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Description
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The Internet and the “Just-in-time” Mind

Posted on October 4, 2010 by Admin

By David J. Staley

A Berglund Center Tenth Anniversary Essay

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However you may feel about its politics, Garry Trudeau’s Doonesbury is particularly good at identifying broad social trends in our culture. One of my favorite strips takes place in a college lecture hall. A student sits in his chair furiously typing away at his laptop, obviously distracted from the lecture. His device pings him: a fellow student warns him “Head’s up dude—professor just asked you a question.” None of his friends seems to know what the question is, since no one in the room apparently is paying attention to the professor. One of the student’s electronic classmates overhears the question and chats back “name four major greenhouse gasses.” The student pings his friend “stall her while I Google the answer.” From the back of the auditorium, we hear “Professor, we couldn’t hear the question back here, could you repeat it?” “I asked Mr. Harris to name four major greenhouse gasses,” replies the teacher, after which comes the immediate reply from Mr. Harris “Water vapor, CO2, ozone and methane.” The professor concedes “uh…right.” Triumphanty indifferent, our student chats back to his friend “If this keeps up, I’ll never get through my email.”

I have shown this cartoon to a number of teachers over the last few years. They immediately light upon the behavior of the students, and decry the use of laptops in their classes. The students are distracted from the class, are having their attention drawn away from the lecture, indeed are not even engaged in the class, but are rather chatting with friends or emailing or surfing the web. When pressed, teachers express concerns over classroom management and control in such an electronic setting. Not only are the students distracted from the lecture, this appears to be a coordinated distraction, as the students are engaged in a subterranean conversation extraneous to the formal class. The students come across as wily and duplicitous,
conning the professor with their clever use of technology.

But upon deeper examination, many teachers also see an issue with the professor’s behavior, or at least with the entire pedagogical architecture of the class. The professor has asked a relatively simple question, one that can be easily looked up. The underlying pedagogical assumption as expressed in the behavior of the professor is that the student, having diligently read the material the night before or having been attentive to the lecture, should have such information ready to recall at the professor’s insistence. This is, of course, a standard way to think about education: information and knowledge is deposited in student minds, ready to be recalled upon demand. (It is the underlying logic of standardized testing.) This student, Mr. Harris, clearly does not have this information at ready recall, in his memory, at any rate. A quick check of Google, of course, yields the answer as quickly as if it were embossed upon his memory. Teachers understand the implications: if such answers, if such information is so readily available on the Internet and if students have easy access to that Internet through a laptop or some other portable device, perhaps the “deposit” model of teaching and educational assessment needs to be reexamined.

Given that I am an historian and a futurist, I cannot help but to place events in a wider and deeper context, which is what I would like to do with Doonesbury’s visual anecdote. As an educator, I am particularly interested in the effects of the Internet on knowledge. These effects should be placed in a wider historical context, certainly that of the emergence of electronic communications generally (starting with the telegraph), and perhaps even longer. I would like to argue here that the Internet represents the next great extension of the “external symbolic storage system” humans have developed since the beginnings of civilization. For all of the dramatic and disruptive change that the Internet surely represents, placing it in this long-term historical context renders this change more familiar, perhaps even less jarring.

When considering the status of knowledge, the present moment might be described as the era of “just-in-time knowledge.” The situation described in the Doonesbury cartoon is an example of what I mean, that it seemingly becomes unnecessary to retain information in our physical, biological memory. Since information and knowledge can be stored on the Internet, and since I can easily access that knowledge wherever I might be, then I need only to access this “external memory” when called upon. Obviously, this has all sorts of implications for education as we currently conceive it. Is the Internet “making us stupid,” as Nick Carr would have it, by messing around with the brain’s wiring system, making us all as attention-deprived as the Doonesbury character? Observers remark that we live in the era of cloud computing, but one could easily make the case that we have been surrounded by an informational “cloud” for much of recorded history; since the first Venus figures and cave paintings, humans have been devising ways to create and store “tokens of memory” in visible, external form. The human mind conceives and constructs tools of cognition, like art, writing, books, and libraries. These cognitive tools, in turn, reshape the very mind that conceived them, a process that has spanned millennia. Far from “making us stupid,” the Internet represents (merely) the next step in a much longer cultural and historical process.
As an educator, I am interested in what this all means for the status of knowledge and education. I’d like to place the Internet as an external symbolic storage system in the context of other such systems, especially the Library. For academics, the Library remains our dominant metaphor for the University: indeed, the Library itself is assumed to physically and conceptually sit at the center of the University. The Internet as cloud, the Internet as a system that facilitates just-in-time knowledge challenges that central metaphor: we no longer need travel to a central physical location to access knowledge, since that knowledge now swirls around us, accessible from whatever location. There are, of course, disquieting implications for the University, especially if we adhere to the idea that the University is grounded in place. A placeless Cloud of information and knowledge might force us to re-imagine the University as similarly placeless and just-in-time.

All of this raises important questions: Is the knowledge on the Internet any good? The shelf-life of electronically preserved information seems volatile and short; can we live with “evanescent information?” Is this move into a just-in-time cloud healthy for humanity?

And what of the Gutenberg Galaxy? What is the fate of “typographic man,” whose knowledge was tethered to physical books and its larger systems of storage (like libraries) and the pedagogical assumptions that followed? Rather than seeing such a cognitive system disappear, as many fear, I suspect that typographic culture but will probably become a vestigial part of our cognitive system, vestigial to an electronic system that features sound and movement and other (actually ancient) forms of knowledge.

To understand what the future holds for the Internet, beyond the present moment, we must place it in a much wider and deeper historical and temporal context. To do so will, I believe, make us less alarmed by the impact the Internet is having on our minds and on our culture, and more balanced in our assessments.

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2 THOUGHTS ON “THE INTERNET AND THE “JUST-IN-TIME” MIND”

Pablo Giza

on January 30, 2014 at 5:44 PM said:

you are truly a excellent webmaster. The website loading pace is incredible. It seems that you are doing any distinctive trick. Moreover, The contents are masterwork. you’ve done a great job on this topic!
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on February 5, 2014 at 3:20 AM said:

Yesterday, while I was at work, my sister stole my iPad and tested to see if it can survive a 40 foot drop, just so she can be a youtube sensation. My iPad is now destroyed and she has 83 views. I know this is completely off topic but I had to share it with someone!
The Internet, in addition to its communicative purposes, has become a vital tool for exchanging knowledge and education; it is not just an information source, or a locus where results can be published, it is also a channel for cooperating with other people and groups who are working on related research topics. As in the sphere of education, the development of information and communication technologies and the wide-ranging effects of globalization are changing what we are, and the meaning of cultural identity. Ours is a complex world in which cultural flows across borders are always on the rise. The concepts of space, time, and distance are losing their conventional meanings. Cultural globalization is here, and a global movement of cultural processes and initiatives is underway. The Internet is just a few decades old, but in that short span of time it has experienced significant changes. It grew out of a hodgepodge of independent networks into a global entity. It serves as a platform for business, communication, entertainment and education. And you can connect to this enormous network through dozens of different devices. According to Akamai Technologies, which publishes a quarterly state of the Internet report, the average global data transmission speed in late 2009 was 1.7 megabits per second [source: Akamai]. Compare that to the record for data transmission speed set by Bell Labs: 100 petabits per second [source: PhysOrg]. That's equivalent to 100 billion megabits per second. At that speed, you could transmit 400 DVDs worth of data every second. In 2007, UCLA professor Gary Small tested experienced surfers and newbie Internet users, asking them to Google a variety of preselected topics. In his experiment, he monitored brain activity, noting that experienced surfers showed much more activity than novice users, especially in the areas typically devoted to decisions and problem solving. He brought them all back six days later, this time having the newbies spend an hour each day searching online in the period before they came back. "Five hours on the Internet and the naive subjects had already rewired their brains," noted Small, suggesting that over time, Internet use changes neural pathways. Our brains constantly seek out incoming information.