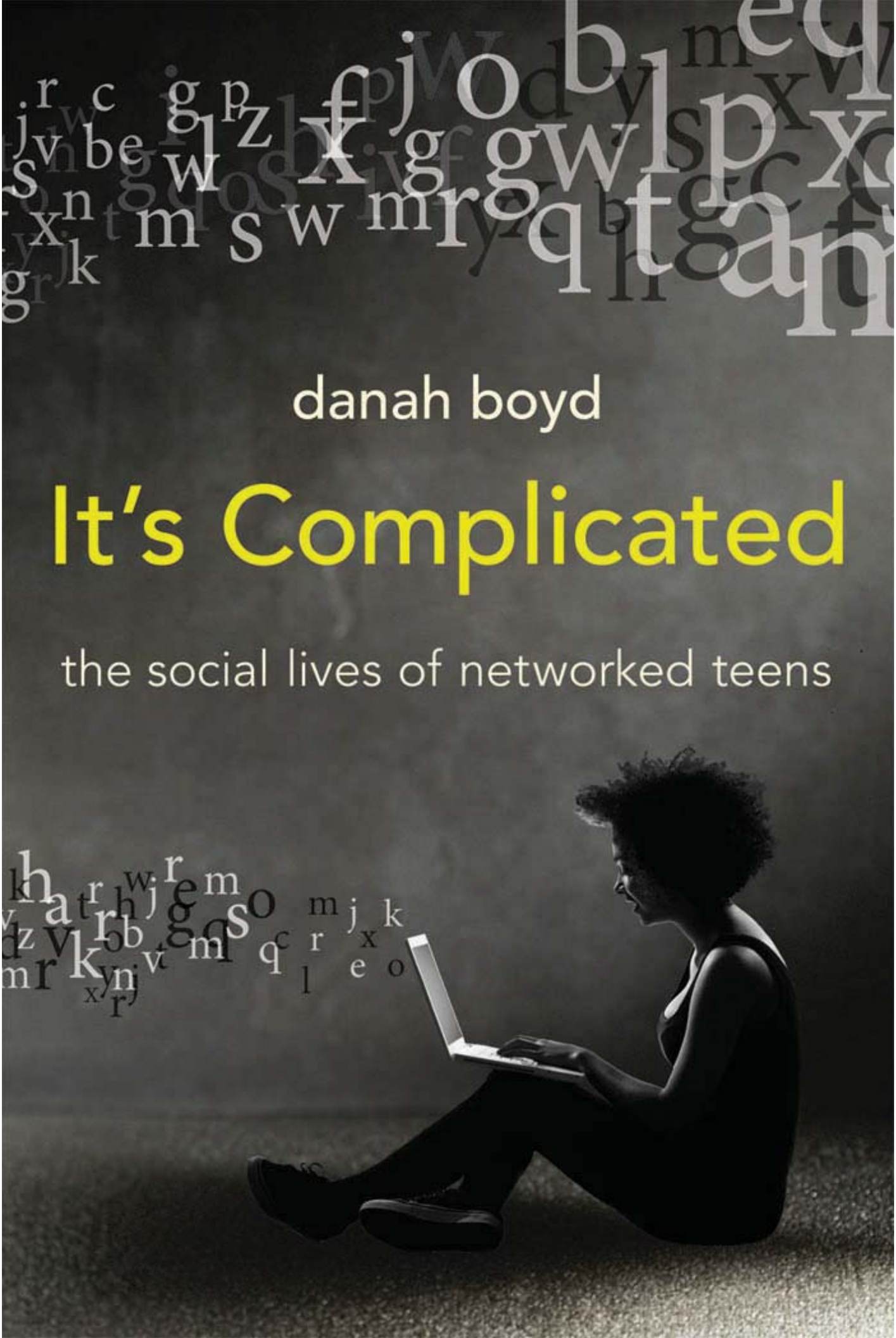
danah boyd
It's Complicated
the social lives of networked teens

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it's
complicated

the social lives of networked teens

danah boyd

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For Peter Lyman (1940–2007), who took a
chance on me and helped me find solid ground

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7 literacy
are today's youth digital natives?

Because teens grew up in a world in which the internet has always existed, many adults assume that youth automatically understand new technologies. From this perspective, teens are "digital natives," and adults, supposedly less knowledgeable about technology and less capable of developing these skills, are "digital immigrants." Two Massachusetts state government officials echoed this notion in 2010: "The children who attend school today are digital natives who think nothing of learning through the use of technology. As adults, we are digital immigrants who remember lessons delivered through film strips and overhead projectors. In a state where digital pioneers flourished, the educational system should catch up to the students."[1] Many of today's teens are indeed deeply engaged with social media and are active participants in networked publics, but this does not mean that they inherently have the knowledge or skills to make the most of their online experiences. The rhetoric of "digital natives," far from being useful, is often a distraction to understanding the challenges that youth face in a networked world.

In my fieldwork, I often found that teens must fend for themselves to make sense of how technologies work and how information spreads. Curiosity may lead many teens to develop meaningful knowledge about social media, but there is huge variation in knowledge and experience. I interviewed teens who used programming scripts to build complex websites. I also talked with teens who didn't

know the difference between a web browser and the internet. I encountered teens who had nuanced understandings of different kinds of web content and helped create and spread internet culture via popular memes. I also met teens who couldn't recognize spam.

Teens may make their own media or share content online, but this does not mean that they inherently have the knowledge or perspective to critically examine what they consume. Being exposed to information or imagery through the internet and engaging with social media do not make someone a savvy interpreter of the meaning behind these artifacts. Technology is constantly reworking social and information systems, but teens will not become critical contributors to this ecosystem simply because they were born in an age when these technologies were pervasive.

It is dangerous to assume that youth are automatically informed. It is also naive to assume that so-called digital immigrants have nothing to offer.[2] Even those who are afraid of technology can offer valuable critical perspective. Neither teens nor adults are monolithic, and there is no magical relation between skills and age. Whether in school or in informal settings, youth need opportunities to develop the skills and knowledge to engage with contemporary technology effectively and meaningfully. Becoming literate in a networked age requires hard work, regardless of age.

The Emergence of the Digital Native

The notion of digital natives has political roots, mostly born out of American techno-idealism. In an effort to force the global elite to recognize the significance of an emergent mediated society, John Perry Barlow, a renowned poet and cyberlibertarian, leveraged this concept to divide the world into "us" and "them." Barlow, best known as the former lyricist for The Grateful Dead, was quite comfortable using provocative words to express political views. As mentioned in the Introduction, he penned "A Declaration of the Independence of Cyberspace" for the World Economic Forum in Davos in 1996. His manifesto was an explicit challenge to the "Governments of the Industrial World."

In positioning those who "come from Cyberspace" in opposition to the old world order, he juxtaposed the "native" against the "immigrant":

> You are terrified of your own children, since they are natives in a world where you will always be immigrants. Because you fear them, you entrust your bureaucracies with the parental responsibilities you are too cowardly to confront yourselves. In our world, all the sentiments and expressions of humanity, from the debasing to the angelic, are parts of a seamless whole, the global conversation of bits. We cannot separate the air that chokes from the air upon which wings beat.[3]

Barlow was probably not the first to suggest that the young are native to the emergent digital landscape, but his poetic framing highlights the implicit fear that stems from the generational gap that has emerged around technology.[4] He intended his proclamation to provoke reaction, and it did. But many people took this metaphor literally. It has become popular in public discourse to promote the idea that "natives" have singular technical powers and skills. The suggestion that many take from Barlow's proclamation is that adults should fear children's supposedly natural-born knowledge.

Following a similar line of thinking, Douglas Rushkoff argues in his 1996 book *Playing the Future* that children should be recognized for their ingenuity. He metaphorically describes the differences in linguistic development between older immigrants and children who grow up in a society whose dominant language is different than their parents' native tongue. He uses the concepts of immigrants and natives to celebrate children's development in the digital age.

In describing youth as natives, both Barlow and Rushkoff frame young people as powerful actors positioned to challenge the status quo. Yet many who use the rhetoric of digital natives position young people either as passive recipients of technological knowledge or as learners who easily pick up the language of technology the way they pick up a linguistic tongue. These notions draw on the frames that Barlow and Rushkoff put forward but twist them in ways that are far from their intention.

In 2001, educational consultant Marc Prensky penned an article entitled "Digital Natives, Digital Immigrants." In that article, he claims that "today's students think and process information fundamentally differently from their predecessors."[5] He argues that they should be called "digital natives" because "our students today are all 'native speakers' of the digital language of computers, video games and the Internet." Like Barlow and Rushkoff, Prensky also positions older people as immigrants, noting, "Those of us who were not born into the digital world but have, at some later point in our lives, become fascinated by and adopted many or most aspects of the new technology are, and always will be compared to them, Digital Immigrants." Although Prensky claims to have coined the term *digital native* independently of either Rushkoff or Barlow, many people cite Prensky as the originator because he popularized the notion.[6] Like Barlow and Rushkoff, Prensky did so in order to celebrate young people's purported fluency with technology.

As the term took off and began to permeate popular discourse, scholars began critiquing the underlying implications. From an ethnic studies perspective, the language of "natives" and "immigrants" is particularly fraught. At a private event I attended, anthropologist Genevieve Bell invited everyone in the room to interrogate the underlying implications of these terms. She reminded the room that, throughout history, powerful immigrants have betrayed native populations while destroying their spiritual spaces and asserting power over them. Although this is not the story of all immigrants, this reminder raises serious questions about what is recognized in discussions of digital natives. Is the goal to celebrate youth savvy or to destroy their practices? Do people intend to recognize native knowledge as valuable or as something that should be restricted and controlled?

The notion of the digital native, whether constructed positively or negatively, has serious unintended consequences. Not only is it fraught, but it obscures the uneven distribution of technological skills and media literacy across the youth population, presenting an inaccurate portrait of young people as uniformly prepared for the digital era and

ignoring the assumed level of privilege required to be "native." Worse, by not doing the work necessary to help youth develop broad digital competency, educators and the public end up reproducing digital inequality because more privileged youth often have more opportunities to develop these skills outside the classroom. Rather than focusing on coarse generational categories, it makes more sense to focus on the skills and knowledge that are necessary to make sense of a mediated world. Both youth *and* adults have a lot to learn.

We live in a technologically mediated world. Being comfortable using technology is increasingly important for everyday activities: obtaining a well-paying job, managing medical care, engaging with government. Rather than assuming that youth have innate technical skills, parents, educators, and policymakers must collectively work to support those who come from different backgrounds and have different experiences. Educators have an important role to play in helping youth navigate networked publics and the information-rich environments that the internet supports. Familiarity with the latest gadgets or services is often less important than possessing the critical knowledge to engage productively with networked situations, including the ability to control how personal information flows and how to look for and interpret accessible information.

Most formal educational settings do not prioritize digital competency, in part because of the assumption that teens natively understand anything connected to technology and in part because existing educational assessments do not require this prioritization. Although youth are always learning as they navigate these systems, adults—including parents, educators, and librarians—can support them further by helping turn their experience into knowledge.[7]

Youth Need New Literacies

Many of the technologies that youth encounter, from Google to Wikipedia, require users to engage critically with the information they're seeing. When we assume that youth will just absorb all things digital through exposure, we absolve ourselves of our responsibility to

help teenagers develop necessary skills. Too often, we focus on limiting youth from accessing inaccurate or problematic information. This is a laudable goal, but alone it does teens a fundamental disservice.

Youth must become media literate.[8] When they engage with media—either as consumers or producers—they need to have the skills to ask questions about the construction and dissemination of particular media artifacts. What biases are embedded in the artifact? How did the creator intend for an audience to interpret that artifact, and what are the consequences of that interpretation?

The notion of media literacy predates the internet. In the United Kingdom, media literacy efforts date back to the 1930s, when educators argued that the public needed the skills to critically think about propaganda.[9] At that time, posters had emerged as key war propaganda. Media literacy education didn't get started in the United States until the 1960s, after advertising practices were well under way.[10] Educators argued that informed citizens needed to be able to critically evaluate the messages that surround them. As new genres of media proliferated, many were concerned that audiences could be manipulated into believing a particular narrative. Although fact-checking can often serve to combat certain aspects of manipulative messaging, people must also learn to question the biases and assumptions underpinning the content they see.

Even though media literacy programs have been discussed and haphazardly implemented for decades, most people have little training in being critical of the content that they consume. Long before the internet, critical media literacy has never been considered essential in schools or communities. Instead, schools have relied on trustworthy publishers, information curators, and other reputable sources. In a networked world, in which fewer intermediaries control the flow of information and more information is flowing, the ability to critically question information or media narratives is increasingly important. Censorship of inaccurate or problematic content does not provide youth the skills they will one day need to evaluate information independently. They need to know how to grapple with the plethora of information that is easily accessible and rarely vetted.

And given the uneven digital literacy skills of youth, we cannot abandon them to learn these lessons on their own.[11]

But what must they learn? Certainly, they need the critical skills that media literacy advocates have promoted for decades. For example, they need to be able to understand the biases in advertising, whether the ads are disseminated online or through more traditional media. But in a digitally saturated society, media literacy is only the first step. Technical skills are increasingly important. Few teens have a basic understanding of how the computer systems they use every day work. Some are curious enough to develop this knowledge, but it takes time and effort as well as opportunities, networks, and training to become active participants and contributors.

Although developing technical skills is not widespread, doing so can become a part of meaningful participation. In the early days of MySpace's popularity, a few teens learned that they could modify the look and feel of their profiles by inserting code in the form of HTML, CSS, or JavaScript. This was the result of a bug in MySpace's development code. After watching teens explore self-expression through code, the company decided not to patch the bug in order to see how users would personalize their pages. Excited by the ability to create "layouts" and "backgrounds," teens started learning enough code to modify their profiles. Some teens became quite sophisticated technically as they sought to build extensive, creative profiles. Others simply copied and pasted code that they found online. But this technical glitch—combined with teens' passion for personalizing their MySpace profiles—ended up creating an opportunity for teens to develop some technical competency.[12] MySpace eventually began blocking the inserted code due to security issues and, instead, created an interface for users to modify their profiles. This simplified the process and resulted in fewer technical problems, but it also closed the unique learning opportunity that MySpace had accidentally created.

In order to attract wide audiences, many technologies are designed to be extraordinarily simple. This was not always true. I spent

countless hours as a teen pouring through manuals, debugging network hardware, and learning technical syntax in order to socialize online.

When technologies are designed to make everyday use as easy as possible, it is not necessary for users to learn the technical skills that early internet adoption required. Although it is not necessary to be technically literate to participate, those with limited technical literacy aren't necessarily equipped to be powerful citizens of the digital world. As new technologies emerge to enable people to access information, the issues brought forth by media literacy and technological familiarity intersect to create new challenges. Empowering youth requires much more than calling them native participants.

The Politics of Algorithms

Corinne, a white thirteen-year-old from Massachusetts, proudly exclaimed in a group setting that she didn't use Wikipedia. When asked why, she explained, "I've heard that it's not true, and usually if I'm looking for something that I want, and it's true, I usually go on Google." Corinne's teachers had encouraged her to use Google to search for information. They told her that Wikipedia was full of inaccuracies because anyone could edit it. Like many of her peers, Corinne had interpreted this to mean that anything that appeared at the top of the Google result page must be true. If not, why would it appear at the top? And why would her teachers recommend it? She trusted the content on Google because adults had told her that it was a trustworthy site. She saw Google as having a similar reputation as that of the textbooks that her teacher assigned. Wikipedia, on the other hand, was not to be trusted because her teacher said so.

Wikipedia and Google are fundamentally different sites. Wikipedia is a crowdsourced encyclopedia built using technologies that allow for easy editing. An active community of volunteer moderators shapes the content, regulating it through a set of collectively determined social and technical protocols that provide a framework for appropriate user edits. Users regularly contest and debate content, as moderators and

other passionate volunteers work diligently to resolve disagreements and assert their own beliefs about what is legitimate, notable, and of high quality.

Google, by contrast, is both a for-profit company and a search engine that is monetized through advertising.[13] Google is not in the business of verifying content or assessing content's quality. Nor does it have editors whose job it is to verify sources of content. Rather, proprietary algorithms written by the company's engineers produce the results. The algorithms that underpin this powerful search engine rely on links, text, and other data signals to ascertain which pages should appear at the top for any query. Because Google is the source of so much traffic, countless people, corporations, and organizations engage in a practice known as *search engine optimization* in which they manipulate information in order to maximize the likelihood that a particular page will get a high ranking. In response, Google continuously alters its algorithms to minimize the efficacy of those trying to manipulate the results.[14]

Although the pages that Google offers are highly likely to be topically relevant with regard to the query, the company's employees do not try to assess the quality of a given page. There are countless sites dedicated to conspiracy theories and celebrity gossip that have a high ranking, and Google is happy to provide this content if that's what a searcher wishes to find. Google aims to provide links to pages that are relevant to the given search. This is not the same as vouching for the accuracy of those pages. Many teens I met assumed that someone verifies every link that Google shares. This is both naive and inaccurate.

Everywhere I went, I heard parents, teachers, and teens express reverence toward Google. They saw Google as a source of trusted information in a digital ecosystem filled with content of dubious quality. More important, many of the people I met believed that Google was neutral, unlike traditional news sources such as *Fox News* or the *New York Times*. Most people take for granted that someone, typically the editor in chief, chooses what stories appear on the

front page of a newspaper or which are covered in a TV segment. Conversely, people naively assume that algorithms, procedural sets of instructions for calculating an output, such as the ones produced by Google, must not have nearly the same biases as an editor.

The notion of an algorithm is foreign to most people, including most youth. But algorithms are fundamental to how many computational systems, including Google, work. Most people who use search engines do not understand that they are made up of complex machine learning algorithms. Even those who do don't necessarily understand how those algorithms work. The specifics of corporate algorithms, like Google's, are considered trade secrets. To complicate matters more, those who build machine learning algorithms for companies like Google cannot account for all of the decisions that the algorithms will make as they evolve based on input.

Although understanding the particulars of the technology is not necessary, it is important to recognize that algorithms are not neutral. When engineers are building machine learning algorithms, they typically use training data and, in some cases, classifications provided by the engineer to help the algorithm analyze the data. These systems are often designed to cluster data in order to provide results. Engineers then test those results with queries that they believe should have a "right" answer, or at least a sensible one. People—and their biases—are involved at each stage. They choose what data to train a system on, what classifications matter, and which examples to test. They make very human decisions about how to adjust the algorithms to provide results that they believe are of high quality. As communication scholar Tarleton Gillespie has argued, there are politics to algorithms.[15]

The results that a search engine produces may reveal biases in the underlying data, or they may highlight how the weights chosen by engineers prioritize certain content over others. Although engineers diligently work to clean the data and minimize biases, they are unable to eliminate their own biases. And because of the complicated nature of the algorithms and the massive quantities of underlying data that

algorithms must analyze, engineers cannot easily predict what query will produce what output.[16]

Increasingly, the results people get from search engines like Google are highly personalized and dependent on what Google knows about the person doing the query, including demographic information, search query history, and data obtained through social media. This process results in differential information retrieval, with different people receiving dissimilar results. Some tout such approaches as helpful for users, but others are more cynical about such personalization. In his 2011 book, *The Filter Bubble*, political activist and technology creator Eli Pariser argues that personalization algorithms produce social divisions that undermine any ability to create an informed public. For example, users with a long history of clicking on conservative or liberal news sources might only be shown results that align with their political views, thereby reinforcing an existing political gulf.

As scholars at Harvard's Berkman Center have shown, search engines like Google shape the quality of information that youth experience.[17] Teens view Google as the center of the digital information universe, even though they have little understanding of how the search results are produced, let alone any awareness of how personalization affects what they see. They uncritically trust Google, just as most adults do. In Iowa, white eighteen-year-old Wolf explained, "If you can't Google it, it doesn't exist." His white seventeen-year-old friend Red agreed, adding, "Google knows all."

Given the lack of formal gatekeepers and the diversity of content and authors, it's often hard to determine credibility online. Because youth do not learn to critically assess the quality of information they access, they simply look for new intermediaries who can help them determine what's valuable. For better or worse, they take Google's results for granted while also dismissing high-quality content from other sites that they have been taught to distrust. Like their parents, they assume that Google is neutral and that sites like Wikipedia have dubious information.

Wikipedia as a Site of Knowledge Production

Wikipedia has a bad rap in American K-12 education. The de facto view among many educators is that a free encyclopedia that anyone can edit must be filled with inaccuracies and misleading information. Students' tendency to use the service as their first and last source for information only reinforces their doubts. Ignoring the educational potential of Wikipedia, teachers consistently tell students to stay clear of Wikipedia at all costs. I heard this sentiment echoed throughout the United States.

In Massachusetts, white fifteen-year-old Kat told me that "Wikipedia is a really bad thing to use because they don't always cite their sources. . . . You don't know who's writing it." Brooke, a white fifteen-year-old from Nebraska explained that "[teachers] tell us not to [use Wikipedia] because a lot of—some of the information is inaccurate." These comments are nearly identical to the sentiments I typically hear from parents and teachers. Although it is not clear whether students are reproducing their teachers' beliefs or have come to the same conclusion independently, students are well aware that most teachers consider Wikipedia to have limited accuracy.

When people dismiss Wikipedia, they almost always cite limited trust and credibility, even though analyses have shown that Wikipedia's content is just as credible as, if not more reliable than, more traditional resources like *Encyclopedia Britannica*.[18] Teachers continue to prefer familiar, formally recognized sources. Educators encourage students to go to the library. When they do recommend digital sources, they view some as better than others without explaining why.[19] As Aaron, a white fifteen-year-old from Texas explained, "A lot of teachers don't want you to use [Wikipedia] as a source in a bibliography because it's not technically accredited. And they'd rather you use a university professor's website or something." Although Aaron didn't know what it meant for a source to be accredited, he had a mental model of which sources his teachers viewed as legitimate and which they eschewed. Similarly, Heather, a white sixteen-year-old from Iowa, explained, "Our school says not to use Wikipedia as our main source. You can use it as like a

second or third source but not as a main source. They say MSN Encarta. . . . They say to use that because it's more reliable." When I asked students why they should prefer sites like Encarta and professors' webpages, they referenced trust and credibility, even though students couldn't explain what made those particular services trustworthy.

Although nearly every teenager I met told me stories about teachers who had forbidden them from using Wikipedia for schoolwork, nearly all of them used the site anyhow. Some used the site solely as a starting point for research, going then to Google to find sources they could cite that their teachers considered more respectable. Others knowingly violated their teachers' rules and worked to hide their reliance on Wikipedia. In Boston, I met a teen boy who told me that his teachers never actually checked the sources, so he used Wikipedia to get information he needed. When he went to list citations, he said they came from more credible sources like Encarta, knowing that his teachers would never check to see whether a particular claim *actually* came from Encarta. In other words, he faked his sources because he believed his teachers wouldn't check. Although he had found a way of working around his teachers' rules, he had failed to learn why they wanted citations in the first place. All he had learned was that his teachers' restrictions on using Wikipedia were "stupid."

Because many adults assume that youth are digitally savvy—and because they themselves do not understand many online sources—they often end up giving teens misleading or inaccurate information about what they see online. A conflict emerges as teens turn to Wikipedia with uncritical eyes while teachers deride the site without providing a critical lens with which to look at the information available.

Wikipedia can be a phenomenal educational tool, but few educators I met knew how to use it constructively. Unlike other sources of information, including encyclopedias and books by credible authors, the entire history of how users construct a Wikipedia entry is visible. By looking at the "history" of a page, a viewer can see when someone made edits, who did the editing, and what that user edited. By look-

ing at the discussion, it's possible to read the debates that surround the edits. Wikipedia isn't simply a product of knowledge; it's also a record of the process by which people share and demonstrate knowledge.

In most educational institutions, publishers and experts vet much of the content that teens encounter and there is no discussion about why something is accurate or not. Some teachers deem certain publications trustworthy and students treat that content as fact. Reading old history books and encyclopedias can be humorous—or depressing, depending on the content and your point of view—because of what the writers assumed to be accurate at one point in time or in one cultural context. Just like today, past students who were given those materials were also taught that all of the information they were receiving was factual.

Although many students view textbooks as authoritative material, the content is neither neutral nor necessarily accurate. Textbooks often grow outdated more quickly than schools can replace them. The teens I interviewed loved finding inaccuracies in their own textbooks, such as lists of planets that included Pluto. Of course, not all inaccuracies are the product of mistakes or outdated facts. Some writers insert biases into texts because they reinforce certain social or political beliefs. In the United States, Texas is notorious for playing a significant role in shaping the content of textbooks in all states.[20] So when educators in Texas insist on asserting that America's "founding fathers" were all Christian, it creates unease among historians who do not believe this to be accurate. What goes into a textbook is highly political.

History, in particular, differs depending on perspective. I grew up hearing examples of this in my own family. Born to a British father and a Canadian mother, my mother moved to New York as a young girl. She recalls her confusion when my grandfather complained about her American history lessons and threatened to destroy her textbook. Compared to the British narratives my patriotic British veteran grandfather had learned, the American origin story was outright offensive.

American and British high schools teach events like the American Revolutionary War very differently—and rarely do schools in either country consider such things as the role of women or the perspectives of slaves or Native Americans. This is a topic of deep interest to historians and the driving force behind books like Howard Zinn's *A People's History of the United States*, which tells American history through the perspective of those who "lost." Although many people believe that the winner gets to control the narrative, accounts also diverge when conflicting stories don't need to be resolved. When countries like the United States and the United Kingdom produce their own textbooks, they don't need to arrive at mutually agreeable narratives. However, when people like my mother cross the ocean and must face conflicting perspectives, there's often little room for debating these perspectives. In my mother's childhood household, there was a right history and a wrong history. According to my grandfather, my mother's textbook was telling the wrong history.

Wikipedia often, but not always, forces resolution of conflicting accounts. Critics may deride Wikipedia as a crowdsourced, user-generated collection of information of dubious origin and accuracy, but the service also provides a platform for seeing how knowledge evolves and is contested. The Wikipedia entry on the American Revolution is a clear product of conflicting ideas of history, with information that stems from British and American textbooks interwoven and combined with information on the role of other actors that have been historically marginalized in standard textbooks.

What makes the American Revolution Wikipedia entry interesting is not simply the output in the form of a comprehensive article but the extensive discussion pages and edit history. On the history pages, those who edit Wikipedia entries describe why they made a change. On discussion pages, participants debate how to resolve conflicts between editors. There's an entire section on the American Revolution discussion page dedicated to whether colonists should be described as "patriots"—the American term—or "insurgents"—the British term. In the discussion, one user suggests a third term: "revolutionaries." Throughout the

Wikipedia entry, the editors collectively go to great lengths to talk about "American patriots" or use terms like "revolutionaries" or simply describe the colonists as "Americans." The American Revolution discussion page on Wikipedia is itself a lesson about history. Through archived debate, the editors make visible just how contested simple issues are, forcing the reader to think about why writers present information in certain ways. I learned more about the different viewpoints surrounding the American Revolution by reading the Wikipedia discussion page than I learned in my AP American history class.

Although most teens that I met who used the internet knew of Wikipedia and most of those who had visited the site knew it was editable, virtually none knew about the discussion page or the history of edits. No one taught them to think of Wikipedia as an evolving document that reveals how people produce knowledge. Instead they determined whether an article was "good" or "bad" based on whether they thought that their teachers could be trusted when they criticized Wikipedia. This is a lost opportunity. Wikipedia provides an ideal context for engaging youth to interrogate their sources and understand how information is produced.

Wikipedia is, by both its nature and its commitments, a work in progress. The content changes over time as users introduce new knowledge and raise new issues. The site has its share of inaccuracies, but the community surrounding Wikipedia also has a systematic approach to addressing them. At times, people actively and intentionally introduce false information, either as a hoax or for personal gain. Wikipedia acknowledges these problems and maintains a record for observers. Wikipedia even maintains a list of hoaxes that significantly affected the site.[21]

Many digital technologies undermine or destabilize institutions of authority and expertise, revealing alternative ways of generating and curating content.[22] Crowdsourced content—such as what is provided to Wikipedia—is not necessarily better, more accurate, or more comprehensive than expert-vetted content, but it can, and often does, play a valuable role in making information accessible and providing a

site for reflection on the production of knowledge. The value of Wikipedia would be minimal if it weren't for sources that people could use in creating entries. Many of Wikipedia's history articles, for example, rely heavily on content written by historians. What Wikipedia does well is combine and present information from many sources in a free, publicly accessible, understandable way while also revealing biases and discussions that went into the production of that content. Even with their limitations and weaknesses, projects like Wikipedia are important for educational efforts because they make the production of knowledge more visible. They also highlight a valuable way of using technology to create opportunities for increased digital literacy.

Digital Inequality

The challenges brought forth by media literacy stem from and reinforce the broader issue of digital inequality, which is often elided by the frame of digital natives. As media theorist Henry Jenkins eloquently explains:

> Talk of "digital natives" helps us to recognize and respect the new kinds of learning and cultural expression which have emerged from a generation that has come of age alongside the personal and networked computer. Yet, talk of "digital natives" may also mask the different degrees of access to and comfort with emerging technologies experienced by different youth. Talk of digital natives may make it harder for us to pay attention to the digital divide in terms of who has access to different technical platforms and the participation gap in terms of who has access to certain skills and competencies or for that matter, certain cultural experiences and social identities. Talking about youth as digital natives implies that there is a world which these young people all share and a body of knowledge they have all mastered, rather than seeing the online world as unfamiliar and uncertain for all of us.[23]

By focusing on the "digital divide" between levels of access and types of competencies, Jenkins highlights how a well-intentioned public uses the rhetoric surrounding digital natives to obfuscate and reinforce existing inequalities.

The politics surrounding the digital divide date back several decades. In the late 1990s, journalists, academics, and governmental agencies began using the term *digital divide* to describe the gap in access between rich and poor.[24] In its earliest stages of use, the construct referred to a gap in device availability and internet connectivity between the digital "haves and have nots."[25] Activists and politicians rallied to close the gap in access, primarily focusing on a "devices and conduits" approach that looked to provide digitally underprivileged populations with internet-connected computers.[26] Government agencies viewed technology—and the internet in particular—as playing a critical role in economic opportunities. They wanted to ensure "access to the fundamental tools of the digital economy" as a priority investment for the future of the US economy.[27]

As public debates raged over how to address inequality brought about by the digital divide, it soon became clear that access should not be conflated with use. The digital divide soon encompassed discourses surrounding technology skills and media literacy.[28] Scholars and governmental agencies began to argue that access alone mattered little if people didn't know how to use the tools in front of them.[29] As more youth gained access through schools and public institutions, and as a result of the decline in costs of technology, scholars increasingly raised concern about the unevenness of skills, literacy, and "socially meaningful" access.[30]

By 2011, 95 percent of American teenagers had some form of access to the internet, whether at home or at school.[31] What that access looks like and what teens do with that access varies greatly.[32] Concerned about how increased access was prompting the media to declare the digital divide over, Jenkins and his coauthors starting raising concerns over the emerging "participation gap." They highlighted that differential access results in different levels of engagement and

participation.[33] For example, a teen who uses a library computer with filtered access for an hour a day has a very different experience with the internet than one who has a smartphone, laptop, and unrestricted connectivity.[34]

I witnessed this phenomenon time and again in my fieldwork. I met teens whose only access to Facebook was on shared computers at a Boys and Girls Club after school. They knew how to get around the site, upload photos, modify privacy settings, and socialize with their friends. At first blush, they looked like sophisticated users. But as I started watching more intently, I realized that their knowledge about how to use technology to meet their own needs was nowhere as sophisticated as those who had their own computers at home and accessed Facebook via their iPhones. The differences weren't noticeable when it came to navigating Facebook for social purposes. They appeared when I watched how both privileged and disadvantaged teens turned to social media to get information and support.

In New York, I watched as a teen girl used her Android phone. She texted and regularly used apps like Twitter and Facebook. Enthusiastically, she showed me how she moved seamlessly between multiple semi-synchronous conversations. But when I asked her about how she used her phone to look things up for school, she let out a deep sigh. She switched over to the browser, opened up Google, and typed in a test query. Then she handed the phone to me, commenting on how long it took for her browser to load a given page. She told me that it was possible to surf the web on her phone, but it was time-consuming and frustrating, so she rarely bothered. She preferred to look things up on the computer at school, but she rarely had that type of access. If she really needed something, she texted her friends to see if anyone knew the answer or had access to a "real" computer. By most measures, she had full internet access through her smartphone, but she was acutely aware of the limitations of that kind of access.

Variations in experience also result in another form of digital inequality: differential levels of skills. For more than a decade, soci-

ologist Eszter Hargittai has surveyed internet users, including youth, about their web skills.[35] She shows that far from being a generational issue, there are significant differences in media literacy and technical skills even within age cohorts. Variation in skills is linked in part to differences in access to computers. On one end of the spectrum, those teens who have their own laptops and smart phones often access the internet wherever they go for everything from fashion advice to homework assignments. At the other end of the spectrum are teens who have limited opportunities to access the internet and then only in highly regulated, filtered contexts like school computer centers or libraries. Not surprisingly, Hargittai found that teens' technological skills are strongly correlated with the quality of their access. Quality of access is, also unsurprisingly, correlated with socioeconomic status. As mentioned earlier, Hargittai argues that many youth, far from being digital natives, are quite digitally naive.[36]

There is little doubt that youth must have access, skills, and media literacy to capitalize on opportunities in a networked society, but focusing on these individual capacities obscures how underlying structural formations shape teens' access to opportunities and information. When information flows through social networks and interaction shapes experience, who you know matters. Youth who are surrounded by highly sophisticated technical peers are far more likely to develop technical skills themselves. In communities where technical wherewithal is neither valued nor normative, teens are far less likely to become digitally savvy. As media scholars Kate Crawford and Penelope Robinson have argued, networks of association and knowledge powerfully affect what information and knowledge people integrate into their lives.[37]

How we picture the issue of digital inequality also has political implications. As communication scholar Dmitry Epstein and his coauthors argue, when society frames the digital divide as a problem of access, we see government and industry as the responsible party for addressing the issue.[38] When society understands the digital divide as a skills issue, we place the onus of learning how to manage

on individuals and families. At times, we also invoke educational entities and public institutions to support individual learning, but those conversations rarely include a discussion of government funding. The burden of responsibility shifts depending on how we construct the problem rhetorically and socially. The language we use matters.

Beyond Digital Natives

Most scholars have by now rejected the term digital natives, but the public continues to embrace it. This prompted John Palfrey and Urs Gasser, coauthors of *Born Digital: Understanding the First Generation of Digital Natives*, to suggest that scholars and youth advocates should reclaim the concept and make it more precise.[39] They argue that dismissing the awkward term fails to account for the shifts that are at play because of new technologies. To correct for misconceptions, they offer a description of digital natives that they feel highlight the inequalities discussed in this chapter: "Digital natives share a common global culture that is defined not by age, strictly, but by certain attributes and experiences related to how they interact with information technologies, information itself, one another, and other people and institutions. Those who were not 'born digital' can be just as connected, if not more so, than their younger counterparts. And not everyone born since, say, 1982, happens to be a digital native."[40]

In their writings, Palfrey and Gasser go to great lengths to clarify who is—and who is not—a digital native. They highlight the importance of the emergent participation gap and the challenges brought about as a result of digital inequality. Although their desire to reclaim the term digital native is laudable, it's not clear that many people have recognized the very valid nuance in their argument. More often than not, many people continue to cite Palfrey and Gasser's work as "proof" that all kids are digital natives. Although I respect Palfrey and Gasser's stance, I'm not convinced that the term itself can be reclaimed. Even though they offer a nuanced argument, scholars and journalists continue to point to them while using the term to refer to a whole gen-

eration. At this point, the problematic frame of the digital native often undermines efforts to celebrate and critically examine how teens do and do not engage with social media.

I believe that the digital natives rhetoric is worse than inaccurate: it is dangerous. Because of how society has politicized this language, it allows some to eschew responsibility for helping youth and adults navigate a networked world. If we view skills and knowledge as inherently generational, then organized efforts to achieve needed forms of literacy are unnecessary. In other words, a focus on today's youth as digital natives presumes that all we as a society need to do is be patient and wait for a generation of these digital wunderkinds to grow up. A laissez-faire attitude is unlikely to eradicate the inequalities that continue to emerge. Likewise, these attitudes will not empower average youth to be more sophisticated internet participants.

When Marc Prensky popularized the notion of digital natives, he never expected this metaphor to have a significant life, let alone to justify passivity by adults.[41] Instead, he argues, we should be looking to increase "digital wisdom," both in creating empowering tools that enable understanding and in empowering people to use existing tools wisely. Recognizing that technology can be used in both harmful and beneficial ways, Prensky maintains that it is important that we all work to be more thoughtful about our engagement with technology.

Developing wisdom requires active learning. Teens acquire many technological skills through extensive experimentation with social media and curiosity-driven exploration. Because teens turn to these services to socialize with peers, they often gain the skills that are part of informal social learning.[42] However, many of the media literacy skills needed to be digitally savvy require a level of engagement that goes far beyond what the average teen picks up hanging out with friends on Facebook and Twitter. Technical skills, such as the ability to build online spaces, require active cultivation. These skills must be studied deliberately. Teens may develop an intuitive sense for how to navigate social interactions online through casual engagement and experience, but this does not translate to an understanding of why

search queries return some content before others. Nor does experience with social media push young people to learn how to build their own systems, versus simply using a social media platform. Teens' social status and position alone do not determine how fluent or informed they are vis-à-vis technology.

Technology will increasingly play an important role in society. Comfort with technology is often a prerequisite for obtaining even the most basic of jobs. Government agencies are increasingly turning to technology to provide services and engage citizens. And many high-status opportunities—from higher education to new forms of employment—expect people to be media literate and technologically advanced. It behooves all of us to move past assumptions about today's youth. Both adults and youth need to develop media literacy and technological skills to be active participants in our information society. Learning is a lifelong process.