Preface: Technologies of the Word

Frequently Asked Questions

In the past twenty years, our attitude toward computers and the internet has moved from suspicion or curiosity to dependency. When the World Wide Web was young, people used to find something online and ask, “How do I know if it’s any good?” Now we think, “If it’s not online, it’s probably not worth looking for.”

In what seems from a historical perspective like the blink of an eye, we’ve shifted our focus from distrusting the internet to embracing it. Computer technology has taken control over our words in ways and at a speed that no previous technology of literacy ever did before. Some of us approached the computer revolution with optimism, others with suspicion, and many with caution. But most of the people reading this book by now own a PC, or use one regularly at work, at school, or in a public library. In the decades between the 1980s and the present, the personal computer has gone from an expensive and forbidding, and far from personal, curiosity to a near necessity. The 2000 Census reported that more than half of America’s 105 million households had a computer. That percentage is a lot higher today.

Not everyone celebrates our increasing dependence on digitized words, and a few staunch critics see the computer destroying life as we know it. But for most Americans, and for more and more people elsewhere in the world, the computer is becoming the tool of choice for writing, whether for work, for school, or for what we do when we’re not working or studying, and while not too many people are reading electronic books yet, more and more of us are gradually shifting the rest of our reading from the page to the screen.

Computer users regularly shop on line, bank online, meet online, read online, and write online, not just in America, but elsewhere in the world as well. Even so, there are always trust issues with text, and even the most wired users have some internet activity that they shun: they may choose to have their paycheck deposited electronically, but they won’t pay bills online; they may embrace virtual shopping but draw the line at online dating services; they may have found their soul mate on JDate but balk at the idea of citing Wikipedia in a research paper.

Worse yet, there’s a lot of dark matter in cyberspace: fraud, hate, and exploitation abound online, not to mention inconsistency and inaccuracy and a whole lot of cyberjunk. We’re still in the process of sorting the good from the bad online, the useful from the
spam. We’re still in the process of figuring out just what to use the internet for. And we’re still learning to trust the web, even as we become ever more dependent on it for the things that we need to do every day.

**Readme:**

*A Better Pencil* puts our complex and still-evolving hate-love relationship with computers and the internet into perspective. It’s a book about how the digital revolution is impacting our reading and writing practices, and how the latest technologies of the word differ from what came before. It looks at our use of computers as writing tools in light of the history of communication technology, a history of how we love, fear, and actually use our writing machines – not just computers but also typewriters, pencils, and clay tablets; how we deploy these technologies to replicate the old ways of doing things while actively generating new modes of expression; how we learn to trust a new technology and the new and strange sorts of texts that it produces; how we expand the notion of who can write and who can’t; and how we free our readers and writers while at the same time trying to regulate their activities.

The World Wide Web wasn’t the first innovation in communication to draw some initial skepticism. There have always been trust issues with texts. Plato warned that writing would weaken memory, but he was more concerned that written words – mere shadows of speech – couldn’t adequately represent meaning. His objections paled as more and more people began to structure their lives around hand-written documents. Centuries later, the innovative output of Gutenberg’s printing press was faulted for disrupting the natural, almost spiritual connection between the writer and the page. Eventually we got used to printing, but Henry David Thoreau scorned the telegraph when it was invented in the 1840s, because this technology for quickly transporting words across vast distances was useless for people who had nothing to say to one another. The typewriter wasn’t universally embraced as a writing tool when it appeared in the 1870s because its texts were impersonal, it weakened handwriting skills, and it made too much noise. And computers, now the writer’s tool of choice, are still blamed by skeptics for a variety of ills, including destroying the English language, slowing down the writing process, speeding writing up to the point of recklessness, complicating it, trivializing it, and encouraging people to write who may, as Thoreau might put it, have nothing to say.

Despite Plato’s warning, we have come to value writing, sometimes even more than speech. But at the dawn of letters, few people could read, and fewer still could write. People greeted the first written texts with distrust: “How do I know that Philoflatus really wrote this?” they’d ask suspiciously, when they received a letter, or, looking at a deed, a royal decree, or a set of directions for turning lead into gold, they’d wonder, “How do I know it’s not all a pack of lies?” Before writing became an ordinary activity, any words not delivered in person, directly from the horse’s mouth, not only lacked the personal touch, they could also be some kind of trick.

**Becoming user friendly**

Not all writing technologies begin with communication in mind. Writing, the first and most basic communication technology, was conceived initially as more of a memory
device than a medium for transmitting words across time and space. Archaeological evidence suggests that it arose in the ancient Mediterranean to track inventory, not to record speech. Had writing remained just a storage device, we probably wouldn’t be considering how computers shape reading and writing today.

Like writing, the pencil is a repurposed technology. Graphite chunks may have initially been used to mark sheep. Carpenters later attached handles to the graphite and used their new “pencils” to mark where to cut their wood. But when wordsmiths and artists got hold of the invention, its success was assured. At first the computer, as its name suggests, had nothing to do with writing. It was invented to simplify long, tedious arithmetic calculations and was meant to replace the adding machine, not the typewriter. But while we still use calculators – pocket-sized digital adding machines – typewriters are long gone from our desks.

Other successful communication technologies have the transmission of words as their primary goal: the printing press, the typewriter, the telegraph, and the telephone were designed to facilitate reading, writing, and speaking. But all of these technologies, from writing itself to the digital computer, were difficult to learn and far from user friendly. The materials required to put them into play were expensive, hard to find, and labor intensive to prepare. In the early days of writing, it took dedication to be a writer. Not too many people thought that carving marks into wood, clay, or stone was worth the effort, nor were they keen on preparing their own pens and inks, drying animal skins, or pulping plant matter and weaving it into a suitable writing surface.

At the other end of the timeline, thousands of years after the earliest writing appeared, telegraphy was an option confined to those willing to learn Morse code. Until recently, even “wireless” radio operators couldn’t be licensed without first demonstrating their proficiency in sending and receiving the dots and dashes that had been invented for the first wired telegraphy. The earliest computers weren’t writer friendly either, and not even computer programmers used them to write their programs. Plus, few of the writers who were actually willing to tackle the complexities of writing with digital machines could actually afford to buy time on a mainframe. Nor could they justify spending $6000 on a PC in 1983, for that was the cost of the new machine that could do less than a good electric typewriter or a much cheaper No. 2 pencil.

To really achieve broad adoption, all of our word technologies had first to overcome the initial barriers of a steep learning curve and sticker shock, becoming both simple enough to learn and cheap enough to acquire. The task of writing down a list of facts should be at least as quick and easy as memorizing them, and while writing can never be as cheap as memorizing, it should be affordable. In the same way, there must be an obvious advantage to typing a letter before people are willing to give up writing it by hand. Keyboarding a text must prove itself better than typing it, and economical to boot. And looking information up online should be quicker, and at least as reliable, as looking it up in the library.

As the recently-literate try their hand at the new technology, they recreate the old ways, the ones they’re comfortable with, using new methods. But they also develop new ways to communicate, and new kinds of texts emerge. Writing itself, initially an aid to memory, began to be used for business, for religion, for art, for education, for just plain entertainment. The printing press reproduced well-known texts previously only available in manuscript form: Bibles, prayer books, the works of a few classical authors. But soon
presses began rolling out newspapers and novels, preprinted forms and instruction manuals, postcards, stamps, and the money to pay for them. Some of these genres of writing could have come about without printing, but none could have attained the level of use they have today if they had to be written by hand.

And as the mysteries of communication technologies give way and the technologies become accessible, new readers and writers are tempted to give them a whirl. More people learn to read, and some of them even join the authors club, the group for whom writing – the creation of text, not just its copying – is a profession, or at least an everyday phenomenon. Growing numbers of readers in the 19th century created a demand for more text and a corresponding increase in the numbers of journalists, poets, novelists, and business and technical writers. Computers have had an even greater impact on the authors club than any previous technology: given a keyboard and a broadband connection, more and more of us are finding the right words and an online audience eager to read them.

In addition to changing who could read and write, and what got written and read, the print revolution created new standards and procedures for publication, and new ways of storing, sorting and retrieving the information that had become available through print. Printing revolutionized literacy in exciting as well as dangerous ways, creating new problems as it addressed old ones. But in many ways the printing press did for literacy what earlier manuscript revolutions had also done: it created new means and opportunities for textual transmission; it both reinforced and threatened established ways of meaning; and it stimulated disruptions in the social, political, educational, and economic realms.

Computers too achieved their initial impact by allowing writers to produce familiar documents, but they also claim our attention, and a place in our reading and writing, by disrupting the older ways of doing things textually. Computers have allowed us to create new genres – internet chat, email, the web page and the blog – that cannot exist outside the virtual world.

In addition, computer technology radically reshapes how and what we say, breaking the rules of spelling, usage, and the formatting of discourse to a degree that some critics find alarming. But there is an opposing force for correctness and conventionality at work in the world of digital writing as well, one that counters the frontier spirit we associate with computers, that reins in the linguistic freewheeling of virtual text. As discourse communities form themselves in cyberspace, we see a clear, self-regulating pressure to establish standards for virtual writing, and to police and correct those who violate the emerging norms. It turns out that spelling counts online, just as it counts on the page.

The post-Gutenberg explosion of print also brought censorship to the fore: increasing the amount of information available to readers was useful, empowering, and liberating, but because it could also be dangerous, subversive, and corrupting, secular and religious authorities stepped in to control access to the printed word. Again, today, the “authorities,” be they parents, teachers, employers, or governments, face the same issues of regulating computer texts: how to keep children away from pornography or predators; how to keep students from downloading assignments instead of doing their own work; how to keep employees focused on work instead of digital games, e-shopping, or
personal email; how to keep the faithful safe from heresy and insulate the citizen from politically dangerous ideas.

New communication technologies also spread literacy. They open up the means of communication to more and more people in more and more situations. This process proceeds slowly. It took not just centuries, but millennia for literacy rates to climb above 50% in parts of the world that already had highly-literate cultures. The industrial revolution and the spread of universal education created more readers and writers, but the digital revolution of the past twenty years has produced a genuine explosion in the number of writers.

Whether we regard the changes accompanying computer textuality as radical or incremental, there is a paradoxical effect that accompanies the shift in literacy from conventional to digital technologies: On one hand, the new literacy is expansive, allowing more and more people to read and write. On the other hand, it remains expensive and not always accessible. That makes digital technology exclusive, with the clear potential to widen the literacy gap in society, closing doors for some even as it is opening them for others, fencing off the new ways of reading and writing from all of those who are without computer access and a reliable source of electricity – and creating what we commonly call a digital divide.

It is still not clear whether computers will increase or limit literacy, or whether computer-mediated literacy is an improvement over what came before it. If the computer revolution parallels previous shifts in the technology of literacy, it is likely that both technology and literacy will continue to spread. But the computer won’t necessarily cause us to learn more, to learn better, or to learn faster. The computer won’t in and of itself improve the content we create online, or our understanding of the content uploaded by others.

Like the computer, earlier technologies came with the promise of better learning. The telephone would bring lessons to the masses; so would film and, later, radio. I still remember the weekly radio hour that our third-grade class enjoyed in 1952, though I don’t remember any of the programs we heard: while an educational program poured out of a giant FM radio receiver that was wheeled into our classroom each Friday morning, our teacher read quietly at her desk and the rest of us escaped into the land of daydream. Educational television came and went as well. Of course we still use radio, television, and the phone. All three are vital to our communication practices, and they occasionally play a limited classroom role as well. We just don’t use them to replace teachers.

Computers have been embraced as the newest best hope for schools, but while they represent significant upgrades to the older blackboards and overhead projectors, and they help instructors find materials and communicate with students outside of class, my guess is that computers won’t take the place of conventional, face-to-face lessons in American schools any more than earlier technologies did.

And speaking of earlier technologies, sometimes fears that new technologies will drive out old ones are justified, sometimes not: We still buy pencils but we don’t buy typewriters. Clay is for sculpture or for play, not for writing, and while papyrus continues to be made in Egypt, it’s mostly sold to tourists as a souvenir.

Finally, each new communication technology remixes our notions of public and private, bringing the public world into previously private space, and exposing the private to public scrutiny. Books transport the world outside to our desks and armchairs; and they
expose the writer’s private thoughts for all to read. The blog transforms the personal diary into a billboard, and habitués of social networking sites parade their secrets for all to see, while at the same time we struggle to keep our e-communications safe from hackers and complain when someone unexpected visits our “private” Facebook or MySpace page.

But all this, the journey from pencils to pixels, is just a start. Computers and the internet are neither the best developments in the history of writing nor the worst. They are simply the latest in a series of innovations in how we do things with words.

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**System requirements:**

The first chapter of *A Better Pencil* explores how we moved from treating writing as a malevolent distortion of speech or, at best, a novelty, as Plato did, to a position where writing is often considered more valid, more authoritative, more authentic than the spoken word. Chapter 2 confronts the fears that accompany new communication technologies, fears that sometimes lead to physical as well as verbal violence. The next three chapters look at precomputer writing. Chapter 3 discusses the pencil as a paradigm of writing technology. Initially created by woodworkers for woodworkers, pencils quickly achieved widespread popularity among writers and artists, particularly as pencil technology improved. More pencils continue to be made and sold today than any other writing implement, and even though the computer has become the instrument of choice for the vast number of writers who have access to digital technology, pencils retain an important place in every writer’s toolbox.

Chapter 4 treats another writing technology that isn’t usually considered to be technological: handwriting. Before the printing press, all writing was done by hand, and even after the press achieved widespread success, handwriting remained the vehicle for recording business transactions until the typewriter and adding machines began to take over these functions in the early 20th century. Both friends and foes of the technology see in the success of the computer the eventual death of handwriting, and it’s undeniable that writers who use computers write less and less with pen or pencil.

Chapter 5 considers what happens when a twenty-first-century writer tries out a writing technology that actually has become obsolete – writing on clay. It turns out that writing in an antique and unfamiliar medium forces us to pay attention to aspects of writing that we take for granted when we use more familiar writing tools. This in turn leads us to consider what writers do when they use a new technology like the computer to do their writing.

My students insist that, for them, writing on a computer is simpler than writing on clay; most prefer computers to paper and pencil as well. The next two chapters trace the movement of the computer from a forbidding machine that was poorly adapted to writers’ needs, to one that for all intents and purposes works as simply as a ballpoint pen: take it out of the box, click it on, start writing. While my students don’t need a user’s manual to get started, chapter six reminds us that the first mainframe computers and the personal computers that followed them in the 1980s were far from plug ‘n’ play. It took some time before people actually learned to trust this new and often recalcitrant technology, or the text that it produced. Chapter seven traces how we are learning to trust the output of new
writing technologies, showing that just as we developed ways to evaluate the handwritten and the printed text, we are developing means to test the authority of computer-generated documents.

Chapters eight through ten examine the new genres that the computer has enabled: email, the instant message, the web page, the blog, social-networking pages such as MySpace and Facebook, and communally-generated wikis like Wikipedia and the Urban Dictionary, not to mention the increasing impact of YouTube, Second Life, and other image-based communication practices. And in chapter eleven we consider some of the darker sides of the web, looking specifically at hate groups and at the struggle between the free flow of information and concerns about regulating the newest of our writing spaces. The chapter summarizes as well the impact of our latest digital technologies on our communication practices; discusses how we deal with information overload; explores the paradox whereby companies like Google and Microsoft argue strongly for the free and open exchange of information on the internet by means of closely-guarded, top-secret formulas and data storage facilities; and it examines the attempts by internet marketers to harvest information about us in order to predict our behavior.

Chapter twelve ends the book with another look back, this time at an experiment designed to demonstrate the effectiveness of typewriters in improving the learning of elementary school students. Typewriters promised to do for education everything that educators now claim that computers will do. But it never happened. While the typewriter was the most important new writing instrument of its day, typing never made its way into schools the way computers have, so the impact of that analog machine on learning was never put to the test.

It turns out that the digital revolution is playing out as all communication revolutions do. Computers don’t live up to the grandiose promises of their biggest fans. Nor do they sabotage our words, as critics loudly warn that they will. Instead, as we learned to do with earlier writing technologies, once we adopt the computer we adapt it to our needs, and along the way we find new and unexpected ways of changing what we do with words, and how we do it.

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End-user agreement

Image 1. End-users don’t typically read software license agreements before clicking on “agree.” Fortunately, books (“hardcopy”) still don’t require readers to sign a license like the one above before reading.