

# THE INTERNET IN A PSYCHOLOGICAL CONTEXT

Scrolling through Twitter's trending topics, I came upon #llostsleepbecause, 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."<sup>1</sup>

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

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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.

Cambridge University Press

978-1-107-07913-7 - The Psychology of the Internet: Second Edition

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Excerpt

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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.<sup>2</sup> 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.<sup>3</sup> 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



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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.<sup>4</sup> For instance, if you are looking for government grants, a search engine would lead you [www.grants.gov](http://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.<sup>5</sup>

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.<sup>6</sup> 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](mailto:fuzzybear342@yahoo.com) compared with one from [h.k.whitley3@nasa.gov](mailto: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.