

An Atlantic Monthly article posed a provocative question and set off debates across our electronic spheres: "Is Google Making Us Stupid?" However, the article didn't engage whether or how specific interactions and interfaces may contribute to increased intellectual acumen, or lull us into somnambulistic stupor. This presentation will examine that question at the interface level, in an attempt to discover how seemingly routine interaction design decisions made in the name of ease of use may be inadvertently shaping human consciousness, as with our laptops, into becoming "dumb terminals," with more and more thinking processes "outsourced" to The Cloud. This discussion will also be strongly informed by the framework presented in Jonathan Zittrain's new book, "The Future of the Internet—And How to Stop It," comparing prescriptive use interfaces associated with "tethered appliances" with those considered more "generative" technology.



The accordion was invented by Friedrich Buschmann in 1822 in Berlin. He called invention the Handäoline. In 1829, Cyrillus Damian of Vienna created another version of this instrument and gave it the name of accordion because of the addition of buttons, played by the left hand, that sounded chords. ("Accord" is the French term for chord.) Eventually, the name accordion was used for all instrument of this type. It has been a popular instrument through the years with large organizations over the world created for accordion enthusiasts. It has been popular in many cultures as the main instrument in several musical genres. These include cajun zydeco from America, polka of Europe and America, Latino polka of Mexico, tango of Argentina, and classical transcriptions of European composers of the 19th and 20th centuries.



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An Overview	
Nick Carr's Atlantic Monthly Article: "Is Google Making Us Stupid?"	
 Framework of Jonathan Zittrain's book: The Future of the Internet and How to Stop It 	
 Similar Frameworks and Dichotomies 	
And then there's the Blinking 12	
 What does it mean for information architecture and interaction designation 	gn?
 Would an accordion or a photographic darkroom ever be designed by one of us today? 	
How can we strive to design for greater "Generativity"?	
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	Overview	
What is a "D	umb Terminal?"	
What is "The	Cloud?"	
Is it a bad thi	ng to be a "Dumb Terminal?	n
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What computers would look like in 2025, a hoax. What this really symbolizes is a view of our future from the IDEA of mainframes as the central repository of all computing power, surrounded by high priests or technocratic gods in white coats or at least men in suits. All else were presumed to be essentially, dumb terminals, those who approach to access the power, the holy of holies...



This we might call this the original "dumb terminal." It doesn't DO anything except act as a common carrier. The end points are the information sources, and other than switches, it doesn't access anything on the Cloud.

Old junior high playground joke: A guy is moving into his new house, and giving instructions to the movers on where to put the boxes and furniture. "Put this here, put that over there, put the hollow statue there," and so on, he told them. So the movers did the job, but at the end, they told him they could not find the hollow statue he kept referring to. He was puzzled. "The hollow statue?" he says. "You know what that is. That's the thing where it goes 'ring ring,' and you pick it up and say 'hollow, is statue?"

Hollow Statue. Bad joke, but a deeper metaphor. A device that can't do anything by itself, until something, some source, "fills it up." The richness of this device is its ability to connect two communicators who are not dumb terminals, are not "Hollow Statues." They have something to say. But our networks also now have something to say, and they also have content to fill up our "hollow statues."



From this standpoint, you see that I have an bias, an interest in reaching a negative answer to the question I posed at the beginning of this talk. I don't want human beings to be dumb terminals. I don't want to fear out-sourcing too much of my own "smart terminal" functions to the Cloud, this rich database in the sky.



Once students began carrying laptops everywhere, an interesting dependency developed. There were times in class when I asked a question and students would glance helplessly at the machines, as if to say, "The answer isn't in my carbon-based brain, but I know I got it right here, on silicon."

Or, if the answer wasn't stored in their notes on the hard drive, it became a contest in which students would search the Net madly to compete for extra credit points.

It was always a sad day for the ones who showed up with a dead battery and no power cord, a busted keyboard or loose wireless card. They watched the rest of the class in a flurry of activity, frustrated and feeling like half of their brains -- more than half for some students -- was missing. [...]

If we think of ourselves as somehow projected outside our bodies, one's sense of self becomes increasingly fragmented. My math brain lives partly inside a calculator.

My consciousness isn't just split between gray matter and a hard drive or two. Now part of it lives on the Internet and seems to stay there all the time. While I may feel a bit diffuse, mostly I observe changes in what McLuhan called our "sense ratios," like a goldfish changing from one kind of aquarium to another. We adapt. We gain some things, lose others.



Why I bought my iTouch, because I wanted a "dumb terminal" to give me access to the Cloud. And why I didn't buy an iPhone (Montana).

So is it a bad thing to hollow ourselves out a little, to leave room for what we gain from The Cloud, not as a dependency for what we can no longer do, but as an extension of our minds?



Nick Carr's book, the Big Switch, article adapted from one of the last chapters. His main concern is **is that we are losing our ability for extended concentration and deep reading**, for reading whole books and even the lengthy articles such that are published in The Atlantic and Harpers and the New Yorker, articles like this one.

This is not a new argument. More than 10 years ago Sven Birkirts was sounding this alarm in the face of the nonlinearity of hypertext linking and reading, advancing a claim electronic texts would spell the end of books.



Main Argument

Clive Thompson: "The perfect recall of silicon memory can be an enormous boon to thinking."

Nick Carr: ""Once I was a scuba diver in the sea of words. Now I zip along the surface like a guy on a Jet Ski."



Greeks with their incredible memory skills, part and parcel of an oral culture before writing became dominant, so the works of Homer were passed on as oral stories, Greeks, who could recite lengthy speeches with the aid of rhetorical techniques and memory devices as a key element in the Polis, in their democracy.







Sense ratios shift with changes in media and interaction.

Our concern here is not shorter attention spans so much as it is the out-sourcing of our mental activity not just to a calculator, but extending our central nervous systems to the Cloud, and what effect that may and perhaps could have on interaction design.



Just as McLuhan points out, the conversations you have by candlelight are different from the conversations you have by fluorescent... so too as our sense ratios and media mix shift, and a big part of that shift is cultural and potentially disruptive.

Clay Shirky referenced it again just recently, in the face of the decline of newspapers right now. Shirky points out the social upheaval then and perhaps now was much more disruptive than perhaps we like to think, as these shifts take place.



Zittrain, co-founder of Harvard's Berkman Center, a cyberlaw researcher who speaks primarily to that community, but also to those who study broader cultural effects with technology and cultural criticism, analyzing the ramifications of larger social effects.

So while Zittrain isn't speaking directly to designers, his message is of great importance to designers, especially to designers who care about the larger ramifications of their designs.

It is also worthwhile to note the image on the cover of the book, the fork in the tracks, and one set of tracks going right off a cliff. Zittrain believes, and I am persuaded, that the consequences of not considering these issues are quite dire and could spell the end of the Internet as we currently know it, as it begins to morph into something we may not like as well.

Framework of Jonathan Zittrain's "The Future of the Internet and How to Stop	lt" 19
 Technology before PCs and the Internet Centralized mainframes (IBM business model) used app maintained and updated as part of leasing agreement w vendors. 	lications ith the
 Devices for individuals or businesses were designed for single purposes, as appliances (e.g. word processors, acc databases). 	limited or counting,
 Closed networks with proprietary technology did not allow users to shape or contribute to the platforms (e.g. AOL, CompuServe, Prodigy). 	
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Framework of Jonathan Zittrain's "The Future of the Internet and How to Stop	o It" 21
Now we face a Revenge of the Tethered Appliances or "Dumb T	erminals"
The write-ability of PCs and the content-blind packet needed to be a set of the set o	etwork ng,
 As a result, vendors are closing platforms in the name of protecting consumers, or in response to consumer demand, at a heavy price. 	
 Or, like the Apple Application Store, vendors give the a of supporting third party development, while acting as (and monopoly-guarding) gatekeepers. 	ppearance "editorial"
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Zittrain goes into a good deal more detail in the book on the potential dangers facing our networks, and on the "medicine" being prescribed to protect us from those dangers, medicine that could be worse than the disease.

For our purposes today, I want to focus on the dichotomy of his framework, between generative interfaces, and more limited interfaces that support tethered appliances.

Similar W	ays of Looking at Technology: Dichot	omies
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Neal Stephenson's essay (available online):

"In the beginning was the command line..."

- Framed two kinds of cultures as a dividing point, two kinds of "geeks," as those who interact directly with command line code (and understand the guts of the operation) vs. those who work on technological surfaces, on the GUI.
- Analysis of Stephenson's cyberpunk fiction also betrays this bias, as his "hacker heros" find answers deep in code, are the deeper thinkers, the "smarter terminals," those with the skillset to "Hack the Brainstem."

And in Robert Pirsig's classic "Zen and the Art of Motorcycle Maintenance,"

Pirsig wrote of two kinds of orientations people have for maintaining motorcycles:

The "Classical" orientation understands the deep inner workings of the machine and fine-tunes it endlessly; can break it down, keep it up, maintain it personally.

The "Romantic" orientation loves motorcycling no less, but loves its surfaces, the thrill of the ride, the purr of the engine, the "GUI" of the motorcycle, if you will, its "Cultures of Simulation" (Turkle) rather than "Cultures of Calculation."



For those who are familiar with HG Wells' story, The Time Machine, we might consider the Eloi, the beautiful surface dwellers of the future as the ultimate in "dumb terminals."

Wells postulates a future that illustrates Stephenson's and Pirsig's concerns writ large, as humanity has split into those who live in a beautiful culture of Simulation and those who maintain the inner workings through access to generative techological tools, the engineers, imagined here as monsters, the Morlocks who Stay Up Late, who also happen to eat the hapless Eloi as a captive herd.

The power equation between these two worlds cannot be lost on us.



H	low Do We Design for Generativity?	
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What is the fundamental purpose of my talk? To suggest ways that user experience professionals can make concrete cases for more generative interfaces—to fight the move to tethered appliances IN THE NAME OF USABILITY.

To inspire our profession to stand up and say, "Not in our name will you create this narrow, limited, closed platform nightmarish new world!" Can we really stand against highly usable-limited use tethered appliances? CAN WE MAKE THAT CASE?

It is beyond the scope of my talk today, but I'd like to pose that question to you in the discussion period: Have we painted ourselves into such a corner in this profession with usability as our cornerstone that we HAVE to drive our train right off this cliff?



Why should we care? Our future is at stake. If you are what you eat, you are also what you put into your head.

Television may thankfully turn out to be just a blip in a larger history of how humans interact with media. Its lowest common denominator modeling of mass audiences and undifferentiated sixth graders with low literacy and intelligence skills will also pass away. Audiences are too various and diverse and rich to stay confined in that one-to-many broadcast model box—they had to break free.

But The Powers That Be can still try to shoehorn people into that mold, like leftover horseless carriages of broadcasting, because of the seductions of simplicity and scalability, the attractions of the mass for revenue accumulation, the bottom line.

This we must resist! We CAN build interfaces that scale for many-to-many models of communication, rather than the restrictive and undifferentiated one-to-many.



Our new media is NOT dumbing us down if we build generative terminal AND Cloud interfaces and information structures and avoid the reactionary outcry for "safer" and more usable tethered appliances.



Sometimes you have to design for generativity as DIFFICULTY, not overwhelming difficulty, but challenging difficulty that can lead to skill and craft mastery, like with accordions and other musical instruments, like with photographic darkrooms.



Without those opportunities for skill and creativity to thrive, we have no Magicians, no master builders. Am I elitist in this call for a more challenging, generative interfaces? No.

The Many-to-Many interactive communication model undermines elitism, while the lowest common denominator of one-to-many model often betrays the populism it supposedly touts.

One-to-Many communication forms spawn demagoguery, not greater democratic participation.





This is more of a extension of a busy mind, a tinkerer's workshop.

This is one creator's "Cloud."



A history of generative support for tinkerers, inventors, ordinary people empowered by technology.

The Popular Mechanics culture has morphed into others, Make magazine, Mother Earth magazine, and of course, the hacker ethos, the cyberpunk.

But will these cultures survive if cars can no longer be worked on by ordinary people? When your car has to talk to the computer back at the plant in order to figure out what needs fixing? When people no longer have the tools to build "Rapid Transit for Everybody," or even an "Electric Accordion Organ?"







Perhaps the case for image creation tools and their integration with social media is too easy, as few object to or find subversive and threatening the contributions of visual artists to our larger Internet ecosystem. And these tools are developing well-established design patterns that keep me out of the nasty chemicals of the darkroom.



But should programmers and deep code designers be allowed these kinds of generative tools? The problem with all kinds of tinkerers is that they don't tend to "color inside the lines." Open systems require the architects and builders of such systems to support such recombinant and potentially subversive transgressions, the divergences as well as the convergences.

We have to design with room for divergences.



In February, John Markoff's article here appeared in the New York Times. He interviewed researchers at Stanford who believe the solution is to start over and create a newer and better Internet, since, as Zittrain also catalogs, "we're just waiting for a series of public catastrophes."

Ed Felton, at Freedom to Tinker.com was one of many who pointed out, a redesigned "safe" Internet won't be safe, and at worst, it would be a political football to all who want to tone down not just its openness, but also its neutrality, its anonymity, its endless digital copies of everything.

But his best quotation is this, (attributed to Gene Spafford) "If people are getting mugged at bus stops, the solution is not to buy armored buses."



My answer is NO. HUMAN BEINGS ARE NOT BECOMING DUMB TERMINALS. However, as we become increasingly jacked into the Cloud, we ARE out-sourcing much more of what we used to do in our heads. We can call this all a pretty serious "sense ratio shift."

But it is NOT the end of the world or even the dawning of a new Dark Age. Our minds gain some capabilities, and we lose some capabilities

How many of you remember doing math before calculators? Are your math skills as sharp as they used to be? Does that mean we should throw calculators away?



WHY DOES THIS MATTER? Even if sense ratios are shifting to a new media mix with new kinds of "writing" that externalize more and more of our memories and thoughts in the Cloud as if it were Dumbledore's Pensieve—even if that is NOT scary and can be wholeheartedly embraced—we do still need to guard against certain politics of deep structure interfaces which influence that media mix and shape our extended brains and central nervous systems as they run around on the ethers.

We need to guard against a real risk of a descending Dark Age, a velvet curtain that represents a bigger threat to our collective intelligence and ability to innovate: a loss of generativity if our interfaces shift more to limited use, tethered appliances.



Our beautiful, gorgeous Cloud represents an amazing knowledge transfer project, and we risk depriving ourselves of the fullest use and access to it due to overly-simplified, dumbed down and prescriptive or restrictive interfaces—interfaces that are gateways only to tethered appliances for the masses.

What would such a tethered appliance world look like with a rich resource, yet with no real recombinant or creative or constructive access to it? It might look like the television and Hollywood production system, one-to-many, with high production values but little direct access, except through passive consumption.



Works Cited

Bernstein, M. "Is Google Making Us Stupid?" Blog post: June 25, 2008. Retrieved from http://www.markbernstein.org/Jun0801/IsGoogleMakingUsStupid.html March 1.2009.

Birkirts, S. (1994) The Gutenberg Elegies: The Fate of Reading in an Electronic Age. Boston: Faber and Faber.

Boese, C. (2004) "This is your brain on silicon. Any questions?"; (alt title: "The Screen Age: Our brains in our laptops") CNN.com, "BuzzFactor" column. January 26, 2004. www.cnn.com/2004/TECH/01/26/hln.hot.buzz.silicon.brain/index.html.

Bezroukov, N. (1996-2009) "Obscurantism in Information Technology: Nicholas Carr's "IT Does not Matter" Fallacy and "Everything in the Cloud" Utopia"; Softpanorama. Retrieved from

http://www.softpanorama.org/Skeptics/IT_skeptic/it_obscurantism.shtml March 1. 2009.

NPR Bryant Park Project. (2008) "Is the Internet Making Us Stupid?" Radio broadcast June 16, 2008. Retrieved from

http://www.npr.org/templates/story/story.php?storyId=91543814 March 1, 2009.

Carr, N. G. (2008) "Is Google Making Us Stupid?" The Atlantic Monthly. July/Aug. 2008. Retrieved from <u>http://www.theatlantic.com/doc/200807/google</u> March 1, 2009.

Carr, N. G. (2008) The Big Switch: Rewiring the World, from Edison to Google. W.W. Norton & Co.

Carr, N.G. (2008) "Is Google Making Us Stupid?": sources and notes" Blog post on Rough Type: Aug. 7, 2008. Retrieved from

http://www.roughtype.com/archives/2008/08/is google makin.php March 1, 2009.



Works Cited continued.

Battles, M., Birkirts, S., Gorman, M. et. al. (2008) "Is Google Making Us Stupid?: Britannica Forum: Your Brain Online." Blog post: July 17, 2008. Retrieved from <u>http://www.britannica.com/blogs/2008/07/this-is-your-brain-this-is-your-brain-on-the-internetthe-nick-carr-thesis/</u> March 1, 2009.

Pirsig, R.

Plato (1973, 360 B.C.E.). The Phaedrus and Letters VII and VIII. London, Penguin Books. (full text of The Phaedrus can also be read online at <u>http://ebooks.adelaide.edu.au/p/plato/p71phs/phaedrus.html</u>)

Postman, N. (1993). Technopoly: The Surrender of Culture to Technology. New York, Vintage Books.

Stephenson, N. (?) "In the beginning was the command line..."

Turkle, S. (1995). Life on the Screen. New York, Simon and Schuster.

Wells, H.G

Zittrain, J. (2008) The Future of the Internet and How to Stop It.

