Consequences of Connection: Loneliness, Reading, and Robots

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Abstract

Modern communication technologies are reshaping the ways humans connect with one another as well as how we converse with machines of our own making. Our question in this essay is whether digital communication is changing the nature of conversation and, if so, what the implications may be for us as people. Our analysis identifies three sets of parameters for approaching these issues: linguistic (structure of conversations, communication medium, modulating the conversation to suit the perceived needs of our interlocutor, controlling the conversation), social (inner- or other-directed behavior, front stage or back stage behavior, strong or weak social ties, loneliness), and cognitive (level of intellectual engagement). We use these parameters to explore some of the linguistic, social, and cognitive consequences of electronically-mediated communication, of social reading onscreen, and of conversing with social robots.

Keywords: Conversation, electronically-mediated communication, loneliness, reading, social robots.

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Consecuencias de la Conexión: Soledad, Lectura, y Robots

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Resumen

Las tecnologías de comunicación modernas están reformando las vías por las que las personas humanas conectan unos con otros además de cómo conversamos con las máquinas que hemos creado. Nuestro análisis identifica tres tipos de parámetros para aproximarnos a estos temas: lingüísticos (las estructuras de las conversaciones, el medio de comunicación, el control de la conversación), sociales (comportamiento interno o dirigido por otro, comportamiento público o privado, lazos sociales fuertes o débiles, soledad), y cognitivos (nivel de compromiso intelectual). Utilizamos estos parámetros para explorar algunas de las consecuencias lingüísticas, sociales, y cognitivas de la comunicación mediada electrónicamente, de la lectura social en pantalla y de las conversaciones sociales con robots.

Palabras clave: conversaciones, comunicación medida electrónicamente, soledad, lectura, robots sociales.

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S tart with three conversational vignettes. The first took place between two young women, sitting in a subway car in northwest Washington, DC, embarking on a trip downtown. (I was in the seat behind them.) One woman was alternating between looking at her mobile phone and chatting, while the other was wholly focused on conversing. The second kept tapping the first on the shoulder, trying to grab her attention.

Both were deaf, and both were using American Sign Language. The challenge, of course, is that ASL is a visual language. If your eyes are on your phone's screen, you can't see the moving hands of your interlocutor. As I witnessed the second woman repeatedly work to keep the conversation with her friend alive, I was reminded of all those occasions on which people who can hear (and speak) must vie for the attention of their companion who is preoccupied with text messaging, sending a Facebook update, or checking out news headlines.

The second vignette also involves people, though this time the connection is necessarily virtual and is focused on a particular shared interest: books. The scenario I am talking about is online social reading sites such as Goodreads, a platform designed to help individual readers discover and talk about books. Goodreads enables members to post comments on books, form book groups, and write reviews. By 2014, there were over two million reviews each of such runaway bestsellers as *Twilight*, *The Hunger Games*, and *Harry Potter and the Sorcerer's Stone*.

In the third vignette, only one of the conversational partners is human. The interlocutor is a robot, in fact a social robot, meaning one that interacts with human beings. My first such encounter was in 2005 at Japan's Aichi Prefecture World Expo, where a receptionist robot – looking very much like a 1960s airline stewardess – was there to point visitors to their desired destinations. You could ask for directions in Japanese, Korean, or English, and "she" replied in remarkably clear speech. A more recent example (though not yet a physical reality) is the robot in the 2012 movie "Robot and Frank", in which Frank's family buys him a personal robot to attend to household tasks and remind Frank to take his medicines.

All three scenarios involve conversation, but with a digital dimension. Is digitally-based communication altering the nature of conversation and, if so, what might the consequences of these changes be? To explore these

questions, we will focus on the three scenarios we have illustrated: electronically-mediated communication, social reading onscreen, and conversation with social robots.

The framework we will use for this investigation is composed of three sets of parameters: linguistic, social, and cognitive. After introducing these analytical dimensions and then providing some background context relevant to digital communication, we will use the parameters to probe some of the effects of digital technology on the nature of human conversation.

Before setting out, it is important to acknowledge what the analysis presented in this essay is – and is not – attempting to accomplish. The goal is to lay out a research framework for thinking about the potential consequences of several types of digital connectivity. Some of the technologies discussed, such as social reading networks and social robots, are still in their relative infancy. Similarly, although electronically-mediated communication has been with us for several decades now, we are just beginning to understand the impacts it may be having upon its users. And so, what follows is more a research agenda than an account of questions already answered.

Linguistic, Social, and Cognitive Parameters

We begin by looking, in turn, at the parameters in terms of which we will be examining the consequences of digital connection.

Linguistic Parameters

Our linguistic tools center on domains relating to language use: the structure of conversations, communication medium, the ways in which we modulate conversation to suit the perceived needs of our interlocutor, and how we (as speakers or writers) control the conversation itself.

Structure of Conversations. There are many potential ways of talking about the structure of conversations, such as turn-taking, openings and closing, and conversational threads (Berglund, 2009; Sacks et al., 1974; Schegloff & Sacks, 1973; Schriffrin et al. 2001; Yates et al. 2006). Another is to look at the content of what is said.

Paul Grice's "maxims" for structuring conversation (1975) are commonly invoked when doing discourse analysis. Grice's four maxims are:

- Maxim of quantity: try to be as informative as possible, giving as much information as is needed but no more.
- Maxim of quality: try to be truthful, not giving information that is false or unsupported by evidence.
- Maxim of relation: try to be relevant, saying what is pertinent to the discussion.
- Maxim of manner: try to be clear, brief, and orderly, avoiding obscurity and ambiguity.

The problem with Grice's maxims is that in actual conversations, people often don't follow them. We withhold information or utter falsehoods. We get off-topic or can be obscure (either intentionally or otherwise). And so on. While we have learned to expect and often tolerate this kind of behavior in conversations with one another, our question is whether such acceptance extends to some of our digitally-based exchanges.

Communication Medium. Much of human conversation takes place using spoken language, whether face-to-face, via a telephone, or employing a voice-over-internet protocol (VoIP). Members of literate societies have the additional option of conducting conversations through writing, as was earlier common in the exchange of letters and now is practiced in email and text messages. The third medium is sign languages such as ASL, predominantly used by people with severe hearing impairments but also found in some monastic communities (Barakat, 1975).

In a digital world, the written medium has generally held pride of place, though with technological improvements in both VoIP and speech recognition programs, voice continues to gain ground. While sign language is viable in video-based systems (such as Skype or YouTube), those with hearing impairments commonly turn to written messaging (Bakken, 2005).

Modulating Conversation to Suit Perceived Needs of Interlocutor. In our conversations, we often modulate the way we speak (or write or sign) in light of what we perceive the linguistic abilities of our interlocutor to be. This practice is most obvious in the conversations that adults, or even older children, have with young children. Linguists and psychologists use the

term "child-directed speech" (also sometimes known as motherese or baby talk) to describe these types of modulations (Ferguson, 1964; Snow & Ferguson, 1977). Among the common adaptations are use of simplified vocabulary and syntax, slower speaking speed, and clearer-than-normal enunciation. Other features, especially used in addressing very young children, are high pitch and repetition.

Many of these same features appear in the conversational style known as "foreigner talk", used in addressing people lacking proficient command of the language we are speaking (Ferguson, 1975). Similar adaptations (especially high pitch and repetition) sometimes also occur when we address pets (Hirsh-Pasek & Treiman, 1982). Our question here will be whether the adaptive process occurs in some varieties of digital conversation.

Controlling the Conversation. The last linguistic parameter is "controlling the conversation" (Baron 2008a). Think about the pre-digital world. We might cross the street to avoid encountering an individual coming our way. Perhaps we dominate a face-to-face conversation, affording our interlocutor little opportunity to speak. On the telephone, we might place the interlocutor on speaker phone, making public a conversation he or she assumed to be private. In written communication, we might ignore a letter we receive. As we will see, digital communication broadens the opportunities for orchestrating conversations.

Social Parameters

We move now from linguistic to social parameters. Our discussion here draws upon the work of three sociologists: David Riesman (inner- versus other-directed behavior), Erving Goffman (front stage versus back stage behavior), and Mark Granovetter (strong versus weak social ties). We also introduce a variable that may seem paradoxical in the world of digitally-connected communication, namely loneliness.

Inner- or Other-Directer Behavior. In 1950, David Riesman published *The Lonely Crowd*. Riesman argued that American middle-class character had shifted from being what he called inner-directed, guided by

internal values, to other-directed, whereby our values and actions are strongly influenced by others. While there has been considerable critique of "national character" studies (including Riesman's) over the years, Riesman's basic distinction remains a useful sociological tool.

Front Stage or Back Stage Behavior. A second important sociological distinction dating to the 1950s appeared in Erving Goffman's *The Presentation of Self in Everyday Life* (1959). Drawing upon a theatre analogy, Goffman compared what he called front stage behavior with back stage behavior. The first is how we present ourselves to the external public. By contrast, back stage behavior is how we interact with friends and family when we don't feel ourselves to be on display.

Strong or Weak Social Ties. The third sociologist, Mark Granovetter (1973), was interested in how social networking between people works. While most of the social networking theory at that time looked at strong relationships between pairs of individuals, Granovetter suggested that looser (weak) ties across groups are also important to social cohesion and therefore worthy of study.

Loneliness. Our final social parameter isn't a theory but rather a consequence of our behaviors. That consequence is loneliness.

Echoing the sentiments of her former teacher David Riesman, Sherry Turkle (author of Alone Together) argues that "If you don't have a capacity for solitude, you will always be lonely" (NPR Fresh Air, 2012). If we are always on our digital devices, either engaging in conversation or eavesdropping on the communiqués of others, we are almost never alone. When we do happen to find ourselves alone, we tend to look for ways to connect with some one or some thing.

In a cross-cultural study I did of mobile phone use by university students, a large number reported that they turned to their phones to kill time, such as while waiting for a bus or walking from one place to another. That way, they didn't feel isolated, alone with only themselves. More recently, I have been asking groups of American undergraduates about the last time they were alone and the last time they were bored, and what they did about it. Overwhelming, they turned to their digital devices to

ameliorate the situation. In recent work I have been doing on attitudes towards reading print books versus reading onscreen, several college subjects reported that they found reading print to be too boring, too lonely. There were no mental or social distractions of the sort available when they read on a digital device with internet connection.

Cognitive Parameters

Beyond linguistic and social parameters, we also need to think about cognitive dimensions of the issue of conversation and connection. Our focus will be on the level of intellectual engagement when it comes to online reading activity, considering such issues as the amount of effort, amount of reflection, and amount of concentration of the conversational participant.

Consequences of Digital Conversation

Having identified linguistic, social, and cognitive parameters that are potentially at work when we connect with interlocutors using some form of online communication, we turn to three specific online interactive contexts: electronically-mediated communication, social reading onscreen, and conversation with social robots. Not all parameters are directly applicable to each of these contexts, but collectively, the parameters offer a framework for discussion.

Consequences of Electronically-Mediated Communication

First, some background on digital communication. General use of computers to converse with other people began in the 1970s and 1980s, with successive development of email, computer conferencing, bulletin boards, newsgroups, listservs, and forms of instant messaging. In the early 1990s, text messaging (on mobile phones) became available in Europe through GSM's Short Message Service (SMS), spreading by the end of the century to large swaths of the world. Meanwhile, by the late 1990s, instant messaging (on personal computers) had largely become the digital communication medium of choice among young people in America. Soon after came social networking platforms, along with rapid expansion of texting in the US. In its earlier

phase, online communication was referred to as computer-mediated communication (CMC), although with the proliferation of mobile phones and texting, many scholars refer to the spectrum of digital discourse as electronically-mediated communication (EMC).

In the relatively early days of computing, even before development of the internet, concerns were expressed that computing was a socially-isolating experience. The 1970s and 1980s saw the emergence of a hacker culture in which individuals (typically male) spent endless hours in basement computer laboratories at research universities or at home in their bedrooms, writing and troubleshooting computer code. Where university students had access to the ARPANET (the US Department of Defense's Advanced Projects Agency Network, built in the late 1960s) or hobbyists could log on to the internet (which was to replace ARPANET), possibilities emerged for text-based online gaming, including Multi-User Dungeons (MUDs).

Whether these users worked entirely on their own or were connected via a dial-up modem to fellow MUD denizens, the concern was how many hours were being spent in social isolation. The personal computer revolution brought with it heightened apprehension that even young children would fall victim to such seclusion. Psychologist Seymour Papert (1993) argued that Turtle LOGO, the geometry-based program he created for youngsters, would foster both social and intellectual cooperation. At home, however, many young people ended up working alone at their machines for countless hours.

Computing became increasingly social with the growth of instant messaging on personal computers: first ICQ (in 1996) and then AOL's Instant Messenger – AIM (in 1997). Soon after followed a spate of social networking sites, including Friendster (2002), My Space and Second Life (2003), Facebook as a platform open to everyone (2006), Twitter (2006), Instagram (2010), and Snapchat (2011). By 2014, Facebook boasted more than 1.3 billion users. In a world of roughly 7 billion people (of which 1.3 billion Chinese have no legal access to Facebook), this is an impressive amount of social connectivity.

Mobile phones became another tool for online connection. In the pre-smartphone days, texting proved an inexpensive way of either one-way messaging or turn-taking conversation. With the proliferation of smartphones, all the functionalities of internet-based communication on computers became available in your hand.

With this background in mind, we turn to some linguistic and social parameters relevant for electronically-mediated communication.

Linguistic Parameters

Written Medium. As of 2013, there were nearly 6.8 billion mobile phone subscriptions in the world (International Telecommunication Union, 2014). Much of the communication we do on mobile phones – not to 3mention on computers or tablets – is written rather than spoken. While the use of writing is self-evident in the case of such platforms as email, IM, or Facebook, writing has come to predominate over voice on mobile phones. The tipping point came in the US in 2008, when users first averaged more text messaging than voice calls on mobile phones (Leggatt, 2008). That shift occurred in the UK in 2011 (BBC News, 2012).

Interestingly, though texting has significantly supplanted voice communication, particularly when using a mobile phone, some digital millennials report that text messaging is no substitute for "real" communication. In survey research on mobile phone practices among university students (Baron, 2011), several Japanese complained about *keitai* (that is, cell phone) *mairu* (which, in Japan, is more akin to texting than western email): "communication through *keitai* email can trick people's minds as if they were engaged in real communication"; "in some cases, [mobile phone] communication can lack substantial contents". An Italian student observed that: "[texting on mobile phones] is replacing communication in the literal sense of the Word".

Controlling The Conversation. Electronically-mediated communication heightens our ability to exert control over our conversation with an interlocutor, including to shorten or halt communication in the first place. Focusing on text messaging, we see that given its asynchronous character, we can respond to messages at our own convenience – if we respond at all. By choosing to text rather than speak, we can keep the message short, not needing to engage in the common pleasantries of voice-to-voice conversation or to hear out our interlocutors on additional topics of their choosing. Other forms of control include checking caller ID to decide whether or not to take a call, forwarding messages to audiences for whom

such missives were not intended, and turning down "Friend" requests on Facebook.

These sorts of controls commonly result in curtailing rather than fostering conversation – a linguistic consequence of communicating online. Were the participants face-to-face, they might not be able to avoid conversation.

Social Parameters. If digital exchanges are often highly controlled and don't always feel like "real" communication, what kind of interaction are they? The answer is that in many instances, these social exchanges are superficial.

Other-Directed Behavior. *Strong and Weak* Ties. With the explosion of online social networking, the internet has enabled users to connect up with potentially countless others. In some cases, such as friending old high school sweethearts on Facebook or joining a neighborhood listserv, we have at least some In Real Life relationship with the individuals. Yet at other times, such as following politicians on Twitter or posting to an author's blog, we are connecting up, however loosely, with strangers.

In both instances, the social connection is weak at best. Following Riesman's model, we tend to become members of the online crowd (especially when "connecting" with strangers). With occasional exception, strong personal friendships don't develop here. Internet users may end up remaining isolated members of a lonely crowd – despite all the social communication around them.

Using Granovetter's scheme, we generate additional weak ties on the internet, but may be doing little for strong ties. In the mid-2000s, a Pew Internet & American Life Project study reported that while the number of strong ties was essentially the same for both internet and non-internet users, the number of weak ties was slightly larger among internet users (Boase et al. 2006). More recent research from the Pew Internet project reports that those who use communication technologies (the internet, mobile phones) have a larger overall number of social ties than those who do not or who utilize them sparingly (Hampton et al. 2011).

But what about strong ties? When they asked in 2010 about the number of "close friends" Americans had, Hampton et al. found the average to be 2.16, an increase from 1.93 when the same question was asked in 2008. The

causal role of the internet or mobile phones in either developing or maintaining those ties is, of course, difficult to ascertain, as is the significance of a .23 rise. What we can confirm is a marked drop in the US over the past 30 years in the number of strong ties. While the American General Social Survey reported 2.94 social confidants in 1985, the number for 2004 was only 2.08 – in essence, from three people down to two whom you could always count on (McPherson et al. 2006).

Front Stage Behavior. Given the largely public nature of online communication, there is much front stage behavior as we craft our presentations of self for friends and strangers alike. (The literature on electronically-mediated communication has been replete with studies and discussions of such front stage activity – e.g., Ling & Pedersen, 2005; Hogan, 2010). A good illustration is the description that a college student gave of her Facebook page: "me on my best day". As she explained, she crafted Facebook entries to make her look her best, not necessary the way she typically was (Baron, 2008b, Chapter 5).

Loneliness. If much of our life online constitutes other-directed, front stage behavior, it is hardly surprising that loneliness is a potential consequence. In the early days of the internet, some researchers cautioned that online activity might "reduce … social involvement and psychological well-being" (Kraut et al., 1998). Norman Nie (Nie & Hillygus, 2002) worried that you "can't share a beer with a friend on the internet". Over the years, Barry Wellman and his colleagues have countered that the internet does not reduce social capital. They argue that on the contrary, the internet maintains existing relationships and builds new social ties rather than diminishing them (e.g., Wellman et al., 2001; Rainie & Wellman, 2013).

But the issue of loneliness continues to resurface. Stephen Marche (2012), writing in The Atlantic, asks if Facebook (and online social networking more generally) is making us lonely, arguing that "the more connected we become, the lonelier we are". The late Clifford Nass and his students reported troubling correlations between the amount of time teenage girls spent on social networking and their level of social comfort, along with level of self-esteem. By contrast, face-to-face communication, including making eye contact with your interlocutor, strongly correlated with a positive sense of social well-being (Pea et al., 2012).

Undoubtedly, generalizations about the personal consequences of online communication can be dangerous. As Robert Kraut and his colleagues demonstrated more than a decade ago, people with strong personal social comfort in physical relationships tend to fare well on the internet, while those who are less socially adept do less well (Kraut et al., 2002).

Yet regardless of one's level of social comfort, it is clear that the internet invites us always to be connected with other people – through actual discourse or vicariously. Our waking hours are increasingly spent in the virtual company of others, leaving less time for daydreaming, people-watching, or being alone with our own thoughts. The question therefore becomes whether such constant connection is reshaping the way we engage in activities that have both individual and social sides.

The activity we now focus on is reading.

Consequences of Social Reading Onscreen

The popularity of online social networking platforms such as Facebook and Twitter has fueled interest in a new genre of internet-based interaction: social reading. The largest of the networks, Goodreads, was created by Otis and Elizabeth Chandler in 2007 to connect individual readers with each other and with authors. (Goodreads now boasts over 25 million members). The number of social reading platforms continues to grow, with some of the newest including Zola (connecting readers with professional reviewers, authors, and publishers) and Librify (geared in part to connecting members of physical book clubs).

Reading as a Social Activity. The idea of reading being a social activity is hardly new. Its roots trace back at least to the eighteenth century, when London coffee houses flourished as settings where gentlemen could settle in to read newspapers and discuss their contents. With the growing proliferation of printed books (along with the appearance of periodicals such as the Tatler, the Spectator, and Gentleman's Magazine), booksellers began setting up book clubs in their stores where, for a small fee, readers could gather and share both in the wares and in conversation (Darnton, 1991).

By the nineteenth century, groups of women were actively meeting to discuss works of literature. In the US, many of these gatherings were

intentionally limited to females, who feared they "might be silenced by … men's presence" (Long, 2003). A century later, many book clubs continued to be dominated by women (at least in America). Often the function of these book clubs, like their eighteenth-century antecedents, has been at least as social as intellectual (Heller, 2011).

Technology has been responsible for expanding opportunities for book discussions in the presence of others. Radio and television provide what we might call armchair book clubs: You listen to an author and interviewer, sometimes having the opportunity to call in (or now text or tweet) comments or questions. Oprah Winfrey's television book club, running (with a hiatus) from 1996 to 2011, afforded a vast audience the opportunity to hear about books and encouragement to read them (Farr, 2005).

With development of the internet, new opportunities unfolded for cultivating a social side of reading. Before the launching of Goodreads, two book-sharing platforms – LibraryThing and Shelfari – invited readers to catalogue their personal book collections and display them online. These days, YouTube hosts a vast array of video bookshelf tours that individuals have created of their own holdings.

Media guru Steven Johnson (2010) argues that reading these days (especially when we read on digital devices) is quintessentially social:

Even when we manage to turn off Twitter and the television and sit down to read a good book, there will be a chorus of readers turning the pages along with us, pointing out the good bits.

Meanwhile, distributors of eBooks and eReaders have developed their own versions of online social reading. Users of Amazon's Kindle have the option of sharing the highlights and annotations they make on their own eBooks with others reading the same passages (and vice versa). Kobo developed a "Pulse Indicator", whereby words that other readers have highlighted grow larger on your own eReader screen when you come upon the same passage. The goal? Both sharing – and alerting new readers in advance as to what others consider to be the "good bits".

And then there is Bob Stein, creator of the Institute for the Future of the Book. Viewing books not as closed, completed physical things but rather as places "where people congregate to hash out their thoughts and ideas", Stein maintains that the reification of ideas into printed, persistent objects obscures the social aspect of both reading and writing, so much so, that our

culture portrays them as among the most solitary of behaviours. This is because the social aspect traditionally takes place outside pages (Stein, 2013).

It comes as no surprise that Stein's newest venture is called Social Book. As Stein asserted in an interview with the Canadian Broadcasting Corporation, "This idea that we read by ourselves is a relatively recent idea and is going to go away" (Prpick, 2013).

Given the explosive growth of social networking – including for display, discussion, and reviews of books – it may be tempting to conclude with Otis Chandler that "Books are one of the strongest social objects that exist" (Chandler, 2010).
Are Chandler and the others right?

Reading as an Individual Activity. Historically, the majority of people who have been literate have done most of their reading – and their thinking about what they read – by themselves. This is not to say that discussion with others may not follow. The issue is, how much do you first wrestle with the text yourself? That wrestling commonly takes the form of an implicit "conversation" (of the imagined sort) with the author.

In his essay "On Reading", Marcel Proust advised that readers should focus their attention on their relationship with the author, not on others who might be reading the same work. (In Proust's words, when we allow another person into the discussion, our dialogue with the author "dissipates immediately" – Proust, 1971, p. 31) Proust urges us to be active readers: "We can receive the truth from nobody… we must create it ourselves" (p. 35). Reading entails a trusting friendship with the author where we can be bluntly honest in expressing our opinions. We never have to worry, as we might when discussing a book with real-life friends, "What did they think of us? Didn't we lack tact? Did we please?" (p. 53, p. 55).

Proust's sentiments continue to resonate with many contemporary authors. Henry Hitchings had this to say about how digital technology leads us away from individual contemplation:

The real issue with the internet may be that it erodes, slowly, one's sense of self, one's capacity for the kind of pleasure in isolation that reading has, since printed books became common, been standard (quoted in Kingsley 2010).

Novelist Cynthia Ozick (2000) echoes this theme when she sums up the interplay between solitude and social in the world of reading:

Print first made possible the individual's solitary engagement with an intimate text; the Gutenberg era moved human awareness from the collective to the reflective. Electronic devices promote the collective, the touted 'global community' – again the crowd.

Writer Judith Shulevitz (2002) pithily summed up this perspective in her closing line of a piece in the New York Times Book Review: "You read your book and I'll read mine."

Social Parameters. How do these observations about reading as a collective or individual activity translate into the social parameters of other-directed and front stage behavior?

Other-Directed and Front Stage Behavior. Social reading leads us to privilege the conversations we have with other readers over our implicit conversation with the author. When we are discussing with other people what we have read, we understandably have the temptation to worry what they think of our interpretation ("Did we please?"). When social reading takes place online, there is the added tendency to stage ourselves (typically for unknown others or those with whom we have weak ties). Like the student whose Facebook page was "me on my best day", postings we make to social reading sites risk being formulated with display taking precedence over the reader's honest take on the text.

Cognitive Parameters. The act of reading can be hard work, particularly if the text is intricate or analytical. How should we go about the task?

In 1940, a professor of philosophy at the University of Chicago named Mortimer Adler published his now-classic How to Read a Book. In the book, Adler instructs us that reading is serious business:

The most direct sign that you have done the work of reading is fatigue. Reading that is reading entails the most intense activity. If you are not tired out, you probably have not been doing the work (p.110).

How do you "do the work"? Adler explains his own method, which he recommends to his readers:

One of the reasons why I find reading a slow process is that I keep a record of the … thinking I do. I cannot go on reading the next page, if I do

not make a memo of something which occurred to me in reading this one (p. 111).

Adler recommends this approach not just for academic reading but also for pleasure reading that has real substance (Think of Tolstoy, not pulp fiction).

The challenge for digital social reading is whether the kind of reading Adler advocates is harder to accomplish online than when reading as an individual activity. Will reviews by those millions of Goodreads members diminish our incentive to work through the books ourselves? Will we rely upon Kobo's Pulse Indicator to point out "the good bits" before we have a chance to make up our own minds as to which passages are significant?

Equally at issue is doing our own reading on a digital device (a computer, an eReader, a tablet, a mobile phone) that has an internet connection. The challenge here is concentrating on the reading rather than drifting off to other Internet functions – the temptation to be multitasking.

Here are the kinds of questions we need to be examining about reading on a screen as opposed to in hardcopy:

- How seriously do we engage with the author?
- Do we "do the work" as we read?
- Do we skim and scan rather than read linearly?
- Do we reread?
- Do we remember what we read?
- Are we multitasking?

Granted, not everything we read merits the level of concentration that Adler advocates, and reading hardcopy hardly inoculates us against inattention or distraction. Yet there is a growing wealth of data suggesting that reading onscreen, especially a screen that has an internet connection, makes us prone to compromise our engagement with the text (Baron, In Press). Another consequence of connection.

Thus far we have been focusing on the linguistic, social, and cognitive implications of using digital communication devices to interact virtually with other people. However, with continuing advances in robotics (and in artificial intelligence more generally), a growing number of our "conversations" are with computer-driven programs and hardware. We therefore now turn to the question of what kind of language we use – and want to use – when conversing with social robots. Derivatively, how might

increased communication with computer-based devices affect the kind of communication we have with other human beings?

Consequences of Conversing with Social Robots

The meaning of the term "social robot" is at once self-evident and vague. If a robot is a machine that can be programmed to do work autonomous of human control, a social robot is a physical robot or a disembodied computer program that interacts with human beings, especially using natural language. Examples we have already mentioned include the robot in the movie "Robot & Frank" and the receptionist robot at Japan's Aichi Prefecture World Expo. The vagueness in the definition comes from the fact that many phenomena we don't think of as social robots technically are, such as Apple's Siri and IBM's Watson, along with (even less obviously) automated telephone answering programs running on natural language processing engines.

Impressive technological strides are being made both in physical components of embodied social robots and in their linguistic abilities. Researchers have created robots that recognize and respond to human facial expressions (e.g., Bulletin of Keio University, 2012; Hanson, 2009; Tang, 2007). Addition of such expressions might lead us to speak to such robots with more conversational sincerity than we would to a robot that has no realistic face. (For more on issues involving expression of emotions and human-robot interchange, see, for example, Breazeal (2003); Nishio et al. (2012).

Speech recognition software has also become surprisingly good. We now have social robots – be they virtual platforms like Siri or embodied robots such as David Hanson's Philip K. Dick (Nova Science Now, 2011) or Kokoro's Actroid robots (Lim, 2013) – that "speak" naturalistically and appear to comprehend what humans say to them.

Technology is increasingly enabling us to fabricate social robots that look, sound, and respond like humans. The question is, how closely connected do humans want to be with these products that we ourselves have built? Roboticists speak of the "uncanny valley" problem, first identified more than 40 years ago by Masahiro Mori (Mori, 2013). Up to a certain point of likeness, people feel positive empathy with a humanlike robot.

However, as that likeness approaches humanness, we tend to feel what Mori describes as revulsion.

With these successes – and caveats – in mind, we turn our attention to the linguistic and social ramifications of connections with social robots.

Linguistic Parameters

***Structure of Conversation, Controlling Conversation*.** In talking about Grice's conversational maxims, we noted that people often violate them in conversations with one another: We are not always informative, truthful, relevant, clear, and orderly. Accepting these deviations is part of the give-and-take that makes up both conversation and human interpersonal relationships.

But what would happen if social robots engaged in such violations of Grice's maxims? If the robots lied to us or went off on verbal tangents? While there is no way of sending our colleagues at the office or our relatives back to the factory for re-tooling, we might well opt to do so with robots engaging in these behavior that we tolerate from humans.

The issue is one of control. Although we usually can't control other people's conversation, we can build social robots that converse "reliably" (in the sense of adhering to Grice's maxims). We can even tweak the programming to include parameters such as "only speak when spoken to" or "always say 'please' and 'thank you'". Obviously, we also have the choice of adding in humor or playfulness (which has been done to "humanize" some of the social robots that have been built to look – or respond – as much as possible like people). Again, however, the decision-making remains within human control.

***Modulating Conversation to Suit Interlocutor*.** Much as people adapt their speech when conversing with young children or non-native speakers, research suggests that people display similar adaptive behavior in addressing robots. In a study comparing the way young adults converse with a robot as opposed to another person, Kriz et al. (2010) analyzed how subjects directed a robot or a human interlocutor to complete a physical navigation task. (Unbeknownst to the subjects, the robot's movements were actually controlled by a hidden human confederate.) The subjects' robot-directed speech mirrored child-directed speech or foreigner talk in many ways: louder volume (particularly common in foreigner talk), higher pitch, and

hyper-articulation (compared with how the same subjects spoke with another person).

Social Parameters

Front Stage Behavior. At least some of our interactions with social robots are based upon our controlling the conversation, including modulating our speech to accommodate what we perceive to be the robot's comprehension skills. In such situations, there is a tendency to engage in front stage behavior, since our language is orchestrated rather than spontaneous. While not striving to impress robots, we might well be looking to impress other people in our midst with our cleverness in the way we address the robots or test their limitations.

Weak Social Ties. The 2013 movie "Her" depicts a romantic relationship between a lonely man (Theodore Twombly) and a sophisticated operating system (Samantha). But like the robot in "Robot & Frank", the likes of Samantha don't yet exist. Ties with today's social robots remain weak and are likely to do so in the foreseeable future, even as the number of social robots in our lives increases.

Loneliness. Weak-tie surrogates for human-to-human interaction are, however, already a reality. Child-minder robots have been developed in Japan. And, as a companion for hospital patients and the elderly, the Japanese have created Paro, an instantly-lovable robotic baby harp seal.

Sherry Turkle worries that with the coming of social robots such as Paro, people will look to robotic rather than human solutions to problems of their own loneliness or that of people for whom they have responsibility (such as aging parents). If internet connectivity may already be increasing isolation in some people, it seems paradoxical to use another digital technology – a social robot – for alleviating that isolation.

Concluding Comments

We have considered some of the linguistic, social, and cognitive consequences of conversations in which we engage when using electronically-mediated communication, when reading socially on digital devices, and when interacting with social robots. Admittedly, our journey

has been peppered with caveats like "may" or "might". As I indicated at the outset, this essay is exploratory, not definitive.

We have observed a number of trends already at work. Linguistically, we have seen that digital technologies enhance opportunities to be controlling in our conversations by curtailing access to us (in electronically-mediated communication) or engineering the kinds of conversational responses we are willing to accept (from social robots). Socially, we suggested that digital technologies privilege development of other-directed and front stage behavior, along with proliferation of weak ties. Their effect on strong ties remains to be seen, though despite all the opportunities for connectivity, many people remain lonely. Cognitively, we cautioned that reading onscreen (whether by yourself or in social context) potentially undermines a desire to "do the work" of tackling complex books and figuring out independent responses before engaging with the crowd.

Conversation – including when it is subtle, annoying, or complex – is part of our definition as humans. As our dependency upon digital platforms (and on digital creatures) grows, it will be critical to monitor how these evolving forms of connectedness reshape conventional linguistic and social interaction.

Since written language affords us more control than does speech, it seems plausible that an increasingly number of our conversations with people will be written. (Spoken conversation could be more emphasized in communicating with social robots. After all, we can program them not to talk back). Socially, we may need to work harder at developing strong personal ties, since we can only say at this point that the internet boosts weak ties. Also socially, given how much of our online conversational efforts involve other-directed, front stage behaviors, we must not lose track of our inner-directed opinions and back stage presentation of self. Cognitively, we need to decide what we want our relationship to be with the world of reading.

People created computers, mobile phones, the Internet, natural language processing, and now social robots. It is up to us to determine the consequences of the connectivity they bring.

References

Adler, M. (1940). *How to read a book*. New York, NY: Simon and Schuster.

Bakken, F. (2005). SMS use among deaf teens and young adults in Norway. In R. Harper, L. Palen, & A. Taylor (Eds.), *The inside text: Social, cultural, and design perspectives in SMS*. Dordrecht: Springer (pp. 161-174).

Barakat, R. (1975). *Cistercian sign language*. Kalamazoo, MI: Cistercian Publications.

Baron, N.S. (2008a). Adjusting the volume: Technology and multitasking in discourse control. In J. Katz (Ed.), *Handbook of mobile communication studies.* Cambridge, MA: MIT Press (pp. 177-193).

Baron, N.S. (2008b). *Always on: Language in an online and mobile world*. New York, NY: Oxford University Press.

Baron, N.S. (2011, August 1). Concerns about mobile phones: A cross-national study. *First Monday, 16*(8). Retrieved from http://firstmonday.org/htbin/cgiwrap/bin/ojs/index.php/fm/article/view/3335/3032

Baron, N.S. (In Press). *Words onscreen: The fate of reading in a digital world*. New York, NY: Oxford University Press.

BBC News (2012, July 17). Texting overtakes talking in UK, says Ofcom study. Retrieved from http://www.bbc.com/news/technology-18873041

Berglund, T. (2009). Disrupted turn adjacency and coherence maintenance in instant messaging conversations. *language@internet* 6. Retrieved from http://www.languageatinternet.org/articles/2009/2106

Boase, J., Horrigan, J.B., Wellman, B., & Rainie, L. (2006, January 25). The strength of internet ties. Pew Internet & American Life Project,. Retrieved from http://www.pewinternet.org/2006/01/25/the-strength-of-internet-ties.h

Breazeal, C. (2003). Emotion and sociable humanoid robots. *International Journal of Human-Computer Studies, 59*, 119-155. doi:10.1016/S10715819(03)00018-1

Bulletin of Keio University Faculty of Science and Technology (2012, November). Ubiquitous sensing: Yasue Mitsukura.. Retrieved from http://www.st.keio.ac.jp/kyurizukai/english/11_mitsukura_e/pdf/mitsukura11_e.pdf

Chandler, O. (2013, February 25). What's going on with readers today? Goodreads finds out. Goodreads blog. Retrieved from http://www.goodreads.com/blog/show/410-what-s-going-on-with-readers-today-goodreads-finds-out

Darnton, R. (1991). History of reading. In P. Burke (Ed.), *New perspectives on historical writing*. Cambridge, UK: Polity Press (pp. 140-167).

Farr, C.K. (2005). *Reading Oprah: How Oprah's book club changed the way America reads*. Albany, NY: State University of New York Press.

Ferguson, C.A. (1964). Baby talk in six languages. *American Anthropologist, 66*(6, pt. 2), 103-114. doi: 10.1525/aa.1964.66.suppl_3.02a00060

Ferguson, C.A. (1975). Toward a characterization of English foreigner talk. *Anthropological Linguistics*, *17*(1), 1-14. Retrieved from http://www.jstor.org/discover/10.2307/30027270?uid=3737952&uid=2129&uid=2134&uid=2&uid=70&uid=4&sid=21104896496987

Goffman, E. (1959). *The presentation of self in everyday life*. Garden City, NY: Doubleday.

Granovetter, M. (1973). The strength of weak ties. *American Journal of Sociology, 78*(6), 1360-1380. Retrieved from http://www.itu.dk/courses/DDKU/E2007/artikler/Granovetter- Weak Ties.pdf

Grice, H.P. (1975). Logic and conversation. In P. Cole & J.L. Morgan (Eds.), *Speech Acts*. New York, NY: Academic Press (pp. 41-58).

Hampton, K., Goulet, L., Rainie, L., & Purcell, K. (2011, June 16). *Social networking sites and our lives.* Pew Internet & American Life Project,. Retrieved from http://www.pewinternet.org/files/old-media//Files/Reports/2011/PIP - Social networking sites and our lives.pdfh

Hanson, D. (2009, February). Robots that 'show emotion'. *TED Talk*,. Retrieved from http://www.ted.com/talks/david_hanson_robots_that_relate_to_youh

Heller, N. (2011, July 29). Book clubs: Why do we love them so much? Is it the zucchini bread? *Slate*. Retrieved from http://www.slate.com/articles/news_and_politics/assessment/2011/07/book_clubs.html

Hirsh-Pasek, K., & Treiman, R. (1982). Doggerel: Motherese in a new context. *Journal of Child Language, 9*(1)*,* 229-237. doi: 0.1017/s0305000900003731

Hogan, B. (2010). The presentation of self in the age of social media: Distinguishing performances and exhibitions online. *Bulletin of Science, Technology & Society, 30*(6), 377-386. doi: 10.1177/0270467610385893

International Telecommunication Union. (2014). ICT Statistics Database. Retrieved from http://www.itu.int/en/ITU-D/Statistics/Pages/stat/default.aspx

Johnson, S. (2010, June 19). Yes, people still read, but now it's social. *New York Times*,. Retrieved from http://www.nytimes.com/2010/06/20/business/20unbox.html?_r=0h

Kingsley, P. (2010, July 14). The art of slow reading. *Guardian*,. Retrieved from http://www.theguardian.com/books/2010/jul/15/slow-reading

Kraut, R., Patterson, M., Lundmark, V. et al. (1998). Internet paradox: A social technology that reduces social involvement and psychological well-being?. *American Psychologist, 53*(9), 1017-1031. Retrieved from http://psycnet.apa.org/index.cfm?fa=buy.optionToBuy&id=1998-10886-001

Kraut, R., Kiesler, S., Boneva, B. et al. (2002). Internet paradox revisited. *Journal of Social Issues, 58*(1)*,* 49-74. doi: 10.1111/1540-4560.00248

Kriz, S., Anderson. G., & Trafton, J.G. (2010). Robot-directed speech: Using language to assess first-time users' conceptualizations of a robot. HRI '10 *Proceedings of the 5th ACM/IEEE International Conference on Human-Robot Interaction*. Piscataway, NJ: IEEE Press (pp. 267-274).

Leggatt, H. (2008, September 29). Nielsen Mobile: Texting vs. talking. *Bizreport.com*. Retrieved from http://www.bizreport.com/2008/09/nielsen_mobile_texting_vs_talking.html

Lim, A. (2013, Posted March 18). Japanese robot Actroid gets more social, has no fear of crowds. *IEEE Spectrum*. Retrieved from http://spectrum.ieee.org/automaton/robotics/humanoids/japanese-robot-actroid-sith

Ling, R., & Pedersen, P. (Eds.). (2005). *Mobile communications: Re-negotiation of the social sphere.* London: Springer.

Long, E. (2003). *Book clubs: Women and the uses of reading in everyday life*. Chicago, IL: University of Chicago Press.

Marche, S. (2012). Is Facebook making us lonely? *The Atlantic*, May. Retrieved from http://www.theatlantic.com/magazine/archive/2012/05/is-facebook-making-us-lonely/308930h

McPherson, M., Smith-Lovin, L., & Brashears, M.E. (2006). Social isolation in America: Changes in core discussion networks over two decades. *American Sociological Review, 71*(3)*,* 353-375. Retrieved from http://www.jstor.org/stable/30038995

Mori, M. (2013). Uncanny valley revisited: Mashahiro Mori. Special session of IROS 2013, Tokyo. Retrieved from https://www.youtube.com/watch?v=0g0sH3jTaVch

Nie, N. & Hillygus, D.S. (2002). The impact of internet use of sociability: Time-diary findings. *IT & Society*,*1*(1)*,* 1-20. Retrieved from *sites.duke.edu/hillygus/files/2014/05/v01i01a01.pdf*

Nishio, S., Ogawa, K., Kanakogi, Y. et al. (2012, September 9-13). Do robot appearance and speech affect people's attitude? Evaluation through the ultimatum game. *IEEE International Symposium on Robot and Human Interactive Communication*, Paris.

Nova Science Now. (2011, August 14). Social robots. Retrieved https://www.youtube.com/watch?v=ZAMR7F47oBc

NPR Fresh Air (2012, October 17). In constant digital contact, we feel 'alone together'. Interview with Sherry Turkle. Retrieved from http://www.npr.org/2012/10/18/163098594/in-constant-digital-contact-we-feel-alone-together

Ozick, C. (2000, May 7). Where to connect to the inner hum. *New York Times Magazine*. Retrieved from http://www.nytimes.com/2000/05/07/magazine/where-to-connect-to-the-inner-hum.html?pagewanted=all&src=pm

Papert, S. (1993). *Mindstorms: Children, computers, and powerful ideas*. New York, NY: Basic Books.

Pea, R., Nass, C., Meheula, L. et al. (2012). Media use, face-to-face communication, media multitasking, and social well-being among 8- to 12-year old girls. *Developmental Psychology, 48*(2)*,* 327-336. dx.doi.org/10.1037/a0027030

Proust, M. ([1905] 1971). *On reading*. Trans. and Ed. by J. Autret & W. Burford. New York, NY: The Macmillan Company.

Prpick, S. (2013, February 25). 'Social reading' the next phase of e-book revolution. CBC News Documentary, "Opening the book". Retrieved from http://www.cbc.ca/news/canada/story/2013/02/22/f-prpick-ebook.html

Rainie, L., & Wellman, B. (2012). *Networked: The new operating system*. Cambridge, MA: MIT Press.

Riesman, D. (1950). *The lonely crowd: A study of the changing American character*. New Haven, CT: Yale University Press.

Sacks, H., Schegloff, E., & Jefferson, G. (1974). A simplest systematics for the organization of turn-taking in conversation. *Language, 50*, 696-735. Retrieved from http://www.jstor.org/stable/412243

Schegloff, E., & Sacks, H. (1973). Opening up closings. *Semiotica*, *8*, 289-327. doi: 10.1515/semi.1973.8.4.289

Schiffrin, D., Tannen, D., & Hamilton, H., Eds. (2001). *The handbook of discourse analysis*. Malden, MA: Blackwell.

Shulezitz, J. (2002, May 19). The close reader; You read your book and I'll read mine. *New York Times Book Review*. Retrieved from http://www.nytimes.com/2002/05/19/books/the-close-reader-you-read-your-book-and-i-ll-read-mine.html.h

Snow, C., & Ferguson, C.A. (Eds.). (1977). *Talking to children*. Cambridge, UK: Cambridge University Press.

Stein, B. (2013, March). The future of the book is the future of society. See "Archives" for March 2013. Retrieved from http://futureofthebook.org/blog

Tang, W.H.I. (2007). Facial expression recognition for a social robot. Unpublished Masters in Engineering Thesis. Cambridge, MA: Department of Electrical Engineering and Computer Science, Massachusetts Institute of Technology. Retrieved from http://dspace.mit.edu/handle/1721.1/46467

Turkle, S. (2011). *Alone together: Why we expect more from technology and less from each other*. New York, NY: Basic Books.

Wellman, B., Haase, A., Witte, A.J., & Hampton, K. (2001). Does the internet increase, decrease, or supplement social capital?: Social networks, participation, and community commitment. *American*

Behavioral Scientist, 45, 436-455. doi: 10.1177/00027640121957286
Yates, J., Orlikowski, W., & Woerner, S. (2006, November 27). Conversational coherence: Using email threads to coordinate distributed work. Working Paper, MIT Sloan School of Management. Retrieved from http://seeit.mit.edu/Publications/ThreadingCoherence_27Nov06Working Paper.pdfh

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