Disenfranchised Digital Natives:

Janet Hansen

San Jose State University

Indiscriminate information consumption is to the Second Dark Ages what illiteracy was to the First.

David Ganz

An observation paper allows the luxury of anecdote in the first person: consider this recent experience at the high school where I teach. This Northern California school has a growing number of Latino students, currently 33%, the majority of whom are also on the federal free and reduced lunch program. The remaining percentage is almost entirely Anglo, middle and upper class, with a small percentage of low socio-economic status students. As a Program Improvement District under No Child Left Behind, we are working hard at every school to close the achievement gap, increase the literacy of our students, and prepare our graduates for higher education. Naturally there is disagreement even among informed and well-intentioned educators about how best to reach those goals. Several years ago a teacher technology coordinator for the school returned from a conference. She was granted time at a faculty meeting to share the highlights. Our students, she presented, are “digital natives”, while we teachers were “digital immigrants”. Research, she told us, shows that these students, “bathed in bits” since birth, are able to multi-task, learn at a much higher rate of speed, collaborate and community-build in search of innovative solutions to problems. The big news she brought back from the conference was this: the reason our students fail to achieve in school and on tests is that the digital immigrants have not adjusted their antiquated, sequential lessons to match the abilities and learning styles of the new student’s brain. Many teachers suffered in the wake of this presentation from a chronic indigestion of cognitive dissonance: how to reconcile the offered portrait of the digital superchild with the reality of the students in our room, who frequently

appeared overwhelmed, distracted, and exhausted, and often performed far below grade level in basic academic tasks. While teachers struggled to digest this paradox, discussion of the "digital native" paradigm reached the popular culture, seizing the attention of school boards and politicians. Soon after making her presentation to the staff, our technology coordinator, a math teacher just one year before, controlled most available professional development funding, made major decisions about curriculum delivery for all departments, and had influence over the adoption of any new curricular material.

My first person vantage also allows me space for a disclaimer. I am not a curmudgeonly luddite, opposing new ideas, techniques and equipment as inevitably inferior to the old. Access to the exciting possibilities of current technology, supported by relevant curriculum, could engage and empower many of our unsupported students. Innovation in education is desperately needed, as, especially for some of our most vulnerable students, public schools are clearly not providing preparation for future success. The purpose of this paper is not to rant and complain about the educational shortcomings of 21st Century students (although I do think latitude in the area of whining ought to be extended to public high school teachers, as a benefit in lieu of decent pay). The premise of this paper, supported by both my observations and research, is that the spurious concept of the digital native has allowed society to neglect fundamental necessities in modern curriculum, to turn a blind eye to serious social inequities which perpetuate old forms of privilege and rank, and has been used to support the enrichment of some at the expense of the best interests of the students and schools.

The popular media concept of the digital native has led to a kind of juju thinking, with technological purchases as fetish objects. Just through proximity to these devices—just by manipulating them for their most accessible entertainment purposes, students will acquire a deep

understanding of the machine, a roadmap for navigating online content, and the ability to process and evaluate that content once located. Clearly, budget committees are given to understand, if those things are true, schools don't need more teachers or more money or more time--they need some more machines. My district has been typical of many nationwide: in this era, when so much emphasis in education is placed on data driven decision-making, major resources were reallocated to support the purchase and maintenance of increased technology without any evidence of its significant effect on student achievement—millions of dollars spent and major decisions taken on the basis of a few catchy pop-culture articles.

Begin with technology use at the mechanical level. In the average high school, few students have any significant technical knowledge of the actual workings of modern technology, and many also reach the end of high school without mastery of the fundamental skills associated with work on the computer, such as word processing, spreadsheet creation, or storing and moving data. In my journal I recorded my interaction with the two boys who needed assistance to format their document with the required margins, font, etc. These junior boys were Latino, but I have had similar exchanges with a broad range of students. One semester of "Introduction to Technology" is offered to freshmen at our school, but many students who transfer from other school systems are granted an equivalency, and a grade of only 60% is require to pass the class. Especially if a student has no computer at home, practical computing skills are unlikely to develop much past the basic level. As Becker (2009) quotes his campus librarian, "Students come in with entertainment digital experience, but that does not translate into academic digital knowledge" (p. 351). Yet, Marc Prensky's 2001 article, "Digital Natives, Digital Immigrants"--the original source of the eponymous concept, discusses a recommendation Prensky received that students only be allowed to use computers they had built themselves (p.4).

Here is a wonderful idea, full of possibilities for challenging student learning, a modern-day equivalent of Thoreau's suggestion that students be required to build their own schoolhouses. Prensky goes on to say, "It's a brilliant idea that is very doable from the point of view of the students' capabilities" (p.4). The only problem he sees is the difficulty of finding a qualified teacher. Although no such helpers are visible in my journal, every year I have one or two students who are conversant with the mechanics of the computer. They are able to assemble components into a custom unit, add memory to a laptop, or assist with restoration when a system crashes. These students are well known as our own "Geek Squad"—easily visible because there are so few of them. Most students are better represented by the debaters in my observation journal who, far from having the background knowledge enabling them to assemble a computer, were not even able to access a Google document by using an email link. When the University of Georgia tested the computer literacy of 700 computer information systems majors, researchers found that over half the students could not pass a test in six basic forms of computer literacy (as cited in Becker, 2009, p. 352).

Besides conferring upon the digital native impressive mechanical skills, contemporary media celebrate the modern student's access to an unprecedented amount of content. A different and more worrisome conclusion is that technology has not increased students' skill in judging or even acquiring meaningful information, and in some ways has actually decreased their abilities to classify and evaluate what they do find. Examples of this problem abound in the record of my Forensics students researching five contemporary topics, though a few factors might lessen concern. It seems to be a truism of reference research that ease of access to an information system is more important to users than the amount or quality of information generated (Taylor, 1968, p. 181); for debaters this can be doubly true since they do not necessarily need the best information

available, but only the best that is necessary to win a competition. Even given these truths, however, the reference sources gathered by my beginning students are discouraging. First, students clearly have not learned the importance of searching beyond Google for quality information. Although I forced the students to go to the school library website and use the Ebscohost databases, no journal article or other substantial piece of content was excerpted in the final briefs produced. The best quality quotes used from retrieved database material were taken from relatively brief articles in reputable newspapers such the now online *Seattle Post Intelligencer*. Neil Selwyn's 2009 overview of research on the "myth and reality" of the digital native refers to studies emphasizing the "limited use of research tools" which is the actual habit of many students (p.372).

The reluctance of youth to do hard work is not a recently developed trait; perhaps more disturbing than a penchant for Google is the students' inability to recognize the nature and purpose of different kinds of content. This problem is clearly revealed in an analysis of one of the sites used by my students researching in vitro fertilization: *Medical News Today*. In first draft briefs my students cited *Medical News Today* several times. I later examined this site, which is a useful clearinghouse for an assortment of different types of medical content, including many articles from well-known medical journals. Besides quoting two journal articles, my students also cited copy from a link to "The East Bay Fertility Center"(2008), which is clearly delineated as advertising at the top of the page; an article written by unidentified "medical grad students" specifically for the website, and text taken from the linked page of National Partnership for Women and Families (2009). The National Partnership, on examination, looks like a very solid and reputable source for women's health issues, but there was no indication in the brief that my students had evaluated or identified the nature of the advocacy group in the source.

Looking at this group of Forensics students, perhaps the first conclusion that might be reached from the work produced is that they have a terrible teacher, but I'm not going to be too hard on myself yet. I've only had most of these students for a few weeks, and the second year students are returning after a summer free-for-all of unregulated key word searching. These

particular students will ultimately learn to be discerning information consumers, but they are part of a small number. Few classes in a modern high school teach media literacy, and the myth of the confident digital youth, navigating the Internet with sure footed critical awareness, does not encourage school districts to lavish resources on this instruction. Semali's 2002 article on media literacy is an articulate discussion of the social dangers inherent in abandoning young people to make their solitary way through online content, which is fraught with bias and often driven by marketing agendas. In her enthusiastic editorial evoking the work of Don Tapscott, a strong advocate of the digital natives educational view, and Thomas Freidman, influential New York Times editor, Monica Martinez is elated over " a generation that doesn't want to be and won't be passive recipients of products, problems, and services" (75). Selwyn (2009) however, surveys evidence suggesting that digital natives possess an increased tendency to question the status quo- - he finds it "anecdotal' (371). Becker's 2009 survey article mentions several studies indicating students "lack sophistication in understanding and evaluating the information they receive" (p. 352). The experience of many high school teachers supports the conclusion that most students think if something is published on the Internet, it is true. In a harmless but telling example, a few years ago Northern California students debated a bill to abolish the penny. The site "Americans for Common Cents" (2008) was used liberally as a source of statistics in favor of continuing to mint the penny. Only a few schools dug deeper to find that the site was funded mostly by the penny-dependent zinc industry. Becker (2009) is correct when he writes that we are all now wired consumers, but he also points out that students often do not recognize when their shopping decisions are based on brand identification (p. 346). "Teaching and Reading the Millennial Generation" has an excellent example of the type of media instruction depleted school

professional development budgets ought to be underwriting, recommending a "TAP [Text; Audience; Production]" paradigm (Considine, Horton, & Moorman, 2009, p. 478-9).

To assume that our students do not need support in developing media literacy is not only inaccurate, but undermines the strength of our democracy. In *Totally Wired: What Teens and Tweens are Really Doing Online*, an article from the *Youth Media Reporter* states "Young people in particular like attitude and strong beliefs mixed with their news" (as cited in Goodstein, 2007, p.165). When programs like *The Daily Show* or the opinionated commentary of cable channels on both ends of the political spectrum blur the lines between entertainment and news, it is not time to declare as a nation that our children have become skilled propaganda analysts through a process of osmosis. Until I required a revision, the debate students described in my journal, who are among the most academically successful students in the school, were satisfied to cite as support for legal reform a comic book from Realcostofprisons.org (2007), a leftist advocacy group offering only vague information about itself on its website, and as evidence for the value of high-speed rail, words from the website of the Association of American Railroads, clearly labeled on the webpage as a "Washington DC based trade organization" (2009).

Many teachers and researchers differ with the media creators of the digital native image. Hyperbolic claims of technological competence and media sophistication are based on a set of assumptions about the nature of the online activity in which most teens are involved. One thing which cannot be debated—the amount of time spent by participating citizens of all ages on technology-based activities is huge and growing. An article based on Mark Bauerlein's *The Dumbest Generation* quotes a study from the Kaiser Family Foundation which found that young people receive an average of 8 1/2 hours of digital and video input a day (as cited in George, 2008). Alexandra Goodstein's hypothetical Judy Jetson posts Bono's anti-poverty campaign on

her blog (2007, p.10). Tapscott's Rahaf Harfoush (According to her blog Tapscott's assistant on his book, *Wikinomics*, and a "new media strategist" (Harfoush, 2009)—so not your average American teen) is sampling a wide variety of opinions and "triangulating the issues" (2008, p.19), but does the behavior of Judy and Rahaf resemble that of the typical student? My observations and research suggest not. Research cited by Selwyn suggests that most teens online spend a predominance of online time in game playing and text messaging, "passive, solitary, sporadic, and unspectacular" (2009, p.372). Erin O'Connor's review of Bauerlein's *The Dumbest Generation* cites a study of college students that revealed Facebook to be the favorite site of 78.1% of those surveyed, while only 5% of the group read policy, political blogs, or similar on-line discussions. (2009, p.238). The incidents in my journal show the unceasing pervasiveness of the text message in students' lives—I have had students tell me they are too tired to work because they stayed up most of the night sending and receiving text messages in bed. The group of lunchtime visitors wishing they could access MySpace in my room is a small indication of the vast presence of social networking sites in students' lives. Evidence that an increased amount of time online spent gaming, socializing, and viewing funny cat videos increases academic achievement seems lacking, while there is growing support for the conclusion that some online activity may actually be undermining student success.

O'Connor quotes Bauerlein's conclusion, that sustained use of technology as described above "conditions the mind against quiet, concerted study, against imagination unassisted by visuals, against linear, sequential analysis of texts" (2009, p. 237). Barbara Arrowsmith Young, noted expert on learning disabilities, has noticed that students increasingly arrive at her center with what "looks like an attention deficit disorder," she says. "The person has a job or a task and they start doing it but they can't stay oriented to it. They get distracted and

they can't get reoriented. When I started using the programs, I really didn't see a lot of this. I would say now, 50 per cent of students walking through the door have difficulty in that area" (George, 2008). This article continues, pointing out that Young's observations are reflected the research of many concerned neurologists, and that it is possible continuous technological input is wiring students' brains very differently from their predecessors'. Looking at the current state of the world we might conclude that a little rewiring is definitely called for, and, according to Prensky, this re-wiring is beneficial to the students and to the world. Modern students, he states, are "used to receiving information really fast. They like to parallel process and multi-task" (2001). According to a recent BBC News (2009) story, a study published in the *Proceedings of the National Academy of Sciences* showed that a large group of self-described "multi-taskers" actually performed very poorly on standard tests of attention and memory while multi-tasking. I'm reminded of the debaters in my journal, distracted from their task first by a train crash video, and soon after by an iphone application. I also think of the students who tell me they read complex texts better with music on, and then display poor comprehension and retention. Of course, we're all easily distracted when we're not engaged, but many teachers comment on what seems to be a decreasing capacity in students for sustained concentration—an lab which was feasible five years ago may prove too sustained in its demands for today's students.

It's difficult to offer more than anecdotal evidence of decreased attention spans among students, but the decrease in reading skills is a measurable matter of record. Part of this decline certainly is due to the decrease in the amount of time devoted to reading—time for what Bauerlein calls "35 hours a week on peer absorption" (as cited in O'Connor, 2009, p. 235) has to come from somewhere. It may also be true, however, that technology, in both its neurological influence and the behaviors it encourages, is changing the way students read. Part of this comes

from reading on a screen. Web designers have long known that viewers have a pattern they follow in reviewing screen information, which is not the pattern followed in viewing the printed page. Marketers take advantage of this knowledge in laying out the page to be most effective in promoting purchases. This type of screen reading, O'Connor (2009) notes, is "fragmented, partial, and superficial" Another recent article characterized online reading as "skimming and squirreling" (Considine et al., 2009, p. 475). Striking an ominous chord with me as I think back on the printouts I saw (And often later retrieved from the floor) is Becker's (2009) contention that many students who retrieve text from the Internet tend to stop at printing (p. 352). . During the research session described in my journal, relatively short articles were chosen and printed, but in other classes I have recycled pristine 20 page printouts, the contents of which were never reflected in students' work. Unconsciously echoing the magical thinking of those who invented the digital native, some students seem to believe that the acts of retrieving and printing will imbue knowledge without the cumbersome necessity of reading the text.

A subtler and perhaps more damaging form of magical thinking is seen in the anecdotal support offered by many media participants for the attractive theory that Web 2.0 is creating a generation of energetic, committed, and collaborative activists. In her article, "Students as Smart Mobs", Monica Martinez is reassured by the idealistic enthusiasm of students produced by new style schools which emphasize collaboration and technology-based learning. She shares the successes of the New Tech High Schools (2009), all charter schools with student and family application criteria and commitment requirements which must be fulfilled if the student is to remain; "Tinkering School", which research shows to be a $1200, by-application, 6 day summer camp (Tinkering Unlimited, 2009), or the Fremont High School Business Academy, which no longer exists, but whose sibling Fremont High academies, Mandela Academy and Robeson

Performing Arts, had 2008 dropout rates of 6.1 and 18.9 respectively (BNET, 2008).] She quotes an editorial by Thomas Friedman, in which two lively young American girls at an international conference collar Friedman, trying to persuade him to go for a drive around New Delhi, India in the solar car they are driving across that country to increase awareness of alternative energy. Anyone who has spent much time around high school students will quickly recognize that mixture of charm, determination, and self-confidence as most typically the demeanor of the highest-achieving students, those whose considerable gifts have been nurtured and supported by the best efforts and often significant resources of their families. Sure enough, the article soon describes the two young women as "recent Yale grads", as was one of Friedman's daughters according to Marketing Shift (2009), a business blog; the other daughter went to Williams, and his wife, whose family income is discussed in billions, went to Stanford and the London School of Economics. Martinez also quotes Don Tapscott. In a 2008 article Tapscott described the successful multi-tasking of a group of "Net Geners"—his son and four friends at "Amherst College" (p. 18). Mr. Prensky himself, author of the phrase. "digital native", is a Harvard grad. What a revolution! Not only are these digital natives drawn from the same group who have always been successful in school and career, but they have also clearly mastered the traditional school skill sets; otherwise, even with family influence, they would not have been admitted to the schools mentioned, which still rely heavily on assessments of advanced traditional literacy. Friedman's title (2009) says it all: "Yes, They Could. So They Did".

It occurs to me that the myth of the digital native, encouraging schools and families to cede large portions of education to unimpeded time in front of the monitor, is an excellent tool for ensuring the status quo in access to higher education. Is it only a coincidence that the peer-to-peer model of education seen as superior by the writers on the digital native was the original

cost-saving model for factory workers' minimal instruction? When I look at my Latino students spending their break on my classroom computers, searching for whatever entertainment or social media isn't blocked by the school server, I feel responsible. I think of Prensky's (2001) advocacy of video games for instruction, and of how little media education these students receive at school or at home. I remember what institution is using video games so successfully for both training and recruitment: the same institution which markets itself so well to those seeking citizenship and a paycheck: the US Army.

It is disgusting that the myth of the digital native enables denial of the ongoing reality of the digital divide, encouraging cash-strapped school district to allocate resources based on anecdotal evidence of the behaviors of a few privileged and gifted children. Becker (2009) reminds us, "Most generational labels are fitted to the affluent" (p.344). I mentioned in my journal the simple technology survey I give my students each year. In the 4 years I've given it, I've never had more than one or two students in the Forensics class who lacked a computer and Internet access at home. In my heavily Latino and impoverished reading intervention class, in 4 years the (one year only) highest percentage of Internet and computer possession at home was 33%. In every instance in my observation journal of a basic-level problem such as lack of home access or of basic formatting knowledge, the students involved were poor and Latino. Selwyn's (2009) survey of research has strong words on the subject of the ongoing digital divide. He reminds us that technological innovation requires constant effort and investment, not just a one-time infusion of grant money or government stimulus. His sources see the spread of the Internet exacerbating rather than reducing social inequalities, and becoming one of the most damaging forms of exclusion in our economy and in our culture (p. 375).

In criminal trials the legal tradition is to ask "cui bono"—who benefits? There has always been grousing among the elders when new technology supplants the old; perhaps voices of concern should be given more credence when millions of educational dollars immediately flow out toward that new technology. In a report published by Toshiba for use by its sales people in 2005, Toshiba reported that US K-12 schools were projected to spend over 5 billion dollars on technology, an 18% increase since 2003—and this was 6 years ago! Considering that the Indian education system has made enormous strides, even prior to its recent attempts to increase spending on technology, it seemed useful to investigate some of the changes being made there. On a recently visited education webpage an article quoted an anonymous university professor who said, "The group established to formulate the national policy is packed with technology vendors, each with a clear vested interest in specific policy choices'' (One World, 2008). Toshiba was happy to tell its salespeople that both the Enhancing Education through Technology and No Child Left Behind require spending on technology. It should certainly be noted that Marc Prensky (2001), the original animator of the digital native golem, designs training video games for a living. It is certainly in his best interest for our society to believe that digital education is automatic and beneficial.

Toshiba says introducing children to technology at an early age is "one important step toward helping them succeed in school", but Mark Bauerlein finds many discrepancies in the theory that "more and better technology equals more and better education" (as cited in O'Connor, 2009, 234). As someone who cherishes my iphone, decorates my macbook screen with digital lights at Christmas, and would never go on a trip without my kindle, ipod, and digital camera, I know that technology can be life enhancing and a boon to education. No serious person is proposing that teens are better off spending 5 hours a day on Facebook than pursuing more

traditional educational activities (or even getting a little exercise!), but some of the rhetoric associated with the digital native media phenomenon has been detrimental to schools. Prensky and Tapscott portray young people as "autonomous and highly social" (Selwyn 2009); Monica Martinez (2009) discusses Tapscott's vision of students as flexible collaborators who thrive on peer-to-peer education. In schools we often see the opposite: young people who appear to be isolated and unsuccessful, conditions which sometimes seem exacerbated by technology. We see students more in need than ever of dynamic, engaging programs in support of academic progress, including instruction in the uses of technology and the interpretation of what it brings to them. We see especially the necessity of well-prepared, energetic, accessible teachers ready to provide this type of guidance, while at the same time we see funds which should be rationed in support of all these necessities funneled down the digital native chute in support of technology as a magic cure-all. Selwyn (2009) has an apt quotation from Young and Muller, "As learners cannot actually "construct" their own learning (because, in Foucault's pithy phrase, they cannot know what they do not know) the role of teachers cannot be reduced to that of guide and facilitator rather than as a source of strategies and expertise" (as cited in Selwyn, p. 379). Finally, of course, Bauerlein's point is crucial: how is a student enabled to spend 6 hours a day after school on Facebook? That comes from the family dynamic and the economic realities at home, and a school's power to remediate those realities is limited, but that's a rant for another time.

References

Association of American of Railroads. (2009). Freight railroads join midwest governors in planning for high-speed rail. Retrieved from http://www.aar.org/NewsAndEvents/PressReleases/2009/07/072709MidwestHSR.aspx

Americans for Common Cents. (2008). Americans for common cents. Retrieved from www.pennies.org

BBC News. (2009, August 24). Multi-taskers bad at multi-tasking. Retrieved from http://news.bbc.co.uk/2/hi/technology/8219212.stm

Becker, C. (2009). Student values and research: Are millennials really changing the future of reference and research? *Journal of Library Administration*, 49, 341–364.

BNET. (2008, July16). A third of Oakland students drop out, data shows. Retrieved from http://findarticles.com/p/articles/mi_qn4176/is_20080716/ai_n28064135/

Considine, D., Horton, J., & Moorman, G. (2009, March). Teaching and reading the millennial generation through media literacy. *Journal of Adolescent & Adult Literacy*, 52 (6), 471-481.

East Bay Fertility Center. (2008). Easy bay fertility center. Retrieved from: http://www.eastbayfertility.com/in-vitro-fertilization.html?gclid=CMjam8z_np0CFR5HagodditY

Friedman, Thomas. (2009, February 14). Yes, they could. So they did. *The New York Times*. Retrieved from http://www.nytimes.com/2009/02/15/opinion/15friedman.html

George, L. (2008). Dumbed down. *Maclean's*, 121(45).

Goodstein, A. (2007) *Totally Wired: What Teens and Tweens are Really Doing Online.* New York: St. Martins Griffin.

Harfoush, R. (2009). Rahaf. Message posted to http://www.rahafharfoush.com/

Librarians' Internet Index. (2009). Americans for common cents. Retrieved from http://lii.org/cs/lii/view/item/27071

Marketing Shift. (2009) Thomas friedman. Retrieved from http://www.marketingshift.com/people/entertainers/thomas-friedman.cfm

Martinez, M. (2009). Students as smart mobs. *Phi Delta Kappan*, 91 (1), 74-75.

Medical News Today (2009). Success rate of live births following in vitro fertilization. Retrieved from http://www.medicalnewstoday.com/articles/135583.php

National Partnership for Women and Families (2009). National Partnership for Women and Families. Retrieved from http://www.nationalpartnership.org/site/PageServer

New Tech Network (2009). New tech network: Powering the future of learning. Retrieved from http://www.newtechfoundation.org/

O'Connor, E. (2009, April 9). No child left offline [Review of the book *The dumbest generation: How the digital age stupefies young americans and jeopardizes our future (Or, don't trust anyone under 30),* Academic Questions, 22, 234–239

One World South Asia (2008, July). Indian schools to use new age technologies. Retrieved from http://southasia.oneworld.net/ictsfordevelopment/indian-schools-to-use-new-age-technologies

Prensky, M. (2001, October). Digital natives, digital immigrants. *On the Horizon*, 9 (5).

The Real Cost of Prisons Project. (2007). *The real cost of prisons project.* Retrieved from http://www.realcostofprisons.org/

Selwyn, N. (2009). The digital native – myth and reality. *Aslib Proceedings*, 61(4), 364-379.

Semali, L. (2002). Crossing the information highway: The web of meanings and bias in global media. *Reading Online*, 37-45.

Tapscott, D. (2008). Net geners relate to news in new ways. *Nieman Reports*, 62 (4), 18-19.

Taylor, R.S. (1968) Question-negotiation and information seeking in libraries. *College & Research Libraries, 29*, 178-194.

Tinkering Unlimited. (2009). Tinkering school. Retrieved from http://www.tinkeringschool.com/

Toshiba. (2005). Marketing intelligence brief. Retrieved from http://cdgenp01.csd.toshiba.com/content/pr/download/K-12%20MIB%20Final.pdf

APPENDIX

I. JOURNAL

August 27:
7:30
The library is open for half an hour before school. I am walking around in the shelved books area watching the kids out at the tables, mostly Latino boys, only a few of whom looked older than 15. I am watching the older group. They stay at one table. The computer lab at our library is a separate space and is not open this morning. I realize that, except for the library catalogue (which no one goes near while I'm in there), there is no school technology available to students in the library in the morning. They aren't even allowed to check out any technologically related content, like VHS tapes or CD's. There is wireless, but the kids who arrive early come on the bus, which in our district means they're poor, so they don't have laptops or itouches. Ipods etc. are not allowed at school, so, though I know many Latino students do have some type of Mp3 player, none is in evidence in the library this morning. One of the boys in the group takes out a phone—technology! He is showing the other boys pictures; they are laughing. I casually stroll by. They look at me defensively—phones are not allowed to be turned on during class, but it is before school. I smile reassuringly and keep walking while I steal a quick look at the photos. They are of a club soccer game. It's only an anecdotal observation, but almost all the students at school, of whatever income or ethnicity, seem to have some sort of cell phone. 25 minutes

1:30
I am back in the library during my prep; now the computer room is open. A US History class is booked in there, so they are all juniors. One of the students I know says the teacher showed them part of *Amistad* the last class. Today they have a sub, and they have to type 1-2 pages comparing what they had seen to the material presented in their textbook. The sub, who is talking to the computer room tech, is going to collect this assignment for points by the end of class, so even though there is a lot of loud talking, most of the kids have Word open and are typing away, occasionally looking at their open texts. I only saw one girl checking email in the row I watched. Two Latino boys next to her are puzzling over their document, which is very long and skinny, with tiny printing. They ask me for help, so I show them how to format the document and set the font size. I ask them if they remember how to save their work to their student-shared folder; they say they do. In this class I notice headphones in the ears of two students. The tech stops an Anglo girl from plugging in a flash drive. She says flash drives are now forbidden because there is such a big virus problem at school. This is the first I've heard of this. The girl has to email her copy home to herself, and she isn't happy about not being able to use her flashdrive, which, by the way, is very pink and tiny. The kids talk about how viruses come from Limewire and other illegal downloads. One kid says, "Just get a Mac!" I am on my way to a meeting. 15 minutes

September 15:

I'm going to do all my observations today. I have realized there is teen technology use scheduled in own my classroom most days.

8-9:30

I teach a reading intervention class which uses a software component in very interesting ways, but all the students are freshmen, so I realize I can't use them. Three of these Latino students stay in at break, when I let them use the computers. Two of these say they don't have computers at home; one says she does, but no Internet. Social sites are blocked at school, which these kids always complain about. Today they are saying they want to go on their MySpace to see someone's quinceanara, which I notice because hardly any of my older kids go on MySpace anymore—only Facebook. I stop observing them because they're all 14.

9:55-11:30

I will focus on the Forensics class, more than half of whom are juniors and seniors. They are preparing for a debate on September 26. I have divided the class into groups of 5 or 6. Thanks to my freshman reading intervention class, there are 8 computers available in the room. Otherwise I would have to book time in one of the two 30-seat labs available on campus, and that isn't easy. Each debate group is preparing a brief on a topic (I've attached the bills and resolutions). They searched during a previous class for reliable general information about their topic so that they could compose an informational overview/introduction for the class. Today they are creating contentions—arguments for each side—and are looking for evidence which can be cited in a debate round in support of those contentions. This class has already received preliminary instruction in judging the credibility of sources and in strategies for fruitful search. Many of the students have been in the class two or more years. They are all white, relatively affluent students. I gave them a survey at the beginning of the school year (also attached). All these students had everything on page 1, and many had everything on the entire list. I admit, I already have an opinion about students and technology, so I'm going to try really hard to be a good scientist and record what actually happens.

10:00:

Students head for the computers on a long counter in the back of the room. Some groups get two—most have to share around one. What debate groups usually do is put two people together on the computer looking for what they always call "articles". When these two find something they think is good, they send it to the wireless printer in my room and hand it out to one of the others in the group for reading and highlighting. My own laptop is currently connected to a digital projector and speakers on a table in the middle of the room. I let part of one of the groups move onto my laptop, but I don't let them take it off my table. It's connected to the Internet by a very long Ethernet cable, because there is no wireless in the classrooms, and I'm always reminding everyone to watch out for the cord.

I'm quickly reminded of one reason I like to leave my speakers plugged in: the speakers pick up the sound of cell phones sending or receiving text. Right away I hear that telltale crackle, so I have to say, "No; I hear phones. Off and away during the school day." Almost everybody takes a phone out of a pocket, turns it off, and walks over to put it in a backpack. Back to the computers.

I walk up and down and look at screens. I notice many say "Bing". I don't know what Bing is. Later I find out that Bing is now the name of Microsoft's search engine. These computers default

to MSN, so about half the students have typed their query into the first window which presented when they clicked on the "Internet" browser icon. Two students are on Yahoo. I notice they are heading for email. One says she emailed herself her overview and wants to use it for formulating her contentions. I notice they stay on Yahoo for their search after retrieving the emailed document. Everybody else has gone to Google's homepage. Google has crop circles today—I don't know why (I looked it up while retyping this and there is a lot of buzz online about it. It seems Google has had several alien themes, maybe connected to HG Wells' birthday?) I walk quickly behind the row of searchers. I see typed into the basic Google search window: "high speed rail", "death with dignity", "nuclear missiles". Items are being chosen and printed. The Death group calls me over. One of their top hits is blocked. I go to my own computer, move the kids off it, and type in my treasured override passwords, acquired finally after persistent unpleasantness from unwilling tech people. Right away students can get on the site, and I am concerned to see what it is—it could have been blocked by content and actually be a relevant site, but it could also contain disturbing or inappropriate images, so I need to check. At this moment, since all the computers are now unblocked, the high speed rail group has apparently typed in the search "trains hit cars", and the first hit is a You Tube video of trains doing that, so they want everyone to run over to see this cool video. I decide it's time to regroup. I realize later I never checked the blocked site.

I ask everyone to turn away from the monitors and take hands off the keyboard. Most do the first without doing the second. I ask again. I now remind students that even the amazing Google contains only a very small part of the information available on the Internet. I say "What did we discuss when we looked at Internet sites together? Where should you go first?" Everyone groans. They now have to log in to the Ebsco database available through the school library. They have to narrow the search, not clicking to include "videos", "biography", etc, but searching for full text articles on their subject. We have not yet discussed this year refining search terms or using the thesaurus of the database, so the high-speed rail group, which I'm watching, just moves the topic, "high speed rail" into the search window. They get lots of articles. Looking over shoulders I see that some are exclusively about Japan, and some appear to be about French trains. I point out that some of these might be very useful, but after they look through them, a search which contains "United States" might produce more closely related material. They say they will do this. Most kids are working, but there are lots of little breaks for side conversations, and I have to keep refocusing individual people.

I am looking at the articles being printed out, and what kids are doing with them. I notice that sharing computers forces us to use way more of my precious donated paper, and is also depleting the laser printer cartridge, and when that is gone it is uncertain whether I will ever receive a replacement. I ask students to be careful about what they are printing. One group leader points out that if I want everybody to be working and want this work done on a deadline, they need to hand off articles for review. I agree that he is right.

Printouts I see as I snoop: realcostofprisons.org homepage; Change.org homepage with a large heading "Autism", and a smaller heading "Hate Crimes vs. Regular Crimes and Issues of Reporting"; some California state website material for the high speed rail group; and also a printout with a photograph of a train which says Association for American Railroads at the top; Death With Dignity National Center. I also see articles printed out from various sources with no

big logos at the top and smaller printing. One I am able to look at is on euthanasia and is from the Seattle Post Intelligencer. I notice I don't see any articles with very many pages--it's sad that I'm glad this spares my paper and toner supply.

A student tells me he had sent himself a source but can't access his gmail to get it—for some reason our school server doesn't like gmail. He wants to use his iphone to retrieve the gmail to access the source. I ask him why he can't just search for the source where he found it; he says he tried. Okay. The iphone comes out and the source gets retrieved from gmail. We also are all shown how the student can feed the koi on his koi pond app by shaking the phone. I tell him to put it away and make a note to get the koi pond app for myself. People now seem to feel they have enough material and are sitting in circles to discuss their contentions and organizing their evidence. About an hour has gone by. I walk along and look at the monitors, most of which are still logged in. None are on a database article.

Now the students are making arrangements to get the briefs done before next class. I set them up a google doc so they would have a shared workspace. Some students say they never received the invitation. One girl says her parents don't allow her to have a google account because of all the spam it brings in. There is a quick consensus among them that the google doc is too much work; they're just going to email their contentions to the lead student to cut and paste. Lunch bell.

II. Tech Survey—Hansen

NAME:_____ CLASS:_____

At your home, do you usually have:

- A computer?

  YES NO

- Word Processing [Like WORD]

  YES NO

- Internet?

  YES NO

- A printer?

  YES NO

- DVD player [even if just in the computer]

  YES NO

- Ipod or MP3 player?

  YES NO

- Flash drive?

  YES NO

- [Flash drive at school?]

  YES NO

- Personal cell phone?

  YES NO

- Facebook Account?

  YES NO

- Skype or other on-line phone/video

  YES NO

Video or sound editing capacity [beyond garageband/imovie]?

YES NO

Experience with webpage construction?

YES NO

An avatar in Second Life or in an online RPG?

YES NO

Any other significant resources I want to know about?

YES NO

If yes, list:

III. Congress 1, 2009 Legislation

A Resolution to End Pursuit of the European Missile Defense Network

1. Whereas, the perceived détente between the United States and Russia has been an increasingly uphill battle in
2. recent years, and
3. Whereas, Russia has offered to diplomatically resolve the issue with the new Obama administration, and
4. Whereas, the missile defense network hasn't even been proven to be an effective means of protecting the
5. United States and the other North Atlantic Treaty Organization countries, and
6. Whereas, there is a plethora of diplomatic options that the NATO nations could pursue to solve the issues of
7. national security, therefore,
8. Be It Resolved by the Student Congress here assembled that: the United States end its pursuit of the European
9. Missile Defense Network.

A Bill to Allow Death with Dignity in California

1. Be It Enacted by the Student Congress here assembled that:
2. Section 1. a capable adult California resident who has been diagnosed by a physician with a terminal illness that
3. will kill them within six months may request in writing, from his or her physician, a prescription for a lethal dose
4. of medication for the purpose of ending his or her life.
5. Section 2. Use of this law is voluntary and the patient must initiate the request. Any physician, pharmacist or
6. healthcare provider opposed on moral grounds does not have to participate.
7. Section 3. The request must be confirmed by two witnesses, one of whom cannot be related to the patient, be
8. entitled to any portion of the patient's estate, be the patient's physician, or be employed by a health care facility
9. caring for the patient. After the request is made, another physician must examine the patient's medical records
10. and confirm the diagnosis.

11. Section 4. The patient must be determined to not suffer from a mental condition impairing judgment. If the
12. request is authorized, the patient must wait at least fifteen days and make a second oral request before the
13. prescription may be written. The patient has a right to rescind the request at any time. Should either physician
14. have concerns about the patient's ability to make an informed decision, or feel the patient's request may be
15. motivated by depression or coercion, the patient must be referred for a psychological evaluation.
16. Section 5. Participation by physicians, pharmacists, and health care providers is voluntary.
17. Section 6. a patient's decision to end his or her life shall not "have an effect upon a life, health, or accident
18. insurance or annuity policy."
19. Section 7. This bill will be enacted directly after its passage.

A Resolution to Expand the High Speed Rail System

1. Whereas, 1.2 million Americans lose their lives, and tens of millions of other are injured or disabled due to
2. transportation accidents, and
3. Whereas, the average traveler is delayed on highways approximately 17 hours per week, and
4. Whereas, America's reliance on transportation correlates with our oil dependence, and
5. Whereas, greenhouse gases and pollution are causing significant health problems, and
6. Whereas, 58% of the nations roadways today are experiencing significant traffic congestion, therefore,
7. Be It Resolved by the Student Congress here assembled that: the United States Federal Government financially
8. support alternative means of transportation by expanding the construction of a high-speed rail system across
9. the country.

A Resolution to Regulate In Vitro Fertilization

1. Whereas, fertility physicians who perform in vitro fertilization (IVF) make decisions which affect unborn children,
2. parents, and taxpayers, and
3. Whereas, the incidence of high-order multiple gestations has increased dramatically over the past 15 years due
4. to technology such as IVF, and

5. Whereas, multiple births can be physically and psychologically harmful to the mothers and expensive to
6. taxpayers, and
7. Whereas, guidelines for IVF have been established by the American Society for Reproductive Medicine (ASRM),
8. therefore,
9. Be It Resolved by the Student Congress here assembled: require fertility physicians to follow the guidelines
10. established by the ASRM, and,
11. Be It Further Resolved that: physicians who choose not to follow the guidelines will be subject to review and
12. possible sanctions.

A Bill to Abolish Hate Crime Enhancements

1. Be It Enacted by the Student Congress here assembled that:
2. Section 1. All Federal hate crime enhancements currently in place will be rescinded upon
3. passage of this legislation.
4. Section 2. Any person currently convicted with a Federal hate crime enhancement as part of
5. their sentence shall serve out their complete sentence.
6. Section 3. The Department of Justice will oversee enforcement.
7. Section 4. No funding is necessary.
8. Section 5. This bill will be enacted directly after its passage.