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Assessing the Internet's Impact on Language

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When the printing press was introduced into Western Europe in the mid-fifteenth century, skeptics bemoaned the demise of the handwritten book. A German bishop named Trithemius, writing in 1492, worried that printed works were inferior to manuscripts in a host of ways: Parchment would outlast paper; many printed books would not be easily available or affordable; and perhaps most importantly of all, the scribe could be more accurate than the printer:

> Printed books will never be the equivalent of handwritten codices, especially since printed books are often deficient in spelling and appearance. The simple reason is that copying by hand involves more diligence and industry. (Trithemius, [1492] 1974, p. 65)

New language technologies have long been met with a blend of enthusiasm and disdain. Computer-mediated communication is no exception. Early email brought the mixed blessing of convenient written exchange between colleagues and not-so-collegial flaming. Instant messaging (IM) on computers and now text messaging on mobile phones render communication instantaneous and portable, but language purists (along with many parents and teachers) worry that such technologies are undermining language.

The aim of this chapter is to evaluate the language we produce using online and mobile devices, especially computers and mobile phones. Is language created and consumed via these technologies affecting traditional language, especially writing? While the answer is itself empirically interesting to students of the Internet (and of mobile communication), the outcome has broader implications for educational policy, literacy, and social interaction.

Chapter Overview

The first half of the chapter considers whether online and mobile language are influencing the essential "mechanics" through which we construct sentences,

including spelling, punctuation, word choice, and use of abbreviations or acronyms. We survey relevant empirical research on IM and text messaging, focusing on English sources. These findings are then examined in the context of language use and change more generally, including a growing move towards informality and nonchalance regarding linguistic rules.

The remainder of the chapter is devoted to less obvious effects of information and communication technologies (ICTs) on language. We begin by considering the impact online language (particularly via computer) is having upon written culture. We then examine the potential of ICTs (both computers and mobile phones) to empower people to manipulate access to one another. Our ability to multitask while engaging in communication is increasingly part of this story.

The chapter closes by summarizing linguistic and social implications of communicating through online and mobile devices. We also suggest future research directions.

A Note on Terminology

Initially, studies of new media language all involved computer-based communication, some of which predated the arrival of the Internet in 1983. Both email and computer conferencing debuted in 1971. MUDs (multi-user dungeons) appeared in 1980, followed a year later by newsgroups, which resided on USENET. Familiar platforms such as IRC (Internet relay chat), developed in 1988, make special reference to the Internet, but the fact that today's email and IM travel across the Internet is coincidental for our purposes. What has mattered is that such messages are composed at and read from a computer (Baron, 2003).

By the mid-1990s, it became increasingly common to speak of "computer-mediated communication" or CMC. The online *Journal of Computer-Mediated Communication* was launched in 1995, and Susan Herring's edited collection *Computer-Mediated Communication: Linguistic, Social, and Cross-Cultural Perspectives* was published the year after. Although text messaging on mobile phones was available in Europe via the GSM (global system for mobile communications) by 1993, substantial language-based research did not appear until the early 2000s. Moreover, since text messaging in the United States lagged nearly a decade behind Europe, American interest in the linguistic nature (and potential impact) of text messaging was also slow to develop.

Mobile phones and computers began as markedly distinct devices: phones were for spoken conversation; computers were for written discourse. Over the years, with the explosion of text messaging on mobile phones and the growing availability of voice (as well as video) on computers, lines between the technologies have continued to blur. Further confounding the distinction is the growing availability of computer-based programs on mobile phones and vice versa (e.g., text messaging on computers, blogging on mobile phones). Yet there remain two fundamental differences between these ICTs, which potentially result in different sorts of language being produced. The first issue is portability, and the second is

keyboard size. Computers remain heavier to carry around than mobile phones. And while computer keyboards have one key for each letter and number, standard phone keypads are compressed in both size and functionality. Several characters appear on the same physical key, and multiple taps are necessary to input most letters or punctuation marks.

Since phones are not computers, some researchers have questioned the appropriateness of referring to messaging constructed on mobile phones as "computer-mediated communication." In July 2006, contributors to the listserv of the Association of Internet Researchers actively debated the issue.[1] Some urged incorporating the study of mobile messaging under the rubric of computer-mediated communication, while others proposed alternative terminology. I favor the umbrella term "electronically mediated communication" (EMC) to encompass language used with any online or mobile device, though the term CMC is more broadly used, at least in referring to language actually composed on a computer.

Direct Effects: Is EMC Harming the Language?

Popular discussion of EMC has often celebrated its potential for linguistic innovation. Yet at the same time, the media have warned that EMC is damaging language. Crispin Thurlow (2006) surveyed the English-language press to assess concern over the effects of EMC. Among his citations:

> Texting is penmanship for illiterates. (*Sunday Telegraph*, July 11, 2004)

> [T]ext chats are starting to bleed over into other aspects of life. (*National Post*, January 4, 2005)

Even more apocalyptic,

> [T]he changes we see taking place today in the language will be a prelude to the dying use of good English. (*The Sun*, April 24, 2001)

In thinking about possible effects of EMC on language, we must be careful to distinguish between negative judgments and the more fundamental notion of linguistic evolution. One defining property of human languages is that they continually change. In the words of the British philologist Ernest Weekley, "Stability in language is synonymous with *rigor mortis*" (Weekley, 1952, p. 21). As we will see, linguistic innovation that was at one time frowned upon may later be accepted as standard usage.

There are empirical questions to deal with as well. Discussion of whether changes originating through online or mobile devices are having deleterious effects upon language presupposes first, that such technology-driven language is actually distinct from everyday writing (or speech) and second, that if such distinctions exist, they are impacting offline language. We need to examine both premises.

The mechanics of IM and text messaging

Whether the popular press depicts online and mobile language as creative or degenerate, our first task is to assess the linguistic guts of such language. There have been a number of insightful discussions of both IM and text messaging. (For discussions of IM see, for example, Boneva et al., 2006; Grinter & Paylen, 2002; Lenhart, Rainie, & Lewis, 2001; Tagliamonte & Denis, 2008. For discussions of text messaging see, for example, Döring, 2002; Grinter & Eldridge, 2001; Hård af Segerstad, 2002; Harper, Paylen, & Taylor, 2005; Ito, Okabe, & Matsuda, 2005; Lasen & Hamill, 2005; Lenhart, Madden, & Hitlin, 2005; Ling, 2004, 2005; Traugott, Joo, Ling, & Qian, 2006). However, relatively few have involved quantitative analysis of corpora.

Statistical counts are important because they measure the prevalence of linguistic phenomena. We know, for example, that EMC is commonly described as being filled with abbreviations, acronyms, and emoticons. But unless we know how frequently such forms are used, we cannot gauge their potential impact on the broader language.

Analyses of the sentence mechanics of IM conversations (Baron, 2004) and text messages (Ling & Baron, 2007) constructed by college students in the US suggest that the occurrence of "special" language is infrequent. Empirical studies have their sampling limitations, e.g. with respect to language, culture, age group, ethnicity, or socioeconomic status. We therefore need to exercise caution in generalizing findings to all users of EMC. Nonetheless, data from one population are likely to be suggestive of more widespread patterns.

The IM study analyzed 11,718 words of text from 23 IM conversations. While many aspects of the conversations were examined (including words per message, number of messages per conversation, length of conversational closings, spelling errors, and self-corrections in subsequent messages), we focus here on abbreviations, acronyms, and emoticons. *Note*: In tallying abbreviations and acronyms, we only included forms that appear to be distinctive to mobile or online language. Lexical shortenings commonly appearing in offline writing (such as *hrs = hours*) or representing spoken language (*cuz = because*) were excluded.

In the IM corpus, there were 31 abbreviations (e.g., *cya = see you*), 90 acronyms (e.g., *lol = laughing out loud*), and 49 emoticons (e.g., ☺ = smiley face). Taken together (170 instances) they constituted barely 1 percent of the text. In fact, if we remove the 76 instances of *lol* and the 31 smileys, we are left with only 63 examples of "other" EMC language – that is, 0.5 percent of the word total. For this sample, it is difficult to argue that college-aged Americans have adopted a distinctive computer-based writing style. Tagliamonte and Denis (2008) reported similar findings for Canadian teens.

The text messaging study was based upon a corpus of 1,473 words that appeared in the text messages of 23 females, over a period of 24 hours. While the sample is small, trends paralleled those reported by Thurlow (2003) in a study of text messages sent by mostly British female college students in Wales.

In the Ling and Baron study, there were 47 clear uses of EMC abbreviations, including 26 instances of *U* (for *you*) and 9 cases of *R* (for *are*). Four other abbreviated forms appeared (e.g., *latr* for *later*), though it is hard to know whether they represent intentional lexical shortenings or typing mistakes. There were 8 acronyms, of which 5 were cases of *lol*. Collectively, texting abbreviations, acronyms, and emotions totaled 57, which represents 3.9 percent of the total corpus. Although this statistic for texting is higher than in the case of IM, it is still hardly overwhelming. Thurlow reported that nearly 19 percent of the words in his sample constituted abbreviations, though his criteria for inclusion were looser than those of Ling and Baron. Nonetheless, even at 19 percent, Thurlow concluded that his findings appear "to run counter to popular ideas about the unintelligible, highly abbreviated 'code' of young people's text-messaging."

Distinguishing between language registers

Beyond the issue of the frequency with which abbreviations, acronyms, and emoticons appear in IM and text messages, we need to probe whether such forms are creeping into non-Internet written language. In his examples from the English-language press, Thurlow (2006) includes this sample from the UK:

> Appalled teachers are now presented with essays written not in standard English but in the compressed, minimalist language of mobile phone text messaging. (*The Scotsman*, March 4, 2003)

American faculties anecdotally report students inserting a smiley face or a *btw* (*by the way*) into what was supposed to be a formal essay. The question, however, is how frequently such intrusions occur.

In talking about varieties of language use, linguists speak of distinct "registers," that is, styles of speaking (or writing) that are appropriate to particular circumstances. As part of our linguistic socialization, we learn, for example, to speak one way to a monarch ("Your Royal Highness") and another to the neighborhood barber ("Hey, Phil"). Similarly, schools are charged with teaching children differences between spoken and written registers, along with distinctions within each (e.g., a note to a friend is not written the same way as a job application).

Are children and young adults who use abbreviations, acronyms, and such in their IMs and text messages also employing this language in venues that call for more formal style? Answers have tended to be anecdotal, though empirical research is beginning to appear.

Ylva Hård af Segerstad and Sylvana Sofkova Hashemi (2006) compared language that Swedish schoolchildren between ages 10 and 15 produced (during leisure time) online and on mobile phones against language used in school assignments. The authors found evidence, particularly among the older children, of awareness that certain kinds of linguistic adaptations (including abbreviations and emotions) were suitable in EMC but not for school work. Similarly, in the UK, Beverly Plester

and her colleagues report that 10 to 11-year-old children who were frequent users of text messaging were also high scorers on standard spelling tests, and suggest that the playfulness inherent in texting may facilitate conventional literacy skills (Plester, Wood, & Bell, 2008).

It is, however, premature to assume that nothing from EMC will be incorporated into standard language. Historically, there are ample cases in which language judged to be somehow improper – ungrammatical, a regionalism rather than standard usage, or not deemed suitable for polite society – works its way into everyday speech and writing. One famous case is the word *hello*, which traditionally was a call to the hounds ("Halloo!"), and not to be uttered in the presence of ladies. In 1877, Thomas Edison suggested a caller should shout "Hello!" into a telephone to summon the person being called. (Telephones originally had no ringers.) Eventually, *hello* became not just an acceptable word to initiate a telephone conversation but even a rather formal way to greet people face-to-face (Grimes, 1992).

Given their relatively high frequency in contemporary EMC, a few elements (such as *U* for *you*, *lol*, *brb* for *be right back*, or the smiley face) might eventually make their way into more standard usage. (Note that *U* long predates computers – think of the truck rental company U-Haul – though EMC could strengthen its traction.) However, given the empirical paucity of such "special" language in the EMC of at least college students in the US, there is little evidence that online and mobile devices will be radically reshaping offline language any time soon.

Yet change in language is not always so overt. Here are three tangible – though non-obvious – ways in which computer-mediated communication may be influencing writing:

Uncertainty over what constitutes a word. One challenge in learning to spell (especially in English) is determining what constitutes a single word, a hyphenated word, or two words. Sometimes the rules change from one era to the next. According to the *Oxford English Dictionary*, what began in 1898 as *tea bag* (two words) became *tea-bag* (hyphenated) by 1936 and then *teabag* (one word) by 1977.[2] Within the computer world, as new words enter the language, there is often disagreement over how to parse them: Is it *online* or *on-line*? *homepage* or *home page*?

The Internet itself may be coaxing language towards increased confusion regarding compounding. URLs commonly compress together words that normally stand apart, as when the Fresh Fields Bakery & Cafe (in Stillwater, Montana) becomes www.freshfieldsbakery.com – not to be confused with the international law firm of Freshfields Bruckhaus Deringer at www.freshfields.com. The more we have to deal with words that are sometimes separated, sometimes compressed, the harder it becomes to keep track of when words in ordinary language are distinct or contracted: Is it "a part" or "apart"? "any one" or "anyone"?

General nonchalance about spelling. Such nonchalance regarding what constitutes a word seems to be extending to spelling more generally. Increasingly, we put

our faith in ever-smarter versions of spell-check, which promptly correct our errors even before we press the space bar. As a result, our motivation to focus on spelling is understandably diminished. We also seem to forget sometimes that spell-check cannot save us from confusing words such as *affect* and *effect*, or from needing to distinguish between *it's* and *its*.

Nonchalance about apostrophes. Knowledge of punctuation – when to capitalize a word, when to use a comma, when an apostrophe is needed – has undergone a slow decline in recent decades, as the emphasis in writing instruction (at least in the US) has shifted from formal structures to content and style (Baron, 2000, Chapter 5). Contemporary students often enter college having little knowledge of punctuation rules. At the same time, having been raised on spell-check, this generation commonly relies upon it to handle punctuation. Anecdotally, some students indicate they no longer bother to type apostrophes in contractions, since spell-check will automatically insert them into words such as *couldn't* and *don't*. Unfortunately, the strategy fails with strings of letters such as "c-a-n-t" and "w-o-n-t." The problem is exacerbated by the fact that URLs and email addresses cannot include the apostrophe, so Martha's Table, a non-profit organization in Washington, DC, appears on the web as www.marthastable.org – which, to the unknowing, looks like "Martha Stable."

Even more subtle than adjustments in vocabulary or sentence mechanics are changes in the attitudes that speakers and listeners, writers and readers have towards their language and the way they use it to interact with one another. Elsewhere I have argued (Baron, 2000, 2008) that the most powerful effects of EMC are to magnify broader shifts in language usage that were already afoot. Here we address three such shifts: a move towards linguistic informality and relativism, a shift in attitudes towards written culture, and increased tendencies to manipulate our terms of linguistic engagement with one another.

Increased Linguistic Informality and "Whatever-ism"

Language change is often a valuable mirror on social transformation. Over the second half of the twentieth century, the US witnessed a progressive shift in attitudes regarding formality. Offices introduced "dress-down Fridays;" churches introduced "alternative" services (with less pomp and circumstance); and classrooms dismantled serried rows of desks in favor of circles or small clusters. This move had important linguistic correlates.

The most obvious shift was in terms of address: "M'am" and "Sir" gave way to "Juanita" or "David," and "Hello" yielded to "Hi" or now even "Hey." Ending sentences with prepositions no longer felt like a venal sin. Increasingly, people stopped apologizing for using *who* in places where grammar books called for *whom* ("Who did you call yesterday?").

It is one thing to note that language is in the process of changing, e.g., that the distinction between *affect* and *effect* (or between *it's* and *its*) is being obliterated. However, an even more profound transformation is what I refer to as linguistic "whatever-ism" (Baron, 2008, Chapter 8). The primary manifestation of this "whatever" attitude is an indifference to the need for consistency in linguistic usage.

The issue is not whether to use *affect* or *effect* but whether the choice matters. Seen in more formal linguistic terms, this attitude challenges a fundamental principle of linguistic theory by which human language is defined as rule-governed behavior. To be a native speaker of a language is to "know" the rules (e.g., how to form new words, how to combine words into sentences, how to pronounce things). Noam Chomsky's theory of transformational grammar refers to knowledge of such rules as "linguistic competence" (Chomsky, 1965). Traditionally, speakers (and writers) have been sensitive to grammatical conventions (e.g., *it's* versus *its*) and known what language register is appropriate for a given situation ("Hello" versus "Hey"), even if they err in actual usage. What is new is a growing sense of uncertainty as to what the rules are, along with an attitude that the decisions are of little consequence.

The sources of a "whatever" stance towards language use are largely identifiable. The first is education. Since World War Two, American education has become increasingly informal, student-centered, and non-normative. As we have already noted, writing instruction has de-emphasized sentence mechanics (such as grammar and spelling), with the predictable consequence that Americans have diminished interest (first as students, and later as adults in the professional world) in the fine points of orthography, punctuation, and even grammatical number agreement (e.g., "Every Democrat [singular] needs to cast their [plural] vote").

A second important shift has been in social agenda. Regardless of actual practice, the majority of Americans generally espouse tolerance of divergent peoples and customs, a position that became codified under the national rhetoric of multiculturalism. The diversity agenda has linguistic implications. If we teach children not to pass judgment on regional dialects or non-native speakers of English, we reduce the importance of notions such as linguistic correctness and consistency.

Finally, current language patterns (especially in writing) reflect the haste with which "finished" writing is now often produced. As we will see later in this chapter, the growing tendency to live "on the clock" (fast food, express lanes in grocery stores and on highways) is a shift long in the making, with speedy writing being just part of a larger picture.

Moves towards informal language and away from a focus on linguistic consistency have been shaping American linguistic attitudes for several decades. Since Internet-based communication is the relative newcomer, we cannot blame the Internet for linguistic trends already in progress before networked language arrived.

At the same time, we cannot dismiss online and mobile language as irrelevant to the change process. Even when we are using computers as word processors (rather than connected via the Internet), the writing habits we develop for online

communication naturally seep into other writing we are doing on the same keyboard-as-typewriter (and vice versa). The fact that so much of the communication we used to do face-to-face or via (voice) telephone has now shifted to online or mobile written text is also likely to reinforce our notions of writing as an informal, casually structured medium. Not all speech is informal, but much is. As ICTs increasingly assume many prior spoken-language functions, computer-based and mobile phone written communication may well be magnifying trends earlier in place.

Effects on Written Culture

Shifting attitudes towards language formality and the relevance of rule-based usage is one domain in which online and mobile usage may be subtly contributing to language change. A second arena involves literacy habits, and how they affect our notion of written culture.

What is a written culture?

For roughly the past 300 years, the English-speaking world has functioned in terms of what has been called a written or print culture (e.g., Chartier, 1989). Expanded use of the printing press, a rise in literacy rates (along with growing social mobility), and the spread of Bible-reading through Protestantism were some of the forces contributing to the establishment of written culture. Among the attributes of written culture are:

- Having access to the tools of production (e.g., pens and paper, computers) and knowing how to use them;
- Having means of disseminating written texts (e.g., printing presses for duplicating copies, highways for transporting letters and newspapers, affordable postage rates);
- Providing opportunities for the general public to become literate;
- Developing the modern notion of an author, who has long-term ownership over his or her text, and the right to profit from it financially;
- Developing specific conventions (in vocabulary, grammar, and punctuation) that distinguish writing from speech (e.g., no contractions in formal writing);
- Caring about writing mechanics (including spelling);
- Revering tangible written volumes (e.g., first editions, elegant bindings);
- Viewing reading and writing as contemplative activities.

(For more discussion of written culture, see Baron, 2005.)

Today, written culture is being challenged in a number of ways, some of which involve the general shift towards linguistic informality and the "whatever" attitude we have described. Other challenges are linked to computers and the

Internet. One issue involves reading on a computer screen rather than from a printed book: Is it the same cognitive experience? Another question is the viability of copyright conventions in the age of open access and our ability to cut and paste other people's written words without acknowledgment.

We will look at four less obvious dimensions of online or mobile language that potentially alter our understanding of written culture. I refer to these domains as: text in the fast lane, flooding the scriptorium, snippet literacy, and vapor text.

Text in the fast lane

Written language has long been subject to two contravening forces. One leads us to slow down when we read and write; the other, to speed up.

In analyzing the intellectual and social consequences of writing in sixth and fifth century (BC) Greece, Jack Goody and Ian Watt argue that the kind of philosophical inquiry we see in philosophers such as Plato and later Aristotle – inquiry that challenged received truths; inquiry that probed relationships between ideas – was made possible by the physical ability to scrutinize historical accounts and propositions in a written form, coupled with opportunity to reflect upon what was recorded (Goody & Watt, 1963). Alphabetic writing did not develop in Greece until the eighth and seventh centuries BC, and it has been suggested that the alphabet enabled Greeks to lay out their thoughts unambiguously (Havelock, 1963). Looking at a much later historical period, Elizabeth Eisenstein (1979) maintains that print technology in early modern Europe encouraged readers to reflect upon (and critique) other people's arguments. Because printing enabled many libraries to own copies of the same text, scholars could now compare a variety of different works at the same time, rather than needing to travel from one library to another (as happened in the medieval world) to view manuscripts seriatim.

All these discussions suggest that reading and writing are activities involving contemplation – and ample time. But for at least two millennia, the written word has also been hastened along by a variety of forces. The motivation: savings in time, money, or both.

Shorthand systems date back at least to the time of Cicero. Abbreviations were used both in Roman and in medieval manuscripts to reduce copying time – and the number of pages needed to complete a manuscript. Cursive scripts helped speed up the writing process (scribes did not need to lift their hand between letters). And in the heyday of telegrams (which were priced by the word), paring down text sometimes rose to an art form (Baron, 2002).

Alongside these language-specific trends, the introduction of timekeeping in the West (initially to alert Christian monks when it was time to pray) set the stage for modern life on the clock (Landes, 1983). With the coming of the industrial revolution and the railroad in the eighteenth and nineteenth centuries, life in general speeded up, and people became obsessed with time. Lewis Carroll's White Rabbit (from *Alice's Adventures in Wonderland*, published in 1865) rushed past Alice and declared, "Oh dear! Oh dear! I shall be too late" as he reached into

his waistcoat pocket to check his large watch. In the early twentieth century, the American engineer Frederick W. Taylor demonstrated to Henry Ford how manufacturing processes could be broken down into distinct, timed, tasks – and Ford's auto assembly line was born.

Feeling the drive to do everything faster and having enabling tools available (in the case of writing, tools ranging from shorthand, abbreviations, and cursive script to electric typewriters and then stand-alone computers) set the backdrop for today's online writing. Not only do we compose quickly on computers, but, increasingly, we write an enormous amount. Our next question is whether the volume we are producing is affecting the quality of our prose.

Flooding the scriptorium

New writing technologies enable us to generate text more quickly – and to generate more of it. A century ago, studies documented how schoolchildren wrote more words with typewriters than when composing by hand (Haefner, 1932). Similar increases in text production have been noted since the early days of word processing on stand-alone computers (Stoddard, 1985).

The Internet enhances writing opportunities. Email replaces not only most traditional letter writing but also many phone calls and face-to-face conversations. Chat, IM, and text messaging share some of these one-to-one functions, while blogs, web diaries, and social networking sites encourage writing for broader audiences. We sometimes hear Internet aficionados speak of an "epistolary renaissance," in which we are rediscovering the joy of writing (Day, 2001). If the Internet has facilitated our own writing, it has also multiplied text available to us as readers. The Internet invites us to access vast amounts of written material: emails from friends, articles from obscure newspapers, the complete works of Charles Dickens.

But can there be too much of a good thing? I have come to describe the profusion of our own online and mobile compositions, along with the vast quantities of written works literally at our fingertips, as "flooding the scriptorium." With our own compositions, can we any longer afford to pay careful attention to the words and sentences we produce? The proliferation of writing, often done in haste, may be diminishing opportunity and motivation for crafting carefully honed text. In the words of the Norwegian sociologist Thomas Eriksen,

> if [email] more or less entirely replaced the old-fashioned letter, the culture as a whole will end up with a deficit; it will have lost in quality whatever it has gained in quantity. (Eriksen, 2001, p. 59)

Using terminology from this chapter, the "whatever" attitude towards the written word may be the inexorable consequence.

Similarly, does the abundance of online works diminish reverence for tangible written volumes? Text is increasingly seen as fungible. Many university courses post

online readings, which students often print out. Given that Plato, Wordsworth, and the New Testament are all in the public domain, why ask students to buy printed copies, since they can run off their own for the cost of paper and ink? When the assignment has been turned in or the examination taken, the pages are generally trashed.

What if pages are never printed in the first place? Traditional forms of learning typically involved marking up books, taking notes, and re-reading – either for testing purposes or, more significantly, for pleasure or deeper understanding. While printouts discourage annotation, contemplation, and re-reading, online alternatives are even less hospitable. It remains to be seen if e-books such as Amazon's Kindle successfully overcome these obstacles (Stross, 2008).

Snippet literacy

A third challenge to written culture derives from the very tools that make the Internet so convenient to use. I call the problem "snippet literacy."

In recent years, university faculties have increasingly found students balking at lengthy reading assignments. In the words of Katherine Hayles (professor of literature at UCLA), "I can't get my students to read whole books anymore."[3] However much we temporize that the current generation of students learn "differently" (from visual imagery rather than from text; collaboratively rather than individually), responsibility also lies with the educational establishment. We have heavily invested in computing infrastructures. Faculties are urged to assign reading materials that students can access online, and because of copyright laws, readings are increasingly limited to journal articles and book chapters, rather than entire books.

Equally problematic is the effect that search engines in general and the "Find" function in particular are having upon the way we read. Suppose I ask my class to write papers on child labor in the nineteenth century. Perhaps I forbid them from citing Wikipedia and further insist that all references be to published books. A web-savvy student mining just Google Book – which reveals but one page at a time, and allows neither copying nor printing – could make considerable inroads on the assignment without ever cracking an actual volume.

In my own teaching, I have discovered that the "Find" function is often used to avoid reading online material I have assigned. When the reading in question comes from a website or from a journal to which my library has an online subscription, nearly everyone manages to contribute something to class debate or online discussion. However, when the article or book chapter has been physically scanned before being mounted on electronic reserves, students balk: The "Find" function does not work on a scanned document, meaning they may need to peruse the entire document. More than once, students have requested I replace the scanned version with a "real" online document, meaning one amenable to online searching.

Snippet literacy hardly originated with the Internet. Readers have been leafing through written texts (rather than reading them from cover to cover) for centuries. What is new is the technological ease with which we can zero in on just

those few lines that we assume are relevant for our purposes, effectively ignoring the context that gives those lines meaning.

Vapor text

The fourth challenge to written culture deriving from Internet practices is what I call "vapor text." At issue is not just the ephemeral nature of online texts but our resulting understanding of what constitutes a written work.

Our idea of a "finished" written work has evolved historically. In the middle ages, manuscripts of the "same" text typically revealed some disparity. The causes were varied: scribal error, differences in the scribes' dialectal provenance, attempts at correcting the original model, introduction of the scribe's own perspective. With the coming of the printing press in the mid-fifteenth century, circumstances were ripe for "enclosing" a text – preserving it from these earlier sorts of variations (Bruns, 1980).

The emergence of written culture over the next two centuries ushered in a growing assumption that copies of the "same" printed text were, indeed, the same, down to the last capital letter or comma. Yet we have also found it worthwhile to analyze – and preserve – revisions to written works. Scholars compare the first quarto versus the first folio edition of the "same" Shakespearean play. The early drafts of manuscripts by novelists, poets, or short story writers are collected by libraries, encouraging scholars to trace authors' literary journeys.

With the coming of word processing, writers of all ilk – from college sophomores to government bureaucrats or Pulitzer Prize-winners – often simply revise the same document file as they work on a manuscript, leaving no trace of earlier drafts. If a prior version turns out to have been superior, it is often irretrievable.

The problem becomes compounded with the introduction of online text. If, for example, an online news source runs a story with inaccurate information, the error can be corrected online, leaving no trace of the earlier faux pas. If the initial version happened to be personally embarrassing or even libelous, lack of a tangible record makes it difficult to build a case, even though we are dealing with written, not spoken language. Similarly, consider hard-copy newspapers that also have online editions. If the two have different versions of the "same" story (e.g., an error from the early-morning print edition is then corrected online), which becomes the documentary record? Since most of us only have access to the online version (especially a few days following publication), is the value of traditional newspapers therefore diminished?

The "whatever" attitude towards linguistic consistency, a flooded scriptorium, a "snippet" approach to reading, and the growing ease with which unwanted text disappears all challenge a cultural stance towards the written word that characterized the English-speaking world for roughly three centuries. While the Internet (and computers more generally) were often not the only forces of change at work, online technology has reinforced earlier trends. A similar magnifying effect is at work in our final topic of discussion: the ways in which online

and mobile language enable us to exert control over our terms of linguistic engagement with others.

Controlling the Volume and Multitasking

Consider three scenarios:

- A woman has just had an argument with her boyfriend. Her mobile phone rings, and his number appears on the screen. Still angry, she ignores the call.
- A job applicant tries to telephone a potential employer but cannot get past the secretary. He therefore Googles the man, finds his email address, and contacts him online.
- A high-school girl agrees to Skype her father while he is away on business for the month. Before leaving, he installs webcams on both computers so they can see one another. She, however, refuses to use the video function. As she explains to her disappointed father, this way she can IM her friends and talk with him simultaneously without appearing rude.

Each example illustrates a phenomenon I call "controlling the volume" on interpersonal interaction. The metaphor derives from the audio volume control on radios, televisions, and music devices. We turn up the communication "volume" when we forward emails to people for whom they were not intended, secretly put an interlocutor on speaker phone, or exchange rapid-fire volleys of text messages with friends on our mobile phones. We turn down the "volume" when we block Buddies or Friends on IM or Facebook, monitor caller-ID before answering the phone, or ignore an email. The volume control image here refers less to physical noise level than to the amount and type of access.

People were controlling the volume on interpersonal communication long before the advent of mobile phones or the Internet. We crossed the street to avoid talking with a particular individual or shared communiqués with their authors' enemies. We wrote letters rather than delivering messages face-to-face, and refused to answer the knock on our door.

Contemporary language technologies ratchet up the control we can exercise. While caller-ID has been an "extra" feature for which you paid your (landline) telephone company, the function comes automatically with mobile phone subscriptions. Email grants access to people we never could have contacted – or thought of contacting – through face-to-face encounters, the telephone, or traditional letters. Social networking sites such as Facebook offer detailed privacy settings, allowing us to manipulate which groups of people (or even specific individuals) can see particular kinds of information about us – or if they can find us at all.

Beyond these specific tools for manipulating whom we can access – and who can access us – the Internet affords users another powerful form of communication control: the ability to multitask. You can talk on the phone while checking

email, conduct simultaneous IM conversations, Skype your parents while purchasing (online) a plane ticket for Spring Break. To rephrase Peter Steiner's famous 1993 *New Yorker* cartoon ("On the Internet, nobody knows you're a dog"), while using the Internet, nobody needs to know you are multitasking.

Multitasking is common enough in everyday life. We chat with family members while preparing dinner. Organists simultaneously control the movements of their left and right hands, and of their feet. Many teenagers watch television or listen to music while doing their homework. What is new about the Internet is the extent to which it enables us to multitask while engaging in social interaction (what elsewhere I have called "social multitasking" – Baron, 2008).

In 2004–5, my students and I examined multitasking on an American college campus.[4] In our first study, out of 158 subjects (half male, half female), 98 percent were engaged in at least one other computer-based or offline behavior while using IM:

Computer-based activities	
Web-based activities:	70%
Computer-based media player:	48%
Word processing:	39%
Offline activities	
Face-to-face conversation:	41%
Eating or drinking:	37%
Watching television:	29%
Talking on the telephone:	22%

Subjects often participated in multiple examples of the same activity (such as having three web applications open or being involved in more than one IM conversation).

Students in this first study averaged 2.7 "simultaneous" IM conversations, with a range from 1 to 12. Since IM entails typing, people cannot literally participate in multiple conversations simultaneously. Subsequent focus groups revealed that many students used IM both synchronously and asynchronously, that is, turning the volume up or down on particular conversations. Decisions depended upon such factors as "how good the gossip is" in a conversation, how serious the conversation is, and individual communication habits.

We used both the focus groups and a second study (with 51 subjects) to probe why students multitask while using a computer. Most respondents mentioned time pressures, though a number also cited boredom. Boredom sometimes resulted from having to wait for the person with whom they were IM-ing to respond. Others spoke of "get[ing] bored with just one activity" or "having too short an attention span to only do one thing at a time."

Focus-group members observed that with IM, people are in control of how dynamic a given IM conversation is. With lengthy IM dialogues, users may go

through spurts of communication interlaced with periods of inactivity. One student aptly described IM as "language under the radar," meaning it resides in the background of other online or offline endeavors. Users control whether to make a particular conversation active (synchronous) or let it lie dormant (asynchronous), without formally closing the exchange.

We asked a series of free-response questions regarding multitasking behaviors that the students felt were appropriate. A typical response was "IM-ing, listening to music, browsing the web. Those are all things that do not interfere with one another." Of the 50 students responding to this question, 86 percent specifically mentioned IM or email – both forms of interpersonal communication – or indicated that any type of multitasking behavior is acceptable.

When we inquired about non-computer activities for which multitasking was not appropriate, 59 percent of the 44 respondents singled out face-to-face or telephone conversations. This number stands in stark contrast to the 86 percent who felt that conducting an IM conversation or doing email while using the computer for other functions was appropriate.

Students offered various explanations for avoiding multitasking while speaking face-to-face or by phone. The most prevalent answer was that such behavior was simply wrong, e.g., "because the person on the other phone line usually feels left out or unattended to." Similar feelings of personal abandonment were reported in a study conducted by Sprint in 2004. Half of the respondents said they felt unimportant when a friend or colleague interrupted a face-to-face conversation with them to answer a mobile phone (Sprint, 2004). In 2005, Hewlett-Packard reported that almost 90 percent of office workers judged that colleagues who responded to emails or text messages during a face-to-face meeting were being rude.

To what degree do college undergraduates use computer-based language technologies to multitask while engaging in face-to-face or telephone conversations? Researchers at the University of Kansas found that 74 percent of their nearly 500 subjects reported multitasking with a computer while in face-to-face conversation (Baym, Zhang, & Lin, 2004). Of the 158 students in our initial multitasking study, 41 percent were engaged in at least one computer activity while talking face-to-face, and 22 percent were simultaneously on the computer and on the phone. Clearly, many American college students control the volume on their face-to-face and telephone conversations through computer-based multitasking.

Conclusions

Our goal in this chapter has been to assess the impact of the Internet (and, more broadly, of computers and mobile phones) on language. The press often demonizes language technologies, though it also celebrates their creativity. As we have seen, the actual effects are at once more limited and more far-reaching. Moreover, the influence of online and mobile language is best understood in light of broader linguistic and social processes, rather than as a stand-alone phenomenon.

The most obvious face of networked communication is linguistic forms that deviate from standard language, such as abbreviations or emoticons. Empirical evidence from IM conversations of young adults in the US indicates that such forms are infrequent (at least in this demographic cohort), thereby offering limited potential for influence. Equally importantly, the informal – and often unedited – nature of online and mobile messages reflects a prior tendency for people to adopt a "whatever" perspective on language.

We also considered four subtle – and perhaps more significant – arenas in which computer, Internet, and mobile language use may be affecting modern written culture. The first of these – text in the fast lane – illustrates the power of electronic devices to rapidly create and dispatch the written word, reinforcing a trend long at work in the Western world. The other three phenomena – flooding the scriptorium, snippet literacy, and vapor text – exemplify the power of technology to create vast quantities of text, to zero in on selected passages while ignoring context, and to challenge the importance of having "finished" texts (or authoritative versions of them).

Finally, we looked at ways in which online and mobile technologies heighten our ability to control the volume on social interaction. In the case of IM, we charted how young adults exercise such control through multitasking.

As with any linguistic change, it is difficult to establish direct causation. A famous example in the history of English illustrates the challenge. Between about 800 AD and 1600 AD, English lost the majority of its inflections at the ends of words. While Old English looked rather similar to modern German (for example, with endings on nouns that identified not just number but also gender and grammatical case), modern English nouns only retain the distinction between singular and plural. During that 800-year period, a number of linguistic and social forces were at work: variation across geographic dialects, the Viking invasions (introducing another Germanic language, Old Norse, which had different grammatical inflections), influences from Norman French, the Black Death (which killed much of the educated population), the emergence of London as a melting pot of sorts. Which specific event – or set of events – was the prime cause remains an issue for scholars to debate, but perhaps never resolve.

Online and mobile technologies are still in their relative infancies. It may be premature to judge their impact upon language, even if we could successfully distinguish between the primary role these technologies play and the extent to which they magnify change already in evidence. Nonetheless, it is important to study mediated language change in process for several reasons.

First, as we showed in the cases of IM and text messaging by college students, actual usage patterns may have little in common with media caricatures. To further contextualize the findings reviewed here, we need to apply quantitative analysis to a broader range of data, including from a variety of age groups, cultures, and languages.

Second, we need to design meaningful assessments of the direct effects of electronic communication upon offline writing done in the classroom, the workplace,

or the written culture at large. In school settings, we should undertake more comparisons of writing submitted for school assignments versus text produced by the same individuals in their online communiqués. These comparisons should be supplemented by qualitative analyses of student and teacher perceptions of the appropriateness of different language registers. In the workplace – as well as in the general world of print – scholars should be looking at both linguistic productions and user attitudes, comparing young adults who grew up on IM and text messaging with older users (especially those having more limited experience with EMC).

In all of these investigations, it will be important to look at the full range of potential influences that EMC may be having on language, not just at surface phenomena such as abbreviations and acronyms. Human language does more than chain together sounds and words to convey meanings. Rather, it helps shape the way we forge both our culture and our relationships with one another. Given the increasing role that online and mobile technologies are playing in the way we construct and exchange linguistic messages, it is especially timely that we study EMC to understand its effects – direct and indirect – upon us.

Notes

1 http://listserv.aoir.org/htdig.cgi/air-l-aoir.org/2006-July/010219.html.
2 The example is from Cook (2004).
3 Address at the Phi Beta Kappa 41st Triennial Council Meeting, October 25–29, 2006, Atlanta, GA.
4 Tim Clem and Brian Rabinovitz played key roles in the multitasking project.

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