



2012 HAWAII UNIVERSITY INTERNATIONAL CONFERENCES
EDUCATION, MATH & ENGINEERING TECHNOLOGY
JULY 31ST TO AUGUST 2ND
WAIKIKI BEACH MARRIOTT RESORT & SPA
HONOLULU, HAWAII

TECHNOLOGY AND EDUCATION: ARE WE TEACHERS, COMMODITIES OR VISIONAIRES?

RILEY MAYNARD, PH.D.

DEPARTMENT OF MASS COMMUNICATIONS

SOUTHERN ILLINOIS UNIVERSITY EDWARDSVILLE

Technology and Education: Are We Teachers, Commodities or Visionaries?

Two similar events have occurred recently in Florida and Idaho that have raised eyebrows and concerns in political, educational and technological communities. In October of 2011, Florida Governor Rick Scott told a radio interviewer that the state doesn't need "a lot more anthropologists..."¹ He elaborated about the types of people and degrees he was seeking. "I want to spend our money getting people science, technology, engineering and math degrees."² He doesn't want STEM enough to spend more money on education. He is not increasing funding levels which have been slashed dramatically in his tenure as governor. Some areas of learning are going to suffer and one doesn't need to be a rocket scientist to predict the cuts will come in liberal arts.

Anthropologists cannot seek a welcoming environment in Idaho. An even more ominous tone was set by Idaho schools Superintendent Tom Luna's reform plan. By 2015 Luna would give every high school student a laptop computer and pay for this largesse by increasing class sizes and eliminating 770 teaching jobs over the next two years. He thinks education will improve through the "miracles of technology."³ If this risky move improves education, it will truly be a miracle. One recent study looked at 319 public schools in Peru and found that after 15 months, students who were given laptops scored about the same on math and language assessments as their counterparts who did not get the computers. "Furthermore, the laptop program did not affect attendance, time allocated to school activities or quality of instruction in class."⁴ There was no increase in reading habits even though the laptops came loaded with 200 books. Microsoft founder Bill Gates recently stated, "Just giving people devices has a horrible track record."⁵

Scott and Luna are certainly not the only public figures who are rushing to the lure of computerized learning like charging bulls going after tempting cows. If they have to crash through some human china shops, they are not deterred by this collateral damage. Our society as a whole seems unconcerned with the larger picture. No educational discipline exists in a vacuum, unaffected by human values or without impacting humanity as a whole.

There are questions that are begging for answers: (1) Are we graduating robots or citizens? (2) Do we educators exist for the sole benefit of providing businesses with human cogs for their technical needs? (3) What, or who, is waiting for these graduates when they go home after a day of miraculous technological activity? Will it be the barren conditions of China's technicians, or will there be family, sentient human beings in a warm environment? (4) Can we infuse technology with human and humane values?

Before any techno-geeks get their circuitry overloaded, they should know this: my career has been built on the twin buttresses of technology and education. My credentials would be an object of envy by many microchip wranglers. I began working in mass communications in 1969 as a journalist. I have worked in commercial TV and radio, public TV and radio, cable TV,

feature films, advertising and corporate communications. I have professional, paid experience as a producer, director, writer, performer, technical director, editor and web page designer, all involving serious gadgetry. When someone tells me their YouTube posting got 1,000 hits, I can reply that some of my work got 20,000,000 hits. Few professions are more reliant on technology and fewer still face a more dizzying pace of change. Before we can order new pieces of equipment – or, as we call them, toys - and get them delivered, two more models have been invented, improved, made bigger or smaller and gone on the market.

As an educator, I have been teaching on a college level since 1978. I have worked at four universities in the U.S. and one in Europe as a Fulbright Scholar. I have co-authored a college textbook on television production, in addition to writing book chapters, professional articles and academic journal publications. Nearly all of them involved the use of technology or its processes and effects.

As a journalist and educator, I have been trained to be objective and reflective. To illustrate my points, I will use my favorite movie - *2001: A Space Odyssey*. Stanley Kubrick's depictions of technology have been categorized by critics as soulless, even violent. It is also no great stretch to call our society's fondness for technology as a quasi-religious obsession. People line up to get the latest toys, even sleeping on sidewalks for days to be the first to buy a new iPhone. The commercials for these gadgets bring to mind HAL 9000 from *2001*. When John Malkovich talks to his phone, its image is similar to the unblinking eye of HAL. Turn the phone around and its grayish rectangle is reminiscent of the monolith from the same movie. Like HAL, the iPhone is capable of passing judgments on your questions and comments. An acquaintance of mine asked her phone, "Are you God?" It replied, "This is about you, not me." Journalists would say that any answer to that question other than no means yes. But no matter how smart computers may be, no matter how many "Jeopardy" contests they may win, they are still classified as AI, artificial intelligence. As an educator, I ponder such aspects as this – if it is artificial, is it not ultimately hollow in its core? Can its judgments be infallible? Of course not, but this seems to be of little concern to our educational system at all levels. We can't shove tablets at our students fast enough. I have often thought we should rename our college as Software U.

I was the first professor in my department to use a personal computer. I was the first to have one in my office and the first to use them in my classes on a large scale. But this computerization came at a cost that was not all financial. Whereas before faculty, staff and students had roamed the hallways, having extended, intellectual conversations inside and outside our buildings, suddenly these gatherings began to disappear. Instead you could walk around campus and see professors hunched over their keyboards, tapping endlessly. Now with laptops, tablets and cell phones, you can see large groups of people side by side who are not talking to each other but to someone else, somewhere. Perhaps they are talking to no one, just to HAL.

We are cocooned in our own little worlds, not really communicating as human beings but rather escaping our surroundings to play violent video games or wander aimlessly across the internet. As people walk from class, dozens of them will have phones plastered to their ears, possibly catching up on such important matters as the latest escapades of the Kardashians. Is there a professor anywhere who can actually prevent students from surreptitiously tapping away on their phones during class, turbo-texting their minds into another portal, no matter the importance of the course content or its impacts on their pasts, presents or futures?

Another of Kubrick's recurring themes was humanity's failure to communicate, or even to miscommunicate. When the first group of astronauts went to the moon to see the monolith, they gave out a phony story to cover up their real lack of knowledge. They communicated with misinformation. When the astronaut phoned home to talk to his wife, he instead got his daughter, thus frustrating his real purpose of communicating. Later in the film, as the other astronauts on the spaceship communicated with their families, the communication was blocked by time so as to become one way talking instead of an instant exchange of information. This is becoming more and more widespread in our culture. For the first time in my life as a professional communicator, I am overwhelmed with information. In spite of my best efforts, I am inundated with publicists' content about Lindsay Lohan or Britney Spears. We could have a two hour conversation right now about these matters, regardless of our willingness to know anything about these people. You cannot swing a dead cat in any direction without hitting a celebrity journalist, a truly paradoxical term. Not only do paparazzi abound, we have all become purveyors of gossip by our constant exchange of data about the most banal aspects of our lives. Worst of all, cell phone cameras have broken down the last walls of privacy. If you do swing a dead cat, someone will video you doing it and you will be tagged on Facebook and earn the ire of PETA and overly sensitive dead cat people around the world. We have become our own Big Brother, constantly spying and recording all our acts. This can only have a chilling effect on human interaction as we must furtively look around for cameras watching our formerly private moments. Even worse, these phones can act as GPS devices and we can be tracked 24-7, 365.

This publicizing of private acts can quickly spread across the media and end up on TV and radio. Both these media have long been ruled by technology in a never ending struggle to upgrade and downsize. With the deregulation of broadcasting in 1996, companies like Clear Channel bought up more than 1,000 radio stations. Employees were laid off by the thousands as more programming was produced by fewer people and spread by satellite or hard drives. Tom Dehner, a veteran of more than 30 years in radio news in the Midwest, decries this soul-robbing impact: "Radio was a medium of intimacy. Now it's all assembly line and it sounds like it should be played in an elevator."⁶ Television was a team effort for 50 years but it, too, has been victimized by its headlong rush to embrace any and all forms of technology. A typical newscast involved four anchors, three camera operators and a floor director in the studio. The control room was staffed by a producer, director, technical director, audio technician, teleprompter

operator and a graphics operator. All these people worked at a feverish pace to produce, change, reproduce and improvise as events and content changed on a second-by-second basis. This has all devolved until there are only the anchors in the studio and two people in the control room trying to do the jobs of departed colleagues. Everything is pre-loaded into computers and clicked in descending order – until something goes wrong. One mistake and the entire newscast is thrown off schedule. One or two people are suddenly thrust into an impossible situation of multi-tasking on top of multi-tasking. The field reporters have become diminished to one man band status. All these reductions in personnel and salaries have resulted in a product this is lower in quality and more subject to the editorial influences of ownership. Think in terms of Rupert Murdoch or Sinclair Broadcasting. Both have been documented in their heavy-handed attempts to send orders down from the top levels into the newsrooms. The journalists are also being crushed from the bottom up as more and more individuals make their presence felt with e-mails, texts, tweets and Facebook postings. Their opinions crawl across the screen, frequently displaying a lack of knowledge, grammar and spelling.

Yet with this omnipresence of media like Facebook and Twitter we still struggle with our identities as human beings. The May 2012 cover story for the Atlantic magazine asks, “Is Facebook Making Us Lonely?” It begins by telling the story of a former celebrity, Yvette Vickers, a former Playboy playmate and a co-star of the 1950s movie, *Attack of the 50 Foot Woman*. She was found dead in her home, sitting at her computer. No one knows when she died but her corpse had become mummified. News of her death went viral and within weeks she “was the subject of 16,057 Facebook posts and 881 tweets.”⁷ She had no children, no immediate family or real friends, only the morbid curiosity of internet acquaintances. Her computer was on when she died but she had no connection to human beings. This type of friendship suggests a breadth in relationships but no depth. We know more people but we do not interact with them on a face to face basis, thus depriving us of the human elements.

My final gripe with technological overkill is in the arena of political campaigns. We have become a nation of endless electioneering with no real respite in between the actual voting processes. If there is a positive aspect – and this requires some convoluted reasoning – it is the financial impact upon our national economy. The January/February 2012 edition of the Atlantic broke down the spending into various categories. By far the largest chunk of money - \$435 million – involved advertising. The next largest amount was \$65 million for staff. Political advertising consumes over six times as much money as any single category and nearly twice as much as all the other spending combined. The convolution results from answers to simple questions. Does anyone enjoy watching these ads? Is this the best way to choose our leaders? In the last few frantic days before the elections, doesn't everyone actually dread hearing the negative trickery of attack ads recycling on an almost endless basis? Does this form of communications, television commercials, create a bond between candidates and voters? Or does it foster mistrust and cynicism?

My questions are posed mostly in yes or no forms but there are deeper, more involved questions lurking for technological educators. A fellow academician, C. A. Bowers, asked them in a prescient article for the NEA Higher Education Journal in 1998. Like the Huffington Post, I am not plagiarizing his material, I am aggregating it. He reminded us that there are previous examples where experts, rather than citizens, framed how issues were to be understood. They were the nuclear power technology, the technology of genetic engineering and now the creation of virtual universities. He also asserted that computer technology is not neutral but rather a Western technology that had its origins in the Industrial Revolution. That transformation combined science, new technologies, and economic and social theory into commodities subject to the laws of supply and demand. “This trend of turning skills, relationships, knowledge, and leisure into commodities continues.”⁸ Even our food supply, plants and animals, are being redesigned for economic gain.

“In education, computers commodify thoughts and communication.”⁹ Academic institutions, their libraries, their professors and their students will need endless upgrades to feed the industry’s need to increase its share of the market. Apple Computers is now the largest, most profitable business in the world, but other firms are at or near this level. Facebook, Google, Microsoft and others vie for positions at the billionaires’ table, while our schools furnish them with sustainable, replaceable labor. Bowers pointed out the toxicity of computer materials and questions if this is an ecologically sound basis to rule other countries around the world. We technological educators must ask ourselves, our administrations, our political leaders and our students if they are aware of the continuing costs – human and financial – that this system requires. The issue of social justice has become more related and more apparent by the Arab Spring, the Eurozone financial crisis and the Occupy Movements. These are not yes and no questions but deep, philosophical considerations that we must confront and answer on national and international bases. To let them be decided by commodification, supply and demand and profit margins is unconscionable.

Bowers had a vision of a different type of technological education. He suggested universities provide more of a historical, cultural and ecological background for students. I propose that we add these courses at an earlier level for students in elementary, middle and high schools. This would include classes in ethics, philosophy and, yes, Governor Scott, anthropology. Apple cofounder Stephen Jobs was known for completing his product introductions by saying his inventions met at the intersections of Technology Street and Liberal Arts Street. Such a meeting point could help society to be able to balance the price of technological pursuit with the humane requirements it entails for a successfully balanced civilization.

2001 Director Stanley Kubrick relayed the tale of the ultimate computer and the queries it could answer. Scientists pondered for a question to ask it that would provide the ultimate

answer. Finally they asked, “Is there a God?” The machine whirred, lights flashed and it replied, “There is now.”

My fellow techno-geeks, we have the duty, the responsibility, the power, the knowledge, the right and the choice not only to ask these questions, but to shape the answers in a manner that benefits all humanity and not just a self-appointed few. It’s not about them, it’s about us.

The most maddening aspect of all these technological and educational changes is that policies are being shaped at all levels with no input from teachers. At the same time that we are being asked to do more with less, and while adjunct professors now represent the majority of academic hires, we are simultaneously being vilified and quantified. In his biography, Stephen Jobs spoke of having dinner with President Obama. “Jobs also attacked America’s education system, saying that it was hopelessly antiquated and *crippled by union work rules.*”¹⁰ (italics mine) The facts contradict this assertion. The three states with the highest test scores and best educational systems are all union states.

Bill Gates suggested that incentives should “...go into the completion rates, the *quality of the employees* that get generated by the learning experience.”¹¹ (italics mine) Is that all there is to education, the quality of the employees that get generated? Is that too narrow a focus? Gates also mentions completion rates. Should it surprise anyone that these wrong-minded remarks emanate from two college dropouts? One of my favorite writers is Bill McClellan from the St. Louis Post-Dispatch. He flunked out of two different colleges, thus singlehandedly matching the total of Jobs and Gates. He completely disagrees with the completion rates equations, or as it is being called, performance funding. This idea is being advanced by the National Conference of State Legislatures. That should be enough to scare anyone. If we reward colleges for high retention and graduation rates, we will get an increase in those rates. We will also get a decrease in standards and devalue public education. Students will quickly learn that they can get by with less effort but still get a diploma. We can also minimize the amount of computers by having students drive up to an ATM, put in a credit card and receive a diploma. We would increase the amount of printers.

Jobs went on to suggest a group of CEOs who “...could really explain the innovation challenges facing America...”¹² This omniscient group consisted of executives from Google, Facebook, Cisco, Oracle, Genentech, Netflix and Yahoo. Yahoos, indeed. To balance this equation, should not professors convene to design hardware and write software code for all these companies? We’ll do it for half the money these self-appointed academicians are paid. Speaking of pay levels, what exactly are Chinese workers being paid to produce Apple products? Is the company crippled by union work rules, or are the workers being mentally and physically damaged by their working conditions? Weren’t such barbaric practices outlawed in this country

a century ago? Is this the model for the virtual classroom of the future or is reminiscent of the sweat shops of yesteryear?

Let us not disparage Gates and Jobs and the other digerati, let us give them a chance to earn praise. There are ways in which they can help American education. First, in terms of higher education, they should acknowledge what is being stated by experts across the land, such as the President of the University of Connecticut, Susan Herbst, who said, “Higher Education and research are not broken. I do not think they need some fundamental and profound change.”¹⁴ Few, if any, institutions have served America so well as our colleges. Realize that virtual learning is good for some people, but not everybody. My wife is getting her master’s degree on line. The system is a good one for disciplined, dedicated students who may have full time careers but lack the time or money to commute to a campus. Younger, teenaged students need more attention and immediate supervision. They also need the college experience: being around other people their age and enjoying the energy and maturity that comes with being on campus.

Secondly, both Gates and Jobs agreed during a meeting that computers had, so far, made surprisingly little impact on schools. This does not surprise me. People who have tried learning by computer instruction and manuals have quickly discovered the futility of such efforts. The writing is obtuse and the coordination with subject matter is very frustrating. There needs to be a human element more closely involved in the process – teachers. Companies such as Apple, Google, YouTube and others can provide vital elements that they possess in great abundance: money and technology.

All of them are multibillion dollar businesses who have made enormous fortunes from the educational systems. Microsoft has been a leader in providing philanthropic help to education and the other companies can learn from their examples. Right now too many of these businesses have given money to too few schools. Spread the money and equipment around. Devise algorithms that will make assistance more equitable.

Unlike Bill Gates, Steve Jobs left educational efforts up to his wife and concentrated his thoughts on what he called the destruction of the textbook industry. This could actually do more harm than good. Think of Ray Bradbury and Fahrenheit 451. No textbook author wants to spend years writing a digital book, only to have his efforts copied and stolen. This may be workable for Google and Wikipedia, but not for authors and producers. Copyright laws and remuneration can be easily solved if the technology industry chooses to do so. They can make an app for it.

Such books and materials should be produced by the people who do it best – authors, producers and educators. There have been discussions and examples of flipping the classroom. Let students get lectures and other instruction online and use class time for discussion and application. Some of this work has been exemplary. Some of it has been awful. Think of educational television in the 1960s, another so-called technological revolution that was going to

change the academic world. Boring lectures do not make good television. Good instructional television is like any other form of good television. It requires lots of planning, time, people and money. Think of Sesame Street, which has an annual budget of around \$30 million.

For the K-12 systems, the largesse should not be restricted to just computers. Give the school systems money that should be earmarked specifically for classroom use. This can buy software but it can also be used for salaries for science, technology and math instructors. It can even buy school uniforms, lunches, building repairs and scholarships. The entire learning process needs help desperately throughout our country and state and local governments cannot and will not provide the funding. When our schools are unfavorably compared to other countries around the world, we do not compare funding models. Few, if any, other countries rely solely on property taxes to fund education. We can learn from their economic models but in the meantime we need help from the companies that will reap huge rewards from having students trained on their hardware and software.

If the personnel from these companies want to be more directly involved, they should travel to schools and give guest lectures. One or two lectures per school per year would be invaluable. Put on the dazzling presentations for which Steve Jobs was famous. Let the students see the present and the future. For a small time commitment, these people can do a lot to enhance the educational processes for students, staff and faculty. Don't just do it in Silicon Valley or the rich suburbs of large cities. Travel to the small towns and inner cities. Those schools need help the most.

We educators have provided the digerati with money and employees that have made these companies richer than King Midas. It is their turn to repay these efforts. Don't just build houses as big as Seattle or yachts the size of the Queen Mary. Instead help to construct a sustainable, ecological future that will ensure the continuation of a strong future for American education and the entire world community.

End Notes

- 1."Scott: Florida Doesn't Need More Anthropology," Tampa Bay Times, October 10, 2011.
2. Ibid.
3. Walker, Tim, "Laptops Are Not Teachers," NEA Today, April 4, 2011.
4. Kessler, Sarah, "2.5 Million Laptops Later, One Laptop Per Child Doesn't Improve Math Scores," Ubiquitous Learning Journal, May, 2012.

5. Young, Jeffrey, "A Conversation with Bill Gates on Higher Education's Future," The Chronicle of Higher Learning, July 6, 2012.
6. Dehner, Tom, personal interview, May 13, 2012.
7. Marche, Stephen, "Is Facebook Making Us Lonely?" the Atlantic, May 2012.
8. Bowers, C. A. , "The Paradox of Technology: What's Gained and Lost?" NEA Higher Education Journal, Spring, 1998.
9. Ibid
10. Isaacson, Walter, Steve Jobs, Simon and Schuster, New York, 2011, p. 344.
11. Young, Chronicle.
12. Isaacson, Jobs.
13. Ibid
14. Mole, Beth, "Bucking the Bad Economy, A Few Universities Will Hire Hundreds of Faculty," The Chronicle of Higher Education, July 6, 2012.

Other Works Cited

- Allan, Nicole, "Campaign Inc: How A Presidential Election Boosts the Economy," the Atlantic, January/February 2012.
- "Interview with Stanley Kubrick," Playboy magazine, in The Making of Kubrick's 2001, edited by Jerome Agel, New York, New American Library, 1970.
- McClellan, Bill, "Campus Funding 'Fix' Gets An 'F' in My Book," St. Louis Post-Dispatch, April 18, 2012.