also proliferating in less public spaces, such as schools. A study of schools in the United Kingdom found that teachers think the surveillance is mostly positive and that it is useful to prevent theft and vandalism. The students, however, hold very mixed views. Many expressed outrage, judging the cameras as a symbol of distrust.

I think it is an invasion of privacy. I think if you want pupils to act responsibly then you need to show them that they are trusted. You need to

treat them like adults, and with a little bit of respect. For some individuals it becomes a self fulfilling prophecy. If you are always expecting them to be up to no good then they might decide that they might as well misbehave because they are being treated like they are doing anyway. – Sarah, Urban High.²²

For these students, the surveillance could backfire, poisoning relationships with teachers and administrators and increasing bad behavior. They are particularly incensed when cameras are installed in bathrooms. One student, apparently resigned to their presence, said, “I don’t like it. I have got used to it – you have to, but I still don’t like it . . .”

It would seem that people do behave differently when they have a feeling of being watched, but what happens when there are no “eyes,” or camera lenses, in the room? We all know, or should know by now, that immense quantities of data are scooped up by businesses and governments, but we can’t see their eyes or feel their presence as we type at our keyboards or post a video. Does that knowledge alone affect how we act? The privacy paradox suggests that the answer is “not much,” but research does find evidence that different types of surveillance trigger privacy concerns and can affect our behavior.

In the absence of eyes, one factor that affects how we react to online surveillance is our judgments about intentions. Why is that organization tracking my data? Is it to help me, or is the reason less benign? An intriguing study of almost 2,000 Finns presented a series of scenarios in which the subjects’ data were being collected without their explicit consent, and then asked them how they felt about it in terms of privacy, and whether they would change their behavior.²³ For example, one scenario read,

Your only computer has a device that logs everything typed on the computer’s keyboard to a file. You know it is possible for your employer to view the file. You find it likely that the employer wants to monitor whether you are sharing confidential information regarding your job with nonemployees.

For some scenarios, such as this one, the intention was painted as negative – to check to see if you’re stealing company secrets, goofing off at work, or lying about something. In others it was more neutral or positive, such as recording your data in case of emergency or in the event of a natural disaster. No motive was mentioned for some scenarios, so the subjects didn’t know why the data were collected.

As you might expect, data collection for benign intentions triggered the least concern about privacy, while negative intentions triggered the most. But the scenarios in which the reason for the surveillance was unknown caused almost as much concern as the ones with negative intentions. It seems we do not give the agents of surveillance the benefit of the doubt. If they are not transparent about their motives, we assume they are unlikely to be to our advantage.

STRATEGIES FOR MANAGING PRIVACY ONLINE

While the individual's ability to manage and protect online privacy may be far from perfect, especially given the advantages that the data collectors have gained, some creative strategies have emerged. Some of these work reasonably well, others less so. Let's start with the most fundamental strategy, which is about making careful decisions about what to actually post online.

Managing Disclosure

Arguably, the most effective strategy is to manage disclosure. But that is easier said than done - partly because we want to share information with trusted others and also because so many applications that we want to or must use require disclosure. Registering on healthcare.gov, for example, requires applicants to enter a considerable amount of very sensitive information.

How do we judge whether it's safe to enter personal data into online forms? Depending on the context, we rely on a variety of cues, such as the "lock" symbol on the browser that signifies encrypted transmission, or the URL itself. Sometimes, however, our evaluations of the context are not very accurate, and we rely on misleading cues to judge risk.

One study, for example, explored how the online context affects the willingness to disclose sensitive information.²⁴ The experimenters created an online survey that asked intrusive questions such as "Have you ever tried cocaine?" and "Have you ever 'cheated' while in a relationship?" Then they designed three different interfaces in which the survey would appear. One was very professional looking, with the title, "Carnegie Mellon University Executive Council Survey on Ethical Behaviors." A second was designed to downplay privacy concerns, and bore the title, "How BAD are U??" with a cartoon devil next

to it. The third interface was a neutral control, with a simple heading that read, “Survey of Student Behaviors.”

Surprisingly, the students admitted to engaging in more bad behavior on the survey that appeared on the unprofessional site bearing “How BAD are U?!” The organization behind the professional site would likely do a better job of protecting private information, but the unprofessional one apparently led students to downplay privacy concerns.

In a follow-up study, those researchers tried arousing some privacy concerns before the students started the survey. They added an initial task in which students either identified photos of endangered fish (Find the endangered fish) or picked out emails that were most likely to be “phishing” (Find the “phishing” emails). When the task was about fish and unrelated to privacy, students made more sensitive admissions on the unprofessional site, as they did in the previous experiment. But the “phishing” task aroused privacy concerns, and students who did that task first were more reluctant to disclose sensitive information on the unprofessional site. The conclusion is that we do care about privacy but the environment affects our choices. In certain settings, we might misinterpret cues that can mislead and even increase the danger of exposure.

On social networks, users develop quite a variety of techniques to navigate privacy issues and avoid disclosing information to the “wrong” people. Teens, for example, bear a reputation for not caring much about privacy, but they actually care very much about certain types of surveillance. They may worry less about government surveillance but far more about intrusions by parents or other adults.

To deal with the concerns that matter to them, teens develop some innovative privacy management strategies. Researchers interviewed eighteen-year-old Mikalah, who was a ward of the state, and she found a unique way to manage her privacy on Facebook. She deactivated her account during the day when the adults at the government agencies would be checking it, and then activated it again every evening when her friends were on. She created a kind of “invisibility cloak” for the daytime, so the adults thought she didn’t even have a Facebook page.²⁵

Teens also make good use of *social steganography* to manage the collapsing context on Facebook, a technique that involves hiding messages in plain sight. Carmen, a seventeen-year-old Latina interviewed in the same study, complained that her mom often jumps in and adds inappropriate comments on her wall, which scares everyone

away: “Everyone disappears after the mom post . . . And it’s just uncool having your mom all over your wall, that’s just lame.” When she broke up with her boyfriend, she wanted sympathy from her friends, but didn’t want her mom to overreact. So she posted, “Always look on the bright side of life,” which her mother thought was a good sign. Her friends, though, immediately recognized the reference to Monty Python’s *Life of Brian*, a comedy in which a man being crucified sings those lyrics, so they contacted her privately to console.

On social networks that offer users a way to segment their audience into categories, users can tailor messages to target groups in a more intentional way. Carmen could have done that by putting her mom and other family members into a “family” group that would see only updates she chooses. As I mentioned earlier, many students don’t bother to do that because of the time and effort it takes. But some do. In a survey of college students, those with large and diverse networks were more likely to use that kind of segmentation, creating groups such as college classmates, childhood friends, family, and faculty.²⁶ These students also said they could then be more honest, intimate, and detailed by limiting the audience.

Another way people manage privacy is by creating multiple identities in different spaces. They might voice their extreme political views on one site, but restrain the content they post to their Facebook account where their views might generate endless arguments from friends and family who disagree.

People who prefer a safer route, especially those who are more concerned about privacy, often drift toward the *lowest common denominator* approach on their social networks.²⁷ They stick to the most innocuous information that is safe for anyone to see, whether it is an employer, teacher, parent, child, or significant other. Social media are awash with humorous G-rated posts, such as those about Grumpy Cat and Henri, le Chat Noir, that avoid offense, regardless of who might be viewing.

One much riskier strategy that some people use in an attempt to control the release of sensitive or embarrassing information about them is to seek legal action to have it removed from the Internet. Sometimes this works, but the strategy can also easily backfire. The *Streisand effect* became a well-known Internet phenomenon when Barbra Streisand sued a photographer for taking an aerial photograph of her home in Malibu. The photographer was documenting erosion along the California coastline for the government, and he added the

image to an online public collection of thousands of such coastal images. Before she filed her \$50 million lawsuit, the image had been downloaded only a few times, some of which were by Streisand's own legal team. But afterward, hundreds of thousands of people learned of the lawsuit; they promptly downloaded the image and spread it far and wide. This effect plays out over and over, and illustrates how strategies to contain something once it is uploaded can backfire.

Technical Protections

More technically savvy users are less likely to accept the default settings for privacy, and instead tinker with them in ways that reduce the hazards of the collapsing context, public disclosure, or just a break-in. They also take time to untag their names from photos, and ask friends not to tag them.

The settings can often be quite complicated, and just remembering what your own settings are and who sees what can be taxing. Some innovative entrepreneurs have stepped in to help privacy-conscious social network users with products such as "Internet Shame Insurance." This software helps you avoid embarrassing disclosures by showing you exactly who will see a post you're working on based on your settings.

Snapchat is another app for smartphones that offers a technical control to help people protect privacy and avoid unintended disclosures. Any image or video sent through the service is automatically deleted a few seconds after the recipient opens it. The app is wildly popular - with teens in particular - but it offers a false sense of security. The recipient can easily just snap a picture of the picture using a second device, and then upload that to the Internet. Users also must rely on the company to uphold its own privacy policies, but the Federal Trade Commission charged the company with collecting location data on its users, which it promised not to do.²⁸ To make matters worse, Snapchat servers are as vulnerable to break-ins as any other service. Hackers have threatened to hold a "snapping" in which they release thousands of images that the senders thought had "vanished."

Technical controls that are used to prevent unauthorized access rely on three strategies, as shown in [Table 10.1](#). For websites and applications, some of these aren't feasible, at least not yet. Passwords and secret questions are the most commonly used, but concerns about privacy and unauthorized access are motivating organizations to implement more secure methods.

Table 10.1. *Strategies to authenticate users*

AUTHENTICATION STRATEGY	EXAMPLES
Something the user <i>knows</i>	Password, PIN, answers to security questions
Something the user <i>has</i> in his or her possession	ID card, badge, credit card, passport, mobile phone
Something the user <i>is</i>	Fingerprint, retinal pattern, voice pattern, DNA

For instance, some sites offer *two-factor authentication*, which requires users to pass a second test to enter the site, not just enter a password. For example, each time you want to log in from a new device, the website might send a code to your phone that you must also enter, along with your password. This way, the site depends not just on something the user *knows*. It also demands that the user *has* something in his or her possession, in this case, the person's mobile phone.

One of the most powerful defenses for online privacy is Tor, originally developed to protect government communications. Tor is a distributed network of computers with accompanying software that people can use to communicate anonymously and keep websites from tracking their activities or location. Tor also offers users the opportunity to publish websites without revealing the site's physical location.

Tor is widely used by people who have a strong need for privacy protection and anonymity, such as journalists, activists, political dissidents, whistleblowers, and those who want to discuss sensitive topics in an anonymous environment. But anonymity also protects the privacy of criminal gangs, terrorists, drug dealers, and others evading the law. Tor and its community of developers often find themselves at the center of the many debates surrounding the need to balance privacy and security.

THE FUTURE OF PRIVACY

The norms about privacy have never changed so fast in human history, although technological advances have certainly triggered changes before. When the telephone was introduced, for instance, wealthy Londoners placed the device in the servants' quarters, believing that an unannounced phone call from someone was an outrageous invasion of privacy. How rude not to stop by and leave a calling card!

The constantly evolving and expanding world of cyberspace is creating much more turbulence, more controversy, and far more uncertainty about privacy. What would those Londoners have thought about the endless stream of emails, texts, and status updates that flow into smartphones?

The chaos is especially acute because the Internet is a global technology, but privacy norms are more local in terms of culture, age, and other sociodemographic characteristics. The legal systems are well behind the trends in how our conceptions of privacy are transforming, and major legal disputes are unfolding that will have explosive effects – psychologically, socially, and economically.

The “Right to Be Forgotten”

As I mentioned in [Chapter 8](#) on child development, Google’s former CEO Eric Schmidt once suggested that teens should be able to change their names when they reach adulthood, so they can leave their spotty digital records behind them and start fresh. In the European Union, where privacy is considered a human right and data privacy laws are stricter than in the United States, the “right to be forgotten” gained hold. This would let teens and anyone else do something similar to what Schmidt suggested, but without having to change names. Essentially, the right to be forgotten gives people the right to have data about them erased under certain circumstances.

A key case involves a Spanish lawyer who had financial problems in the 1990s and had to sell off property. A newspaper reported the transaction – in print form at the time – but then later launched its online presence, which included access to the older archives. The lawyer had long since resolved his financial difficulties, but in 2010, he discovered that the report appeared in the result list when anyone Googled his name. The newspaper refused to delete the report, so the lawyer submitted a request to Google to remove the search results from its index so people could not so easily find that damaging report.²⁹

Google argued that it was just a search engine – a medium – and that it didn’t control the information. But the Spanish court disagreed and determined that Google should “de-index” the material.

That ruling and others like it open up many questions about how much control individuals should have over information about them – a key part of the very definition of privacy. Free-speech advocates worry that too much control is not in the public interest; for example,

a candidate for office might insist that information about a ten-year-old scandal be “forgotten” by the Internet. Legal scholars Warren and Brandeis worried about this same issue back in 1890 when they first proposed a legal framework for privacy. The right to be forgotten might lead to unintended consequences in which history is rewritten.

Privacy advocates cite the dangers of surveillance, public disclosure, and privacy violations that have grown so quickly, as well as the unfairness that results when the big tech companies vacuum up all this personal data, use it to generate revenue, but do not pay the contributors anything for it.³⁰ Most tech companies in the United States are firmly against the right to be forgotten, claiming that it would lead to a further Balkanization of the Internet, with different privacy policies by region. It would also be immensely difficult to implement on any scale. As you might expect, however, entrepreneurs have certainly taken up the opportunity to provide new services that promise to delete customers’ online presence, with or without a right to be forgotten.

Predictions

The debates about the right to be forgotten - and privacy in general - raise many questions that don’t yet have answers and that are not likely to generate much consensus in any case. Although the Internet is now well out of infancy and into its young adulthood, it continues to change and present new challenges for all of us.

The Pew Research Center canvassed thousands of people involved in the Internet’s development to learn what they thought the future holds for online privacy, and whether a trusted and reliable privacy infrastructure would emerge.³¹ Their predictions ran the gamut from a very dark vision in which privacy becomes obsolete to an optimistic one in which human beings achieve a balance between privacy protection and competing concerns.

On the pessimistic side, one advisor to a government ministry said, “George Orwell may have been an optimist” in imagining “Big Brother.” Many respondents lamented how willing people are to disclose personal information online for minor conveniences, some freebies, or even a chance at 15 minutes of Internet fame. Without a major catastrophe that gets worldwide attention and causes major damage, privacy is likely to continue to erode. Companies and governments will increase surveillance and data gathering, and only the fanatical, the technically savvy, and the wealthy will have the time, knowledge, and resources to protect their privacy. Corporations and governments

will not give up their data-gathering practices without a huge fight. “It is too convenient and too profitable for all parties involved,” said one professor. The Internet of Things will add immeasurably to this march toward ubiquitous surveillance and privacy’s funeral.

In contrast, optimists cite the rapid advance of technologies that counteract surveillance, such as Tor. The revelations of Edward Snowden, who leaked classified government information, woke up a lot of people who are now hoping that a solid privacy infrastructure will eventually follow. The massive hack in which millions of employee records at the Office of Personnel Management were stolen adds further weight to the importance of a strong privacy infrastructure. Some also believe that people are getting smarter about how they use the Internet and what kinds of information they contribute. A policy analyst who participated in the Pew study said, “People will become more aware of the tradeoffs, which will drive an evolution of norms. They will have become more sophisticated about choices regarding disclosures they make, exercising finer-grained control - in part because there will be more technical support for doing so.”³²

I lean toward the optimists’ view, partly because of the research I described in this chapter. We all certainly make blunders, but the research shows that we are finding ways to learn from them and adopt privacy strategies that fit our needs - whether that means using the lowest common denominator to post on a social network or purchasing a subscription to a service that tracks and erases digital footprints.

Many people are becoming more knowledgeable about online risks and are willing to push back when some egregious privacy violation comes to light. Privacy advocacy groups, such as the Electronic Privacy Information Center, publicize these and gather support for better protections through legislation or other kinds of pressure.

The privacy infrastructure that emerges in the coming years may be creaky, and it will still have many holes. We will still need to rely on our own resources, recognizing that the Internet is a risky place when it comes to privacy. Our own online behavior is at the same time one of the greatest risks, but also something we are learning to better manage in a digital world.

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THE INTERNET AS A TIME SINK

One year ago, I left the Internet. I thought it was making me unproductive. I thought it lacked meaning. I thought it was corrupting my soul.

- Paul Miller¹

Technology writer Paul Miller decided to “unplug” in 2012, burnt out by what he called the hamster wheel of email and the deluge of information on the web. He kept his job at The Verge, partly because his boss approved of the plan and thought it would make a great story. Miller continued to submit articles, but he stopped using email, the web, social media, and everything else on the net.

Miller is not the only one alarmed by how central the Internet had become in his life and how much time he spent online. Many of you reading this chapter can relate to his angst, a sinking feeling that we may have gone overboard with our gadgets and constant connectedness. A friend asked me, “Do you check your smartphone as soon as you wake up?” Then she added, “My problem is that I wake up to check it and can’t get back to sleep.”

Researchers interested in how much people use the Internet often ask questions such as, “How many hours a week do you spend online?” But with net access available on smartphones, watches, and Google Glass headgear, we are increasingly *always* online, so questions like that seem quaintly antiquated. Advantages abound, of course, from catching up on work during a long commute on a train equipped with wifi to an instant notification about a flash flood on a road you were about to cross. But problems are also arising as the Internet’s time sink encroaches on more and more of our lives. Let’s start with what is

called *work-life balance*, which may need a new name because it is now less “balance” and more “merger.”

THE 24/7 WORK WEEK

Do your colleagues expect you to read email in the evenings and on weekends? Does your boss expect that? Do you expect that of yourself, and of your own coworkers? Many do, especially if they are in industries such as real estate, sales, journalism, consulting, finance, or safety. And even if your employer doesn't write down any particular policies, you may feel as if you need to stay in close touch - to earn that promotion, for instance, or to escape the next layoff.²

In the 1930s, John Maynard Keynes predicted that we would soon be enjoying a fifteen-hour work week, thanks to advances in technology. It hasn't quite worked out that way. Instead, people in the United States are working more hours - an average of forty-seven hours per week according to one survey.³ They also use fewer and fewer of their vacation days.

Work-Life Balance

Research on how people juggle their work responsibilities and their personal lives took quite a sharp turn when home Internet access became widespread. Especially when mobile devices became standard equipment, our working and personal lives became increasingly merged. One woman I know wears a bluetooth earpiece all day at work, and appears to be engaged in conversations much of the time as she works at her computer or walks to the coffee machine. She also keeps a window open in the corner of her screen to receive instant messages from friends and family members. She earns high marks for her work, despite the technological blending - or perhaps because of it. She said that if she couldn't stay in touch with her loved ones this way while she is at work, she would miss a lot of work to be with them.

LinkedIn conducted a survey of more than 18,000 professionals in twenty-six countries and found that a better work-life balance was the second-most important reason (after more pay) that people would happily jump ship to a new job.⁴ However, the interest in improving work-life balance varied by age. Millennials were less concerned about that compared with people over forty, perhaps because they had not

yet started families or because they felt more comfortable with the “merger” model in which work and personal lives intertwine.

Managing Boundaries

Boundary theory explores the way people manage the boundaries for work life and home life, how we make decisions about how permeable any particular boundary should be, and how our roles shift as boundaries are crossed. One way to achieve boundaries between work and home life is to separate the roles by time, space, or both.

For instance, a parent walks in the front door, announcing, “I’m home!” That signals to all in earshot that the boundary between work and family was crossed. The person transitions from the working role to the parent role, just by crossing the threshold.

If that sounds a bit 1950s, it is, and boundaries as simple as that were television fare in shows like *Father Knows Best* or *Leave It to Beaver*. With ubiquitous Internet access and mobile devices, such simple boundaries defined by time and space are illusory. Boundaries are now much more porous, so that you receive a text message from your boss even as you walk in the door. Spatially, you may be in your parent/spouse role, but psychologically, you shift back to your working role to immediately read the text.

How Mobility Blurs Boundaries

A smartphone is a kind of portal, not just to everything the Internet has to offer but to a bewildering variety of apps that adapt perfectly to the device’s size and mobility. From the car service app that summons your next ride to the mobile-friendly online college course, your portal is always available and within easy reach. The mobile phone also enables constant connectedness to your work role. Besides email, texting, and voice, corporations offer apps to their employees so they can access corporate databases and other resources while on the go – to look up clients, make deals, and chase down sales leads.

Perhaps more than any other device, the smartphone blurs boundaries between work time and nonwork time, and research finds negative effects on family life. In one longitudinal study, for example, researchers followed couples in New York for two years, collecting data about their family lives, levels of distress, and how they used technology. Persistent use of cell phones was closely tied to a “spillover” effect, in

which work permeated home life in negative ways, resulting in more distress and lower family satisfaction.⁵

People who reported using their smartphones to stay connected to work recognized the downsides, with spouses complaining about the interruptions. They also understand how distracting a mobile phone can be, particularly if they used it while driving. Yet to these people, the phone was not so much a “leash” to the office but a liberator. When they left the office, they knew that they would stay in touch should some emergency arise. It gave them a feeling of control.⁶

In principle, anyone can turn the phone’s alerts off so texts go unnoticed and calls unanswered, and some people seem better able to manage boundaries between work and family time, even if the boundary is a permeable one. Another longitudinal study - this one involving well-educated sales people in the high-pressure pharmaceutical industry - found intriguing differences between the way people with mobile phones managed their boundaries and the effects their strategies had on any spillover. Some of them - the “segmenters” - strictly separated their work and family time, refusing to use their smartphone during nonwork hours. “I don’t use it outside of work,” said one. “It’s that simple.”

Others were “integrators,” using their phones initially in a way that caused more family distress. But they soon learned to manage the devices and not let the phone manage them. One said,

People complain that the Blackberry ties them to the office. They call it an electronic leash. From my perspective people need to take responsibility for their own actions. Just because I have a BlackBerry doesn't mean I am on call 24 hours a day. If someone sends me an email at 10 o'clock at night it doesn't mean I will be seeing it at 10 o'clock.⁷

The people who had the most trouble - the “failed segmenters” - were unable to get control over the technology; they underestimated how much it would add to their workload. They also were unable to resist the pressure to be available 24/7: “There’s a total change in culture now - got to have it yesterday. The BlackBerry has made everything urgent.” This group also showed more infatuation with the device, even signs of compulsiveness. They spoke of how hard it was not to look at the device frequently and how cut off they would feel if they didn’t have it with them. Not surprisingly, their family lives suffered the most. Clearly, people handle technology differently, and some have difficulty managing the boundaries that separate their roles.

Although they might have managed better before the company handed them a smartphone, the alluring features of the devices were irresistible for this group.

Many of those failed segmenters are also likely to be the ones who get “caught in the net” - unable to control their use of mobile phones and the Internet despite the problems their behavior might be creating in their lives. For them, the time sink can become a giant cavern, and their behavior can start to appear pathological, as we see in the next section.

THE INTERNET’S ADDICTING PROPERTIES

Some psychological spaces of the Internet may be so attractive, so absorbing, that they may lead people into very heavy use, even compulsive overuse. In the mid-1990s, the notion that people could become “addicted” to the Internet was often greeted with howling laughter, but as more and more cases came to light through anecdotes and surveys, and people began seeking professional help, many started to wonder. Amid the exciting rush to connect homes, schools, libraries, and businesses, some fainter voices were describing behavioral problems that were emerging behind the scenes.

As usual, anything that has to do with the Internet and our relationship to it can get blown out of proportion and become a subject of intense debates and hyperbole. Indeed, the term “Internet addiction disorder” was first coined by psychiatrist Ivan Goldberg as a hoax, a way to mock how people leap to pathologize everyday behaviors.

Nevertheless, underlying the sensationalized accounts are some real people who are having serious trouble because they spend far too much time online and can’t seem to shake free. As we will see, certain features of some Internet locales can cause that behavioral pattern to flourish. I’ll come back to the question of what to call this phenomenon later. For now, I will use the term “Internet addiction” when the researchers who study it use that label, although there is considerable debate about whether that term is appropriate.

Diagnosing the Problem

Kimberly Young conducted an early study on Internet addiction, approaching it as though it shared characteristics with pathological gambling.⁸ She modified a questionnaire often used to assess

problematic gambling in an effort to separate people who could be considered “dependent” on the Internet from those who were “not dependent.” The screening instrument included just eight questions, and people who answered “yes” to five or more were considered dependent. Here are some examples:

- Have you repeatedly made unsuccessful efforts to control, cut back, or stop Internet use?
- Do you feel restless, moody, depressed, or irritable when attempting to cut down or stop Internet use?
- Do you stay online longer than originally intended?
- Have you jeopardized or risked the loss of a significant relationship, job, educational or career opportunity because of the Internet?

The goal of this survey was to touch on the criteria that are used to diagnose gambling addictions or addictions to substances such as alcohol and drugs. The main criteria are tolerance; withdrawal symptoms; relapses; lack of control; negative consequences at work, school, or in social relationships; and the inability to stop or reduce the activity, despite clear evidence of harm.

Respondents were solicited through newspaper advertisements, flyers on college campuses, postings on electronic support groups dedicated to Internet addiction, and other means; the survey was conducted either by telephone or via the web. Out of about 600 responses, almost two thirds met the criterion for “dependent.” On the surface, this sounds staggeringly high, but if you consider the sample, it is not so surprising. The advertisements for the survey targeted people who were concerned about the subject for one reason or another, probably because they or someone close to them was experiencing the problem.

Demographically, the dependent group who chose to respond to the survey was not exactly what you would expect if your stereotype of the heavy Internet user is the disheveled male student in his late teens or early twenties. More than 60 percent of them were women whose average age was in the forties. Breaking it down differently, 42 percent fell into the “no employment” category, indicating homemaker, disabled, retired, or student as their vocation. Another 39 percent were in white collar, nontechnical jobs, while only 8 percent said they were working in high-tech positions. The nondependents, however, were mainly male, and the average age of this group was mid- to

late twenties. As usual, any survey like this has problems, and they aren't all in the sampling. For example, the fact that so many women were classified as dependents could be because women, in general, are more willing to seek assistance for various kinds of psychological problems, and they also self-disclose more readily. The finding that they made up such a large percentage of this dependent sample may reflect their greater willingness to respond to it in the first place, admit they have a problem, and seek help.

The dependent group said they spent, on average, 38.5 hours per week on the Internet engaged in activities that were not academic or employment related. This was nearly eight times the average of 4.9 hours per week that the nondependents reported, and it constituted quite a large slice of time for those people - almost equivalent to a full-time job.

That early investigation generated considerable interest in the Internet's addictive properties, and much more research followed. Young and other researchers have been refining the questionnaire and developing new ones - trying to keep pace with technology changes and changes in human behavior. Young's expanded version, for instance, is called the Internet Addiction Test and includes twenty items.⁹

Other surveys tap somewhat different behaviors, but most emphasize the same kinds of problems that can wreak havoc in people's lives.¹⁰ Table 11.1 shows the dimensions that these surveys assess, with sample items. The most important criterion has to do with whether Internet use is leading to negative outcomes at school, on the job, or at home. With net access virtually ubiquitous, it matters far less how much time you spend online, because the answer for many people would be "all the time." It *does* matter what you are doing online - which Internet neighborhood you find so compelling that you can't seem to leave it, even though your time spent in it is causing serious problems.

How Prevalent Is the Phenomenon?

Not surprisingly, prevalence rates vary dramatically depending on the sample, the survey used, and the choice of cutoff points that separate the "dependent" from the "nondependent." For example, a study of Italian high school students found a very low incidence - less than 1 percent were classified as severely addicted, and 5 percent as

Table 11.1. *What do surveys that attempt to identify Internet addiction actually measure?*

	DIMENSION^a	SAMPLE ITEM
1	Negative outcomes	Going online has negatively affected my schoolwork or job performance.
2	Compulsive use	I have attempted to spend less time online but have not been able to.
3	Salience	Do you feel preoccupied with the Internet (think about previous online activity or anticipate next online session)?
4	Mood regulation	I have gone online to make myself feel better when I was down or anxious.
5	Social comfort	I feel safer relating to people online rather than face-to-face.
6	Withdrawal symptoms	I feel distressed or down when I stop using the Internet for a certain period of time.
7	Escapism	Do you use the Internet to escape from sorrows or get relief from negative feelings?

^a Dimensions are shown in descending order of emphasis, along with sample survey items.

moderately addicted.¹¹ A longitudinal study of adolescents in Hong Kong found a much higher rate - over 26 percent of those subjects were diagnosed as addicted to the Internet.¹² Indeed, rates appear to be higher in China and some other East Asian countries, particularly for adolescent boys. Among adults, rates vary just as much. One study in Norway reported that just 1 percent were addicted,¹³ and a study of Iranian adults reported an incidence of over 22 percent.¹⁴

What can we make of those figures? Because the studies use different samples and different measurement tools with various shortcomings, we can't easily make comparisons. But unlike the people who answered Young's original survey, these more recent results show that adolescents - boys especially - seem to be particularly vulnerable. For example, concerns about boys in China are especially acute, and alarming rates appear even for elementary-school children. China labels "Internet addiction" as a very serious clinical disorder. The recent trends suggest that Young's early findings were probably influenced by the fact that most Internet users of the time were young adults, and net access had not yet become widely available among youth. Also, as we will see next, the online activities that attract adolescent boys - games, in particular - were still in their infancy back then.

THE INTERNET'S ADDICTIVE NEIGHBORHOODS

Are certain aspects of the Internet as compelling as Blackjack to a gambler, a sale at Bloomingdale's to a compulsive shopper, or cocaine to an addict? Any number of the Internet's neighborhoods may be seductive enough to create problems for vulnerable people who may be prone to compulsive behavior in other areas of their lives. But when we dig down into the studies that assess prevalence rates, we find that certain environments reappear regularly. People who earn high scores on an Internet addiction test rarely mention [CNN.com](#) or Yahoo! Sports. Instead, they point to a handful of environments that seem most likely to be implicated in compulsive overuse.

Many of these environments are, in essence, online outlets for addictive environments that are readily available offline, and the net is just a delivery mechanism. For instance, compulsive gamblers have access to casinos, and compulsive shoppers can go to malls. Pornography is also readily available offline, from any adult bookstore. The Internet certainly offers opportunities to facilitate these behaviors by making them available 24/7 from any mobile device. And the net makes it easier for people to overindulge in private, without others looking on. But the net also supports certain neighborhoods for which offline equivalents are less apparent. Gaming, for example, is one of the most frequently cited activities for people who score high on those surveys.

Online Games

Hints that online gaming and fantasy virtual worlds were going to be potential time sinks appeared in the earliest days of the net, when the text-based MUDs such as LambdaMoo were attracting people from all over the world. As vivid graphics became feasible and player numbers mushroomed, more social scientists started looking into the phenomenon. For example, John Suler, a psychologist at Rider University, observed virtual life within an early interactive play world called The Palace, and he documented a trend toward compulsive overuse.¹⁵ Users paid a fee to join, and then they donned avatars of their choice. They added a few props such as cigars or top hats, and moved around stunningly decorated rooms to explore and chat with the other inhabitants using their keyboards.

Even The Palace's programmers recognized that overuse was prevalent, and they gently reminded Palace denizens by rubbing it in. When

a resident mentioned the word “Palace” in a chat session, such as in “Where can I get the latest version of the Palace software?” the programmers wrote code to make an amusing substitution. Instead of displaying what the player actually typed, the output read, “Where can I get the latest version of *this thing that is eating my life?*” John Suler points out, “When the user finally figures out that the Palace program itself is making this silly little substitution of words, his confusion may turn to delight, and then, perhaps, to a self-conscious, even worrisome realization.”

Today’s massively multiplayer online games (MMOs) - the role-playing versions in particular (MMORPGs) - often top the list when people describe the activities that keep them online far longer than they intended. As I discussed in the chapter on gaming, people play the games for many reasons. Some are attracted by the opportunities for achievement - analyzing how to progress in the game, accumulating the right equipment and stats, and developing tactics to knock out enemies. The immersive nature of these worlds is another compelling feature that attracts players eager to leave the stresses of their real lives behind and escape into a spellbinding online environment. This kind of immersion underlies the sensation of flow, in which the player focuses very intently on the game and ignores fatigue, hunger, and outside influences.

The social aspect draws people who love team play and socializing online in a liberating and graphical fantasy world. This element contradicts the stereotype of the lonely misfit who turns to games due to social awkwardness in real life. In fact, some research suggests that the more social a game is, and the more socially driven the player is, the more risk for addictive behavior.

In these richly graphical virtual communities, part of the attraction is that - like the patrons of that long-running TV show *Cheers* - everybody knows your persona’s name and you will be greeted warmly. If you are pleased with the way you have managed your self-presentation as you gain a reputation in one of the worlds, you will be eager to maintain it. Building an online persona takes time, imagination, and creativity. As I discussed in [Chapter 2](#) on the psychology of impression formation, you have some unique tools to accomplish this absorbing task on the Internet, and some people do a very good job. You’re unencumbered by your physical appearance or other aspects of your real life, and you can change or modify your persona’s appearance or personality at will. If you type fast, think quickly, play

well, and have a sense of humor that survives the transition to a chat window, you will be noticed, liked, and respected.

In most multiplayer games, you have many avatar choices, but people tend to choose attractive avatars, and they can make them more attractive as they select hair styles and accessories. On World of Warcraft, for instance, players can choose among over a dozen “races” who belong to different warring factions, such as a dwarf, human, night elf, and gnome on the Alliance side, and orc, undead, troll, and goblin on the Horde side. Seeing their limited choices, players avoided the Horde side rather than choose such an ugly avatar, until the company added one more race to that faction - the blood elf. This attractive avatar quickly became very popular, luring many players over to that faction. The data show that almost 40 percent of players choose one of the three most attractive races - human and night elf on the Alliance side, and blood elf on the Horde side.¹⁶

Are some games more likely to lead to compulsive overuse compared with others? Research on this question is sparse, but the MMORPGs appear to be the most likely candidates. These have all the features that make games so compelling and that produce flow, including brilliant graphics, team play, challenging but doable missions, and increasing rewards for leveling up. The advanced missions available only to well-equipped and experienced teams also may contribute to overuse, because players schedule blocks of time to gather online, plan a mission, and carry it out. The player who says, “Sorry, gotta go” in the middle of a raid causes consternation and anger, because the rest of the team becomes more vulnerable.

Social Networks

Another compelling Internet neighborhood is the social network. How much time do people spend on their social networking sites? For many, the reality is far longer than they realize. Some keep an app open all the time on their smartphones. On the laptop, their web browser always has a tab in which they are logged onto their favorite network.

One survey of a cross section of Americans from teens to baby boomers asked how often they check into their social network. About one third of teens and young adults said they checked Facebook at least every 15 minutes.¹⁷ That means they certainly can’t make it through a class lecture or a family dinner without checking the social network several times.

For text messages, which would include regular texting along with tweeting, even more people tagged themselves as very frequent checkers. It's not surprising that we increasingly see people walking around with their smartphones in their hands, not in a belt clip or a purse, often staring at the screen, deep in concentration. A Taiwanese tourist visiting Melbourne walked right off a pier while she was checking her Facebook app, and had to be rescued by the police. She couldn't swim well, especially because she kept hold of her phone while waiting for help.¹⁸

Women tend to use these sites as a means to communicate with members of their own peer group, while men use social networks somewhat more as a means to compensate for fewer face-to-face interactions. Whether your social networking is leading to negative consequences in your life and work depends partly on *why* you are spending so much time on these sites. For instance, extraverts love the social side of the social network, and they use it to enhance existing relationships. In contrast, more introverted people may rely on social networks as a way to compensate for fewer real-life friendships. Online, they can interact in ways that are less threatening.¹⁹

Fear of Missing Out (FOMO)

Checking your social network at least every 15 minutes points to a deep anxiety about "missing out," a fear of being out of the loop and missing something important that happens in your social circle. The acronym "FOMO" emerged in the 1990s and has made it into the Oxford English Dictionary:

FOMO: Anxiety that an exciting or interesting event may currently be happening elsewhere, often aroused by posts seen on a social media website.

A study of FOMO asked a large international sample to complete a questionnaire with items such as "I fear others have more rewarding experiences than me," "When I go on vacation, I continue to keep tabs on what my friends are doing," and "I get anxious when I don't know what my friends are up to." The findings suggest that younger people – young males especially – were more anxiety-prone about missing out compared with older people.²⁰ People with high FOMO scores were also more anxious about their own competence and less connected to others, even though they spent more time trying to stay connected. Not surprisingly, they also engaged with their social media more,

checking Facebook during university lectures and checking text messages and emails while driving.

The picture that emerges is of a person who is becoming dangerously compulsive about social media presence and increasingly anxious about being “in the loop.” The powerful variable ratio reward schedule that I discussed in [Chapter 7](#) is certainly one ingredient that draws all of us into the habit of checking emails, texts, and social network sites more and more frequently. But for many people this tendency goes overboard. Even though it is exhausting for them to be “on” all the time, it is even more anxiety producing to unplug and worry about what they are missing.

FOMO also contributes to excessive use among gamers who play on teams. Gamers establish reputations in the virtual worlds they play in, but to maintain that reputation, they have to show up frequently. If they miss a few weeks, or even a few days, they might be left out of an important mission, and people will begin to forget their standing. The game distributors also post various kinds of stats on leaderboards that will drop quickly if the player stays away.

Online Auctions

The online auction is, perhaps surprisingly, another Internet neighborhood that sometimes leads to compulsive overuse, with eBay as the main player in this space. If you have something you want to sell, you can register at the site for free, send in a description and a picture if you have one, and decide on the auction details, such as the length of time you want the auction to run and the lowest price you will accept. Your item will be listed and potential buyers learn what you’re offering by rummaging through the virtual auction shelves using categories or key words. The lists of items for sale display the current highest bid and number of bidders, and the amount of time left before each auction closes. Time left is highlighted in red when the auction nears closing time, presumably to attract attention and build suspense in the final moments.

Novelist William Gibson, who is credited with inventing the term “cyberspace,” avoided the net for many years and didn’t even have an email address. But he was then bitten by the eBay bug until it turned into an obsession. Gibson collects antique timepieces, and he found the online auction an exhilarating way to hunt for treasures. Describing his excitement, he writes:

*eBay is simply the only thing I've found on the Web that keeps me coming back. It is, for me anyway, the first "real" virtual place . . . What if someone else got this watch, this watch I'd never seen but which I now, somehow, was emotionally invested in winning? I began to have some sense of the power of the psychology of auctions, something I hadn't really experienced before.*²¹

The power he describes is amplified considerably because the auction is on the Internet, open twenty-four hours a day, to anyone with net access. Gibson realized his involvement with eBay was getting out of control and decided to kick his habit with a "binge cure" to get it out of his system. He immersed himself in hunts for serious collectors' items for several months, and eventually became far more selective about his use of the online service.

One study of online auction users asked them questions such as "I become anxious and/or depressed when I am prevented from using the eBay website" and "My participation in eBay auctions interferes with my social, school, work, or role functioning."²² The researchers found that the ones who were most compulsive about their eBay bidding also had distorted perceptions about the auction site and their own behavior. Like gamblers who disregard how much time they spend in online gambling and who ignore or downplay past losses, compulsive eBay users find many justifications for their behavior. They really *did* need that antique watch, for example. Or they show how clever they are by snapping up that trinket with a winning bid in the final seconds.

Negative consequences are not uncommon for people who compulsively bid on auctions. Some lose their jobs when their employers find out how much time they spend on the auction sites during work hours. Many also spend much more money than they can afford. Severe emotional swings are also common. Bidders become giddy when they win, but many show intense anger when a competitor snatches the prize away at the last moment. A thirty-seven-year-old paralegal on eBay describes her distress when she lost her bid for an antique mirror:²³

I purposely came home just in time for the auction to end . . . and there were about twenty-five seconds remaining. So I kept hitting the refresh button and looking down. When it got to about two seconds, I was still the winner and I was so happy . . . Then I hit the refresh button and the next time the screen

came up, I had lost. Somebody bid large with one second to go. I got really upset and I started yelling "no, no, no" . . . I wasn't able to calm down . . .

CAUSES AND TREATMENTS

What leads some people to be so drawn to an Internet neighborhood that they risk or sacrifice their jobs, families, and even their own lives?

Research on the causes of addictive behavior as it relates to Internet use often points to psychological problems: low self-esteem, depression, hostility, and emotional instability.²⁴ Cause and effect are often difficult to disentangle, however, and it isn't clear whether those problems are the reason people begin to show problematic Internet use. Some of those problems could also be the result. Depression and low self-esteem might, for instance, lead people to escape into the vivid fantasy worlds of the online games where they can craft a powerful persona and better control their virtual identities. On the other hand, someone who tries hard to control online activities but continually fails may begin to feel depressed. It's also quite possible that such negative emotions could be both cause and effect.

Changes in the Brain

Researchers have uncovered a variety of changes in the brain that correlate with heavy Internet use. For example, the brains of compulsive Internet users show different activity patterns in regions that have been implicated in reward and emotion processing. Studies also find poorer white matter integrity, which is associated with cognitive deficits. Very heavy gamers show lower volume of gray matter in several regions of the brain.²⁵ Findings from functional magnetic resonance imaging (fMRI) point to decreased connectivity in adolescents diagnosed as addicted. Neurochemical differences have also been found between normal people and those diagnosed as Internet addicted, particularly in the neural system involving dopamine, a neurotransmitter implicated in reward and emotion.²⁶

Similar patterns of changes in the brain have been found in people with gambling disorders and in those who are addicted to drugs or alcohol. A tempting hypothesis is that parallel mechanisms underlie many types of addictive behavior, particularly as they

involve the reward systems in the brain.²⁷ If these similarities are confirmed, gambling and Internet overuse may turn out to be especially valuable for studying the underpinnings of addictive behavior in general because, unlike substance abuse, such “behavioral” addictions do not involve toxic chemicals that have their own effects on neurophysiology.

Treating the Afflicted

Treatment centers that offer specialized help for problematic Internet use have been opening up in a number of countries, including the United States, the Netherlands, China, South Korea, Taiwan, and the United Kingdom. In China, where Internet addiction is seen as a serious clinical disorder affecting millions of youth, military-style boot camps are springing up as treatment centers. Worried parents bring their teenage sons and daughters - often against their will - to these camps, where they undergo strict training drills and physical exercise. Living in spartan conditions, the young people might spend months at the camp, learning cooking, cleaning, and other life skills. Filmmaker Hilla Medalia, who codirected the documentary *Web Junkie* about these camps, said, “Most of the kids were forced to come there, they didn’t know where they were going. Some of them were drugged, one of our kids thought he was going skiing and found himself behind bars at the center.”²⁸

Most treatment centers use much less draconian regimens. One center in Pennsylvania, for example, admits patients for voluntary ten-day stays. During this time, the patients engage in various types of therapy that help them gain control over their use of the Internet. Treatments don’t call for patients to forego the Internet entirely. Total abstinence is nearly impossible given how important the net is to productivity, interpersonal relationships, and general enjoyment. But they do undergo “digital detoxification” on their way to a better balance between their activities online and off.

One promising psychological treatment approach is *cognitive behavior therapy* (CBT), which is commonly used to treat other types of addictions as well.²⁹ Here, the treatment focuses on developing specific goals for controlling and reducing Internet use, strengthening the motivation to succeed, expanding real-life contacts, developing strategies to make more constructive use of free time, and regaining a balanced daily routine. Patients also learn strategies for preventing relapse and improving coping skills.

Some elements of this kind of therapy are as simple as attaching an alarm clock to the top of the computer screen. One of the common symptoms of problematic Internet use is a lack of knowledge about how long one is really spending online or denial that so many hours slipped by. Time passes quickly, and the individual who says, "I'll just play for half an hour or so, then get back to work," often gets caught up and spends far longer. The alarm clock becomes the unyielding referee that says, "Time's up!"

Software tools can also help. For instance, an extension for Google's Chrome web browser called StayFocused will block access to those time-wasting websites after the time you specify is used up. Those who can't stop checking their smartphones can try an app such as Break-Free. This software first calculates how much time you actually spend on various smartphone apps and provides detailed statistics. Then you can set blocks, such as disabling the phone's Internet access from six to nine in the evening, when you want to focus on your family life.

Drug therapy is also used to treat various problems involving impulse control and addiction. For example, the antidepressant bupropion is used to treat substance abuse and pathological gambling because it appears to reduce cravings, likely because of its effects on dopamine pathways. For addicted gamers, some research suggests that this drug may also reduce cravings for video game play after a six-week period.³⁰

The good news is that therapy often leads to positive outcomes.³¹ People who seek treatment tend to improve, showing less depression and anxiety and a greater ability to control the amount of time they spend online.

Newbie Disease?

Another ray of hope, at least for youth who become tangled in one of the net's compelling environments, is that many of them grow out of it in time. In Kimberly Young's early study, for instance, dependents and nondependents were quite different in terms of the length of time they had been on the net. Those categorized as dependents were mostly newbies - about 83 percent had been online for a year or less. The nondependents, however, were mostly veterans - only 29 percent had less than a year of Internet experience. The figures might suggest that people who are going to get hooked, get hooked quickly, within the first few months of their online adventures. Another interpretation, however, is that being "hooked" is a temporary phenomenon for some

people who eventually come to learn better time-management skills. After the rush and excitement of these virtual worlds wear off a bit, and Internet users recognize that they may be spending too much time with nonproductive activities, many may just grow out of it and develop a healthier balance.

In *The Psychology of Addiction*, Mary McMurrin points out that addictive behavior is not necessarily progressive and that fluctuations and movements in and out occur routinely.

There is a continuum of levels of involvement . . . depending on the current situation and his or her skills for coping with that situation. For example, many people will drift in and out of problematic substance use consequent upon finding or losing jobs, being in a stable relationship or breaking up from their partner, and having good living accommodation or finding themselves without a home.³²

The same is probably true of problematic Internet use. People who find themselves “caught in the net” can shake loose, especially if they recognize the problem and take steps to address it.

An ex-Palace “addict” wrote to John Suler to explain how - and why - he quit the habit. He was affected by Suler’s website about the Palace and began to wonder if he could ever achieve self-actualization, in the sense that Abraham Maslow described it, by sitting on his rear interfacing with avatars:

I thought I’d drop you a note saying “Thank you.” I’ve been on the Palace ever since I entered college back in September, and I found that it was slowly but surely sucking away my time and social life (small as it was) . . . I had become addicted, and I had even tried to stop once or twice, but got back on after a few hours of my supposed permanent exit . . . In any case, around 2:00 AM, I transferred my registration code to a deserving guest, and asked the wiz to banish me. I made a nice little dramatic exit, and wiped that sucker clean off my hard drive. (Interestingly enough, I found that rollerblading is an adequate alternative for Palace, so whenever I get the urge to Palace, I just hit the streets instead.)³³

Certainly, some people who are prone to excess may have great difficulty controlling overuse of one or more of the Internet’s most compelling neighborhoods, especially if they show compulsive behavior in other realms. It is important to look at the person behind the compulsive behavior, at the reasons for doing *anything* to such excess.

NAMING THE AFFLICTION: ADDICTION? OVERUSE? SELF-INDULGENCE?

In addition to the controversy about the extent of Internet overuse, a heated debate is swirling around the issue of what we should call it. As I mentioned, many researchers use the term *Internet addiction disorder*, relying on diagnostic criteria similar to pathological gambling. Other terms include compulsive overuse, problematic Internet use, Internet dependency, and pathological Internet use.

“Internet addiction disorder” was not listed in the fourth edition (1994; revised in 2000) of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM), which is the master document published by the American Psychiatric Association that classifies mental disturbances. However, many researchers, especially those who study the phenomenon, thought it would be included in the fifth edition, which came out in 2013. It was not. Gambling disorder was included in the section covering “Substance-Related and Addictive Disorders.” “Internet gaming disorder” was named in Section III of the manual, which lists pathologies that require further study before they are considered as formal disorders.

Based on the case histories that have surfaced, no one denies that excessive involvement with certain psychological spaces on the net can have seriously negative consequences on a person’s life. For example, students who begin spending extended hours in chat rooms, social networks, or games have little time for studying, socializing, and even sleeping. They may skip classes, pull all-nighters, and watch their grades plummet. The Internet never sleeps, of course, and there are always more dragons to fight, chat rooms to visit, and statuses to update at three or four in the morning. At a large university in New York, the dropout rate among freshmen newcomers rose dramatically as their investment in computers and Internet access increased, and the administrators learned that 43 percent of the dropouts were staying up all night on the Internet.

Despite the alarm, some researchers and clinicians find the disease label of “Internet addiction disorder” to be premature or wrong-headed. Concern about the way so much of what we do is pathologized is very real. Perhaps in many cases it is more a matter of self-indulgence and lack of self-control, more like spending too much time gabbing at the water cooler. The loose application of the “A” or the “D” word in conjunction with the Internet may just add to a

growing list of pathologies, which could have more negative than positive consequences. There are psychologically compelling areas of the Internet that can devour far too much time if we let them, and we are beginning to understand why. We now have enough research and case histories to identify the characteristics of these psychological spaces and to recognize that some people may be particularly susceptible to their attraction.

However, the Internet is not cocaine, alcohol, or nicotine. And people who understand why some Internet environments can be such a time sink are often able to get the problem under control and get back to more productive activities. Using the therapies and tools now available, many of them are quite successful without “unplugging” entirely.

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12 NURTURING LIFE ON THE INTERNET

The Internet's sheer vastness and mind-bending growth rate make it impossible for anyone to get to know more than a tiny sample of the whole. This is one reason it is so enchanting: you ever know what you will find when you click the mouse and explore a new location. Google likes to remind us of that by adding the occasional "Easter egg" to its applications to surprise visitors. One editor at the Dallas Morning News complained that some of them were so funny they ruined the rest of her work day.¹ In Google Hangouts, when you type "Happy Birthday" into the chat box to send your coworker birthday greetings, a lively emoji character in a pointy paper hat leaps onto the screen, surrounded by confetti. Various hidden commands also produce endless amusement. Typing "/ponystream" sends a colorful herd of animated ponies across the screen.

THE GOOD, THE BAD, AND THE UGLY

Our nonrandom sampling of the net's neighborhoods may also contribute to the diversity of opinions about its value in our lives and to society in general. Each of us partakes of different Internet niches, and even within shared spaces such as social media, our experiences can leave us with markedly different views.

Some early net pioneers, such as the astronomer turned hacker-tracker Clifford Stoll, find little worthwhile in the Internet's virtual life. In *Silicon Snake Oil*, Stoll writes:

It's an unreal universe, a soluble tissue of nothingness. While the Internet beckons brightly, seductively flashing an icon of knowledge-as-power, this nonplace lures us to surrender our time on earth.²

Nicholas Carr, best known for asking whether Google is making us stupid,³ laments how attention spans are plummeting because people now flit from link to link, scanning and skimming, without reading anything deeply:

Over the last few years I've had an uncomfortable sense that someone, or something, has been tinkering with my brain, remapping the neural circuitry . . . I used to find it easy to immerse myself in a book . . . Now my concentration starts to drift after a page or two.⁴

Many people also are alarmed by the way online communications can dampen and “dumb down” real-world conversations, and thus dilute relationships. Sherry Turkle, an MIT professor and author of *Alone Together: Why We Expect More from Technology and Less from Each Other*, believes we are sacrificing conversation for mere connection.⁵ Maintaining eye contact is like a new skill that young people must learn because they spend so much time staring at their smartphones, even on dates. A sixteen-year old boy she interviewed said, “Someday, someday, but certainly not now, I'd like to learn how to have a conversation.”⁶

Loss of privacy, toxic disinhibition, compulsive overuse, multitasking, security threats, self-absorption, and “trials by Twitter” are all trends that certainly cause concern. However, much of the research I describe in this book paints a different picture and shows that many Internet environments are bright spots that bring out our best. For instance, anyone in need of help who drops into one of the online support groups is likely to find an astonishing amount of warmth and human kindness from total strangers. Though we might question how “real” their compassionate feelings are, they are forming commitments and attachments that clearly mean a great deal to them and that they might not have otherwise. Paradoxically, some aspects of the net draw out our warmth and openness and lead the shy out of their shells.

TECHNOLOGICAL DETERMINISM REVISITED

If there is worthwhile life on the net, then we are part of that life and we are in a position to guide this technology and what happens inside of it. But how much can ordinary Internet users really influence the direction of a technological juggernaut like the Internet? Historians

have debated questions like this for many years in the context of technological determinism. How much do inventions, such as the Internet, drive social history once they take hold? For example, Karl Marx's comment about how the hand mill gave us the feudal lord and the steam mill gave us the industrial capitalist suggests we would all still be living as serfs or nobles if the steam mill had not been invented. It was invented, of course, and the social changes that followed were dramatic. Once technology was around that could support large-scale production in a centralized location, the economics of power and survival changed, and our social structures changed with them. Our values and beliefs can also be profoundly affected by technological innovations. Consider how the machine gun, first used during World War I, shook our views about war, tactics, acceptable casualties, and what it means to be a soldier.

On the other end of the debate is the social construction position that technological innovations are more effect than cause. Social and cultural forces build up and set the stage for a technological breakthrough, perhaps by directing human energy and capital toward solutions for existing problems. On the TV show *Jeopardy*, a popular "answer" in search of the correct question goes something like this: "In 1895, his invention of the radio ushered in a new era of wireless communication." The answer "Who is Guglielmo Marconi?" would earn the points, but think of all the technologies out there whose inventors we can't remember. That is partly because no single person is responsible. Social forces and potential payoffs attracted many people to think about the problem and come up with solutions, whether they were lone inventors in a garage or well-funded engineering teams. The more people available to work on a technical problem, the more likely someone will "invent" a solution. Sometimes this is crystal clear, as when the conflict between the United States and the Soviet Union led to enormous outlays of money in the 1960s on the space race - and many new space-related technological advances in both countries. Sometimes the underlying social forces are not so obvious, but they may still be there, and they are clearly entwined in any widespread adoption of a new technology.

Technological innovations, however, can be both cause and effect of social change, and certain aspects of them may affect how they slide back and forth between the two. Robert L. Heilbroner, the economist I mentioned in [Chapter 1](#), suggests that there is much more determinism in a free-wheeling capitalist environment compared with

the socialist one because there are no organized societal agencies to control or guide an emerging technology.

Thomas Hughes coined the term *technological momentum* to clarify why some technologies - at certain points in their life cycles - have tremendous power to drive social change:

A technological system can be both a cause and an effect; it can shape or be shaped by society. As they grow larger and more complex, systems tend to be more shaping of a society and less shaped by it . . . The social constructivists have a key to understanding the behavior of young systems; technical determinists come into their own with the mature ones.⁷

Somewhere between the poles of technological determinism and social construction lies the Internet. Its roots were in academia and research organizations, but now it has gone well beyond those early foundations to become embedded in almost every kind of human activity. As for its age, the net is a mixed bag, psychologically speaking. Many corners are well into middle adulthood, while others are still infants. And the birthrate for new and innovative online environments is climbing. Overall, it is far from a mature technology, and what seems to be a high-tech mobile app today may appear, a decade from now, as quaint as the original Pacman game.

The role that governments around the world play is also still unsettled, and disputes are common. Some governments try to shut down whole online neighborhoods to stifle dissent, but enterprising citizens can often find ways around the blockades. In the United States, the role that the Federal Communications Commission will assume in Internet regulation is likewise unresolved, as the heated debates over net neutrality make clear.

Laws about ownership and inheritance of digital assets also remain ambiguous. For example, what happens to all your e-books, music, photos, videos, texts, game characters, and other electronic assets after you die? Terms of service often state that users' accounts will terminate on their deaths, with no rights of survivorship. But digital assets are growing very valuable, both monetarily and psychologically. They store precious memories, and legislators are considering laws that will handle the transition in more humane ways.⁸

These factors add up to a still malleable Internet, one that is not yet a technological armored tank, immune to social forces. In other words,

the timing is good and the political environment auspicious for our own role in the Internet's development.

A PERFECT PLACE FOR CONSPIRACIES

When most writers use the term “empowerment” in connection with the Internet, they are referring to the technology's potential to spread power around. Power is complex online, and governments and corporations - in particular, the major tech giants - hold a tremendous amount, far more than most people realize. But unlike TV or radio, the Internet's power structure is more fluid, and ordinary people can sometimes take the reins. We've seen many examples in this book of how individuals can tap the net's capabilities to wield power, sometimes as vicious digital lynch mobs or hacker gangs, but also for a larger purpose. Esther Dyson wrote about this feature of the net:

It's worth stressing that although the Net can be used for good and bad (like most powerful tools), it is asymmetrical in the way it gives power to the powerless. That is, it undermines central authorities whether they are good or bad, and it helps dispersed forces to act together, whether they are good or bad. In other words, it's a feeble tool for propaganda, but it's perfect for conspiracy.⁹

All of us Internet users are part of those “dispersed forces” and “conspiracies,” and if we want to promote the good and discourage the bad we do have options. I have drawn on a considerable body of research to show the many ways online environments affect us and how they can bring out our best, our worst, our boring sides, and our most illuminating. We don't mutate into a new species when we connect to cyberspace, but the psychological factors that affect our behavior in real life play out differently online because the environments we enter are different. The more we know about these environments and their effects on all of us, the better chance we have to use our own contributions to them to shape them into something better.

SHAPING THE ONLINE WORLD

I have no bulleted list of “ten ways to make the Internet a better place for human habitation” in this book. Human behavior is far too complex for such a distillation, and the range of experiences you might have as you touch down in different corners of the Internet is much

too great. Yet throughout this book you have seen research showing how we are affected by the net and how our own behavior can have positive or negative consequences on our net companions. Certain themes are especially important for Internet users because of their empowerment potential. The first is the meta-discussion, which is a discussion about discussion.

The Meta-discussion

Imagine that you joined an online group on alternative medicine, eager to hear people's experiences with St. John's Wort as an anxiety treatment. You read a few unrelated messages and then send in your first contribution, mentioning a brand name, source, and price in the text, and asking the group if they've ever tried it. The next day, one participant publicly criticizes you for making such a thinly disguised sales pitch, pointing out that spam is unacceptable in this forum. Another poster humorously bemoans how no one ever reads the FAQ. A third sends you a private message introducing himself and telling you his own experiences with the herb. At the end of his message, he adds a postscript: "BTW, better not mention brand names in this group because it can look like free advertising. They might think you're a dealer or something."

You unwittingly violated the group norms by mentioning a brand name. The three people who reacted to the offense used distinct strategies, each with different psychological effects. The first used an aggressive ad hominem attack, one that could trigger a sarcastic rebuttal from you. You would feel unjustly accused, and it would be hard to resist the temptation to fight back in the public forum. If you were too shy to do that, and if this had been the only reply you received, you would probably just leave the group with a bad taste in your mouth.

The third person answered your inquiry directly, showing respect for your question and a shared interest in the subject - two very potent social rewards. He also wisely chose to remind you of the rules privately rather than publicly. He assumed the best about you, that you were not a cunning dealer and that you just made a mistake, and he made a friend. With his support, you might stay in the group and laugh together in a digital back channel about how some of those people in the alternative medicine forum have an attitude. You two might conspiratorially think up some appropriate herbs for them to take (a little virtual chamomile, perhaps?).

A surprising amount of human interaction on the Internet consists of the meta-discussion in which people step back from the subject at hand and mull over the nature of the discussion itself. In the comment sections, for instance, you will often see prolonged exchanges over who is trolling and how people should deal with trolls. Meta-discussions like that are less common in face-to-face settings where the norms and expectations are more stable and understood.

From the standpoint of this book, it is worthwhile to spend a few moments in a “meta-meta-discussion.” This may sound like psychobabble, but I simply mean that the tone and style of those meta-discussions can have an important psychological impact. The three different reproaches in that alternative medicine thread, for example, show that the way people handle a meta-discussion can have dramatically different effects.

How we conduct meta-discussions online matters, especially when they are relatively public, as on a company email distribution list, and contain remarks that are easily perceived as critical. On the positive side, meta-discussions are important because we can use them to develop consensus on group norms. On the negative side, they can create tensions that might lead to disharmony and group breakdown. The group polarization phenomenon I described in [Chapter 3](#) on group dynamics will apply just as well to the meta-discussion as to the discussion. Meta-discussions are needed, but because the Internet strips away certain communication channels that can soften the hard edge of your message, they can sometimes sound as patronizing as “Don’t talk with your mouth full” or as aggressive as “I didn’t like the way you said that, buddy. Shut up and sit down.”

Anonymity and Accountability

Weaving through those online environments and mediating their effects on us is the degree of anonymity and accountability we feel when we are in them. People can act in very uninhibited ways when they think no one can find out who they really are. In the environments that offer a way to do this, or some measure of it, people tend to let loose in both positive and negative ways.

Anonymity is highly valued in some settings, for good reasons. It can promote more self-disclosure in support groups, and it can help protect whistleblowers, dissidents, and news sources. In the political arena, anonymity has always been a treasured commodity because

governments have so much more power than individuals. We vote anonymously, for example, and people in repressive countries might find any loss of online anonymity life-threatening. Celebrities might want to conceal their identities in a discussion forum or in an online game. Maybe that elf on the MMORPG with you is actually a famous actor wearing sunglasses and a wig, Internet-style.

Nevertheless, no one denies that online anonymity has its down side and can bring out some very troubling behavior. It can unleash toxic disinhibition, as I described in [Chapter 4](#), on online aggression, and it can dramatically change group dynamics. On one of the earliest online discussion groups, called the WELL, some participants wanted to have an anonymous conference where identities would not be known, and the results were startling. Perhaps starting out as games, the participants began telling tales about each other, attacking one another, and eventually pretending to *be* one another in vicious ways. Strangely, attacks and counterattacks were perfectly acceptable in the nonanonymous conferences, but they were not at all acceptable when they appeared as unsigned or forged notes. They closed that conference after just two weeks because it became too destructive. WELL founding father Stewart Brand said, "Trust was the casualty. It was easy to destroy; hard to rebuild."¹⁰

How much anonymity do people actually have when they log on? This varies depending on the particular neighborhood and on what software tools you use. I mentioned the computer networks and software called Tor in [Chapter 10](#), and people who want to communicate anonymously often rely on that environment. Whether that offers perfect protection is a matter for debate.

Outside the dark web and Tor, anonymity is certainly a fleeting commodity. For example, you might create an account on some free service using a nickname, but you must also enter a valid email address. Will the service protect that link? Sometimes the service provider can be pushed into difficult legal and moral corners when problems arise. For example, the operator of the secure, anonymous email service that Edward Snowden used decided to close down rather than expose user data to government agencies. But most companies willingly turn over such data, with or without court orders. The Internet's worldwide reach also makes efforts to protect anonymity a slippery matter, with so many different laws about privacy.

Some sites, such as 4chan, support anonymity by disallowing any registrations and making posts quite ephemeral. The site offers

discussion groups on Japanese Anime and many other topics, but its most active discussion is the very rowdy “random” board (/b/). Posts automatically expire and are deleted unless someone replies to them; a study found that the majority of threads have an extremely short lifespan of just a few minutes.¹¹ The operators can’t turn over data that they no longer have.

If we recognize how anonymity can affect behavior, we have an excellent chance to ameliorate its negative effects and still take advantage of the positive aspects. We can also spot its influence when an anonymous person begins mixing with nonanonymous participants. At that point, we might want to begin a thoughtful meta-discussion to explore the pros and cons of anonymity with the group, raising that critical issue of trust in online communities.

Tragedies of the Electronic Commons

Trust winds its way through another aspect of online behavior: the social dilemma called the “tragedy of the commons.” A social dilemma exists when the choice a person makes is rewarding to that person individually, but negative outcomes and collective disaster can result as everyone else makes the same choice. You may have heard of the “prisoner’s dilemma” in which two guilty crime suspects are arrested and interrogated separately by the police. Each is given the same choice: confess and rat on the partner or deny all charges. The dilemma emerges because the outcome for each prisoner is affected by the choice of the other. If only one confesses, the confessor will get immunity, and the one who tried to stand firm will get the maximum sentence. If both confess, they will get moderate sentences. If they stick together and both deny the charges, trusting one another to do the same, they will receive light sentences or get off entirely. Unfortunately, trust is usually in short supply in these games, and most people rat on their partner because that choice is best for the individual. Mathematically, it would have been better for both if they trust one another, but they usually don’t.

Ecologist Garrett Hardin pointed out a related social dilemma that occurs in large groups, one that is especially relevant to the psychology of the Internet.¹² In old English towns a centrally located pasture called the “commons” was available for farmers to graze their livestock, as a kind of adjunct to their own land. If each showed restraint and used the resource sparingly, the grass replenished and

the commons flourished. But if one family started to let its cows overgraze and others followed suit, the commons was destroyed. The individual family might think that a few extra days for their cows on that commons couldn't hurt, and they would probably be right. The dilemma arises because all families reason the same way. The tragedy of the commons can occur to any limited resource shared by a large group of people, such as ocean fishing or water supplies. It also is a hazard for the Internet.

The Internet's bandwidth is one of those resources, and many people, equipped with free or flat-rate unlimited net access, are making choices about its use that are individually rewarding but might be collectively harmful. We stream high-definition video at peak times, and Netflix alone accounts for a considerable portion of Internet traffic in the evenings. When you use your 4G connection on a smartphone or tablet, you watch how much bandwidth you use because going over your data cap is costly. But when access is free and unlimited, people watch movies unless streaming video is specifically blocked to avoid such bottlenecks.

The potential for a commons tragedy won't go away entirely as high bandwidth services become more widely available, or Internet2 spreads. The pipes will be bigger, but the amount of data we want to transmit through them will also grow. The debate over net neutrality touches on whether Internet service providers (ISPs) can charge companies extra for access to faster lanes with more bandwidth. The ISPs argue that they need the revenue to expand and upgrade their networks, but net neutrality advocates point out that smaller companies and websites will be at a disadvantage if they can't pay extra. Stuck in the slow lanes, those websites will lose customers and visitors.

Trust

The Internet is vulnerable to another kind of tragedy of the commons, one that is less obvious but psychologically even more hazardous. This one involves trust and how it plays out in many different online environments. For instance, you may recall Alex, the male psychiatrist who pretended to be a disabled woman online and established intimate relationships with many women who fell for his charade. Individually, people who engage in these deceptions might justify their alternate personas as highly valuable for self-exploration, and no doubt they often are. It can be quite instructive for people to feel

firsthand how others react to them when they change their gender, race, age, or any other characteristic. Yet the classic social dilemma exists because the more people make that individually rewarding choice, the more we damage the online trust that is so essential to the establishment of vital virtual communities. It does not take too many experiences as a dupe to make you forever skeptical of anyone you meet online.

Trust is also an issue for sites such as Craigslist, where scams are rampant and “buyer/seller beware” is the watchword. That site emerged as a welcome platform for grass-roots commerce, in which people could buy and sell used merchandise to one another without an intermediary. But scammers found many ways to fleece the unsuspecting.

Important components of Web 2.0 are the contributions users around the world make as they post reviews of products, vacation spots, movies, restaurants, and more. But fake reviews posted by companies paid to make positive remarks pollute many of the sites that feature reviews, a fact that further damages trust. A sting operation in New York caught nineteen different companies illegally writing fake reviews for payments, but fake reviews are not that easy to spot. They are “the 21st century’s version of false advertising.”¹³

The flood of malware, viruses, data breaches, and break-ins further erodes trust. By now, most people know how to spot a phishing email and know that they shouldn’t open an attachment they weren’t expecting. They also know they need strong passwords and should not share them with someone else or write them down. Knowing these things, however, does not ensure that people follow through. In a study on password sharing, for instance, London commuters were happy to share their login information with researchers in exchange for a chocolate bar. Over one third shared the password without any bribe at all.¹⁴

How can we slow the decline in online trust? When our own behavior contributes, we can certainly take note and strive to do better. We can also support and encourage organizations that take trust seriously, and protest when they don’t. The online review site Yelp, for example, continually refines its algorithms to filter out fake reviews. If a positive review sounds too much like the company brochure, it would likely be flagged. Some small businesses complain that the imperfect filter often traps perfectly genuine reviews, but Yelp must guard its reputation for gathering trustworthy reviews by real

people. The company does offer visitors the option of seeing reviews they don't recommend, so they are not deleting them outright. For companies that abuse trust, online protests have some effect. After an online firestorm erupted, Instagram backed down from giving itself the right to accept payments from businesses that want to display users' names, likenesses, or photos in their ads. The company posted "Thank you and we're listening" to its blog.¹⁵

We can also applaud people who do business online ethically and reliably. For example, eBay implemented a reputation system that tracks how fellow eBay users rate the transaction. The company produces detailed statistics on these ratings, a feature that motivates sellers. To help this kind of system work in the eBay world, buyers should always post a carefully thought-out review.

Piling On

Retweeting, clicking "like," or adding one more snide remark to a mounting chorus that is turning into a furious mob can be very seductive. In [Chapter 3](#), I described how social media - Twitter in particular - sometimes explode into a righteous barrage of "shaming" when someone makes an offensive remark. As we've seen in this book, such remarks are easier to make in online environments because of disinhibition and the limitations of the medium. Without the non-verbal cues, they are also easier to misinterpret, so the mob may be jumping to a conclusion about a target who never intentionally meant anything offensive.

Jon Ronson, journalist and author of *So You've Been Publicly Shamed*, freely admits he was a keen shamer, eagerly starting or joining the pile-on whenever he spotted any columnist making a racist or homophobic remark.¹⁶ During one such pile-on, and amid hundreds of messages congratulating him for calling out the columnist, one message read, "Were you a bully at school?" Taken aback, he began wondering about the fates of the people who suffer brutal pillory in such social media trials, and started interviewing some of them.

One Massachusetts woman uploaded a photo of herself standing next to a sign in front of the Tomb of the Unknown Soldier at Arlington National Cemetery that read "Silence and Respect." In the photo, she was pretending to scream and wave her middle finger, and the act was part of a running visual joke with her coworker about disobeying signs - smoking in front of No Smoking signs, for example.

She didn't realize her cemetery photo was publicly accessible, and when someone found the photo and posted it to social media, thousands began clamoring for her punishment. The woman worked for an organization that serves the disabled, and despite profuse apologies in which they insisted no disrespect was ever intended, both she and her coworker were fired. When Ronson interviewed her, he found that she barely left home any longer and was suffering from post-traumatic stress disorder (PTSD), depression, and insomnia.

Some might argue that people who do stupid or offensive things online deserve the public shaming and the ruined careers and lives that follow. But the psychological characteristics of social media make it easy for anyone to blunder, and those pile-ons also catch people who didn't mean any harm. The lesson for anyone who wants to help make a more positive contribution to the Internet is to think hard before you click "submit," and don't pile on.

Critical Thinking and Information Literacy

The enormous collection of materials online varies considerably in quality and accuracy, and we should use, and encourage in others, critical thinking about the nature of the sources. At one time, for example, educators were enthusiastically helping students get online to do research; now, many are concerned that students submit term papers whose bibliographies list nothing *but* Internet resources, and many of the sources they cite are questionable. Universities are rapidly revising their curricula to promote the critical thinking aspect of information literacy, not just the earlier wholesale promotion of online information searches.

Consider, for example, a person hunting for material on agoraphobia, which is an intense fear of open spaces, perhaps to write a school paper or an article for a newspaper or because a friend shows symptoms. Search engines will turn up reputable sites - the Mayo Clinic, for instance - but the result list may also include sites of unknown quality. As I mentioned in [Chapter 9](#), many people do not know how to evaluate the quality of the information on such pages or do not have enough experience and knowledge to separate the wheat from the chaff.

Wikipedia entries often appear near the top of a search engine's results, but many students do not realize that the online encyclopedia is crowdsourced and that anyone can contribute or edit an article.

The author may or may not be an expert and might also have strong biases, but the reader is left in the dark. Certainly Wikipedia is a tremendously valuable resource with many high-quality articles, and studies assessing reliability and other quality metrics report mixed but generally positive results.¹⁷ But the articles are not part of the academic tradition of scholarly discourse that emphasizes accountability. A few are hoaxes that are just made up, such as an article that stayed online for more than eight years about “Daniel de Burca,” an eighteenth-century Irish philosopher who never existed. (Wikipedia posts a list and deletes hoaxes when they are discovered.) Most universities caution students to be very careful about how they use Wikipedia articles in their academic work.

The race to include long lists of links to “other resources” on websites devoted to particular topics can compound the problem, because most of these links remain unevaluated. Webmasters eager to increase visitor counts conduct “link campaigns” in which they find related sites and then propose a reciprocal linking arrangement: you include a link to my site, and I’ll add a link to yours. Unwary net surfers become confused by the wealth of material and can’t assess its value or quality. Also, because of the nature of hyperlinks, you may not be quite sure where you are and whether the material you are reading was endorsed or filtered by some trustworthy source.

Information quality varies considerably in other media, as well, but we all have far more experience making distinctions in those contexts. For a term paper, students would know better than to cite the *National Enquirer* in the same way they would cite an article from a respected, peer-reviewed, academic journal. We also have some long-standing filtering mechanisms to sort out the material even before we find it. At a college library, for example, I can put some trust in the librarians who select the journals and books. On the Internet, we need to use caution and critical thinking, and encourage others to do the same.

Providing Guidance

Many of the concerns surrounding the Internet involve children and adolescents. Within just a few years, an immensely powerful technology arose that opened up easy access to the best and the worst that humankind has to offer and everything mediocre, amusing, or peculiar that lies between. The child may be far ahead in terms of technology adoption, trying out the next new thing while the parents remain

content with email, a few websites, and some familiar mobile apps. The children quickly share their finds with one another, but few parents may tune in. The pattern is typical, even in other primates. I am reminded of some classic research on the way new knowledge spread through a troop of Japan's snow monkeys.¹⁸ When a young, lower ranking individual came up with a useful innovation, such as rinsing the sand out of wheat by dropping the stalks in the water, the technique was quickly picked up by the younger troop members. The older and more dominant members were always conservative and reluctant to try something so novel.

Our genuine belief in the Internet's educational value and our hope that technology will improve access to high-quality resources and courses may have led us to downplay its multidimensional nature. The net is far more than a public library on a desktop. Young people need knowledge about the psychological characteristics of online environments and how they can affect human behavior in both positive and negative ways. Even though we know we are responsible for guiding children away from trouble spots and danger zones on the net, many do not feel particularly competent in this role.

The way educators are trying to deal with a mobile app called Yik Yak illustrates some of the challenges. The app allows users to post anonymous messages that other users will be able to see if they are in the same geographic area. It became wildly popular among students who want to mouth off about classes and teachers, but it also is a platform for racism, sexism, cyberbullying, and bomb threats. School administrators are struggling with this new scourge, and some are demanding that the company deploy geofencing to block access to the site from campus grounds. The app relies on GPS coordinates to determine location, so students in a "fenced" location receive a message that reads, "it looks like you're trying to use Yik Yak on a middle school or high school grounds." The problem, of course, is that students can access the app as soon as they walk outside the blocked range.

I discussed the issue of pornography in [Chapters 8 and 9](#), and for some parents, the triple X-rated sites are at the top of the danger zone list. The use of filtering software and website rating services has reduced this threat, but automated tools won't replace sound judgment and guidance, particularly because the Internet moves so quickly and pornography is just one type of material on the net that is not appropriate for children. Other examples are the hate sites that

vilify specific groups, the discussion forums on violence and weapons, the hacker sites that promote illegal access, or the terrorist sites that recruit young people. Parents and teachers are the adults who bear the responsibility for guiding children as they explore the online world, and that points directly to the need for people to become better acquainted with what is out there, how it is evolving, what our children are doing, and what effects their experiences have on their development.

Rewards on the Internet

One of the most powerful tools we have to influence the behavior of other people is the reward, and on the net we have several to hand out or withhold. Indeed, an important feature of our empowerment is control over those sought-after rewards, but we need to understand what they are to use them wisely. A major one is simply attention. We are in an age when attention is a commodity in short supply but in great demand. The commercial vendors clamor for it with their advertising, free giveaways, contests, and promotions. And ordinary people are hungry for a little attention from their fellow net users, too.

Clicking “like” and retweeting a tweet are both surprisingly powerful but low-cost rewards that can influence behavior. Adding a positive comment is even more potent as a positive reinforcement. Attention is such a powerful reward that even negative remarks serve as reinforcement to people in some settings. Just like children who deliberately misbehave to get attention from parents and teachers who might otherwise ignore them, net users may find *any* reply better than *no* reply to their post, even if it is a criticism or insult. As I discussed in [Chapter 4](#), on aggression, the best way to handle online trolls is to ignore them. Indeed, in the original Rules of the Internet, thought to be created by the hacking group called Anonymous, the fourteenth rule is “Do not argue with trolls - it means that they win.”

Trolls aside, we can differentially use positive reinforcement and punishment to encourage the kind of online behavior we want to promote. We can praise people when they make a positive contribution, even if we don’t agree with the point of view. If they make negative remarks, we can ignore them and instead attend to someone else in the discussion. These may seem like simplistic strategies, but computer-mediated communication is a lean medium in which subtler efforts to reward or punish behavior go unnoticed. In a

face-to-face setting, you might just nod to signal that you heard and approved. But online, you need to type, “I agree.”

As a comprehensive theory of human behavior, behaviorism has limitations, and the influence of this perspective in psychological research circles has waned. Human behavior is richer and more complex than the early behaviorists suggested, and the consequences of behavior - those rewards and punishments - are just one ingredient in the mix. Nevertheless, they are powerful tools, and too few people use them to promote the kind of behavior that we want to see flourish on the net and to discourage the kind that poisons virtual environments. Just as in real life, we often inadvertently reward the wrong things with attention and ignore the positive behavior.

Remember the Human

Finally, we all need to remind ourselves that there is a real human being, or many of them, on the other end of our communications. The first rule of Virginia Shea’s netiquette guide is to “remember the human,”¹⁹ and that advice summarizes the most powerful strategy for making the Internet fit for human habitation. Before clicking “send” or “submit,” ask yourself if you would say that to the person’s face if he or she were standing in front of you.

To help us remember, we might pin an image of a pair of eyes looking straight at us as we type on the keyboard. You may recall from [Chapter 6](#) that eye contact promotes prosocial behavior and that even the image of eyes has positive effects.

Following the golden rule about treating others as we would want to be treated, we should also respect each other’s privacy and not forward anyone’s images or text messages without their permission. Remembering how easy it is to make mistakes online, we should also forgive the mistakes other people make.

PSYCHOLOGY OF THE INTERNET: THE NEXT GENERATION

Where will the Internet go next, and what role can we play in guiding its future? Predictions about the future of the online world abound and, perhaps not surprisingly, run the gamut from the extremely positive to the downright apocalyptic. Many of them point to particular trends that will gather momentum in the coming years and that may lead to fundamental changes. Examples include cyberattacks,

privacy threats, growing inequality, advances in artificial intelligence, and the Internet of Things.

To mark the twenty-fifth anniversary of the creation of the World Wide Web by Sir Tim Berners-Lee, the Pew Research Center canvassed thousands of people involved in the net to share their thoughts about what the future holds.²⁰ Although most agreed on what the major technology trends will be, they disagreed on the impact of those trends on human behavior and society. Some predicted that much of the impact will be negative. Economically, the net may just deepen the divide between haves and have-nots, which may result in more resentment and even violence. As we share information globally, the divide will become more and more apparent.

The Internet may also facilitate greater inequality by hollowing out the middle class. In *The Internet Is Not the Answer*, Andrew Keen levels a biting critique at the tech moguls of Silicon Valley, pointing out that the creative destruction of so many industries hurts the broader economy by eliminating middle-class jobs. Kodak, for example, employed 140,000 people in 1996, but digital photography and services such as Instagram led to its bankruptcy in 2012. When Facebook bought Instagram for \$1 billion, the tiny company employed only thirteen people. While on one level the Internet spreads power around, that power does not show up in dollars. Wealth is heavily concentrated in a winner-take-all economy, Keen argues, and many of the winners are the tech billionaires.²¹

Another negative theme is that all the problems the net has now, from bullying and stalking to crime, hacking, and privacy invasions, will just grow larger. Human nature doesn't change, and the next-generation Internet will just provide better tools to make life online miserable. At the same time, governments and corporations will gain even more power to exert political and social control, grabbing back much of the power that the Internet had initially shifted to individuals.

Recent breakthroughs in artificial intelligence are also a source of concern; the "intelligent future" is a key theme at the South by Southwest (SXSW) convention, which attracts thousands of techies to explore the next new thing each year. Much about artificial intelligence is very promising, and the giddy excitement at the convention is hard to deny. But some are alarmed by what they see as an inexorable march toward "superintelligence," in which computers and digital networks surpass humans in every cognitive domain. Computers armed

with machine learning are already better than your own friends at judging your personality characteristics, just by analyzing your Facebook “likes.”²²

If you watched IBM’s supercomputer Watson take on two all-time *Jeopardy!* champs, you would have been very impressed with its intelligence as it beat both of them handily. But Watson also offered some responses that caused its designers to shake their heads. “What is Toronto?” was one, but Watson was supposed to come up with a city in the United States. Superintelligence may not be around the corner, but the first steps are in place. Nick Bostrom, director of the Future of Humanity Institute at Oxford University, suggests that once certain milestones are reached, a superintelligence would emerge very quickly, and humans would have small hope of competing with it.²³ Ken Jennings, one of the players who lost to Watson, jokingly wrote on his slate, “I for one welcome our new computer overlords.” But some futurists weren’t laughing.

On the technical side, the Internet has many weaknesses, particularly because its original design emphasized openness and public access rather than security and privacy. Futurist and science-fiction author Bruce Sterling argues that the Internet is like Icarus in Greek mythology, who found a way to fly using wings made of wax and feathers, only to fall to his death when the sun melted the wax.²⁴ He sees the current Internet as a first-generation platform that is vulnerable to that deadly fall, largely because of three underlying trends. One is the “data stalker” economy in which companies collect massive amounts of personal data seeking competitive advantage. Another is the rampant criminal activity that plagues the Internet and that is growing ever more threatening. Mounting privacy invasions by governments is the third trend. He points out that humans eventually dropped the glued-on wings approach and created a better and safer way to fly using airplanes, and we may need to do the same for the Internet.

On the more hopeful side, many believe the Internet will become invisible, like electricity. It will be so interwoven into everyone’s daily life that people won’t even notice it any longer. Particularly with the Internet of Things, all those bits and bytes will just blend into the background, but we will come to rely heavily on computer-mediated judgment to make a host of decisions for us. Joe Touch, at the University of Southern California’s Information Sciences Institute, said, “The Internet will shift from the place we find cat videos to a background

capability that will be a seamless part of how we live our everyday lives. We won't think about 'going online' or 'looking on the Internet' for something - we'll just be online, and just look."

Following the current guidance from the *Chicago Manual of Style*, I capitalize "Internet" in this book. Other technology innovations, like "phonograph," started out as capitalized proper nouns, but as they became so commonplace, the style manual made them lowercase. That manual already changed "web" to lowercase, and "internet" may be next, as it takes its place alongside electricity.

Another positive theme suggests that the continued spread of the net will enhance global connectivity and make educational opportunities far less expensive and more widely available. The massively open online courses (MOOCs), for example, can reach people in poor, rural villages around the world, and many more online resources are under development. Such trends will make a major dent in the enormous loss of human potential that results when people don't have access to education. They will also lead to greater political awareness.

More optimism comes from viewpoints, like my own, that stress our own role in the future development of the Internet. We've already seen how people can push back on companies and governments that threaten privacy rights, not just by deserting the service but by online protests and demands for legislation. The European concept of the right to be forgotten is one example. In the United States, organizations such as the Electronic Frontier Foundation and the Electronic Privacy Information Center advocate for stronger privacy protections and provide information to users about the choices they make.

Pushing back against harassment and trolling can also be an effective way to urge companies to take action. When online protests about hostile climates reach critical mass, they get some attention. The Verge, an online news magazine, obtained a leaked memo from Twitter's former CEO Dick Costolo who frankly admitted the service has a serious problem:

*We suck at dealing with abuse and trolls on the platform and we've sucked at it for years. It's no secret and the rest of the world talks about it every day. We lose core user after core user by not addressing simple trolling issues that they face every day. I'm frankly ashamed of how poorly we've dealt with this issue during my tenure as CEO. It's absurd. There's no excuse for it. I take full responsibility for not being more aggressive on this front. It's nobody else's fault but mine, and it's embarrassing.*²⁵

Another aspect of empowerment is our ability to influence which technological features are added to the online world, and which new ones we might want. We welcome the reputation systems that companies like eBay, for example, use to sort out reliable sellers, even if imperfect. And we'll be very interested to see how Twitter uses new algorithms to address trolling.

Wearable technologies will also need to be chosen wisely. Some of those devices that will be part of the Internet of Things will be extremely welcome. For instance, watches that monitor our blood pressure will improve health outcomes and lengthen lives, and tools that provide "augmented reality" as we tour the country will enrich our experience. Gazing at the Washington monument, you could call up all kinds of relevant data, including directions to nearby attractions.

But some features may be more troubling. Google Glass, for example, is an eyeglass-shaped headset that can access the Internet with voice commands, make phone calls, and take pictures and videos. On one hand, the device offers a way to augment your physical reality by providing on-demand information about what you're currently doing. But the device caused a social backlash; the original adopters became known as "glassholes." Bars and restaurants banned visitors from wearing them inside, seeking to prevent anyone from secretly filming their customers. Some think the main problem is fashion, and if Google can come up with something more discreet and attractive, it will be a winner. I do not agree. The main obstacle is the psychological effect the device has on the people around you, which to some is downright creepy.

Author, musician, and computer scientist Jaron Lanier laments that, unfortunately, our choices about guiding the Internet's technologies are not unconstrained because software development happens so fast. He says, "It's as if you kneel to plant a seed of a tree and it grows so fast that it swallows your whole village before you can even rise to your feet."²⁶ Features become "locked in" before we have time to really evaluate how they affect behavior or society. As time progresses and software becomes more and more complex, early technical choices become much harder to change, even if they were not the best decisions.

Yet we still do have choices, as we've seen throughout this journey through the psychology of the Internet, and we have options to choose a host of promising technologies ahead that will benefit

humankind. Armed with more knowledge about how Internet environments affect our behavior, what choices lie ahead, and what hazards loom, we should be able to help technologists make better decisions to influence the Internet's direction in positive ways.

Building platforms that draw thousands or millions of Internet users into massive, collaborative problem-solving efforts is one of those directions, one that the Internet's first inventors and pioneers didn't predict. Up until the start of the twenty-first century, scientific advances happened mainly in universities, government labs, or company research and development departments. Science was mostly a closed affair, with scientists competing to be the first to publish results and get credit for their findings. But some graduate students in computer science and a few postdocs in David Baker's biochemistry lab at the University of Washington began to imagine a new way to engage thousands of people in a scientific puzzle they were unable to solve.

These scientists were tackling the problem of "protein folding," and because their computer algorithms were slow and expensive, they decided to try "crowd science" that would tap the intuitive leaps and visual abilities of human beings. They built an online game called Foldit in which players who knew nothing about biochemistry could fold proteins into different patterns and compete with each other to find the best fit. Players set up teams called "Void Crushers" or "Another Hour Another Point," and team members shared strategies and tips. The game attracted thousands of players, and they achieved striking results. In less than three weeks, for example, they solved the structure of a protein involved in the HIV virus that scientists had been struggling to understand for over a decade. To give credit where credit is due, the name "Foldit Players" now appears as an author on several scientific papers.²⁷

As we think about the Internet's future and our role in it, it's worth remembering how predictions are often way off the mark. Jeff Jarvis, at the City University of New York Graduate School of Journalism, brings up the "ghost of Gutenberg" to add a bit of humility to the exercise. In the 1400s, would anyone have predicted that Gutenberg's printing press would lead to the Reformation and the scientific revolution, or the transformation of education? It took over a hundred years for the printed book to impact society so fundamentally, and even now, six hundred years later, the book remains a major part of our lives.

Considering how much the Internet surprised us in its first few decades, a safe prediction is that many more surprises are in store for all of us.

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